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THE WORLD BANK

Washington, D.C.

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The World Bank

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Washington DC 20433

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Loan 577-AR Argentina
El Chocon Power Project



30069263

Argentina - El Chocon Power Project R1985-116 Other #. 2 Box #3423B

DECLASSIFIED
WBG Archives

October 29, 1979

Dr. Soegito Sosromidjojo
Director General of External
Monetary Affairs
Jl. Lapangan Benteng Timur 2
Jakarta, Indonesia

Dear Dr. Sosromidjojo:

Re: Project Performance Audit Report on Indonesia
First Fisheries Project (Credit 211-IND)

The Operations Evaluation Department is an independently constituted unit within the World Bank Group. The functions of the Department include a review, shortly after completion of loan/credit disbursements, of the experience and results of all projects assisted by the Bank and the International Development Association. These performance audits are intended to evaluate the extent of achievement of project objectives, reasons for shortfalls or outstanding achievements, and the general effectiveness of the World Bank support for the lending operation. The audit focuses particularly on what the organization can learn from past experience.

I attach a copy of the first draft of the project performance audit report on the Indonesia First Fisheries Project, supported by Credit 211-IND of 1970. I would appreciate receiving any comments that you may have on the draft by December 3, 1979, so that we can take them into consideration in formulating our final conclusions before distributing the report to the Bank's Executive Directors.

We consider your views and comments as of crucial importance to reaching balanced conclusions concerning this project experience. In addition to reflecting them in the conclusions of the performance audit, we also propose to fully reproduce your views and comments in the final report. Should you find the present draft of this project performance audit report satisfactory and have no comments to make, I shall be grateful if you can inform me accordingly, preferably by cable. A copy of the final report, as distributed to the Executive Directors, will be sent to you for your information.

OFFICIAL FILE COPY

Dr. Soegito Sosromidjojo

- 2 -

October 29, 1979

I am also sending a copy of the present draft report to the Chairman and the Deputy for Economic Affairs at Bappenas, the Ministers of Finance and Agriculture, the Director General of Fisheries, the President Director of P.N. Perikani Sulutteng and Governor Willy Lasut for their comments.

May I take this opportunity to thank you for the kind help extended by you and your staff to Mr. Doyle on his visit regarding this audit.

Sincerely,

Shiv S. Kapur
Director
Operations Evaluation Department

Attachment

HK/3MM:clf

October 29, 1979

Prof. Dr. Ir. Toyib Hadiwijaya
Minister of Agriculture
Jl. Taman Cut Mutiah 11
Jakarta, Indonesia

Dear Mr. Minister:

Re: Project Performance Audit Report on Indonesia
First Fisheries Project (Credit 211-IND)

The Operations Evaluation Department is an independently constituted unit within the World Bank Group. The functions of the Department include a review, shortly after completion of loan/credit disbursements, of the experience and results of all projects assisted by the Bank and the International Development Association. These performance audits are intended to evaluate the extent of achievement of project objectives, reasons for shortfalls or outstanding achievements, and the general effectiveness of the World Bank support for the lending operation. The audit focuses particularly on what the organization can learn from past experience.

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Prof. Dr. Ir. Toyib Hadiwijaya

- 2 -

October 29, 1979

I am also sending a copy of the present draft report to the Chairman and the Deputy for Economic Affairs at Bappenas, the Minister of Finance, the President Director of P.N. Perikani Sulutteng, the Director Generals of Fisheries and External Monetary Affairs and Governor Willy Lasut for their comments.

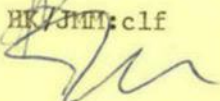
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Sincerely,

Shiv S. Kapur
Director
Operations Evaluation Department

Attachment

HK/JMM:clf



OFFICIAL FILE COPY

October 29, 1979

Governor Willy Lasut
Jl. Sam Ratulangi
Manado, North Sulawesi
Indonesia

Dear Mr. Governor:

Re: Project Performance Audit Report on Indonesia
First Fisheries Project (Credit 211-IND)

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Sincerely,

Shiv S. Kapur
Director
Operations Evaluation Department

Attachment

HK/JMM:clf



OFFICIAL FILE COPY

October 29, 1979

Major Sigit
President Director
P.N. Perikani Sulutteng
Aer Tembaga, Bitung
Jakarta, Indonesia

Dear Major Sigit:

Re: Project Performance Audit Report on Indonesia
First Fisheries Project (Credit 211-IND)

The Operations Evaluation Department is an independently constituted unit within the World Bank Group. The functions of the Department include a review, shortly after completion of loan/credit disbursements, of the experience and results of all projects assisted by the Bank and the International Development Association. These performance audits are intended to evaluate the extent of achievement of project objectives, reasons for shortfalls or outstanding achievements, and the general effectiveness of the World Bank support for the lending operation. The audit focuses particularly on what the organization can learn from past experience.

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Major Sigit

- 2 -

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Sincerely,

Shiv S. Kapur
Director
Operations Evaluation Department

Attachment

HK/JMM:c1f

OFFICIAL FILE COPY

October 29, 1979

Admiral Iman Sardjono
Director General of Fisheries
Jl. Salemba Raya 16
Jakarta, Indonesia

Dear Admiral Sardjono:

Re: Project Performance Audit Report on Indonesia
First Fisheries Project (Credit 211-IND)

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Sincerely,

Shiv S. Kapur
Director
Operations Evaluation Department

Attachment

cc: Mr. Azraai Zain, Executive Director

HK/JMM:olf



OFFICIAL FILE COPY

October 29, 1979

Prof. Dr. Widjojo Nitisaastro
Chairman, BAPPENAS
Jl. Taman Surooati 2
Jakarta, Indonesia

Dear Dr. Nitisaastro:

Re: Project Performance Audit Report on Indonesia
First Fisheries Project (Credit 211-IND)

The Operations Evaluation Department is an independently constituted unit within the World Bank Group. The functions of the Department include a review, shortly after completion of loan/credit disbursements, of the experience and results of all projects assisted by the Bank and the International Development Association. These performance audits are intended to evaluate the extent of achievement of project objectives, reasons for shortfalls or outstanding achievements, and the general effectiveness of the World Bank support for the lending operation. The audit focuses particularly on what the organization can learn from past experience.

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Prof. Dr. Widjojo Nitisastro

- 2 -

October 29, 1979

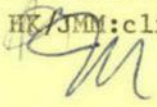
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Sincerely,

Shiv S. Kapur
Director
Operations Evaluation Department

Attachment
HK/JMM:clf

A handwritten signature in blue ink, appearing to be 'SM' or similar, is written over the typed text 'HK/JMM:clf'.

OFFICIAL FILE COPY

Monsieur S. B. Botoni
Directeur de l'ORD de la Boucle
de la Volta Noire
Boite Postale 14
Dedougou
Haute-Volta

26 septembre 1979

Monsieur le Directeur,

Objet: Rapport d'évaluation rétrospective sur le
Projet Coton Haute-Volta - Crédit 225-UV

Le Département de l'évaluation rétrospective des opérations est un service indépendant établi au sein du Groupe de la Banque et chargé d'étudier, peu de temps après le dernier décaissement au titre d'un prêt ou d'un crédit, l'exécution et les résultats de tout projet ayant bénéficié du financement de la Banque ou de l'Association internationale de développement. Le but de ces évaluations rétrospectives est d'évaluer la mesure dans laquelle les objectifs du projet ont été atteints, de répertorier les cas d'échec ou de réussite marquante et de juger de l'efficacité générale du soutien apporté par la Banque mondiale dans le cadre de l'opération de prêt. L'évaluation rétrospective vise en particulier à dégager les enseignements que l'organisation peut tirer de l'expérience acquise.

Vous trouverez, ci-joint, une première version du rapport d'évaluation rétrospective du projet Coton Haute-Volta, qui a fait l'objet du Crédit 225-UV en 1970. Je vous serais très obligé de me faire parvenir vos observations éventuelles sur ce rapport d'ici au 7 novembre 1979 afin que nous puissions en tenir compte lors de la rédaction du rapport définitif qui sera distribué aux Administrateurs de la Banque.

Votre point de vue ainsi que vos observations nous sont indispensables pour nous permettre de porter un jugement objectif sur la réalisation de ce projet. Nous ne manquerons pas d'en faire état dans les conclusions de l'évaluation rétrospective et nous nous proposons également de les reproduire in extenso dans le rapport final. Si vous jugez que le projet de rapport est satisfaisant et qu'il n'appelle aucune observation de votre part, je vous saurais gré de me le faire savoir, de préférence par télégramme. Un exemplaire du rapport définitif, tel qu'il sera distribué aux Administrateurs vous sera adressé pour information.

J'envoie également par le même courrier un exemplaire du rapport à Monsieur Senogoh, Ministre du Plan, à Monsieur Pale Welte Issa, Ministre du Développement rural, à Monsieur Tatieta, Directeur de l'ORD (Hauts-Bassins) et à Monsieur Hien, Directeur du Bureau Administratif et financier, P.D.A.O.V.

Je vous prie de croire, Monsieur le Directeur, à l'assurance de mes sentiments très distingués.

Shiv S. Kapur
Directeur
Département de l'évaluation
rétrospective des opérations

Pièce jointe

HKordik:rak

Son Excellence M. Pale Welte Issa
Ministre du Développement rural
Ministère du Développement rural
Ouagadougou
Haute-Volta

26 septembre 1979

Monsieur le Ministre,

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Je vous prie de croire, Monsieur le Ministre, à l'assurance de ma haute considération.

Shiv S. Kapur
Directeur
Département de l'évaluation
rétrospective des opérations

Pièce jointe

HKordik:rak

Monsieur N. R. Hien
Directeur du Bureau Administratif et
financier
P. D. A. O. V.
Boite Postale 819
Bobo-Dioulasso
Haute-Volta

26 septembre 1979

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Shiv S. Kapur
Directeur
Département de l'évaluation
rétrospective des opérations

Pièce jointe

 HKordik:rak

March 18, 1977

General Soehardjono
Director General of Posts and Telecommunications
Jalan Kebonsirih No. 37
Jakarta
Indonesia

Dear General Soehardjono:

Re: Project Performance Audit Report on Indonesia - First
Telecommunications Project (Credit 210-IND)

As an independent evaluation department within the structure of the World Bank Group, we have been instructed to prepare performance audits for all projects assisted by the Bank shortly after the completion of loan disbursements. The purpose of these performance audits, based wherever possible on the Bank's internal Project Completion Reports, is to evaluate the extent of achievement of the project objectives stated in the lending documents as well as the general effectiveness and efficiency of the Bank in connection with the lending operation, focussing primarily on what the organization can learn from past experience.

Further to the visit of Mr. Shenoi in November, I attach a copy of the first draft of the Project Performance Audit Report on Indonesia: First Telecommunications Project, supported by Credit 210. I would appreciate receiving any comments that you may have on this draft by April 20, 1977 so that we can take them into consideration before sending the final version of this report to the Bank's Executive Directors.

I am also sending a copy of this report to the Minister of Communications and to the Minister of Finance for their comments.

Yours sincerely,

Shiv S. Kapur
Director
Operations Evaluation Department

Attachment

cc: Mr. T. Khutrakul, Executive Director

TPereira:cmn

March 18, 1977

Dr. Ali Wardhana
Minister of Finance
Government of Indonesia
Jl. Lapangan Banteng Timur 2
Jakarta, Indonesia

Dear Dr. Wardhana:

Re: Project Performance Audit Report on Indonesia - First
Telecommunications Project (Credit 210-IND)

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Shiv S. Kapur
Director
Operations Evaluation Department

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cc: Mr. T. Khutrakul, Executive Director

TPereira:cmn

October 29, 1979

Dr. Saleh Afiff
Deputy for Economic Affairs
BAPPENAS
Jl. Taman Surooati 2
Jakarta, Indonesia

Dear Dr. Afiff:

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First Fisheries Project (Credit 211-IND)

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OFFICIAL FILE COPY

Dr. Saleh Afiff

- 2 -

October 29, 1979

I am also sending a copy of the present draft report to the Chairman of Bappenas, the Ministers of Agriculture and Finance, the Director Generals of Fisheries and External Monetary Affairs, the President Director of P.N. Perikani Sulutteng and Governor Willy Lasut for their comments.

May I take this opportunity to thank you for the kind help extended by you and your staff to Mr. Doyle on his visit regarding this audit.

Sincerely,

Shiv S. Kapur
Director
Operations Evaluation Department

Attachment

HK/JMM:clf



OFFICIAL FILE COPY

June 22, 1981

Mr. Tunc Bilget
Director General of the Treasury
18, Mitatpasha Caddesi
Ankara
Turkey

Dear Mr. Bilget:

Re: Project Performance Audit Report on Turkey: Keban Transmission
Project (Loan 568-TU) and TEK Power Transmission Project (Loan 763-TU)

The Operations Evaluation Department is an independently constituted unit within the World Bank Group. The functions of the Department include a review, shortly after completion of loan/credit disbursements, of the experience and results of all projects assisted by the Bank and the International Development Association. These performance audits are intended to evaluate the extent of achievement of project objectives, reasons for shortfalls or outstanding achievements, and the general effectiveness of the World Bank support for the lending operation. The audit focuses particularly on what the organization can learn from past experience.

I attach a copy of the first draft of the project performance audit report on Turkey: Keban Transmission Project (Loan 568-TU) and TEK Power Transmission Project Loan (763-TU). I would appreciate receiving any comments that you may have on the draft by August 17, 1981, so that we can take them into consideration in formulating our final conclusions before distributing the report to the Bank's Executive Directors.

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Yours sincerely,

Shiv S. Kapur
Director
Operations Evaluation Department

Attachment

RS
RWBates:cmn

June 22, 1981

Mr. Yildirim Akturk
Under Secretary
Devlet Planlama Teskilati (SPO)
Ankara
Turkey

Dear Mr. Akturk:

Re: Project Performance Audit Report on Turkey: Keban Transmission
Project (Loan 568-TU) and TEK Power Transmission Project (Loan 763-TU)

The Operations Evaluation Department is an independently constituted unit within the World Bank Group. The functions of the Department include a review, shortly after completion of loan/credit disbursements, of the experience and results of all projects assisted by the Bank and the International Development Association. These performance audits are intended to evaluate the extent of achievement of project objectives, reasons for shortfalls or outstanding achievements, and the general effectiveness of the World Bank support for the lending operation. The audit focuses particularly on what the organization can learn from past experience.

I attach a copy of the first draft of the project performance audit report on Turkey: Keban Transmission Project (Loan 568-TU) and TEK Power Transmission Project Loan (763-TU). I would appreciate receiving any comments that you may have on the draft by August 17, 1981, so that we can take them into consideration in formulating our final conclusions before distributing the report to the Bank's Executive Directors.

We consider your views and comments as of crucial importance to reaching balanced conclusions concerning this project experience. In addition to reflecting them in the conclusions of the performance audit, we also propose to fully reproduce your views and comments in the final report. Should you find the present draft of this project performance audit report satisfactory and have no comments to make, I shall be grateful if you can inform me accordingly, preferably by cable. A copy of this final report, as distributed to the Executive Directors, will be sent to you for your information.

OFFICIAL FILE COPY


- 2 -

I am also sending a copy of the present report to the Minister of Energy and Natural Resources, the Minister of Finance, the Director General of Treasury and the General Manager of TEK for their comments.

Yours sincerely,

Shiv S. Kapur
Director
Operations Evaluation Department

Attachment


RWBates:cmn

June 22, 1981

Mr. Kanul Toktas,
General Manager
Turkiye Elektrik Kurumu
Genel Mudurlugu
Necatibey Caddesi 36
Sihhiye-Ankara
Turkey

Dear Mr. Toktas:

Re: Project Performance Audit Report on Turkey: Keban Transmission
Project (Loan 568-TU) and TEK Power Transmission Project (Loan 763-TU)

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OFFICIAL FILE COPY

As you may know, Mr. Bates of this Department visited Turkey in November-December 1978 to discuss the Elbistan Lignite Mine and Power project (Loan 1023-TU) as part of a wider study by OED on the supervision of projects assisted by the Bank. On that occasion, he took the opportunity of discussing briefly with Mr. Cetin and others the experience under Loan 568-TU and Loan 763-TU and the results of those discussions have been taken into account in preparing the attached draft of the report. Again, I should like to thank TEK for the cooperation that Mr. Bates received on that occasion.

You will see from the attached copy of the draft project performance audit report that TEK's final reports on Loan 568-TU and Loan 763-TU, which were sent to the Bank in the form of letters dated January 28, 1977, have been included as an integral part of the report, because we believe that they include valuable information and views on the execution of the two projects. However, in its original form, one of the letters - covering Loan 568-TU - contained a few sentences critical of named contractors and a named consultant. These sentences could raise difficult legal implications if included in the final version of the report in view of the fact, as I have mentioned above, that it will be distributed to the Bank's Executive Directors and in this way has a potential circulation among all the Bank's member countries. Rather than omit the letter from the report, in the interests of TEK and of the Bank we have deleted those few sentences and the names of contractors/consultants from that particular letter. The letter covering Loan 763-TU raised no similar implications and is therefore included unchanged in the report. The full versions of both letters are, of course, on file and have been taken into account in preparing the project performance audit report. A copy of the original letter concerning Loan 568-TU is, however, also being given to the section in the Bank dealing with the consultants and their performance.

I am also sending a copy of the present report to the Minister of Energy and Natural Resources, the Minister of Finance, the Director General of the Treasury, and the Under-Secretary of Planning for their comments.

Yours sincerely,

Shiv S. Kapur
Director
Operations Evaluation Department

Attachment

R. J.
RWBates:cmn

June 22, 1981

His Excellency
Serbulent Bingol
Minister of Energy and Natural Resources
Ministry of Energy and Natural Resources
Ankara
Turkey

Dear Mr. Minister:

Re: Project Performance Audit Report on Turkey: Keban Transmission
Project (Loan 568-TU) and TEK Power Transmission Project (Loan 763-TU)

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Yours sincerely,

Shiv S. Kapur
Director
Operations Evaluation Department

Attachment

 RWBates:cmn

OFFICIAL FILE COPY

June 22, 1981

His Excellency
Kaya Erdem
Minister of Finance
Ministry of Finance
Maliye Bakanligi
Ankara
Turkey

Dear Mr. Minister:

Re: Project Performance Audit Report on Turkey: Keban Transmission
Project (Loan 568-TU) and TEK Power Transmission Project (Loan 763-TU)

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Yours sincerely,

Shiv S. Kapur
Director
Operations Evaluation Department

Attachment

cc: Mr. J. de Groote, Executive Director

⁷²
RWBates:cmn

OFFICIAL FILE COPY

OFFICE MEMORANDUM

TO: Mr. Mervyn Weiner, Director General (OED)

DATE: November 1, 1976

FROM: S.M.L. van der Meer, Director (LCPDR)

SUBJECT: ARGENTINA - Performance Audit Memo
(October 22, 1976) on El Chocon Power Project
Loan 577-AR

1. With reference to your note of October 26, 1976 to Messrs. Baum and Krieger, we believe that our earlier comments have been adequately taken into account and do not think that further substantive comments are called for.
2. You might, however, consider making the following changes in Paragraphs 4 and 5. The change in Paragraph 4 would reflect in more exact technical terms the nature of the failure alluded to, while the change in Paragraph 5 would eliminate a sentence irrelevant to the argument pursued. Both these changes have been discussed with Mr. Thomas A. Pereira of your staff, who agrees.
3. Paragraph 4 - We suggest the following wording for the last five sentences of this paragraph:

"The third failure, which interrupted the electric supply for about 14 days, occurred during the initial stages of operation of the project when 16 towers of the transmission line collapsed due to two extremely serious wind and rain storms. The collapse was caused by the failure of the foundations of the windward guy wires due to an inadequate choice of these foundations. They are currently being replaced by the original contractor with Hidronor only bearing the cost of the difference between the new foundations and the original ones. The responsibility for the incident has not yet been resolved. The borrower has kept the Bank adequately informed on the problem".

4. Paragraph 5 - We suggest eliminating the sentence beginning with "However" and ending with "economic difficulties." and rewording the next sentence as follows:

"Even though sales have been below expectation (see Paragraph 7) the economic justification for the Project was enhanced by the quadrupling of fossil fuel prices since the time of appraisal".

MLinder/mo.

cc: Messrs. Krieger (LCNVP); Wiese (LC2DR); Rovani (EWTDR); Leibert (LC2DC)

1053
11/12

ROUTING SLIP		DATE <u>June 3, 76</u>	
NAME		ROOM NO.	
<u>MR KAPUR</u>			
<u>Mr Berric</u>			
APPROPRIATE DISPOSITION		NOTE AND RETURN	
APPROVAL		NOTE AND SEND ON	
COMMENT		PER OUR CONVERSATION	
FOR ACTION		PER YOUR REQUEST	
INFORMATION		PREPARE REPLY	
INITIAL		RECOMMENDATION	
NOTE AND FILE		<input checked="" type="checkbox"/> SIGNATURE	
REMARKS			
<p><u>Re: Attached</u></p> <p>I had no great difficulty in accepting these comments from the Region.</p> <p>I attach the letters for dispatching the draft report to Argentina, for signature</p> <p>MR Martinez will carry a spare copy (and possibly one in Spanish, if the translation is done in time) and collect preliminary comments.</p>			
FROM		ROOM NO.	
<u>T.W. Berric</u>			
		EXTENSION	

OFFICE MEMORANDUM

TO: Mr. Christopher R. Willoughby, Director, OED
 FROM: Bernard Montfort, Acting Division Chief, LCPPT *BN*
 SUBJECT: ARGENTINA - Draft Project Performance Audit Report of May 25, 1976
El Chocón Power Project (Loan 577-AR)

DATE: June 2, 1976

1. We have reviewed the above and have no objections to your sending it to Argentina except for three points we would like to mention. Firstly, the 12% internal financial rate of return mentioned in paragraph 6 is not consistent with the corresponding stream of incremental benefits shown in Annex A. We estimate that the rate of return resulting from that stream of incremental benefits is about 7.6%. Secondly, the Programs Division requests that you delete the last line of paragraph 10, on page 9: "sometimes accompanied by strong Government interference". Thirdly, we suggest that a paragraph be added to comment on the need to rationalize the institutional/management structure of the sector (see paragraph 26.02 of the PCR and para. 6 of Final Supervision Summary Form 590).
2. We have a few detailed comments on your report which we shall communicate to you before June 30.

Cleared with and cc: Mr. Kikuchi (LC2DE), Mr. Wyss (LCPDR)

cc: Messrs. Krieger (LCNVP), Wiese (LC2DR), Leibert (LC2DE), van der Meer (LCPDR), Wyss (LCPDR), Wessels (LCPPT), Linder (LCPPT), Rovani (EWTR).

BMontfort:ssv
 IBRD

Mr. Bessie
Any problem in
these comments
quickly? If not,
please have the
report made
up
accounting by
for dispatch
to
Argentina
to Mr. Martinez
carrying this?
6/3

37
 JUN 3 1976
115
 6/3

OFFICE MEMORANDUM

TO: Mr. Mervyn L. Weiner, Director-General
Operations Evaluation
FROM: Shiv S. Kapur, Director, OED
SUBJECT: Project Performance Audit Report on Argentina: El Chocon
Power Project (Loan 577-AR)

DATE: October 22, 1976

I am submitting herewith the Project Performance Audit Report on Argentina: El Chocon Power Project (Loan 577-AR). The report has been revised in light of comments received from the Latin America and the Caribbean Regional Office, Central Projects Staff, and the borrower.

Attachment

cc: Messrs. Krieger
Baum

DRAFT

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT PERFORMANCE AUDIT REPORT

ON

ARGENTINA: EL CHOCON POWER PROJECT
(LOAN 577-AR)

October 22, 1976

Operations Evaluation Department

PROJECT PERFORMANCE AUDIT REPORT

ARGENTINA: EL CHOCON POWER PROJECT (LOAN 577-AR)

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Currency Equivalents (Argentine Peso) and Inflation Index

Approx. Ave. Official Exchange Rate

Buenos Aires Cost-of-Living Index
(Year-to-Year average 1968=100)

1966	M\$N	207.00 = US\$1.00	66.59
1967		332.00	86.05
1968		350.00	100.00
1969		350.00	107.58
1970		378.00	122.20
1971	a\$	4.20	164.61
1972		9.98	260.84
1973		9.98	418.16
1974		9.98	507.00
1975		40.00	650.00

PREFACE

This memorandum presents the results of an audit of performance under Loan 577-AR for US\$82 million, signed on December 19, 1968. The audit is based on information contained in the Project Completion Report (PCR) issued by Latin America and Caribbean Regional Office; a review of Bank files, including appraisal and supervision reports, and discussions with Bank Staff. In addition, an Operations Evaluation Department mission visited the United Kingdom and Argentina for discussions with the main consultants and with officials of Hidroelectrica Norpatagonica Sociedad Anonima (HIDRONOR).

The memorandum summarizes at some points, and expands at others, the discussions of the PCR, here attached. The co-operation of HIDRONOR management is gratefully acknowledged.

PROJECT PERFORMANCE AUDIT BASIC DATA SHEET

ARGENTINA: EL CHOCON POWER PROJECT (LOAN 577-AR)

(Amounts (in US\$ mln))

(As of 6/30/76)

	<u>Original</u>	<u>Disbursed</u>	<u>Cancelled</u>	<u>Repaid</u>	<u>Outstanding</u>
Loan 577-AR	82.0	82.0	NIL	3.3	78.7

Project Data^{1/}

	<u>Original Plan</u>	<u>Revisions</u>	<u>Actual or Est. Actual</u>
Conception in Bank	-		7/65
Board Approval	12/68		12/17/68
Loan Agreement	12/19/68		12/19/68
Effectiveness	3/21/69		3/21/69
Physical Completion	12/31/73		12/12/73
% of original project actually completed	100%		100%
Loan Closing	1/75		12/31/74
Total Costs (mln)	US\$ 265.4		US\$ 256.3
Internal (financial) Rate of Return	n.a.		8%

	<u>Month, Year</u>	<u>Mission Data</u> <u>No. of Days</u>	<u>No. of Persons</u>	<u>Manweeks</u>	<u>Date of Report</u>
Identification	5/66	7	1	1	6/13/66
Preparation	6/66	10	2	2 6/7	11/4/66
Reappraisal	5/67	7	3	3	6/2/67
Appraisal	8/68	20	2	5 5/7	9/10/68
Subtotal		44		12 4/7	
Supervision I	12/69	11	2	3 1/7	1/16/70
Supervision II	10/70	9	1	1 2/7	10/16/70
Supervision III	4/71	2	1	2/7	5/26/71
Supervision IV	8/71	5	3	2 1/7	9/14/71
Supervision V	6/72	3	1	3/7	6/28/72
Supervision VI	3/74	5	2	1 3/7	4/30/74
		35		8 5/7	

Amended Project - to Include Stage 2

Loan 577-AR of US\$ same^{2/} mln, signed January 16, 1973 for El Chocon Power Project.

1/ All this information refers only to Stage 1 of the Project.

2/ Amendment to project description only.

HIGHLIGHTS

This is a case where a hydroelectric project has become economically more attractive since appraisal, because of the subsequent steep increase in fuel oil prices. The borrower's financial performance was affected by the government's electricity tariff policy, in conflict with the concession agreement between the borrower and the government. The successful implementation and operation of this project, despite frequent changes in the entity's top management, illustrates the importance of competent and dedicated senior and middle management.

The following points may be of particular interest:

Problems with construction and operation of equipment (para.5 and PCR paras.18.02 - 18.04).

Conflict between Government's policy on electricity tariffs and Bank agreement with power enterprise on rate of return (paras.9 and 10, and PCR para.23.04).

PROJECT PERFORMANCE AUDIT MEMORANDUM

ARGENTINA: EL CHOCON POWER PROJECT (LOAN 577-AR)

1. HIDRONOR was established on December 13, 1967, as a stock corporation by the government for the purpose of carrying out the "El Chocon-Cerros Colorados Complex" (El Chocon) Project. The original shareholders of HIDRONOR were the government, and two government-owned electricity supply institutions, Servicios Electricos del Gran Buenos Aires S.A. (SEGBA) and Agua y Energia Electrica (AE). SEGBA is HIDRONOR's major customer, accounting for about three-quarters of its total sales in 1974. From December 1973, HIDRONOR's sole shareholder has been Corporacion de Empresas Nacionales, a government agency created to coordinate, supervise and control all state-owned institutions.
2. This was the third Bank loan to Argentina's power sector. (The first two loans, and the fourth loan^{1/} of November 1969, were made to SEGBA). Its original objective was to assist only Stage I of the El Chocon project. In January 1973, the objective was extended to enable an estimated US\$12 million (actual US\$13 million) of the loan, (which would otherwise have remained undisbursed, PCR para.16), to assist Stage II of the project. This stage covers mainly additional generating units, flood control works and subsidiary dams, and is proceeding satisfactorily for completion in 1977, as scheduled. Stage I consists mainly of an earth fill dam; a powerhouse (suitable for 6 x 200 MW turbo-alternators); 3 x 200 MW turbo-alternators; and a 500 KV transmission system (of two single circuit lines) about 1080 km in length, to supply the electricity generated to HIDRONOR's main customers. Two other objectives of the project were to help irrigate additional agricultural land, and to control floods.
3. Stage I of the project was built substantially as planned, within the original time schedule and well within the budgeted cost. This good outturn was largely due to the main contractor and to the technical competence of the borrower, notwithstanding the frequent changes in its top management. The construction of Stage I within the budget meant a reduction in its costs in real terms. Among other factors, this reduction was due to lower than estimated costs for gates, penstocks and miscellaneous steel, together with lower financial charges, all of which factors could not have been foreseen at the time of appraisal.
4. However, the project suffered some technical failures, both before and after its completion. Three of these failures were serious, and, in the period 1973 through 1974, at times very much affected the standard of reliability of supply to SEGBA, the main supplier to Greater Buenos Aires, the largest electric power market in Argentina. It is not possible to calculate the loss to the economy which resulted from these incidents, but it would not be insignificant, bearing in mind the large numbers of industrial, commercial and residential electricity customers

^{1/} See Board document Sec M76-121, dated February 27, 1976, "Project Performance Audit Report: Argentina Third SEGBA Power Project", IBRD Report No.1055 and Document R72-131, dated March 1972, "Operations Evaluation Report: Electric Power", IBRD Report No.Z-17, for coverage of the earlier loans.

in SEGBA's supply area. One of these technical failures concerned a turbine, another an alternator, and the third the 1080 km transmission line. Because the turbine failure was found to be due to a design fault (the borrower believes that this fault could not have been foreseen without actually running the machine), the defect was rectified by the supplier without any cost to HIDRONOR. The damage to the alternator, which kept the machine out of service for about 4 months, has also been rectified by the supplier at his own cost. The third failure, which interrupted the electric supply for about 14 days, occurred during the initial stages of operation of the project when 16 towers of the transmission line collapsed due to two very serious wind and rain storms. This collapse seems to have taken place in an area which becomes flooded and lacks good drainage; this fact appears to have been overlooked by the consultants and the contractors in designing the foundation towers. The defective towers are currently being replaced but the responsibility for the incident has not yet been resolved. The borrower kept the Bank adequately informed on these problems.

5. At the time of the appraisal, the project (Stages I and II), estimated to cost about US\$255/KW, appeared to represent the least-cost solution for providing the increased generating capacity required in the Greater Buenos Aires area between 1973 and 1978. Comparison for this purpose was made with an alternative thermal development; the cost of capital was assumed to be in the range of $7\frac{1}{2}\%$ - 10%. The Stage I development, with a cost of about US\$400/KW, was a realistic and economic first phase of the project, meeting the expected increment in demand for the period 1973/1974. However, actual sales of electricity in the Greater Buenos Aires area have been somewhat less than forecast during the period 1972 to date, mainly because of country-wide economic difficulties. Even though sales have been below expectation, the economic justification for the project was enhanced by the quadrupling of fossil fuel prices during the same period. The large increase in fuel prices ensures that the project (Stage I and II) remains the least-cost solution in meeting the expected increase in demand in 1973-1980 in the Greater Buenos Aires area for costs of capital as high as 18%.

6. At the time of the appraisal, the internal financial rate of return on the incremental investment in the project itself was not calculated for either Stage I or Stage II. Using the most up-to-date estimates for the incremental costs and revenues (used as a surrogate for benefits) attributable to Stage I, gives an internal financial rate of return on the project's investment calculated over the life of the project, of about 8% (Annex A). These benefits do not include those accruing from additional irrigation, or from flood control, both considered at the time of appraisal to be comparatively small. In fact, however, Stage I has been estimated to have already prevented US\$24 million in damage that would otherwise have been caused by the 1972 flood.

7. From the financial aspects, the several devaluations of the Argentine peso over the period of the project's construction make any comparison between appraisal forecasts and actual results not very meaningful. Besides the lower than normal water availability in 1974 (HIDRONOR's first year of full operation) which lowered sales by about 20% compared to

estimates, two main factors directly affected HIDRONOR's financial performance in that year. The first factor was the method of valuing assets. HIDRONOR's Concession lays down that HIDRONOR's fixed assets in operation were to be valued in US dollars, the value being then reconverted into Argentine pesos at the mid-year financial exchange rate. This method has the disadvantages (not foreseeable at the time that the Concession was drawn up) of neither reflecting adequately economic conditions in Argentina, particularly the fact that exchange rates for the Argentine peso have sometime been maintained at unrealistically low levels, nor allowing for the gradual or smooth changes in asset valuation desirable (especially) for rate determination.

8. The second factor, which affected HIDRONOR's financial performance in 1974, was a change in the method allowed for setting electricity rates. This change was imposed by the Government. HIDRONOR's Concession lays down that electricity rates should provide an annual financial return (operating income to gross fixed assets in operation) of 8% and, in the Guarantee Agreement to the Bank Loan, the Government undertook to honor this aspect of the Concession. In practice, by Government Resolution No.171, effective from November 1973, HIDRONOR's rates were determined, like the rates of all electricity generating and transmitting undertakings in Argentina, by the sum of two factors, representing respectively: (i) the cost of energy (KWh); and (ii) the cost of power (maximum demand KW). The cost of energy was based upon the price of fuel oil, and the cost of power was indexed to the peso exchange rate and to the salary of a worker of a specified grade.

9. The base coefficients used in this method of rate determination turned out to be rather low in respect of HIDRONOR's actual costs. The result was an electricity price as low as 8 centavos per KWh sold - about one US cent at the 1974 exchange rate - and a correspondingly low annual financial rate of return of 3.6% in 1974 against 8% covenanted and expected at the time of the appraisal.

10. HIDRONOR has been aware of the impact of the pricing Resolution on its financial performance and has sought compensation from the Government for the difference in revenue arising from the rate to which it was entitled according to the Concession Law and the actual rate. In 1975, when the Bank, which had continuously taken a direct interest in the price that HIDRONOR charged for electricity, drew the attention of the Government to the likely serious effects of the electricity pricing Resolution, the Government raised the possibility of excluding HIDRONOR from the Resolution sometime in the future. This exclusion has not yet taken place even though the Bank has followed up the subject with the Government on several occasions.

11. As required under the loan agreement, HIDRONOR should have consulted the Bank before it granted two loans. In 1971 HIDRONOR granted a loan (about US\$18 million equivalent) to one of its main customers, Direccion de la Provincia de Buenos Aires (DEBA), to help finance the construction of a connection with HIDRONOR's system. The loan was on comparatively soft terms with 6% interest rate for 10 years, but considering the economic impact on the area supplied by DEBA (up until then mainly served by expensively produced thermal generation, and with a comparatively low standard of reliability), the terms appear to be justified.

12. HIDRONOR made another small loan (about US\$1 million equivalent) interest free and for a term of four years to its then shareholder AE. Its purpose was to build a transmission line from AE to the El Chocon project site to supply electricity to the site, during the construction of the project, and subsequently to interchange power between AE and HIDRONOR. HIDRONOR's other alternative for electric supply during the project construction would have been to install a generating set, larger than the present 'house set' at El Chocon, and to forego subsequent electricity sales to AE. On balance, HIDRONOR seems to have made the right decision.

13. The Bank played a positive role during the last stages of project preparation, in determining the optimum size and scope of the project and in revising the project description in 1973. Without the revision (which in itself was desirable), about US\$13 million of the loan would have remained undisbursed. Supervision missions by the Bank, approximately two every year immediately following the loan agreement, together with the normal flow of information between the Bank and the Government/Borrower, were adequate for all purposes for the first few years after the loan was approved; and, for technical purposes, probably for all years to date. However, the sporadic and infrequent supervision missions after 1971, averaging one every sixteen months, together with the inadequate flow of financial information from the borrower to the Bank, made it difficult for the Bank to maintain a continuous dialogue with the borrower and the Government on the borrower's financial problems. A more continuous contact on these matters might have been more useful.

15. Bank's attention was directed towards the successful implementation of the project and towards the overall success of the borrower. To a large measure these objectives were achieved - a reflection of the competence and dedication of the borrower's senior and middle management, notwithstanding the frequent changes in top management, and the difficult situation in the country and in the economy. Only the borrower's financial performance, for reasons beyond its control, fell well below the required level, despite appropriate financial covenants in the loan and guarantee agreements and subsequent Bank representation to the Government on tariffs. While there may have been an opportunity for the Bank to support institutional improvements in the power sector as a whole (PCR para.26.03), the Bank made no particular effort in this direction.

ARGENTINA

HIDRONOR - EL CHOCON - STAGE 1

LOAN 577 - AR

INCREMENTAL FINANCIAL RATE OF RETURN

(US\$ Million Equivalent^{1/})

	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976-----2024</u>
CAPITAL COSTS	3.6	52.0	52.3	76.7	39.4	24.5	7.8	-	-
OPERATING COSTS	-	-	-	-	-	-	0.5	0.7	0.8----- 0.8
REVENUES	-	-	-	-	-	-	20.0	23.0	25.0----- 25.0
INCREMENTAL BENEFITS	-3.6 ^{2/}	-52.0	-52.3	-76.7	-39.4	-24.5	11.7	22.3	24.2----- 24.2

Rate of Return = 7.8%

1/ At constant price levels

2/ Only revenues from electricity sales are counted as benefits

PROJECT COMPLETION REPORT 1/ARGENTINALOAN 577-AREl Chocón Power Project

1. Borrower: HIDRONOR, S.A. (Hidroeléctrica Norpatagónica Sociedad Anónima)
2. Guarantor: The Argentine Republic
3. Loan Amount: US\$82 million equivalent
4. Date Loan Signed: December 19, 1968
(an amendment was signed on January 16, 1973)
5. Effective Date: March 21, 1969
6. Closing Date: December 31, 1974
7. Period of Grace: 6 years, 3 months
8. Terms of Loan: 25 years, 3 months
9. Interest Rate: 6 - 1/2%
10. Commitment Charge: 3/4 of 1%
11. Amortization: Semi-annual payments starting March 15, 1975 and ending on March 15, 1994, with a final payment of US\$3,625,000.
12. Exchange Rate: Original at time of Appraisal 1 US\$ = M\$N350 = \$a3.50. Latest (8/11/75) 1US\$ = \$a42.50
13. Appraisal Report: PU-1a, dated December 2, 1968
14. Fiscal Year: Calendar year
15. Project Description

15.01 The original project consisted of a part of the "El Chocon-Cerros Colorados Complex". The complex comprises an ultimate development of 1,200 MW at El Chocon, 450 MW at Planicie Banderita, and 500 kV transmission facilities to transmit power to the Greater Buenos Aires area. The original project (Stage 1) consisted of the following elements:

- (a) The El Chocon village, including housing, a church, a school, a rest house, commercial buildings, and a social and sports center, as well as paved streets, sidewalks, drains, water supply and sewerage systems, and an electrical distribution network;

1/ This report was written in December 1975, taking into account the economic conditions prevailing at that time in Argentina.

- (b) The El Chocon earthfill dam across the Rio Limay capable of storing water up to a normal maximum level of about 381 meters above sea level. A gated concrete spillway on the right bank and a gated concrete intake structure on the left bank;
- (c) The El Chocon powerhouse on the left bank downstream of the dam and three 200 MW Francis-type turbine generators and related ancillary equipment. Steel-lined penstock tunnels to connect the intake to the powerhouse. A tailrace channel to return the water discharge from the powerhouse to the river; and
- (d) A 500 kV transmission system consisting of two single-circuit three-phase overhead lines about 1,080 kilometers long. A switchyard at the El Chocon powerhouse, intermediate switching stations near Puelches and Henderson, and step-down substation(s) near Buenos Aires.

15.02 On January 16, 1973 the Bank and the Borrower agreed on an amendment of the Loan Agreement in which the project was changed to consist of the following: (Stages 1 and 2):

- (a) The El Chocon village, including housing, a church, a school, a rest house, commercial buildings, and a social and sports center as well as paved streets, sidewalks, drains, water supply and sewerage systems, and an electrical distribution network;
- (b) The El Chocon earthfill dam across the Rio Limay capable of storing water up to a normal maximum level of about 381 meters above sea level. A gated concrete spillway on the right bank and a gated concrete intake structure on the left bank;
- (c) The El Chocon powerhouse on the left bank downstream of the dam and six 200 MW Francis-type turbine generators and related ancillary equipment. Steel-lined penstock tunnels to connect the intake to the powerhouse. A tailrace channel to return the water discharged from the powerhouse to the river;
- (d) The Portezuelo Grande diversion and flood control works diverting water from Rio Neuquen into the Los Barreales depression thus allowing regulation of the Rio Neuquen flows downstream;
- (e) The Loma de la Lata dam and regulating facilities controlling the flow between the Los Barreales depression and the Mari Menuco depression;
- (f) The Planicie Banderita power plant, including the intake in the Mari Menuco depression, steel penstocks, two 225 MW Francis-type turbine generators, and tailrace channel to return the water discharged from the turbines into Rio Neuquen;
- (g) A 500 kV transmission system consisting of two single-circuit three-phase overhead lines about 1,080 kilometers long. Switchyards at El Chocon and Planicie Banderita, intermediate switching stations near Puelches and Henderson, and step-down substation near Buenos Aires.

15.03 The change in project description was requested by HIDRONOR and accepted by the Executive Directors of the Bank due to the fact that the cost of that part of the project financed by the Bank loan turned out to be less than the original appraised estimate. As a result, it was estimated that about US\$12 million of the Bank's loan would remain in the Loan Account upon completion of the project. This was mainly due to:

- (a) Lower costs for gates, penstocks and miscellaneous steel; and
- (b) Lower financial charges.

16. Projected and Actual Disbursements of Loan

<u>Category</u>	<u>Projected</u> (in US\$ equivalent)	<u>Actual</u>
I. <u>Civil works at El Chocon (foreign cost)</u>		
(a) Main contract (excluding construction equipment)	27,600,000	
(b) Construction equipment	<u>10,000,000</u>	
Sub-total	37,600,000	44,191,916.56
II. <u>Gates, penstocks, miscellaneous steel</u>	21,400,000	7,386,908.16
III. <u>Consulting Engineers Services</u>	6,300,000	7,035,777.42
IV. <u>Interest and other charges on the Loan during construction</u>	<u>16,700,000</u>	<u>10,400,000.00</u>
Total disbursements for Original Project	<u>82,000,000</u> =====	<u>69,014,602.18</u> =====
V. <u>Amendment</u>		
<u>Civil works at Planicie Banderita (foreign cost)</u>		
(a) Main contract (excluding construction equipment)	9,200,000	
(b) Construction equipment	<u>3,000,000</u>	<u>12,985,397.00</u>
Total disbursement for Amendment	<u>12,200,000</u>	<u>12,985,397.00</u>
Total disbursements	n.a. =====	<u>81,999,999.18</u> =====

17. Objective and Justification

17.01 The project was designed to:

- i) Produce electric energy, to be consumed mainly by the end of 1973 by the Buenos Aires-Litoral system using the waters of the Rio Negro system; and
- ii) At the same time reduce floods in the valley.

Additionally the project was to help irrigate additional agricultural land. These objectives were met, including flood control as two heavy floods occurred in 1972 and 1975 which produced practically no damage at all. The project is estimated to have saved US\$24,000,000 equivalent in damage that would have been caused by the 1972 flood alone. Additionally 60,000 new ha. are being irrigated and land previously flooded periodically is now being used for agricultural production. The Chocon power plant began delivering energy to the Buenos Aires-Litoral system in 1973 and generated 2,570,000 MWh during 1974. 73% of total sales was delivered to Buenos Aires-Litoral system. This generation is about 20% less than estimated during appraisal due to lower than normal water availability.

17.02 At the time of appraisal, the project (Stage 1) was justified when compared with an alternative thermal development for equalizing discount rates between 7 1/2 and 10% (depending on two different estimates of the cost of the project). It appears evident, without repeating these calculations, that the project is justified today for much higher equalizing discount rates than those established at the time of appraisal, since:

- i) The cost of the project measured in current dollars is basically the same as at time of appraisal (in constant dollars, therefore, it decreased);
- ii) The capital costs of alternative thermal schemes are at least double than those used during appraisal; and
- iii) Fuel costs at least four times as much.

18. Construction Schedule and Problems Encountered

18.01 Stage 1 - The original schedule called for the first two generating units to be in service by mid-1973, and the third unit in January 1974. Actual completion dates of the three units are as follows:

Unit No. 1	12/29/1972
Unit No. 2	11/05/1973
Unit No. 3	12/12/1973

18.02 During tests of Unit No. 1 in April 1973 the turbine suffered a serious accident which was later revealed to have been caused by a faulty design. This design defect was corrected on all units by the supplier (Boving & Co. Ltd.), without any cost to HIDRONOR.

18.03 In March 1975 the alternator of Unit No. 3 had a serious accident when a fault between coils produced a fire inside the generator, damaging about a third of the windings (in agreement with HIDRONOR, the consultants had not considered it necessary to install fire extinguishing equipment). The cause of the accident was a bolt found wedged in the windings and presumably left there inadvertently during erection. The alternator has been repaired and should by now have been commissioned. The responsibility for this accident has not yet been resolved between HIDRONOR and the supplier (Siemens).

18.04 Another important accident which occurred during the initial stages of operation of the project was that 16 towers of the 500 kV transmission line collapsed in January 1974 due to two very severe wind and rain storms which caused the failure of the foundations of the windward guy wires. Later investigation showed that the foundations were inadequately chosen and a major proportion of these foundations have been replaced. It is difficult to pin down the responsibility for this accident, but undoubtedly the consulting engineers, Merz and McLellan, must bear a part of the blame due to inadequate interpretation of the soil mechanics investigation. However, about 2,000 foundations have still to be replaced pending agreement on costs between HIDRONOR and the contractor.

18.05 Stage 2 - Construction is on schedule and the estimated completion dates should be met i.e. 6 units at Chocon in service by December 1975 and the two units at Planicie Banderita by December 1977.

19. Project Cost

19.01 The comparison of the cost estimates of the completed project present an inherent difficulty due to the conversion of local currency into dollars. The Bank had previously suggested that HIDRONOR convert local expenditures into dollars at the rate of exchange prevalent at the moment of disbursement. However, this had the disadvantage to result in unrealistically high cost estimates for 1973 and 1974 because the rate of exchange was artificially maintained during those years at a level that did not reflect internal costs in Argentina. Due to this, the last supervision mission recommended HIDRONOR to convert the actual local costs of 1973 and 1974 into dollars, adjusting the actual rate of exchange by means of the whole-sale price index, a method which represents more clearly the true value of the Argentinian currency. (Local costs for subsequent years could again be converted at rate of exchange). Using both methods the following values result, excluding interest during construction. (For Stage 1, more than 99% of total cost has been disbursed):

		US\$ million	
	<u>Appraisal Estimate</u>	<u>Present Estimate</u>	
		<u>Previous Bank method</u>	<u>New Bank proposed method</u>
Stage 1	265.4	273.0 (+3%)	256.3 (-3.5%)
Stage 2	156.1	262.5 (+68%)	232.7 (+49%)

19.02 One can see that using either method the cost estimates for Stage 1 have not varied appreciably since appraisal. The difference in the cost estimates for Stage 2 are due to the fact that the design of Planicie Banderita was not completed at the time of appraisal and at the very best the cost estimates were rough guesses.

20. Consultants

20.01 HIDRONOR retained Sr. Alexander Gibb and Partners (U.K.) as the main consultant who subcontracted Merz and McLellan (U.K.) who were responsible for the engineering of the electro-mechanical part of the power plants and the transmission system. The overall performance of both consultants appears to have been good although HIDRONOR had initially some complaints about the technical competence of some of the people sent to Argentina by Merz and McLellan.

21. Main Contractors

Main contractors for the project were:

21.01 Stage 1 (Power Plant)

Civil works:	Impregilo-Sollazzo, S.A. (Italy)
Turbines:	Boving & Co. Ltd. (U.K.)
Generators:	Siemens A.G. (Germany)
Cranes:	" " "
Powerhouse Transformers:	Mitsubishi Shoji Kaisa Ltd. (Japan)
Breakers:	Brown Boveri. S.A. (Switzerland-Argentina)

21.02 Stage 1 (Transmission system)

500 kV Transmission line:	Anglo Argentinian Power Construction Consortium (U.K. - Argentina)
500 kV Breakers:	Brown Boveri, S.A. (Switzerland-Argentina)
Power Transformers:	Parsons Peebles Ltd. (U.K.)
Control Equipment:	Brown Boveri, S.A. (Switzerland-Argentina)
132 kV Cables:	Industrias Pirelly SAIC (Argentina)
Synchronous condensers:	A.E.I. (U.K.)

21.03 Stage 2

Generators:	Siemens A.G. (Germany)
Turbines:	Boving & Co. Ltd. (U.K.)
Civil Works:	Impregilo-Sollazzo, S.A. (Italy)

22. Organization and Management

22.01 The Borrower, HIDRONOR, created in 1967, is a stock Corporation whose shareholders are the Argentinian state, through the "Dirección Nacional de Energía y Combustibles", and two Government-owned institutions, "Empresa de Estado Agua y Energía Eléctrica" (AE) and "Servicios Eléctricos del Gran Buenos Aires" (SEGBA). Established at its inception to carry out and operate the Chocon-Cerros Colorados complex, including transmission lines and secondary installations, the Corporation has entered in 1973 into the second phase of its activities and is now selling bulk power to four Government-owned utilities, its main customer being SEGBA (73% of the total 1974 sales).

22.02 The management of the Corporation, from its inception has been efficient and competent when judging it from an over-all result stand point as the Corporation was able to complete a complicated project within the estimated time schedule and with a final cost below the original estimate (see para. 19). This has occurred in spite of numerous personnel changes in the Board and in the Executive Committee. These changes, in general, from the information available were due to reasons stemming from outside the Corporation. Some of these changes in top management were not communicated to the Bank as HIDRONOR was expected to do.

22.03. HIDRONOR's present financial management is adequate. Since the Bank's appraisal, the Corporation has considerably improved the presentation of its accounts which have been standardized according to the system prescribed by the Federal Power Commission for the utilities in the U.S. They are being computerized with the help of a university consultant, but the results are still too incomplete to be adequately appraised. External auditing is very satisfactorily performed by the Buenos Aires firm of Drysdale, Reig and Vazquez.

23. Operating Results

23.01 Because of the several devaluations incurred by the Argentinian currency over the project period, a comparison between appraisal forecasts and actual results is not altogether meaningful, and the corresponding figures are therefore given in separate tables. In the actual funds statement, the exchange rate which is used is the one at the end of each year. Consequently, no column has been included for the total figures over the project period.

23.02 The appraisal report expected electricity production to start in time for the winter peak of mid-1973, however, experimental operations already started in December 1972, and 1973 was considered by HIDRONOR as a testing period for the Chocon system. Therefore, with the agreement of the Corporation's auditors, HIDRONOR decided to capitalize the revenues resulting from this period of experimental operation. Because of the consequences of this procedure on the conditions of applicability of Sections 5.13 and 5.14 of the Loan Agreement, the Bank should clearly have been consulted before its implementation. Due to lower than normal water availability, the 1974 sales were inferior to the appraisal estimates by about 20%, therefore lowering the Corporation's operating income.

23.03 For purpose of rate base determination, Article 11 of the Concession requires that HIDRONOR's fixed assets in operation be valued in US dollars, the value being then reconverted into pesos at the mid-year financial exchange rate. This has the disadvantage of not reflecting economic conditions in Argentina due to unrealistic rates of exchange and of creating sharp variations in asset revaluations and rate determination.

23.04 Section 5.13 of the Loan Agreement requires the Borrower to obtain rates for the sales of electricity such as to provide the 8% return authorized by Article 11 of the Concession. However, this provision was never enforced and has been superseded in practice-without the Bank being informed- by Resolution No.171 dated April 17, 1974, with retroactive effect for HIDRONOR as of November 1973. The purpose of this Resolution was to unify the rates of all the electrical utilities involved over the country in the production and transmission of electricity and to determine them as the sum of two factors representing the cost of energy and the cost of power. The cost of energy was based on the price of fuel-oil at the date of the Resolution, while the cost of power was a linear function of the exchange rate of the US\$ and of the salary of a worker at the time of the computation, both variables being also indexed from the date of the Resolution as a basis. The drawbacks of this system are to completely separate the electricity rates from the internal characteristics of the company, especially in the choice of the base values of the indexation and, conversely, to link them to variables which were not directly related to the operations of the company but were dependent on macroeconomic factors or even political decisions. While, a posteriori, and taking into account the difficulties of pricing in a period of high inflation, the indexing system seems to have produced variations rather similar to those of the consumption index, the coefficients of the formula used for indexing were rather low and resulted in a 3.6% rate of return for the year 1974, instead of a projected 8%. Whereas the average revenue per KWh sold corresponding to a 8% rate of return should have been 14.1 centavos, the actual one was only 8.2 centavos (approximately one US cent at 1974 rate of exchange), which is extremely low, resulting in an implicit subsidy - and a corresponding economic distortion - for the main consumers, principally SEGBA.

23.05 When informed about the seriousness of the situation, HIDRONOR's present management explained that Resolution 171 had been issued without prior consultation of HIDRONOR. Replying to the Bank mission's inquiry, the Ministry of Economic Affairs raised the possibility of excluding HIDRONOR at a later date from the field of application of Resolution 171. It would therefore be desirable that during any future Bank loan to the Sector that during negotiations with the Government, the Bank obtain more reasonable tariff settings for bulk sales in Argentina, to eliminate the distortions described above, which undoubtedly affect the whole Sector.

Otherwise the ultimate consumer is subsidized because of unrealistically low prices, a practice that leads to wasteful consumption patterns.

24. Financing Plan

24.01 The foreign exchange component of the project has been financed through borrowing. Disbursements were lower than forecasted for the first three years of the project, both because of the cost being inferior to the estimates (para. 15.03) and because of some delays in the works.

24.02 The Bank is HIDRONOR's largest creditor, US\$12 million of its US\$82 million loan having been reallocated, through an amendment to the Loan Agreement (para. 15.02).

24.03 In addition, the Corporation was able to obtain about US\$130 million from private banks from various countries, which was about three times the minimum expected at appraisal time. 90% of these loans were on relatively soft terms (about 15 years, and 5.5% to 8%) but two of them, obtained in 1973 and 1974 respectively from the Banco Central S.A., Madrid and from Lloyds & Bolsa Int., were on more stringent conditions. The first one of US\$2 million, was for 18 months, without grace period, and at a rate of 2% above the current interbank rate in London for deposits in dollars at six months, and the second one, of US\$9 million, was for 4-1/2 years, with a one year grace period, at a rate of 1.125% above the London rate. In view of Section 5.17 of the Loan Agreement which requires the Borrower to make its best efforts to obtain credit on such terms and conditions as shall be satisfactory to the Bank and the Borrower, the Bank should have been consulted on the two latter loans.

24.04 HIDRONOR granted in 1971 to the "Dirección de la Energía de la provincia de Buenos Aires" (DEBA) so that the latter may complete, in the Henderson substation, the interconnection with the El Chocon-Cerros Colorados project and the distribution system of DEBA. The loan, at 6% yearly on the unpaid balance was over an estimated period of ten years with a two year grace period and the total disbursements during the period 1972-74 amounted to \$176.6 million. By reducing the length of the transmission lines, the purpose of the project was to cut down electricity losses (by an estimate of 20 millions of KWh a year) to improve the reliability of supply to the DEBA system.

24.05 Another loan was granted by HIDRONOR to the "Empresa del Estado Agua Y Energía Eléctrica" (AE) so that the latter may complete the construction of a 65 km transmission line from AE thermal power house Alto Valle to Planicie Banderita, and of a 50 km transmission line to El Chocon, of a transformer station at Planicie Banderita, of transmission lines from there to Loma de la Lata and Portezuelo Grande and of transformer stations at both locations. The loan, without interest, was over an estimated period of four years with one-year grace period and the total disbursements during the period 1972-74 amounted to \$12.2 million. The purpose of the project was to obtain a source of energy

for the construction of El Chocon and Planicie Banderita, and to feed energy into the AE system after the completion of the Chocon complex. As HIDRONOR did not need this energy after completion of the project, this was an economic solution for obtaining energy during project construction without bearing the cost of the investment and, at the same time, as a way for ensuring a back-up supply of energy for the plant auxiliaries, in case of emergency after completion of the project. While the construction programs corresponding to these two loans might well have been technically justified, one of the loans was interest-free and the second was at 6% interest, while at the same time the usual rate for medium-term loans available from Government development banks was not inferior to 15%. It is not clear whether such financial subsidization of DEBA and AE by HIDRONOR was justified by the benefits to HIDRONOR mentioned above.

24.06 As internal cash generation started in 1973 only, most of the resources needed for the local component of the project had to come from Government equity contributions which were specially important in 1974 (\$al,000 million, of which \$a840 million were actually paid), indirectly coming from the El Chocon fund created by law 17574. In 1973 and 1974, and as a consequence of delays in the payment of the funds, the Corporation had to resort to medium-term loans from local banks in order to finance the project works. Granted at interest ranging between 11% and 20% and for periods from 5 to 15 years, these loans amounted to \$a232.0 million in 1973 and \$a54.6 million in 1974. However, until such loans were obtained, it was necessary to obtain short-term loans from the Banco de la Ciudad de Buenos Aires. At the end of the year 1974 however, the Corporation's cash situation was favorable due to delays in the works of the Alicopa complex.

24.07 The sharp fluctuations in working capital during the period 1971-1974 were created by a small number of accounts. The variations in capital stock receivables were the outcome of the subscription and payments of equity contributions, and the steady increase in receivables from 1972 onwards was the consequence of the DEBA and AE loans and, for 1974, of a considerable amount of customers receivable (\$al21 million out of total sales of \$al99 million, i.e., more than 7 months) mainly due to SEGBA's indebtedness (this account was settled in April 1975). The large increase in accounts payable in 1973 was brought about by debts due to contractors and by the starting of reimbursements of short-term and medium term loans from local banks.

25. Covenants

25.01 The Borrower has not complied with several of the covenants established during negotiations.

25.02 It did not comply with Section 5.13 of the Loan Agreement which requires to provide the return on investment authorized by the Concessions.

25.03 It did not comply with Section 5.17 of the Loan Agreement which requires the Borrower to make its best efforts to obtain credit on such terms and conditions as shall be satisfactory to the Bank and the Borrower.

25.04 It did not comply with paragraph (b), Section 6.02 of the Loan Agreement which requires the Borrower to comply with all the provisions of the Concession (and, in this case, the provision concerning the return on investment).

25.05 The question is debatable whether the Borrower complied with Section 5.04 paragraph (a) of the Loan Agreement which requires the Borrower to maintain its financial position in accordance with sound financial practices (cf. loans to DEBA and "Agua y Energía") and with Section 5.06 (d) which requires the Borrower to furnish to the Bank all such information as the Bank shall reasonably request concerning the administration, operations and financial condition of the Borrower (cf. major changes in management, loans to DEBA and "Agua y Energía"). The reason why this is debatable is that the Bank's requests occurred very infrequently due to insufficient supervision missions.

25.06 The Guarantor did not comply with Section 3.06 para (b), of the Guarantee Agreement which requires rates to be granted to the Borrower to provide the return authorized by the Concession.

26. Forecast Financial Performance

26.01 In the short run, HIDRONOR's financial prospects appear rather bleak. Despite a strong Government interference, mainly through the application of Resolution 171 and pressures on its upper management, the Corporation is struggling towards a minimum of managerial and financial independence. Any improvement will have to come through a strict application of the Concession, perhaps preliminarily amended in order to take into account the existing strong inflationary pressures and the more complex nature of the investments.

26.02 If the general conditions regarding tariffs remain unchanged, HIDRONOR will have to depend for its survival on subsidies or government equity contributions. The Corporation plans to implement from 1975 onwards a considerable investment program in order to build the Alicopa complex, but a definition of the Government energy policy, and of its financing, is anxiously awaited and will unfortunately depend on the drastic measures (recommended by a Bank Report of September 30, 1975) which will have to be taken in order to reform the Argentinian economy.

26.03 The above Bank Report also points out deficiencies found in the Sector as a whole as follows:

- (a) the great number of different entities engaged in generation, transmission and distribution of electric energy, with different degrees of competence;
- (b) lack of effective coordination of Sector planning; and
- (c) insufficient coordination between the electric power and other energy sectors.

It would seem from the above that the Bank, when granting this loan to HIDRONOR, should have been more insistent with the Argentinian Government to initiate steps to rationalize the institutional structure and/or the management of the Sector.

27. Lessons to be Learnt

27.01 From the financial point of view, HIDRONOR's relationship with the Bank has not been as close as expected during the construction and operating periods of the project, and the Bank was not informed about major operating and organizational developments, some of these being in violation of the spirit and letter of the covenants of the Loan Agreement.

27.02 Being a young Corporation, HIDRONOR was staffed with personnel who did not have any previous experience of relations with the Bank, but would have been quite receptive to a closer cooperation. The Bank should have lent more attention to the organizational aspects of institution building, and required periodic and detailed reports on operations and on the implementation of a sound management structure. The present management has declared its intention to maintain a constant and complete flow of information to the Bank.

Latin America and The Caribbean Regional Office

September 24, 1976

HIDRONORVariations of Rate ParametersJanuary 1974 - July 1975

	<u>US\$</u> (pesos)	<u>Salary K</u> (pesos)	<u>Fuel Oil</u> (pesos/Tm)	<u>Energy</u> (Mwh)	<u>Power</u> (Kw/monthly)
January 1974	9.98	2,001	220	42.7	21.7
April 1974	9.98	2,350	245	47.5	23.2
November 1974	9.98	2,829	245	47.5	25.3
January 1975	9.98	3,287	245	47.5	25.3
February 1975	9.98	3,287	335	64.9	25.3
March 1975	15.10	3,542	335	64.9	35.0
June 1975	30.00	5,313	500	97.0	62.0
July 1975	35.50	5,313	500	97.0	69.0



HIDRONOR

FECHAS DE DEVALUACION DEL PESO ARGENTINO CON
RESPECTO AL DOLAR ESTADOUNIDENSE - MERCADO
FINANCIERO

<u>Fecha</u>	<u>Cotización del Dólar Estadounidense</u>
13/ 3/67	\$ 3,50
18/ 6/70	4,00
6/ 4/71	4,04
3/ 5/71	4,12
7/ 6/71	4,20
25/ 6/71	4,40
30/ 7/71	4,70
25/ 8/71	5,00
20/ 9/71	7,45
Octubre/71 (Promedio)	7,27
Noviembre/71 (Promedio)	7,84
Diciembre/71 (Promedio)	8,45
Enero 1972 (Promedio)	9,32
Febrero/72 (Promedio)	9,66
Marzo/72 (Promedio)	9,74
Mayo/72 (Promedio)	9,88
Junio/72 (Promedio)	9,93
Julio/72 (Promedio)	9,95
22/ 8/72	9,98
4/ 3/75	15,10
9/ 6/75	30,00
16/ 7/75	35,50
11/8/75	42,50

ARGENTINA

LOAN 577-AR

Principal Points of Loan Agreement

- Section 5.05 - Borrower must coordinate its operation and expansion with SEGBA and other electric utilities in the Greater Buenos Aires area to prevent waste of energy, duplication of facilities and unnecessary investment and obtain agreements with SEGBA and other electric utilities regarding the most economic operation of generating plants.
- Section 5.13 - revenues must be sufficient to provide the rate of return authorized by Hidronor's concession.
- Section 5.14(b)- test provides that debt service coverage for preceding year may not be less than 1.5 times the maximum future annual debt service.
- Section 5.16 - prevents Borrower from prepaying long-term debt without prior Bank approval.
- Section 6.01 - changing Borrower's statute or concession without Bank approval are conditions for terminating the loan.
- Section 7.01(b)- as a condition of effectiveness for the loan, Hidronor's concession must become effective.
- Section 7.01(c)- as a condition of effectiveness, satisfactory arrangements must be made for the sale of power to SEGBA.
- Section 7.01(d)- as a condition of effectiveness, satisfactory arrangements must be made with the Guarantor that the proceeds from the surcharges on crude oil and electricity will be made available to Hidronor.

Principal Points of Guarantee Agreement

- Section 2.02(a)- requires Guarantor to provide Hidronor with the proceeds from the surcharges on crude oil and electricity.
- Section 2.02(b)- requires Guarantor to provide Hidronor, or cause Hidronor to be provided with, sufficient funds to complete the Project.
- Section 3.06 - guarantees that Borrower will be granted tariffs sufficient to achieve the rate of return authorized by the concession.

Section 3.07 - Guarantor must coordinate expansion of facilities of all electric utilities which supply power to the Greater Buenos Aires area.

ARGENTINAHIDROELECTRICA NORPATAGONICA S. A.EL CHOCON PROJECT - LOAN 577-ARIncome Statements - Appraisal Estimates

(M\$N million) (US\$1 = M\$N350)

Year ending December 31:	1973 ^{/1}	1974
Units generated (million Kwh)	1,535	3,200
Units sold (million Kwh)	1,473	3,072
Average revenue per Kwh sold (in pesos)	<u>3.60</u>	<u>3.46</u>
<u>Operating Revenue</u>	<u>5,309</u>	<u>10,631</u>
<u>Operating Expenses</u>		
Generation	263	525
Transmission	210	420
Administration	140	280
Depreciation	43	99
Amortization of non-power fixed assets	<u>137</u>	<u>274</u>
Total operating costs	<u>793</u>	<u>1,598</u>
<u>Operating Income</u>	<u>4,516</u>	<u>9,033</u>
<u>Interest Charges</u>		
Proposed IBRD loan	856	1,860
Proposed foreign loans (El Chocon Project)	522	1,217
Proposed medium-term loans	60	137
Proposed future foreign loan A (Stage II)	162	609
Proposed future foreign loan B (Stage II)	<u>---</u>	<u>51</u>
Total interest charges	<u>1,600</u>	<u>3,874</u>
Less: Interest charged to construction	<u>3,896</u>	<u>1,864</u>
Net interest charges	<u>(2,296)</u>	<u>2,010</u>
<u>Net Income</u>	<u>6,812</u>	<u>7,023</u>
Rate of return (operating income to gross fixed assets in operation plus 4% for working capital)	8%	8%
Times total interest charges covered by operating income	2.8	2.3

^{/1} Operations only during last six months of 1973.

HIDROELECTRICA NORPATAGONICA S. A.EL CHOCON PROJECT - LOAN 577-ARINCOME STATEMENTS - ACTUAL RESULTS

(\$a million)(US\$1 = \$a 9.98)

<u>Year ending December 31:</u>	<u>1973</u>	<u>1974</u>
Units sold (million Kwh)	-	2,420.0
Average revenue per Kwh sold (in centavos)	-	8.2
<u>Operating Revenue</u>	-	<u>199.1</u>
<u>Operating Expenses</u>		
Generation	-	23.2
Transmission	-	21.7
Administration	-	28.9
Depreciation	-	9.2
Amortization of Non-Power Fixed Assets	-	<u>6.2</u>
<u>Total Operating Costs</u>	-	<u>89.2</u>
<u>Operating Income</u>	-	<u>109.9</u>
<u>Interest Charges</u>		
Long-Term Loans	-	185.3
Less: Interest Charged to Construction	-	<u>17.0</u>
Net Interest Charges	-	<u>168.3</u>
Other Income	-	16.7
Provincial Taxes	-	10.0
Exchange Losses	-	<u>6.5</u>
<u>Net Income</u>	-	<u>(58.2)</u>
Rate of Return		3.6
Times Total Interest Charges Covered by Operating Income		0.6

October 8, 1975

EL CHOCON PROJECT

Source and Application of Funds Statements - Appraisal Estimate
(M\$N million (US\$1 = M\$N350))

Year ending December 31:	1969	1970	1971	1972	1973	1974	1969-74
SOURCES OF FUNDS							
Internal Cash Generation							
Operating income					4,516	9,033	13,549
Depreciation					43	99	142
Amortization of non-power fixed assets					137	274	411
Total Internal Cash Generation					4,696	9,406	14,102
Borrowings							
Proposed IBRD loan	9,251	6,178	6,386	4,123	2,412	350	28,700
Proposed foreign loans (El Chocon Project)	595	1,750	7,700	3,920	4,200	580	19,145
Proposed medium-term loans	19	96	403	780	1,044		2,342
Proposed future foreign loan A (Stage II)				2,835	4,270	4,515	11,620
Proposed future foreign loan B (Stage II)						1,575	1,575
Total Borrowings	9,865	8,024	14,489	11,658	11,926	7,420	63,382
Equity Investments							
Ordinary shares - Class A	10,190	8,150	8,990	13,298	17,710	18,370	76,708
Ordinary shares - Class "C"		6,585	6,585	3,222			16,162
Total Equity Investments	10,190	14,735	15,575	16,520	17,710	18,370	92,870
TOTAL SOURCE OF FUNDS	20,055	22,759	30,064	28,248	34,332	35,106	170,654
APPLICATION OF FUNDS							
Construction Costs (excluding interest during construction)							
Stage I							
El Chocon Project	18,585	20,755	27,195	13,790	8,575	2,730	91,630
Portezuelo Grande	140	2,835	6,200	1,610			10,885
Total Stage I	18,725	23,590	33,495	15,400	8,575	2,730	102,515
Stage II							
El Chocon Project (completed)				350	1,610	4,270	6,230
Planicie Banderita				5,355	7,700	8,060	22,015
Total Stage II				5,705	9,310	13,230	28,245
Total Construction Costs	18,725	23,590	33,495	21,105	17,885	15,960	130,760
Debt Service							
Amortization							
Proposed IBRD loan						764	764
Proposed foreign loans (El Chocon Project)						463	859
Proposed medium-term loans		4	23	104	260		
Proposed future foreign loan A (Stage II)							
Total Amortization		4	23	104	260	1,227	1,623
Interest							
Proposed IBRD loan	466	893	1,241	1,533	1,712	1,860	7,705
Proposed foreign loans (El Chocon Project)	19	96	403	780	1,044	1,217	3,559
Proposed medium-term loans	1	5	22	61	120	137	346
Proposed future foreign loan A (Stage II)				92	323	609	1,024
Proposed future foreign loan B (Stage II)						51	51
Total Interest	486	994	1,666	2,466	3,199	3,874	12,635
Total Debt Service	486	998	1,689	2,570	3,459	5,101	14,258
Dividends Paid							
						6,661	6,661
Redemption of Ordinary Shares - Class "C"							
					137	274	411
Executive Committee's Share of Profits							
						24	24
Increase or (Decrease) in Working Capital							
Cash	844	(1,829)	(5,120)	4,573	12,421	6,760	17,649
Accounts Receivable					430	421	861
Materials and Supplies	40	40	40	40	40	20	220
Prepaid Expenses	10	10	10	10	10	10	60
Accounts Payable	(50)	(50)	(50)	(50)	(50)	(50)	(320)
Total Increase or (Decrease) in working capital	844	(1,829)	(5,120)	4,573	12,851	7,171	18,100
TOTAL APPLICATION OF FUNDS	20,055	22,759	30,064	28,248	34,332	35,106	170,654
Cash Balances							
Beginning of Year	4,006	5,810	3,981	(1,139)	3,434	15,855	
Increase or (Decrease) during Year	844	(1,829)	(5,120)	4,573	12,421	6,760	
End of Year	5,810	3,981	(1,139)	3,434	15,855	22,615	
Times Annual Debt Service Covered by Internal Cash Generation							
					1.4	1.8	

DR ZUBARAN

SECRETARIA DE ENERGIA Y COMBUSTIBLE

BUENOS AIRES

ARGENTINA

MAY 27, 1976

TELEX NO. 122240 HINOR

Ext. 6835

WE REFER TO OUR TELEX OF MAY 21 STOP DUE TO SECBA'S REQUEST TO POSTPONE
MISSION UNTIL SECOND HALF OF JUNE WE PROPOSE TO SEND MISSION ON JUNE 20
STOP PLEASE CONFIRM IF DATE IS CONVENIENT REGARDS

MONTFORT
INTBAFRAD

B. Montfort, Acting Div. Chief
LCPPT

cleared with and cc: Mr. Lahbert
cc: Messrs. Besse, Barrie ✓

Control No. AR-6-04

Minder:ssv

June 3, 1976

Ing. Antonio Federico
HIDRONOR
Cipoletti
Rio Negro
Argentina

Dear Ing. Federico,

Re: Loan 577-AR -- El Chocon Project

Further to our cable to HIDRONOR dated May 25, 1976, and HIDRONOR's cable to us dated May 27, 1976, I now enclose for your comments a copy of the first draft of the Project Performance Audit Report on the El Chocon Power Project, for which Loan 577-AR was fully disbursed by January 1975. This Performance Audit Report is based on IBRD records, as well as discussions with IBRD staff and the staff from the main consulting firms involved.

I must thank you for the gracious way in which HIDRONOR accepted the suggestion that Mr. Martinez, Senior Evaluation Officer from my department, holds preliminary discussions with HIDRONOR on this report, while he is in Argentina this month. As you know Mr. Martinez has arranged with you that these discussions take place on June 14 and 15, 1976. I hope that this draft reaches you in time for these discussions, but Mr. Martinez will bring another copy of the draft in any case.

We intend to finalize the report and to submit it to the Bank's Executive Directors about the middle of July. We would, therefore, appreciate any further comments which you may have (in addition to those given to Mr. Martinez during the preliminary discussions) by July 5, 1976.

We are sending separately a copy of this report to Dr. Guillermo Zubaran, Secreteria de Energie y Combustible.

Yours sincerely,



Shiv S. Kapur
Director

Operations Evaluation Department

cc: Messrs. Wyss
Van der Meer
Rovani
Lehbert
Kikuchi
Montfort
Bohr/Martinez/Berrie

TBerrie:cmn

June 3, 1976

Dr. Guillermo Zubaran
Secreteria de Energie y Combustible
Buenos Aires
Argentina

Dear Dr. Zubaran,

Re: Loan 577-AR -- El Chocon Power Project

About three years ago our management directed that we prepare "performance audits" shortly after completion of loan/credit disbursements, for all projects assisted by the World Bank and IDA. The purpose of these audits is to evaluate the extent to which project objectives, as stated in the appraisal reports, were achieved and to assess the effectiveness of the Bank's role during project preparation and implementation, the main focus being on what the Bank can learn from past experience.

I now enclose for your comments a copy of the first draft of the Project Performance Audit Report on the El Chocon Power Project, for which Loan 577-AR was fully disbursed by January 1975. This Performance Audit is based on IBRD records, as well as discussions with IBRD staff and staff from the main consulting firms involved.

We intend to finalize the report and submit it to the Bank's Executive Directors about the middle of July. We would, therefore, appreciate any comments which you may have by July 5, 1976.

We are sending separately a copy of this report to HIDRONOR.

Yours sincerely,



Shiv S. Kapur
Director

Operations Evaluation Department

cc: Messrs. Wyss
Van der Meer
Rovani
Lehbert
Kikuchi
Montfort
✓ Bohr/Martinez/Berrie

OUTGOING WIRE

TO: HIDRONOR

CIPOLLETTI - Rio Negro

DATE: MAY 24, 1976

CLASS OF
SERVICE: Telex No. 122240 HINOR

COUNTRY: ARGENTINA

TEXT:
Cable No.:

ATTENTION PRESIDENT OF HIDRONOR

WE PLAN TO SEND MESSRS. MANFREDO LINDER AND CLAUDE BESSE, ENGINEER AND
FINANCIAL ANALYST RESPECTIVELY, TO REVIEW ARGENTINA'S POWER SECTOR STOP
PLEASE ADVISE IF IT WOULD BE CONVENIENT TO YOU FOR THEM TO VISIT CIPOLLETTI
BEGINNING SECOND WEEK OF JUNE TO DISCUSS INTER ALIA

AAA BULK TARIFFS

BBB STATUS OF PREPARATION OF FUTURE PROJECTS TO BE EXECUTED BY HIDRONOR

CCC UPDATED FINANCIAL PROJECTIONS

DDD STATUS OF EL CHOCON PROJECT

REGARDS

MONTFORT

NOT TO BE TRANSMITTED

AUTHORIZED BY:

NAME B. Montfort, Acting Div. Chief

DEPT. LCPPT

SIGNATURE 
(SIGNATURE OF INDIVIDUAL AUTHORIZED TO APPROVE)

REFERENCE:

ORIGINAL (File Copy)

(IMPORTANT: See Secretaries Guide for preparing form)

CLEARANCES AND COPY DISTRIBUTION:

cleared with and cc: Mr. Leibert, LAC II
cc: Messrs. Wessels, Linder, Besse (LCPPT
Berrie (OED)

BMontfort:ssv

For Use By Communications Section

Checked for Dispatch: _____

OFFICE MEMORANDUM

TO: Mr. T. Berrie

FROM: M. E. Martinez *MEM*

SUBJECT: Hidronor's Comments on Draft Project Performance Audit Report on Argentina
El Chocon Power Project (Loan 577-AR)

DATE: June 21, 1976

1. I visited Argentina in connection with the PPA on the above project on June 14-16. Hidronor had already received a copy of the report and I had very useful meetings with its senior staff. A list of the main staff that participated in the discussions is included in Annex 1. Hidronor is going to send detailed comments on the report. Most of their comments refer to issues identified in the PCR, which subsequently have been developed in the memorandum. Their comments are mainly concentrated on their compliance with the financial covenants and the technical problems.

2. My recollections about their reactions to the report are listed below:

3. PPA Para. 2. The only shareholder of Hidronor since November 30, 1973 has been the "Corporacion de Empresas Nacionales." This a government agency created at that time to coordinate, supervise, and control all Government-owned institutions.

4. PPA Para. 3. The works of Stage II are proceeding satisfactorily and completion is expected in late 1977, as scheduled.

5. PPA Para. 3. Hidronor is very pleased with the performance of the main contractor (Impregilo-Sollazo) as well as the consultants (Sir Alexander Gibbs), but it has some reservations about Merz-McLellan (subcontractors for electromechanical parts). They have reservations about the competence of some of the field staff and also have pointed out some abnormal delays in the preparation of the bidding documents (about 16 months while about 12 months would be adequate according to Hidronor). However, when technical problems arose, the consultants were fast in obtaining the assistance of very experienced staff and this has been appreciated by Hidronor. Hidronor also has some complaints about the role of Merz-McLellan in the accidents involving the transmission lines (see para. 6 below).

Hidronor agrees with the explanations in the audit about the lower actual cost of the project. In some cases the savings resulted from some overestimation of the costs of the works at appraisal. But overall, they agreed that most of the factors leading to the savings could not have been foreseen.

6. Para. 4. First Technical Accident (April 1973). Hidronor agrees that the reason for the accident was design problems. However, they think it is very unlikely that these problems could have been detected without actually running the equipment. In their opinion, design was technically correct in light of the information available. Therefore, it might be a little unfair to say that the contractor (Boving) is guilty of faulty design.

(2) Mr. Martinez: Thank you

Mr. Berrie: Please see

comments in the

margins. If we do not

receive the written comments, as promised, we might

Send a suitable cable

reminding as a follow up on these discussions.

6/23

232
6/22

Moreover, the problem is so rare that thereafter this experience became the subject of discussions in International Congress. When the accident occurred, Hidronor asked the Bank for help to appoint an expert to examine the matter. With the Bank's assistance, an expert was appointed. He suggested some changes in design which were carried out by Boving. Two generators were already installed at the time of this accident. The design modification produced a delay of about 6 months in the starting of operations of the generators.

Second Accident (January 1974). Hidronor agrees with the general explanation given in the audit. The reason was inadequate consideration of local conditions. It seems that part of the area through which the transmission line goes is flooded. There is no good drainage and this fact required special consideration in designing the foundations of the towers. These particular conditions were overlooked by the consultants and contractors. The defective towers are currently being replaced. Hidronor is paying for the actual cost difference between the modified and the original inadequate foundations. Hidronor is carrying out a detailed soil study to check the results obtained by the consultants and contractors in order to determine their responsibility in this accident. As a result of this accident, electric supply was interrupted for about 14 days. Since then, there have been two other cases in which towers fell down.

Third Accident (May 1975). The bolt was in an inaccessible place, and it is not clear how it got there. If fire extinguisher equipment had been installed, damage would have been much smaller. Such equipment was not installed because the consultant did not think it was required. This was based on the opinion of the manufacturer of the equipment (Siemens) who implied that there were no combustible materials in the alternator; but the experience seems to indicate the contrary. Hidronor, is now installing fire extinguisher equipment in all the units. The cost of the repairs has been borne by Siemens, and the generator has been out of service for about 4 months.

The Bank had an active role in resolving the problem revealed by the first accident but it did not participate in the other two.

7. Para. 5. The evolution of demand for energy in the Buenos Aires system is shown below:

	<u>1973</u>	<u>1974</u>	<u>1975</u>
Maximum demand (MW)	2,767	2,801	2,883
Energy (GWH)	14,611	15,176	15,887

With regard to flood control benefits, they have been much higher than expected at appraisal. The largest flood was in 1972 and the damage avoided was about US\$24,000,000 (The report mentioned 1975 as the date for

this flood.) This was the biggest flood of the century and had the project not been there, extensive damage in the rich agricultural area of the Rio Negro Valley would have resulted (see Annex 2 for further details). The 1975 flood was much smaller and no estimation of the avoided damage was made.

8. Paras. 6 and 7. At the moment of the Concession Law (1967), it could not have been foreseen that the exchange rate would be kept artificially low by the Government. The change in the valuation method of fixed assets affected only the accounting balance, and not the base for rate determination. Rates are still calculated according to the Concession formula (see Annex 3), and the revaluation of the assets mentioned was only for accounting purposes.

Hidronor has requested Government compensation for the difference between the actual electricity price received according to the energy pricing formula and the price to which it is entitled according to the Concession Law. This request was made at the end of the first year of operation (1974) and reiterated in 1975. The following table shows the differences between those prices and the balance due to Hidronor by the Government.

	Actual Tariff (\$a/kwh)	Tariff from Concession ^{/1} (\$a/kwh)	kwh sold (thousand)	Balance Due to Hidronor (\$a thousand)
1974	.0947	.137	1,992	84,175
1975	.300	.649	2,417	844,947

/1 See Annex 3 for the estimated tariff according to the Concession Law.

In the case of 1974, the actual \$a operating income (\$a 109.9 million) would have increased by 77% to \$a 194.08 million. The rate of return measured by the appraisal methodology (operating income to gross fixed assets in operation plus 4% for working capital) will increase to about 8%.

The financial results for 1975 were not yet available, but according to Hidronor the 8% rate of return also would be achieved if the Government were to reimburse them for the difference in tariffs.

Para. 7 is incorrect regarding the changes in the method of depreciation. The method of depreciation for rate determination has not changed. The straight line method has always been used for the accounting balance.

Another general comment is that the sentence on page 6, line 10, about the US\$ value of the tariff, is not fair. The 1974 tariff has been

converted into dollars using the end of 1975 exchange rate, which was about 7 times higher than the 1974 rate. Hidronor is of the opinion that the 1974 exchange rate was used to obtain the dollar value of the 1974 tariff.

On page 5, line 27, it reads "... electricity pricing decree ..."; it should read "... electricity pricing resolution" (A resolution is much less powerful, from a legal point of view, than a decree).

9. Para. 8. This change in the method for electricity rate determination was imposed by the Government. This rate is much lower than the one to which Hidronor is entitled. Since early 1975, Hidronor has been asking the Government for compensation for the difference between the rate to which it is entitled according to the Concession Law and the actual rate. At its last meeting, Hidronor's Board of Directors decided to include this amount as a Government debt. So far the Government has not responded.

10. Page 6, Line 19. In Hidronor's opinion, the Bank became interested in the issue of electricity pricing during the 1975 supervision mission, and not in 1974 as stated in the report.

11. Para 9. Hidronor agreed that more frequent Bank supervision missions would have been required, particularly after 1973. More frequent supervision and greater emphasis on financial and organizational aspects were needed as of 1973 (the time of the starting of operations). This coincided with a change in senior staff after the mid-1973 change in government. The new staff is very competent, but it had no experience dealing with the Bank. They were not fully aware of the Bank's requirement for information. This, together with sporadic supervision, produced poor communications with the Bank. It is Hidronor's view that the Bank could have played a very important role in their efforts to get a tariff increase, based on the Concession Law, if it had become involved in this matter much earlier than mid-1975, during the completion report mission.

With regard to the two loans at less than the market interest rate, Hidronor feels they do not constitute a case of financial mismanagement, and it is not clear that the Bank's advice would have changed the decision to proceed with the loans. Both loans were the result of deliberate actions by Hidronor, and the losses in interest were more than outweighed by the benefits Hidronor expected from the works it financed. Moreover, from the country's point of view the works were clearly worthwhile, earning a very high rate of return because they permitted a phasing out of expensive thermal generating stations.

In the case of the loan to DEBA in 1971 (\$a 176.6 million or US\$17.6 million), the main benefits that Hidronor expected to obtain were as follows:

(a) The development of another important customer (it was estimated that DEBA would demand about 200 Mw), and thus Hidronor would reduce

*Probably a
print to be
fully enough
out in the
audit*

its dependence on its major customer (SEGBA). There were already some problems with SEGBA, and it was not clear if SEGBA would pay the agreed price; also, based on past experience, long delays in payments due by SEGBA were expected. Tariffs with DEBA will be negotiated, and Hidronor expected to obtain a better deal than with SEGBA. In addition, DEBA appeared to be a more reliable client than SEGBA and one that Hidronor expected to be punctual in its payments.

(b) There would be a substantial reduction in transmission losses. Total losses in the 1,018 km transmission lines were estimated at about 8%. The connection with DEBA would be at a point about 700 km from El Chocon, and the reduction in losses for the energy delivered to DEBA at that point, as against the alternative of delivering it to SEGBA in Buenos Aires, was about 3%.

(c) DEBA was reluctant, at that time, to carry out the works on the transmission lines because it was satisfied with the operation of its thermal plants in the area. In order to induce them to undertake the connection with El Chocon, it was necessary to offer some incentive. Hidronor thought the benefits just mentioned more than outweighed a reduction in the interest rate it would charge to DEBA for this loan. It can be agreed that the substantial oil price increases have changed the balance of the situation, and now DEBA is overanxious to complete the interconnection with El Chocon; but, of course, this event could not have been foreseen.

Loan to Aguay Energia (AYE) (\$a 12.2 million or US\$1.2 million).

This was a much smaller loan, of only about US\$1.2 million. The connection financed by this loan did not have any interest for AYE. This was a Government entity in deficit which was not interested at all in this connection. The only way to induce AYE to undertake the works was by a four-year interest-free loan. According to Hidronor, this was an economical solution for obtaining energy during the construction period of El Chocon, and it was clearly more advantageous than the alternative of having to build its own generating source at El Chocon for the construction period.

Summing up, Hidronor's view is that the financial decisions must be judged in a broader context than the terms of the loans alone. A certain decision is the result of consideration of different factors, and Hidronor thinks that there were enough reasons to justify a lower than the market interest rate in these two loans to induce the other parties to undertake the works. In their opinions, the benefits for Hidronor more than outweighed the losses in interest.

12. Para. 10. They agree that there has been strong Government interference, particularly after 1973. Hidronor has had 9 different presidents since its creation in 1968. Seven of these headed the firm during the three-year period from 1973 to the present. Fortunately, the middle management positions have not changed very much and this has resulted in a continuity in management which is one of the main reasons for the success of the project.

Another area of Government interference was the Ministerial Resolution for electricity pricing. Hidronor has, since its first year of operation, repeatedly asked the Government for the application of the Concession Law, but with little success so far. This is an area in which the Bank's help could have been very important.

13. Page 8, Para. 8, Line 2. AYE is no longer a shareholder of Hidronor. This sentence may be misleading since the fact that AYE was a shareholder at that moment did not have any influence on the terms of the loan. The works to be undertaken with the loan were for the direct benefit of Hidronor and not of AYE.

Some Additional Comments on the PCR

14. Para. 18.05. The completion date for Stage II is delayed because of the accident with the alternator of Unit 3. Unit 5 was put in service in May 1976, and Unit 6 is expected to be in commission in November 1976. ✓

15. Para. 21.01. Hidronor's only shareholder is now the Corporacion de Empresas Nacionales.

16. Para. 23.02. Commercial operations started only in September 1973. The testing period was September-December 1973, and not all of 1973 as implied in this paragraph. The losses capitalized were very small. ✓

17. Paras 23.02-23.06. They do not agree with the Bank's view that there were violations to the clauses of the Concession (see para. 8), and they intend to elaborate on this point in their letter. They did recognize, however, that they did not send the Bank all the required information, but this was only because of a lack of experience in dealing with the Bank and the sporadic nature of the supervision missions after 1973. (In fact there was only one such mission after that date.)

18. Para. 23.08. Hidronor has been complaining to the Energy Secretariate about the lack of application of the Concession Law since early 1975, immediately after the end of the first year of commercial operations.

19. Para. 24.03. This paragraph seems to imply that the loans in Spain and England were obtained under unfavorable conditions for Hidronor. According to Hidronor this is not true. All loans must be approved by the Economic Ministry, which would not have given approval if the terms were unfavorable. The terms were comparable to those of other loans obtained by the Argentine Government at that time.

The dates are wrong. Negotiations for the loan from Spain started in June 1972, and the loan was signed in January 1973. In the

Then could be less than favorable to, or contrary to government

case of England, negotiations started in October 1973, and the loan was signed in March 1974.

20. Para. 25.02. Hidronor did not agree. They complied with the Concession Law for the tariff determination, but the Government did not allow them to set the tariff at that level.

21. Para. 25.03. The loans in Spain and England were obtained under conditions no less favorable than those other loans obtained by the Argentine Government in that period.

22. Para. 25.04. They argue that they have complied with all the conditions of the Concession Law concerning rate determination.

23. Para. 25.05. They argue that the loans to AyE and DEBA cannot be considered incompatible with sound financial practices. The terms of the loan must be considered in a broader context.

MEMartinez:tdj

SENIOR STAFF OF HIDRONOR THAT PARTICIPATED IN THE DISCUSSIONS

Ing. C. Labrune, Gerente Obras

Ing. J. Lagrange, Gerente Estudios y Proyectos,

Lic L. Guarnaccia, Gerente Financiereo

Lic O. Andrade, Dep. Financiero

1972 FLOODS

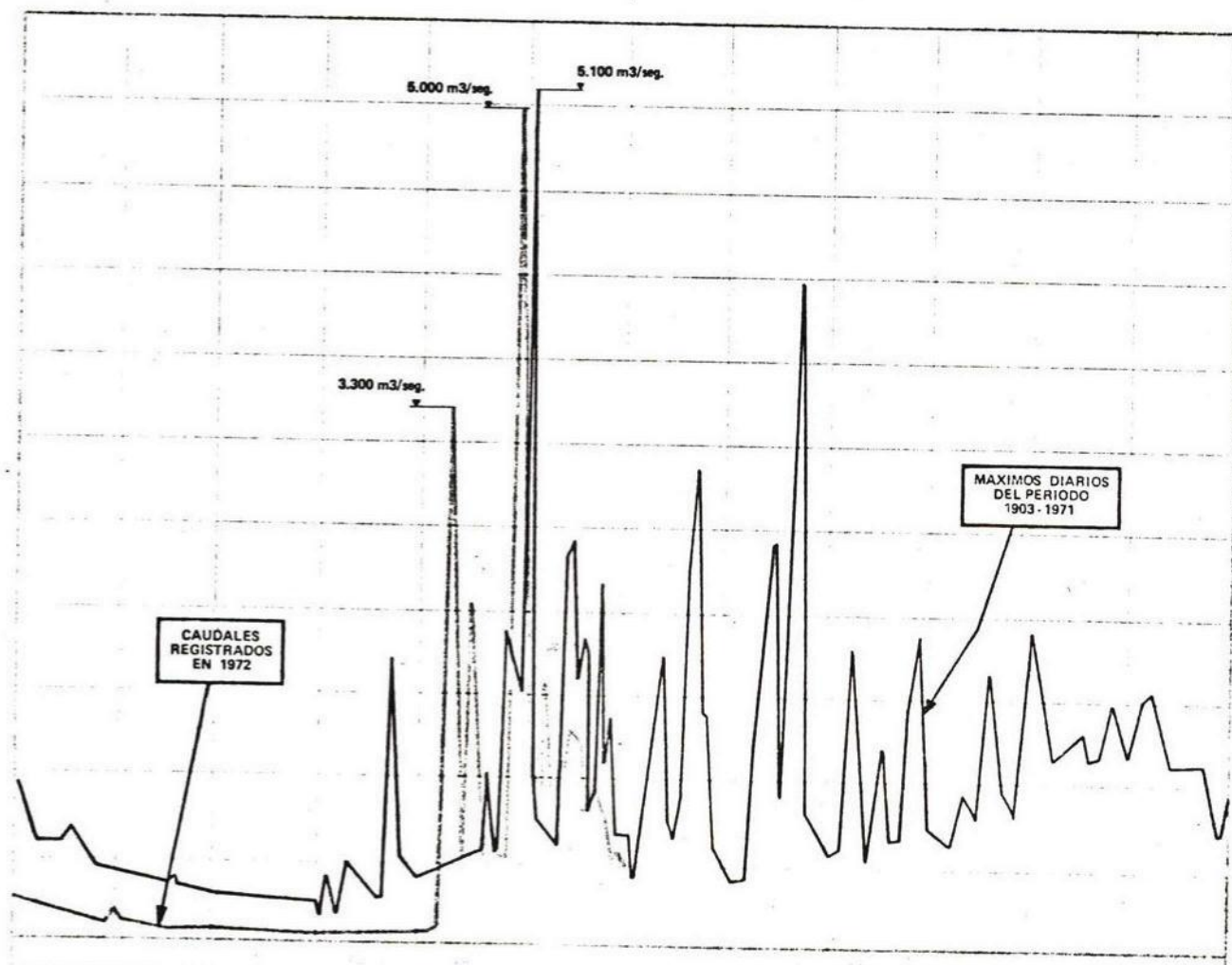
Conocidos los registros de los ríos Neuquén y Limay en los últimos 70 años, y analizados estadísticamente, desde el comienzo de la construcción se esperaba un año húmedo excepcional que viniera a cerrar un período seco sin precedente, de más de 10 años consecutivos.

Las tormentas que azotan el oeste desde el comienzo del otoño y las crecidas producidas en el mes de mayo, así como el ritmo de llenado de los

embalses de El Chocón y de Cerros Colorados, nos muestran a 1972, en el mes de julio, como el año húmedo excepcional que desde 1969 se presentaría vendría a restablecer la "normalidad" estadística de la hidrología de esta zona.

De haberse producido las grandes crecidas de 1972 en cualquier otro año anterior del período de construcción, las obras del Complejo no habrían sufrido daños ni postergaciones, porque la ocurrencia de estos eventos fue considerada en los planes de trabajo, pero no habrían podido ejercer ningún control sobre los caudales. En 1972 las obras del Complejo inauguraron anticipadamente su funcionamiento con toda eficiencia; sin ellas pudieron haberse repetido en los valles de los ríos Neuquén y Negro los graves

Figura 3 - Río Neuquén. Gráfico de caudales.



perjuicios infligidos a la región por los ciclos incontrollados del agua.

Las grandes crecidas de mayo 1972 del río Neuquén

La figura 3 exhibe en línea fina la curva "envolvente de caudales máximos diarios" de la historia conocida del río Neuquén. Esta línea indica los caudales máximos registrados en cada día del año. En el mismo gráfico se ha sobrepuesto en línea gruesa la curva de los caudales producidos en la presente temporada, en la que se destacan las grandes crecidas recientes del 9 y del 29/30 de mayo:

La crecida del 9 de mayo: su pico se ha estimado en 3.300 m³/seg o sea que conforme a los valores de crecidas máximas de los últimos 70 años se ubica entre las cinco más importantes conocidas.

Una singularidad propia de esta crecida es que se produjo en una época temprana de mayo, adelantándose en varias semanas a la temporada regular de aguas altas.

Las vistas aéreas que acompañan este texto (fotografías 6 a 8 y figura 4 que indica los puntos de toma) muestran aspectos de las obras de Portezuelo Grande durante el pasaje del pico de esta crecida: 3.000 m³/seg se derivaron hacia la cuenca de Los Barreales y sólo 300 m³/seg continuaron en el lecho del río escurriendo hacia el valle aguas abajo.

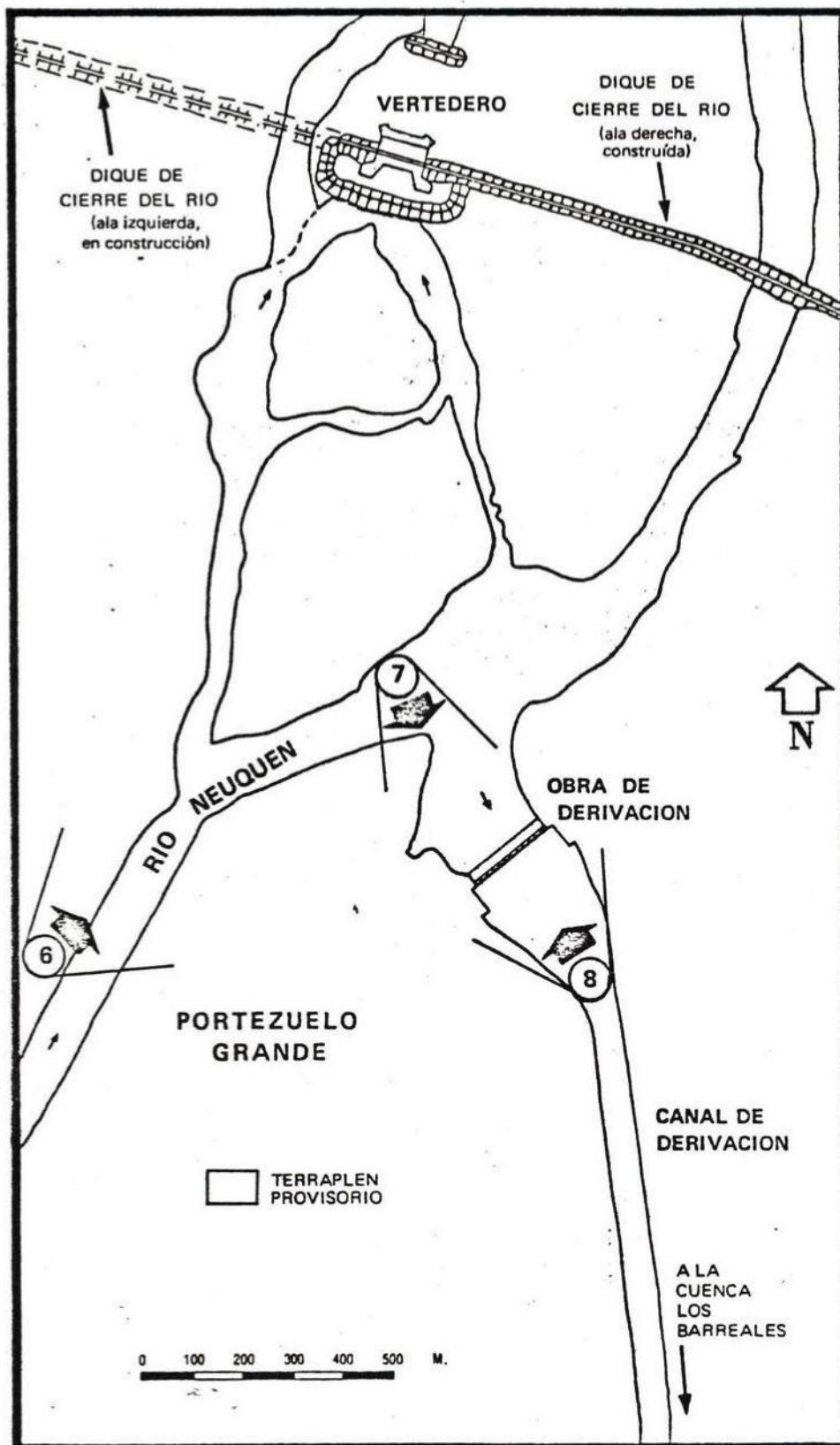


Figura 4 — Portezuelo Grande. Indicación de los puntos de toma de las fotografías de la crecida del 9 de mayo.

2. Crecida del 29 y 30 de mayo: esta crecida repitió el fenómeno más formidable de todo el período de registro, con un pico algo superior a 5.000 m³/seg. Un caudal de esta magnitud, luego de haberse concentrado con dramática destrucción en todo el noroeste neuquino, habría causado daños importantes en áreas cultivadas del valle del río Neuquén, y con el concurso de los 2.000 m³/seg que escurrían simultáneamente por el Limay habría provocado serias pérdidas en todo el valle del río Negro.

Pero la crecida encontró las obras de Portezuelo Grande ya con adecuada capacidad de control, a la par que las obras de El Chocón se hallaban en pleno período de embalse. La onda de destrucción se detuvo en estas obras produciéndose en ellas la distribución de caudales que a continuación se explica.

A Portezuelo Grande llegaron 5.000 m³/seg, de los cuales 3.500 se derivaron a la cuenca de Los Barreales y 1.500 siguieron curso río abajo, como ilustra el esquema de la figura 5 adaptado sobre la fotografía de la crecida del día 9.

En lo que respecta al comportamiento de las obras en esta circunstancia, si se compara este esquema (para 5.000 m³/seg) con el anterior (para 3.300 m³/seg) se observará que existe una vía adicional de evacuación a través del vertedero del dique sobre el río. Esta obra se hallaba prácticamente concluida al producirse la crecida y fue habilitada parcialmente para contribuir a la función de control. La figura 5 muestra que de los 1.500 m³/seg evacuados hacia aguas abajo, 500 m³/seg escurrieron por el canal lateral izquierdo natural del valle y 1.000 m³/seg atravesaron la estructura del vertedero.

Simultáneamente con esta operación de control en Portezuelo Grande, El Chocón recibía 2.000 m³/seg de los que sólo liberaba 150.

Situación a partir de 1973

El esquema de la figura 6, adaptado sobre la misma fotografía de la crecida del 9 de mayo de este año muestra la capacidad final de la obra de Portezuelo Grande con la cual operará a partir de la próxima estación de aguas altas, ya concluida la excavación adicional en el canal y construida el ala izquierda del dique de cierre del río Neuquén. Hasta 11.500 m³/seg podrán controlarse en Portezuelo Grande sin que la evacuación hacia aguas abajo supere 3.500 m³/seg, caudal que a su vez será regulado por la obra existente del Dique Ballester y el Lago Pellegrini, que continuarán desempeñando su función actual.

Por su parte las obras de El Chocón, que ya se encontrarán totalmente habilitadas, contarán con una capacidad de control de crecidas para 8.000 m³/s. (*)

ESTIMATION OF THE TARIFF ACCORDING TO THE CONCESSION LAW - 1974A. Tariff Base (Article 12, Concession Law)

1) Gross value fixed assets in service (US\$ thousand)	226.48
2) (1) converted into \$a at the financial exchange rate for 1974 (Article 12, Section C, Concession Law) (\$a million)	2,260.27
3) (2) + 4% for working capital (\$a million)	90.41
4) Total Tariff Base (\$a million)	2,350.68

B. Estimation of Tariff (Article 14, Concession Law)

5) Operating cost (\$a million)	65.96
6) Depreciation (calculated by the sinking fund method 8% interest) (\$a million)	6.22
7) Net profit of 8% on the Tariff Base (4) (\$a million)	188.05
8) Royalties	<u>13.69</u>
9) Total (\$a million)	<u>273.90</u>
10) Generation in 1974 (mwh)	1,992,919
11) Tariff/kwh $((9) \div (10) \times 1,000)$	\$a .137/kwh

OFFICE MEMORANDUM

TO: Mr. Warren C. Baum

DATE: June 29, 1976

FROM: R. H. Sheehan

SUBJECT: ARGENTINA: El Chocon (Loan 577-AR)
Draft Project Performance Audit Report

Our comments on the draft report (the numbers refer to the paragraphs in the report) are as follows:

4. I would prefer to see the reference to the two technical incidents with the "turbo-alternator" separated to describe the first incident with the turbine and the second incident with the generator. These are hydro units and it is not common to refer to them as "turbo-alternators".

6. The report states that "commendably" Hidronor used a method to modify the rate base which more adequately reflected general economic conditions in Argentina. This method was probably better than using the dollar exchange rate as called for in the concession but it is not necessarily the best method to use. For example, the method of determining replacement cost new minus observed depreciation would undoubtedly give a more realistic value of the assets. I am not suggesting that the method Hidronor used was wrong; I just do not think they should be "commended".

7. The report states that in 1974 when Hidronor became committed to a second project they "rightly" decided to change to straight-line depreciation. Again, while it was not wrong to do so, I would question whether it was done "rightly" or not. Moreover, both this change and the one mentioned in the paragraph above were violations of the loan agreement, which provided for Bank approval to any changes in the concession.

9. The report states supervision missions after 1971 were few and far between. This is a fact and, as I mentioned to both you and Mr. Willoughby before, it was a conscious decision based on the sophistication of the Argentines. In my opinion, it would not have been necessary for us to send a mission to review the changes in the methods for calculating assets or depreciation - all they had to do was write to us. The responsibility for communicating was at least as much theirs as ours; we weren't changing the rules they were. The argument that Hidronor needed assistance from us to tackle the government is patently weak. For all practical purposes, the government and Hidronor are synonymous. Also, with respect to the two loans that Hidronor granted to its customers, it is hard for me to see how the Bank could have argued with the government when the Bank was not informed about the loans until after they were signed.

RHSheehan:smo

cc: Messrs. Kapur
Wessels

440098 WORLDBANK

INCOMING TELEX

*cc'd to meeting
SS
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C*

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ASSOCIATES

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From

PLEASE REFER TO

16th February 1976

Mr. Thomas W. Berrie,
Senior Evaluation Officer,
Operations Evaluation Department,
The World Bank,
1818 H Street, N.W.,
Washington, D.C. 20433.

Dear Mr. Berrie.

Argentina - El Chocon Project

Thank you for your letter of 9th February. I have checked with Mr. Pedder and can now confirm that the date and time of the meeting at his office is convenient to both of us.

Mr. Reeve is a victim of a current influenza epidemic, but he assures me that he will be with us if his existing commitments permit.

Yours sincerely,

Robert Fitt.

ARTHUR W. PEDDER, FIMechE FIEE
HAROLD J. BEARD, FIEE
THOMAS W. WILCOX, FIEE Fel IEE
GEOFFREY G. R. ARGENT, FIMechE
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DAVID C. TUCKER, ACIS

File
MERZ AND McLELLAN
El Chocon
CONSULTING ENGINEERS

AMBERLEY, KILLINGWORTH
NEWCASTLE UPON TYNE
NE12 0RS

Telegrams: Amber Newcastle-on-Tyne
Telephone: Newcastle 683838 (STD code 0632)
Telex: 53561

ALSO
CARRIER HOUSE, WARWICK ROW
LONDON, SW1E 5EN

T.W.BERRIE ESQ.
Apartment 405,
4530 Connecticut Avenue NW,
Washington DC 20008,
USA

YOUR REFERENCE

OUR REFERENCE TWW/JT

26th January 1976

Dear Tom,

Thanks for your manuscript letter dated 19th January. I am writing to you at your home address instead of phoning because at the present time business matters are causing me to bob about all over the place and as you know the time is approaching for my wife's operation and I find myself also bobbing about on domestic matters.

As regards El Chocon, I think the first point to make is that Gibbs are the main consultants and the first approach for any necessary assistance ought to be to them. Of course you may already have done this.

As far as we are concerned, the Partner who has had a hand in all aspects from the beginning up till now is Arthur Pedder and he is the person who has the best grip of all the general history. Of course he did not handle the electrical design (I did) nor the detailed mechanical design (W.H.Dixon now retired looked after that at Partner level) but I do not suppose that your report is intended to go deeply into purely design matters.

You use the phrase "handle this from your end" which could imply that you expect a lot of help from the consultants. However the sad truth is that for Gibbs and ourselves this job is in a state of being a financial disaster. We are so far in the red that the mere thought of extra work to help anyone else makes us go pale. Of course we have been trying for three years to get some redress but so far even serious discussion has been impossible owing to the many changes in Hidronor at top level and their general unhelpful legalistic attitude.

Presumably you will work most closely with Hidronor itself and we cannot help wondering if you would not do best to keep both Gibbs and M and M in reserve for constructive comments once some kind of a draft is available.

26th January 1976

T.W.BERRIE ESQ.

Naturally we do not want to be unhelpful (or at least not more so than our extreme financial stringency forces us to be) and if you and/or others want to talk about it straight away then I think the best place to start would be in London with Arthur Pedder.

Yours,

A handwritten signature in blue ink, appearing to read 'T.W. Wilcox', with a stylized flourish above the 'y'.T.W.WILCOX

OFFICE MEMORANDUM

TO: Mr. A. Krieger, Vice President, LAC
Mr. W. C. Baum, Vice President, Projects
FROM: Christopher R. Willoughby, Director, OED *CRW*
SUBJECT: Draft Project Performance Audit Report - Argentina: El Chocon
Power Project (Loan 577-AR)

DATE: May 25, 1976

1. I attach for your review and comments, the draft of a Project Performance Audit Report on Argentina: El Chocon Power Project assisted by Loan 577-AR. The draft report uses the revised Project Completion Report sent out by the Latin America and Caribbean Regional Office. I would appreciate receiving any comments you might have by June 30, 1976.

2. On June 3, we expect to send the draft audit report to HIDRONOR and the Sub-Secretary of Energy, Argentina, so we might receive their comments about the same time as yours.

Attachment

cc. Messrs: Van der Meer
Wiese
Rovani
Wyss
Perez
Wessels
Lehbert
Montford
Kanchuger
Linder
Leoni
Rydell

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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT PERFORMANCE AUDIT REPORT

ON

ARGENTINA: EL CHOCON POWER PROJECT (LOAN 577-AR)

May 25, 1976

PROJECT PERFORMANCE AUDIT REPORT

ARGENTINA: EL CHOCON POWER PROJECT (LOAN 577-AR)

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Currency Equivalents (Argentine Peso) and Inflation Index

Approx. Ave. Official Exchange Rate

Buenos Aires Cost-of-Living Index
(Year-to-Year average 1968=100)

1966	M\$N	207.00 = US\$1.00	66.59
1967		332.00	86.05
1968		350.00	100.00
1969		350.00	107.58
1970		378.00	122.20
1971	a\$	4.20	164.61
1972		9.98	260.84
1973		9.98	418.16
1974		9.98	507.00
1975		40.00	650.00

PROJECT PERFORMANCE AUDIT BASIC DATA SHEET

ARGENTINA: EL CHOCON HYDROELECTRIC PROJECT (LOAN 577-AR)

(Amounts (in US\$ mln))

	<u>Original</u>	<u>Disbursed</u>	<u>Cancelled</u>	<u>Repaid</u>	<u>Outstanding</u>
Loan 577-AR	82.0	82.0	NIL	2.2	79.8

Project Data^{1/}

	<u>Original Plan</u>	<u>Revisions</u>	<u>Actual or Est. Actual</u>
Conception in Bank	-		7/65
Board Approval	12/68		12/17/68
Loan Agreement	12/19/68		12/19/68
Effectiveness	3/21/69		3/21/69
Physical Completion	12/31/73		12/12/73
% of original project actually completed	100%		100%
Loan Closing	1/75		12/31/74
Total Costs (mln)	US\$ 265.4		US\$ 256.3
Econ. Rate of Return	-%		12%

		<u>Mission Data</u>			<u>Date of Report</u>
	<u>Month, Year</u>	<u>No. of Days</u>	<u>No. of Persons</u>	<u>Manweeks</u>	
Identification	5/66	7	1	1	6/13/66
Preparation	6/66	10	2	2 6/7	11/4/66
Preappraisal	5/67	7	3	3	6/2/67
Appraisal	8/68	20	2	5 5/7	9/10/68
Subtotal		44		12 4/7	
Supervision I	12/69	11	2	3 1/7	1/16/70
Supervision II	10/70	9	1	1 2/7	10/16/70
Supervision III	4/71	2	1	2/7	5/26/71
Supervision IV	8/71	5	3	2 1/7	9/14/71
Supervision V	6/72	3	1	3/7	6/28/72
Supervision VI	3/74	5	2	1 3/7	4/30/74
		35		8 5/7	

Amended Project - to Include Stage 2

Loan 577-AR of US\$ same^{2/} mln, signed January 16, 1973 for El Chocon Power Project.

1/ All this information refers only to Stage 1 of the Project.

2/ Amendment to project description only.

PROJECT PERFORMANCE AUDIT MEMORANDUM

ARGENTINA: EL CHOCON POWER PROJECT (LOAN 577-AR)

1. This memorandum is on an audit of results of the El Chocon Power Project, for which Loan 577-AR of December 1968 to Hidroelectrica Norpatagonica Sociedad Anonima (HIDRONOR) was closed in January 1975. It is based upon the corresponding Project Completion Report (PCR) herewith attached, which satisfactorily presents the technical aspects; on Bank files; on discussions with Bank staff and with the main consultants.
2. Before making Loan 577-AR, the Bank had made two loans to the power sector in Argentina, both to Servicios Electricos del Gran Buenos Aires S.A. (SEGBA), and has made one loan in the sector since then. This latter loan was again made to SEGBA.^{1/} HIDRONOR was established on December 13, 1967, as a stock corporation, by the Government for the purpose of carrying out the "El Chocon-Cerros Colorados Complex" Project (referred to hereafter in this audit as the "El Chocon" Project). HIDRONOR's shareholders are the Government and two Government-owned electricity supply institutions, one of which (SEGBA) being its main customer (about three-quarters of the total sales), the other 3 customers also being Government-owned electricity supply institutions.
3. The loan presently audited was originally to assist only Stage I of the El Chocon project, but was amended in January 1973 to enable an estimated US\$12 million (actual US\$13 million) of the loan to be disbursed (which would otherwise have remained undisbursed) to assist Stage II also. Stage II covers mainly additional generating units, flood control works and subsidiary dams. It is proceeding satisfactorily for completion in 1977, as scheduled. Stage I

^{1/} See Board document Sec M76-121, dated February 27, 1976, "Project Performance Audit Report: Argentina Third SEGBA Power Project", IBRD Report No. 1055 and Document R72-131, dated March 1972, "Operations Evaluation Report: Electric Power", IBRD Report No. Z-17, for coverage of the earlier loans.

consists mainly of an earth fill dam; a powerhouse (suitable for 6 x 200 MW turbo-alternators); 3 x 200 MW turbo-alternators; and a 500 Kv transmission system (of two single circuit lines) about 1080 Km in length, to take the electricity generated to HIDRONOR's main customers. The project is also to help irrigate additional agricultural land, and for flood control. Stage I, built substantially as planned, was within the budget and time schedule, although there have been some serious technical incidents both before and after project completion. This, mainly good, outturn was largely due to the technical competence of the Borrower (together with the main Contractor), in spite of frequent changes in HIDRONOR's top management. The building of Stage I within the budget means a reduction in Stage I costs in real terms. Among other things, this was due to lower than estimated costs for gates, penstocks and miscellaneous steel, together with lower financial charges, all of which factors could not have been foreseen at the time of appraisal.

4. The technical incidents were serious and, in the period 1973 through 1974, at times very much affected the standard of reliability of supply to SEGBA, the main supplier to the largest electric power market in Argentina, Greater Buenos Aires. It is not possible to calculate the loss to the economy which resulted from these incidents, but it would not be insignificant, bearing in mind the large numbers of industrial, commercial and residential electricity customers in SEGBA's supply area. Two of the three main technical incidents were in connection with the turbo-alternator, and one was in connection with the 1080 Km transmission line. Because one of the turbo-alternator incidents was found to be a design fault defect, it was rectified by the supplier without any cost to HIDRONOR. The responsibility for the second turbo-alternator incident has not been

resolved between HIDRONOR and the supplier. The third of the main technical incidents occurred during the initial stages of operation of the project, when 16 towers of the transmission line collapsed due to two very serious wind and rain storms. It has been found difficult to allocate responsibilities. Pending agreement between HIDRONOR and the Contractor, a large number of tower guy-wire foundations still await replacement. The Bank and the Borrower seem to have kept adequately in touch on these problems during project execution.

5. At the time of the appraisal the project (Stages I and II), at about US\$255/KW, was the least-cost solution, compared with an alternative thermal development, to providing the increased generating capacity required in the Greater Buenos Aires area between 1973 and 1978, for costs of capital less than 7-1/2%-10%, the range being consequent upon what values are taken for the capital and operating cost data. The lower end of the range indicated a marginal project. The Stage I development, at about US\$400/KW, made a realistic and economic first phase of development of the project, meeting the expected increment in demand for the period 1973/1974. Actual sales of electricity in the Greater Buenos Aires area have been somewhat less than forecast during the period 1972 to date, mainly because of country-wide economic difficulties. However, this did not diminish the economic justification for the project, in that the quadrupling of fossil fuel prices in the same period made each unit of electricity generated by the El Chocon Project correspondingly more valuable. The same very large increase in fossil fuel prices ensures that the project (Stages I and II) remains the least-cost solution to meeting demand increases in the Greater Buenos Aires area in the period

1973-1980, but for costs of capital as high as even 18%. At the time of the appraisal the internal financial rate of return on the incremental investment in the project itself was not calculated for either Stage I or Stage II. Using the most up-to-date estimates for the incremental costs and revenues (which are used as a surrogate for benefits) attributable to Stage I, gives an internal financial rate of return on the project's investment (the return being calculated over the life of the project) of about 12% (Annex A). The benefits do not include those from additional irrigation, or from flood control, both considered at the time of appraisal to be comparatively small. In fact, however, Stage I has been estimated to have already saved US\$24 million equivalent in damage that would have been caused by the 1975 flood alone.

6. From the financial aspects, the several devaluations incurred by the Argentine peso over the period of the project's construction make any comparison between appraisal forecasts and actual results not very meaningful. Besides the lower than normal water availability in 1974 (HIDRONOR's first year of full operation), which lowered sales by about 20% compared to estimates, three main factors directly affected HIDRONOR's financial performance in that year. The first factor was a change in the method of valuing assets. HIDRONOR's Concession lays down that HIDRONOR's fixed assets in operation were to be valued in US dollars, the value being then reconverted into Argentine pesos at the mid-year financial exchange rate. This method has the disadvantages (not foreseeable at the time that the Concession was drawn up) of neither reflecting adequately economic conditions in Argentina, particularly the fact that exchange rates for the Argentine peso have sometimes been maintained at unrealistic levels, nor allowing for the gradual or smooth changes in asset valuation desirable (especially) for

rate determination. Accordingly, and commendably, HIDRONOR used a method more adequately reflecting general economic conditions in Argentina, and which had been in use since 1972 by nearly all the Argentinian commercial entities. This revised method was a revaluation based upon the variations of the general wholesale price index, excluding agricultural projects.

7. The second financial factor was a change in the method of calculating depreciation. The method laid down in HIDRONOR's Concession for depreciation (equal annual payments to a sinking fund) is appropriate for use by a Corporation expected to be owning and operating only one project, which was HIDRONOR's expectation when the Concession was drawn up. When, in 1974, HIDRONOR became committed to a second major project, it rightly decided to change to the "straight-line" method of dealing with depreciation, more suitable to a multi-project Corporation, which it had become. Unfortunately, the difference in the actual figure for depreciation as calculated by the two methods was large, amounting to a ten-fold increase in the one year 1974, and some more gradual transition would seem to have been more appropriate. Even so, the change would not have shown so large an effect on HIDRONOR's financial performance, if HIDRONOR had, at the same time, changed the rate base for calculating its annual financial return to assets net of depreciation, from gross assets (as laid down in the Concession).

8. The third factor, which affected HIDRONOR's financial performance in 1974, was a change in the method of obtaining electricity rates, and this change was imposed by the Government. HIDRONOR's Concession lays down that electricity rates be such as to provide an annual financial return (operating income to gross fixed assets in operation) of 8% and, in the Guarantee Agreement to the loan, the Government undertook to stand by this aspect of the Concession. In practice, by Government decree, from November 1973, HIDRONOR's rates were

determined, like the rates of all electricity generating and transmitting undertakings in Argentina, by the sum of two factors, representing respectively; (i) the cost of energy (Kwh) and; (ii) the cost of power (maximum demand Kw). The cost of energy was quite wisely based upon the price of fuel oil; but the indexing of the cost of power to the peso exchange rate and the salary of a worker may not have been so wise, although this form of indexing produced variations similar to those which would have been produced by indexing the cost of power to other macro-economic indicators instead, e.g. the consumer price index. The overall effect of the above method of determining HIDRONOR's rates was an electricity price of about one United States "mil". (1975 exchange rate) per Kwh sold, which seems outstandingly low, even for a purely hydro-electric system, and a correspondingly low annual financial rate of return (3.6%, instead of the 8% expected at the time of appraisal, using the appraisal methodology to calculate each figure). It would seem, therefore, that HIDRONOR's customers have enjoyed quite a large subsidy because of the Government's method of determining rates. Besides encouraging the wasteful use of electricity, this has also implied a subsidization, by the economy as a whole, of the large comparatively affluent portion of the population in the Greater Buenos Aires area. When in 1974, the Bank, which had continuously taken a direct interest in the price that HIDRONOR charged for electricity, drew the attention of the Government to the likely serious effects of their electricity pricing decree, the Government raised the possibility of excluding HIDRONOR from the decree sometime in the future. This has not come to pass, although the Bank has given sporadic reminders to the Government.

9. Although, during the years immediately after the loan was made, Bank supervisory missions, of approximately two per year, would seem to have been

adequate, after 1971 supervisory missions were few and far between, averaging about 1 every 16 months, i.e. at a level likely to be inadequate for meaningful and successful discussions with the Borrower, and the Government, with respect to electricity pricing problems, or to changes in the methods for calculating asset valuation or depreciation, described earlier. By not allowing electricity rates to be raised to a level sufficient to obtain an 8% annual financial return the Government did not comply with the Guarantee Agreement. However, the Borrower probably required more assistance from the Bank than HIDRONOR got, to be able to tackle the Government on this question with any chance of success. In any case HIDRONOR was a new Borrower of the Bank, and probably needed more overall communication initiated by the Bank than it got, to be able to comply with the loan agreement, and to understand the Bank's own requirements for information (the PCR describes how HIDRONOR did not communicate with the Bank on certain important financial information, and this would seem to be at least part of the explanation as to why it did not do so). It can also be argued that greater Bank counsel was needed by HIDRONOR when the latter, of itself, granted two loans. In 1971 HIDRONOR granted a loan to one of its main customers (DEBA) in order that the latter could make connection, and thus buy electricity from HIDRONOR's system. The loan was on comparatively soft terms (6% interest - 15% was being demanded by the Government development banks at the time - on the unpaid balance over a period of about ten years); but, considering the economic impact to the area supplied by DEBA (up until then mainly served by expensively produced thermal generation, and with a comparatively low standard of reliability), the terms were probably justified, although it is arguable as to whether the Bank should not have argued with the Government that this was a subsidy to be paid by the Government, rather

than by HIDRONOR. Another small loan (about US\$1 million equivalent) was given interest free, and for a term of four years, by HIDRONOR to one of its shareholder electricity undertakings, Agua y Energía Eléctrica (AE), in order to obtain electricity supplies to construct the project, following which HIDRONOR could sell a (very limited) amount of electricity to AE. HIDRONOR's alternative was to put in, at the beginning of the construction period, a larger generating source than the present "house-set" at El Chocon; to rely on that larger generating source for stand-by for the power-station auxiliaries, instead of the proposed connection to AE; and to forego the small amount of electricity sales to AE. The overall economics seem to indicate that the connection to AE was worth the interest free loan, in that HIDRONOR could then substitute cheap hydro-electric electricity for electricity expensively generated by AE in a fossil-fueled power-station; but, again, it is arguable as to whether the Bank should have not brought to the attention of the Government that this, implied subsidy to AE should have been borne by the Government, rather than HIDRONOR.

10. The Bank played a positive role during the last stages of project preparation, in the determination of the optimum size and scope of the project; and in the revision of the description of the project in 1973, in that, without the revision (which in itself was desirable), about US\$13 million of the loan would have remained undisbursed. Supervision of the loan by the Bank, together with other forms of communication between the Bank and the Government/Borrower, were adequate for all purposes for the first few years after the loan was approved; and, for technical purposes, probably for all years to date. However, the sporadic and infrequent supervision missions after 1971, together with the inadequate overall communication between the Bank and the Government/Borrower, were insufficient to deal with the financial problems. This audit, therefore, accepts the main

thrust of the arguments in the last section of the PCR ("Lessons to be Learned"), although it believes that some of the actual wording to be misleading. In particular, the reference to the need for a sound management structure for HIDRONOR would seem to convey to the reader a wrong impression in that, despite frequent changes in top management, all HIDRONOR's managers seem to have done well in coping with a very difficult set of situations in the country and in the economy, sometimes accompanied by strong Government interference.

ARGENTINAHIDRONOR - EL CHOCON - STAGE 1LOAN 577 - ARINCREMENTAL FINANCIAL RATE OF RETURN(US\$ Million Equivalent^{1/})

	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976-----2024</u>
CAPITAL COSTS	3.6	52.0	52.3	76.7	39.4	24.5	7.8	-	- - - - -
OPERATING COSTS	-	-	-	-	-	-	0.5	0.7	0.8 - - - - - 0.8
REVENUES	-	-	-	-	-	-	20.0	23.0	25.0 - - - - - 25.0
INCREMENTAL BENEFITS	-3.6 ^{2/}	-52.0	-52.3	-76.7	-39.4	-24.5	11.7	22.3	24.2 - - - - - 24.2

Rate of Return = 12%1/ At constant price levels2/ Only revenues from electricity sales are counted as benefits

PROJECT COMPLETION REPORTARGENTINALOAN 577-AREl Chocón Power Project

1. Borrower: HIDRONOR, S.A. (Hidroeléctrica Norpatagónica Sociedad Anónima)
2. Guarantor: The Argentine Republic
3. Loan Amount: US\$82 million equivalent
4. Date Loan Signed: December 19, 1968
(an amendment was signed on January 16, 1973)
5. Effective Date: March 21, 1969
6. Closing Date: December 31, 1974
7. Period of Grace: 6 years, 3 months
8. Terms of Loan: 25 years, 3 months
9. Interest Rate: 6 - 1/2%
10. Commitment Charge: 3/4 of 1%
11. Amortization: Semi-annual payments starting March 15, 1975 and ending on March 15, 1994, with a final payment of US\$3,625,000.
12. Exchange Rate: Original at time of Appraisal 1 US\$ = M\$N350 = \$a3.50. Latest (May 1976) 1 US\$ = \$a 250.00
13. Appraisal Report: PU-1a, dated December 2, 1968
14. Fiscal Year: Calendar year
15. Project Description

15.01 The original project consisted of a part of the "El Chocon-Cerros Colorados Complex". The complex comprises an ultimate development of 1,200 MW at El Chocon, 450 MW at Planicie Banderita, and 500 kV transmission facilities to transmit power to the Greater Buenos Aires area. The original project (Stage 1) consisted of the following elements:

- (a) The El Chocon village, including housing, a church, a school, a rest house, commercial buildings, and a social and sports center, as well as paved streets, sidewalks, drains, water supply and sewerage systems, and an electrical distribution network;

- (b) The El Chocon earthfill dam across the Rio Limay capable of storing water up to a normal maximum level of about 381 meters above sea level. A gated concrete spillway on the right bank and a gated concrete intake structure on the left bank;
- (c) The El Chocon powerhouse on the left bank downstream of the dam and three 200 MW Francis-type turbine generators and related ancillary equipment. Steel-lined penstock tunnels to connect the intake to the powerhouse. A tailrace channel to return the water discharge from the powerhouse to the river; and
- (d) A 500 kV transmission system consisting of two single-circuit three-phase overhead lines about 1,080 kilometers long. A switchyard at the El Chocon powerhouse, intermediate switching stations near Puelches and Henderson, and step-down substation(s) near Buenos Aires.

15.02 On January 16, 1973 the Bank and the Borrower agreed on an amendment of the Loan Agreement in which the project was changed to consist of the following: (Stages 1 and 2):

- (a) The El Chocon village, including housing, a church, a school, a rest house, commercial buildings, and a social and sports center as well as paved streets, sidewalks, drains, water supply and sewerage systems, and an electrical distribution network;
- (b) The El Chocon earthfill dam across the Rio Limay capable of storing water up to a normal maximum level of about 381 meters above sea level. A gated concrete spillway on the right bank and a gated concrete intake structure on the left bank;
- (c) The El Chocon powerhouse on the left bank downstream of the dam and six 200 MW Francis-type turbine generators and related ancillary equipment. Steel-lined penstock tunnels to connect the intake to the powerhouse. A tailrace channel to return the water discharged from the powerhouse to the river;
- (d) The Portezuelo Grande diversion and flood control works diverting water from Rio Neuquen into the Los Barreales depression thus allowing regulation of the Rio Neuquen flows downstream;
- (e) The Loma de la Lata dam and regulating facilities controlling the flow between the Los Barreales depression and the Mari Memuco depression;
- (f) The Planicie Banderita power plant, including the intake in the Mari Memuco depression, steel penstocks, two 225 MW Francis-type turbine generators, and tailrace channel to return the water discharged from the turbines into Rio Neuquen;
- (g) A 500 kV transmission system consisting of two single-circuit three-phase overhead lines about 1,080 kilometers long. Switchyards at El Chocon and Planicie Banderita, intermediate switching stations near Puelches and Henderson, and step-down substation near Buenos Aires.

15.03 The change in project description was requested by HIDRONOR and accepted by the Executive Directors of the Bank due to the fact that the cost of that part of the project financed by the Bank loan turned out to be less than the original appraised estimate. As a result, it was estimated that about US\$12 million of the Bank's loan would remain in the Loan Account upon completion of the project. This was mainly due to:

- (a) Lower costs for gates, penstocks and miscellaneous steel; and
- (b) Lower financial charges.

16. Projected and Actual Disbursements of Loan

<u>Category</u>	<u>Projected</u> (in US\$ equivalent)	<u>Actual</u>
I. <u>Civil works at El Chocon (foreign cost)</u>		
(a) Main contract (excluding construction equipment)	27,600,000	
(b) Construction equipment	10,000,000	
Sub-total	37,600,000	44,191,916.56
II. <u>Gates, penstocks, miscellaneous steel</u>	21,400,000	7,386,908.16
III. <u>Consulting Engineers Services</u>	6,300,000	7,035,777.42
IV. <u>Interest and other charges on the Loan during construction</u>	16,700,000	10,400,000.00
Total disbursements for Original Project	82,000,000	69,014,602.18
V. <u>Amendment</u>		
<u>Civil works at Planicie Banderita (foreign cost)</u>		
(a) Main contract (excluding construction equipment)	9,200,000	
(b) Construction equipment	3,000,000	12,985,397.00
Total disbursement for Amendment	12,200,000	12,985,397.00
Total disbursements	n.a.	81,999,999.18

17. Objective and Justification

17.01 The project was designed to:

- i) Produce electric energy, to be consumed mainly by the end of 1973 by the Buenos Aires-Litoral system using the waters of the Rio Negro system; and
- ii) At the same time reduce floods in the valley.

Additionally the project was to help irrigate additional agricultural land. These objectives were met, including flood control as two heavy floods occurred in 1972 and 1975 which produced practically no damage at all. The project is estimated to have saved US\$24,000,000 equivalent in damage that would have been caused by the 1975 flood alone. Additionally 60,000 new ha. are being irrigated and land previously flooded periodically is now being used for agricultural production. The Chocon power plant began delivering energy to the Buenos Aires-Litoral system in 1973 and generated 2,570,000 MWh during 1974. 73% of total sales was delivered to Buenos Aires-Litoral system. This generation is about 20% less than estimated during appraisal due to lower than normal water availability.

17.02 At the time of appraisal, the project (Stage 1) was justified when compared with an alternative thermal development for equalizing discount rates between 7 1/2 and 10% (depending on two different estimates of the cost of the project). It appears evident, without repeating these calculations, that the project is justified today for much higher equalizing discount rates than those established at the time of appraisal, since:

- i) The cost of the project measured in current dollars is basically the same as at time of appraisal (in constant dollars, therefore, it decreased);
- ii) The capital costs of alternative thermal schemes are at least double than those used during appraisal; and
- iii) Fuel costs at least four times as much.

18. Construction Schedule and Problems Encountered

18.01 Stage 1 - The original schedule called for the first two generating units to be in service by mid-1973, and the third unit in January 1974. Actual completion dates of the three units are as follows:

Unit No. 1	12/29/1972
Unit No. 2	11/05/1973
Unit No. 3	12/12/1973

18.02 During tests of Unit No. 1 in April 1973 the turbine suffered a serious accident which was later revealed to have been caused by a faulty design. This design defect was corrected on all units by the supplier (Boving & Co. Ltd.), without any cost to HIDRONOR.

18.03 In March 1975 the alternator of Unit No. 3 had a serious accident when a fault between coils produced a fire inside the generator, damaging about a third of the windings (in agreement with HIDRONOR, the consultants had not considered it necessary to install fire extinguishing equipment). The cause of the accident was a bolt found wedged in the windings and presumably left there inadvertently during erection. The alternator has been repaired and should by now have been commissioned. The responsibility for this accident has not yet been resolved between HIDRONOR and the supplier (Siemens).

18.04 Another important accident which occurred during the initial stages of operation of the project was that 16 towers of the 500 kV transmission line collapsed in January 1974 due to two very severe wind and rain storms which caused the failure of the foundations of the windward guy wires. Later investigation showed that the foundations were inadequately chosen and a major proportion of these foundations have been replaced. It is difficult to pin down the responsibility for this accident, but undoubtedly the consulting engineers, Merz and McLellan, must bear a part of the blame due to inadequate interpretation of the soil mechanics investigation. However, about 2,000 foundations have still to be replaced pending agreement on costs between HIDRONOR and the contractor.

18.05 Stage 2 - Construction is on schedule and the estimated completion dates should be met i.e. 6 units at Chocon in service by December 1975 and the two units at Planicie Banderita by December 1977.

19. Project Cost

19.01 The comparison of the cost estimates of the completed project present an inherent difficulty due to the conversion of local currency into dollars. The Bank had previously suggested that HIDRONOR convert local expenditures into dollars at the rate of exchange prevalent at the moment of disbursement. However, this had the disadvantage to result in unrealistically high cost estimates for 1973 and 1974 because the rate of exchange was artificially maintained during those years at a level that did not reflect internal costs in Argentina. Due to this, the last supervision mission recommended HIDRONOR to convert the actual local costs of 1973 and 1974 into dollars, adjusting the actual rate of exchange by means of the whole-sale price index, a method which represents more clearly the true value of the Argentinian currency. (Local costs for subsequent years could again be converted at rate of exchange). Using both methods the following values result, excluding interest during construction. (For Stage 1, more than 99% of total cost has been disbursed):

		US\$ million	
	<u>Appraisal Estimate</u>	<u>Present Estimate</u>	
		<u>Previous Bank method</u>	<u>New Bank proposed method</u>
Stage 1	265.4	273.0 (+3%)	256.3 (-3.5%)
Stage 2	156.1	262.5 (+68%)	232.7 (+49%)

19.02 One can see that using either method the cost estimates for Stage 1 have not varied appreciably since appraisal. The difference in the cost estimates for Stage 2 are due to the fact that the design of Planicie Banderita was not completed at the time of appraisal and at the very best the cost estimates were rough guesses.

20. Consultants

20.01 HIDRONOR retained Sr. Alexander Gibb and Partners (U.K.) as the main consultant who subcontracted Merz and McLellan (U.K.) who were responsible for the engineering of the electro-mechanical part of the power plants and the transmission system. The overall performance of both consultants appears to have been good although HIDRONOR had initially some complaints about the technical competence of some of the people sent to Argentina by Merz and McLellan.

21. Main Contractors

Main contractors for the project were:

21.01 Stage 1 (Power Plant)

Civil works:	Impregilo-Sollazzo, S.A. (Italy)
Turbines:	Boving & Co. Ltd. (U.K.)
Generators:	Siemens A.G. (Germany)
Cranes:	" " "
Powerhouse Transformers:	Mitsubishi Shoji Kaisa Ltd. (Japan)
Breakers:	Brown Boveri. S.A. (Switzerland-Argentina)

21.02 Stage 1 (Transmission system)

500 kV Transmission line:	Anglo Argentinian Power Construction Consortium (U.K. - Argentina)
500 kV Breakers:	Brown Boveri, S.A. (Switzerland-Argentina)
Power Transformers:	Parsons Peebles Ltd. (U.K.)
Control Equipment:	Brown Boveri, S.A. (Switzerland-Argentina)
132 kV Cables:	Industrias Pirelly SAIC (Argentina)
Synchronous condensers:	A.E.I. (U.K.)

21.03 Stage 2

Generators:	Siemens A.G. (Germany)
Turbines:	Boving & Co. Ltd. (U.K.)
Civil Works:	Impregilo-Sollazzo, S.A. (Italy)

22. Organization and Management

22.01 The Borrower, HIDRONOR, created in 1967, is a stock Corporation whose shareholders are the Argentinian state, through the "Dirección Nacional de Energía y Combustibles", and two Government-owned institutions, "Empresa de Estado Agua y Energía Eléctrica" (AE) and "Servicios Eléctricos del Gran Buenos Aires" (SEGBA). Established at its inception to carry out and operate the Chocon-Cerros Colorados complex, including transmission lines and secondary installations, the Corporation has entered in 1973 into the second phase of its activities and is now selling bulk power to four Government-owned utilities, its main customer being SEGBA (73% of the total 1974 sales).

22.02 The management of the Corporation, from its inception has been efficient and competent when judging it from an over-all result stand point as the Corporation was able to complete a complicated project within the estimated time schedule and with a final cost below the original estimate (see para. 19). This has occurred in spite of numerous personnel changes in the Board and in the Executive Committee. These changes, in general, from the information available were due to reasons stemming from outside the Corporation. Some of these changes in top management were not communicated to the Bank as HIDRONOR was expected to do.

22.03. HIDRONOR's financial management is adequate. Since the Bank's appraisal, the Corporation has considerably improved the presentation of its accounts which have been standardized according to the system prescribed by the Federal Power Commission for the utilities in the U.S. They are being computerized with the help of a university consultant, but the results are still too incomplete to be adequately appraised. External auditing is very satisfactorily performed by the Buenos Aires firm of Drysdale, Reig and Vazquez.

23. Operating Results

23.01 Because of the several devaluations incurred by the Argentinian currency over the project period, a comparison between appraisal forecasts and actual results is not altogether meaningful, and the corresponding figures are therefore given in separate tables. In the actual funds statement, the exchange rate which is used is the one at the end of each year. Consequently, no column has been included for the total figures over the project period.

23.02 The appraisal report expected electricity production to start in time for the winter peak of mid-1973, however, experimental operations already started in December 1972, and 1973 was considered by HIDRONOR as a testing period for the Chocon system. Therefore, with the agreement of the Corporation's auditors, HIDRONOR decided to capitalize the losses resulting from this period of experimental operation. Because of the consequences of this procedure on the conditions of applicability of Sections 5.13 and 5.14 of the Loan Agreement, the Bank should clearly have been consulted before its implementation.

23.03 Due to lower than normal water availability, the 1974 sales were inferior to the appraisal estimates by about 20%, therefore lowering the Corporation's operating income. The operating results for HIDRONOR's first year of operations have been hindered by the Corporation's noncompliance with some clauses of its Concession and with some of the covenants of the Loan Agreement with the Bank. These violations

can be centered around three points, the assets valuation, the depreciation method, and the rate determination.

23.04 For purpose of rate base determination, Article 11 of the Concession requires that HIDRONOR's fixed assets in operation be valued in US dollars, the value being then reconverted into pesos at the mid-year financial exchange rate. This has the disadvantage of not reflecting economic conditions in Argentina due to unrealistic rates of exchange and of creating sharp variations in asset revaluations and rate determination.

23.05 Instead of adopting this method, the Corporation decided to make use of the provisions of law 19742, promulgated in July 1972, which allowed assets revaluation for all judicial persons, using a revaluation coefficient based upon the variations of the general wholesale index, excluding agricultural products. The Corporation's commendable purpose was to put itself under the general conditions applicable to all Argentinian commercial entities. This decision was taken without prior consultation with the Bank, in spite of Section 6.02, para (b) of the Loan Agreement which required prior approval of the Bank to any modification or failure to enforce any of the provisions of the Concession. No steps were undertaken to amend accordingly the stipulations of the Concession.

23.06 HIDRONOR's Concession soundly provided for the calculation of the rate of return over gross fixed assets with the use of a sinking-fund method for depreciation purposes. The advantage of such an approach was to avoid the gradual decline in tariffs which would have been implied by the use of a straight-line technique. Under this system, depreciation charges would have been considerably lower during the first years of operations than with the straight-line technique. However HIDRONOR decided to use the straight-line depreciation method without, at the same time, computing the rate of return over its net assets. While this situation reflects appropriately a change in the Corporation's status from a single-investment situation (for which an annuity-type return is commendable) to a multi-investment one (for which it is not), it was put into practice without prior consulting the Bank nor seeking a change in the Concession. As a consequence, the depreciation for power assets for the first year of operations, i.e. 1974, jumped from \$a9.2 million, to \$a92.2 million, thereby decreasing the operating income from \$a109.9 million to \$a26.9 million.

23.07 Section 5.13 of the Loan Agreement requires the Borrower to obtain rates for the sales of electricity such as to provide the 8% return authorized by Article 14 of the Concession. However, this provision was never enforced and has been superseded in practice -without the Bank being informed- by Decree No. 171 dated April 17, 1974, with retroactive effect for HIDRONOR as of November 1973. The purpose of this Decree was to unify the rates of all the electrical utilities involved over the country in the production and transmission of electricity and to determine them as the sum of two factors representing the cost of energy and the cost of power. The cost of energy based on the price of fuel-oil at the date of the Decree as a basis while the cost of power was a linear function of the exchange rate of the US\$ and of the salary of a worker at the time of the computation both variables being also indexed from the date of the Decree as a basis. The drawbacks of this system are to completely separate the electricity rates from the internal characteristics of the company, especially in the choice of the base values of the indexation and, conversely; to link them to variables which were not directly related to the operations of the company but were dependent on macroeconomic factors or even political decisions. While, a posteriori, and taking into account the difficulties of pricing in a period of high inflation, the indexing system seems to have produced variations rather similar to those of the consumption index, the

coefficient of the formula used for indexing were rather low and resulted in a 3.6% rate of return for the year 1974, instead of a projected 8%. Whereas the average revenue per KWh sold corresponding to a 8% rate of return should have been 14.1 centavos, the actual one was only 8.2 centavos (approximately one US mill at December 1975 rate of exchange), which is extremely low, resulting in a implicit subsidy - and a corresponding economic distortion - for the main consumers, principally SEGBA.

23.08 When informed about the seriousness of the situation, HIDRONOR's management explained that Decree 171 had been issued without prior consultation of HIDRONOR. Replying to the Bank mission's inquiry, the Ministry of Economic Affairs raised the possibility of excluding HIDRONOR at a later date from the field of application of Decree 171. It would therefore be desirable that during any future Bank loan to the Sector that during negotiations with the Government, the Bank obtain more reasonable tariff settings for bulk sales in Argentina, to eliminate the distortions described above, which undoubtedly affect the whole Sector. Otherwise the ultimate consumer is subsidized because of unrealistically low prices, a practice that leads to wasteful consumption patterns.

24 Financing Plan

24.01 The foreign exchange component of the project has been financed through borrowing. Disbursements were lower than forecasted for the first three years of the project, both because of the cost being inferior to the estimates (para. 15.03) and because of some delays in the works.

24.02 The Bank is HIDRONOR's largest creditor; US\$12 million of its US\$82 million loan having been reallocated, through an amendment to the Loan Agreement (para. 15.02)

24.03 In addition, the Corporation was able to obtain about US\$130 million from private banks from various countries, which was about three times the minimum expected at appraisal time. 90% of these loans were on relatively soft terms (about 15 years, and 5.5% to 8%) but two of them, obtained in 1974 from the Banco Central S.A., Madrid and from Lloyds & Bolsa Int., were on more stringent conditions. The first one, of US\$2 million, was for 18 months, without grace period, and at a rate of 2% above the current interbank rate in London for deposits in dollars at 6 months, and the second one, of US\$9 million, was for 4-1/2 years, with a one year grace period, at a rate of 1.125% above the London rate. In view of Section 5.16 of the Loan Agreement which requires the Borrower to make its best efforts to obtain credit on such terms and conditions as shall be satisfactory to the Bank and the Borrower, the Bank should have been consulted on the two latter loans.

24.04 HIDRONOR granted in 1971 a loan to the "Dirección de la Energía de la provincia de Buenos Aires" (DEBA) so that the latter may complete, in the Henderson substation, the interconnection with the El Chocon-Cerros Colorados project and the distribution system of DEBA. The loan, at 6% yearly on the unpaid balance, was over an estimated period of ten years with a two year grace period and the total disbursements during the period 1972-74 amounted to \$a176.6 million. By reducing the length of the transmission lines, the purpose of the project was to cut down electricity losses (by an estimate of 20 millions of KWh a year) and to improve the reliability of supply to the DEBA system.

24.05 Another loan was granted by HIDRONOR to the "Empresa del Estado Agua y Energía Eléctrica" (AE) so that the latter may complete the construction of a 65 km

transmission line from AE thermal power house Alto Valle to Planicie Banderita, and of a 50 km transmission line to El Chocon, of a transformer station at Planicie Banderita, of transmission lines from there to Loma de la Lata and Portezuelo Grande and of transformer stations at both locations. The loan, without interest, was over an estimated period of four years with one-year grace period and the total disbursements during the period 1972-1974 amounted to \$a12.2 million. The purpose of the project was to obtain a source of energy for the construction of El Chocon and Planicie Banderita, and to feed energy into the AE system after the completion of the Chocon complex. As HIDRONOR did not need this energy after completion of the project, this was an economic solution for obtaining energy during project construction without bearing the cost of the investment and, at the same time, as a way for ensuring a back-up supply of energy for the plant auxiliaries, in case of emergency after completion of the project. While the construction programs corresponding to these two loans might well have been technically justified, one of the loans was interest-free and the second was at 6% interest, while at the same time the usual rate for medium-term loans available from Government development banks was not inferior to 15%. It is not clear whether such financial subsidization of DEBA and AE by HIDRONOR was justified by the benefits to HIDRONOR mentioned above.

24.06 As internal cash generation started in 1973 only, most of the resources needed for the local component of the project had to come from Government equity contributions which were specially important in 1974 (\$a1,000 million, of which \$a840 million were actually paid), indirectly coming from the El Chocon fund created by law 17574. In 1973 and 1974, and as a consequence of delays in the payment of the funds, the Corporation had to resort to medium-term loans from local banks in order to finance the project works. Granted at interest ranging between 11% and 20% and for periods from 5 to 15 years, these loans amounted to \$a232.0 million in 1973 and \$a54.6 million in 1974. However, until such loans were obtained, it was necessary to obtain short-term loans from the Banco de la Ciudad de Buenos Aires. At the end of the year 1974 however, the Corporation's cash situation was favorable due to delays in the works of the Alicopa complex.

24.07 The sharp fluctuations in working capital during the period 1971-1974 were created by a small number of accounts. The variations in capital stock receivables were the outcome of the subscription and payments of equity contributions, and the steady increase in receivables from 1972 onwards was the consequence of the DEBA and AE loans and, for 1974, of a considerable amount of customers receivable (\$a121 million out of total sales of \$a199 million, i.e. more than 7 months) mainly due to SEGBA's indebtedness (this account was settled in April 1975). The large increase in accounts payable in 1973 was brought about by debts due to contractors and by the starting of reimbursements of short-term and medium-term loans from local banks.

25. Covenants

25.01 The Borrower has not complied with several of the covenants established during negotiations.

25.02 It did not comply with Section 5.13 of the Loan Agreement which requires to provide the return on investment authorized by the Concessions.

25.03 It did not comply with Section 5.17 of the Loan Agreement which requires the Borrower to make its best efforts to obtain credit on such terms and conditions as shall be satisfactory to the Bank and the Borrower.

25.04 It did not comply with paragraph (b), Section 6.02 of the Loan Agreement which requires the Borrower to comply with all the provisions of the Concession (and, in this case, the provisions concerning the depreciation and the return on investment).

25.05 The question is debatable whether the Borrower complied with Section 5.01 paragraph (a) of the Loan Agreement which requires the borrower to maintain its financial position in accordance with sound financial practices (cf. loans to DEBA and "Agua y Energía") and with Section 5.06 (d) which requires the Borrower to furnish to the Bank all such information as the Bank shall reasonably request concerning the administration, operations and financial condition of the Borrower (cf. major changes in management, loans to DEBA and "Agua y Energía"). The reason why this is debatable is that the Bank's requests occurred very infrequently due to insufficient supervision missions.

25.06 The Guarantor did not comply with Section 3.06 para (b), of the Guarantee Agreement which requires rates to be granted to the Borrower to provide the return authorized by the Concession.

26. Forecast Financial Performance

26.01 In the short run, HIDRONOR's financial prospects appear rather bleak. Despite a strong Government interference, mainly through the application of Decree 171 and pressures on its upper management, the Corporation is struggling towards a minimum of managerial and financial independence. Any improvement will have to come through a strict application of the Concession, perhaps preliminarily amended in order to take into account the existing strong inflationary pressures and the more complex nature of the investments.

26.02 If the general conditions regarding tariffs remain unchanged, HIDRONOR will have to depend for its survival on subsidies or government equity contributions. The Corporation plans to implement from 1975 onwards a considerable investment program in order to build the Alicopa complex, but a definition of the Government energy policy, and of its financing, is anxiously awaited and will unfortunately depend on the drastic measures which will have to be taken in order to reform the Argentinian economy, and the deficiencies found in the Electric Power Sector as a whole, e.g.:

- a) The great number of different entities engaged in generation, transmission and distribution of electric energy, with different degrees of competence;
- b) Lack of effective coordination of Sector planning; and
- c) Insufficient coordination between the electric power and other energy Sectors.

It would seem from the above that the Bank, when granting this loan to HIDRONOR, should have been more insistent with the Argentinian Government to initiate steps to rationalize the institutional structure and/or the management of the Sector.

27. Lessons to be Learnt

27.01 From the financial point of view, HIDRONOR's relationship with the Bank has not been as close as expected during the construction and operating periods of the project, and the Bank was not informed about major operating and organizational developments, some of these being in violation of the spirit and letter of the covenants of the Loan Agreement.

27.02 Being a young Corporation, HIDRONOR was staffed with personnel who did not have any previous experience of relations with the Bank, but would have been quite receptive to a closer cooperation. The Bank should have lent more attention to the organizational aspects of institution building, and required periodic and detailed reports on operations and on the implementation of a sound management structure. The management has declared its intention to maintain a constant and complete flow of information to the Bank.

Latin America and Caribbean Regional Office

May, 1976

HIDRONORVariations of Rate ParametersJanuary 1974 - July 1975

	<u>US\$</u> (pesos)	<u>Salary K</u> (pesos)	<u>Fuel Oil</u> (pesos/Tm)	<u>Energy</u> (Mwh)	<u>Power</u> (Kw/monthly)
January 1974	9.98	2,001	220	42.7	21.7
April 1974	9.98	2,350	245	47.5	23.2
November 1974	9.98	2,829	245	47.5	25.3
January 1975	9.98	3,287	245	47.5	25.3
February 1975	9.98	3,287	335	64.9	25.3
March 1975	15.10	3,542	335	64.9	35.0
June 1975	30.00	5,313	500	97.0	62.0
July 1975	35.50	5,313	500	97.0	69.0

FECHAS DE DEVALUACION DEL PESO ARGENTINO CON
RESPECTO AL DOLAR ESTADOUNIDENSE - MERCADO
FINANCIERO (DEVALUATION OF ARGENTINE PESO)

<u>Fecha</u>	<u>Cotización del Dólar Estadounidense</u>	
13/ 3/67	\$	3,50
18/ 6/70		4,00
6/ 4/71		4,04
3/ 5/71		4,12
7/ 6/71		4,20
25/ 6/71		4,40
30/ 7/71		4,70
25/ 8/71		5,00
20/ 9/71		7,45
Octubre/71 (Promedio)		7,27
Noviembre/71 (Promedio)		7,84
Diciembre/71 (Promedio)		8,45
Enero 1972 (Promedio)		9,32
Febrero/72 (Promedio)		9,66
Marzo/72 (Promedio)		9,74
Mayo/72 (Promedio)		9,88
Junio/72 (Promedio)		9,93
Julio/72 (Promedio)		9,95
22/ 8/72		9,98
4/ 3/75		15,10
9/ 6/75		30,00
16/ 7/75		35,50
11/8/75		42,50

ARGENTINA

LOAN 577-AR

Principal Points of Loan Agreement

- Section 5.05 - Borrower must coordinate its operation and expansion with SEGBA and other electric utilities in the Greater Buenos Aires area to prevent waste of energy, duplication of facilities and unnecessary investment and obtain agreements with SEGBA and other electric utilities regarding the most economic operation of generating plants.
- Section 5.13 - revenues must be sufficient to provide the rate of return authorized by Hidronor's concession.
- Section 5.14(b)- test provides that debt service coverage for preceding year may not be less than 1.5 times the maximum future annual debt service.
- Section 5.16 - prevents Borrower from prepaying long-term debt without prior Bank approval.
- Section 6.01 - changing Borrower's statute or concession without Bank approval are conditions for terminating the loan.
- Section 7.01(b)- as a condition of effectiveness for the loan, Hidronor's concession must become effective.
- Section 7.01(c)- as a condition of effectiveness, satisfactory arrangements must be made for the sale of power to SEGBA.
- Section 7.01(d)- as a condition of effectiveness, satisfactory arrangements must be made with the Guarantor that the proceeds from the surcharges on crude oil and electricity will be made available to Hidronor.

Principal Points of Guarantee Agreement

- Section 2.02(a)- requires Guarantor to provide Hidronor with the proceeds from the surcharges on crude oil and electricity.
- Section 2.02(b)- requires Guarantor to provide Hidronor, or cause Hidronor to be provided with, sufficient funds to complete the Project.
- Section 3.06 - guarantees that Borrower will be granted tariffs sufficient to achieve the rate of return authorized by the concession.

Section 3.07 - Guarantor must coordinate expansion of facilities of all electric utilities which supply power to the Greater Buenos Aires area.

ARGENTINAHIDROELECTRICA NORPATAGONICA S. A.EL CHOCON PROJECT - LOAN 577-ARIncome Statements - Appraisal Estimates

(M\$N million) (US\$1 = M\$N350)

<u>Year ending December 31:</u>	<u>1973 ^{/1}</u>	<u>1974</u>
Units generated (million Kwh)	1,535	3,200
Units sold (million Kwh)	1,473	3,072
Average revenue per Kwh sold (in pesos)	<u>3.60</u>	<u>3.46</u>
<u>Operating Revenue</u>	<u>5,309</u>	<u>10,631</u>
<u>Operating Expenses</u>		
Generation	263	525
Transmission	210	420
Administration	140	280
Depreciation	43	99
Amortization of non-power fixed assets	<u>137</u>	<u>274</u>
Total operating costs	<u>793</u>	<u>1,598</u>
<u>Operating Income</u>	<u>4,516</u>	<u>9,033</u>
<u>Interest Charges</u>		
Proposed IBRD loan	856	1,860
Proposed foreign loans (El Chocon Project)	522	1,217
Proposed medium-term loans	60	137
Proposed future foreign loan A (Stage II)	162	609
Proposed future foreign loan B (Stage II)	<u>---</u>	<u>51</u>
Total interest charges	<u>1,600</u>	<u>3,874</u>
Less: Interest charged to construction	<u>3,896</u>	<u>1,864</u>
Net interest charges	<u>(2,296)</u>	<u>2,010</u>
<u>Net Income</u>	<u>6,812</u>	<u>7,023</u>
Rate of return (operating income to gross fixed assets in operation plus 4% for working capital)	8%	8%
Times total interest charges covered by operating income	2.8	2.3

/1 Operations only during last six months of 1973.

HIDROELECTRICA NORPATAGONICA S. A.EL CHOCON PROJECT - LOAN 577-ARINCOME STATEMENTS - ACTUAL RESULTS

(\$a million)(US\$1 = \$a 9.98)

<u>Year ending December 31:</u>	<u>1973</u>	<u>1974</u>
Units sold (million Kwh)	-	2,420.0
Average revenue per Kwh sold (in centavos)	-	8.2
<u>Operating Revenue</u>	-	199.1
<u>Operating Expenses</u>		
Generation	-	23.2
Transmission	-	21.7
Administration	-	28.9
Depreciation	-	9.2
Amortization of Non-Power Fixed Assets	-	6.2
<u>Total Operating Costs</u>	-	89.2
<u>Operating Income</u>	-	109.9
<u>Interest Charges</u>		
Long-Term Loans	-	185.3
Less: Interest Charged to Construction	-	17.0
Net Interest Charges	-	168.3
Other Income	-	16.7
Provincial Taxes	-	10.0
Exchange Losses	-	6.5
<u>Net Income</u>	-	(58.2)
Rate of Return		3.6
Times Total Interest Charges		0.6
Covered by Operating Income		

Year ending December 31:	1969	1970	1971	1971	1973	1974	1969-74
SOURCES OF FUNDS							
Internal Cash Generation							
Operating income					4,516	9,033	13,549
Depreciation					43	99	142
Amortization of non-power fixed assets					137	274	411
Total Internal Cash Generation					<u>4,696</u>	<u>9,406</u>	<u>14,102</u>
Borrowings							
Proposed IBRD loan	9,251	6,178	6,386	4,123	2,412	350	28,700
Proposed foreign loans (El Chocón Project)	595	1,750	7,700	3,920	4,200	980	19,145
Proposed medium-term loans	19	96	403	780	1,044		2,342
Proposed future foreign loan A (Stage II)				2,835	4,270	4,515	11,620
Proposed future foreign loan B (Stage II)						1,575	1,575
Total Borrowings	<u>9,865</u>	<u>8,024</u>	<u>14,489</u>	<u>11,658</u>	<u>11,926</u>	<u>7,420</u>	<u>63,382</u>
Equity Investments							
Ordinary shares - Class A	10,190	8,150	8,990	13,298	17,710	18,370	76,708
Ordinary shares - Class "C"		6,585	6,585	3,292			16,162
Total Equity Investments	<u>10,190</u>	<u>14,735</u>	<u>15,575</u>	<u>16,590</u>	<u>17,710</u>	<u>18,370</u>	<u>92,170</u>
TOTAL SOURCE OF FUNDS	<u>20,055</u>	<u>22,759</u>	<u>30,064</u>	<u>28,248</u>	<u>34,332</u>	<u>35,106</u>	<u>170,654</u>
APPLICATION OF FUNDS							
Construction Costs (excluding interest during construction)							
Stage I							
El Chocón Project	18,585	20,755	27,155	13,790	8,575	2,730	91,630
Portezuelo Grande	140	2,835	6,300	1,610			10,885
Total Stage I	<u>18,725</u>	<u>23,590</u>	<u>33,455</u>	<u>15,400</u>	<u>8,575</u>	<u>2,730</u>	<u>102,515</u>
Stage II							
El Chocón Project (completed)				350	1,610	4,270	6,230
Planicie Banderita				5,355	7,700	3,360	22,035
Total Stage II				<u>5,705</u>	<u>9,310</u>	<u>13,230</u>	<u>28,265</u>
Total Construction Costs	<u>18,725</u>	<u>23,590</u>	<u>33,455</u>	<u>21,105</u>	<u>17,885</u>	<u>15,960</u>	<u>130,780</u>
Debt Service							
Amortization							
Proposed IBRD loan						764	764
Proposed foreign loans (El Chocón Project)		4	23	104	260	468	859
Proposed medium-term loans							
Proposed future foreign loan A (Stage II)							
Total Amortization		<u>4</u>	<u>23</u>	<u>104</u>	<u>260</u>	<u>1,232</u>	<u>1,623</u>
Interest							
Proposed IBRD loan	466	893	1,241	1,533	1,712	1,860	7,705
Proposed foreign loans (El Chocón Project)	19	96	403	780	1,044	1,217	3,559
Proposed medium-term loans	1	5	22	61	120	137	346
Proposed future foreign loan A (Stage II)				92	323	609	1,024
Proposed future foreign loan B (Stage II)						51	51
Total Interest	<u>486</u>	<u>994</u>	<u>1,666</u>	<u>2,466</u>	<u>3,199</u>	<u>3,374</u>	<u>12,625</u>
Total Debt Service	<u>486</u>	<u>998</u>	<u>1,689</u>	<u>2,570</u>	<u>3,459</u>	<u>5,106</u>	<u>14,308</u>
Dividends Paid						6,661	6,661
Redemption of Ordinary Shares - Class "C"					137	274	411
Executive Committee's Share of Profits						24	24
Increase or (Decrease) in Working Capital							
Cash	844	(1,829)	(5,120)	4,573	12,421	6,760	17,649
Accounts Receivable					430	431	861
Materials and Supplies	40	40	40	40	40	20	220
Prepaid Expenses	10	10	10	10	10	10	60
Accounts Payable	(50)	(50)	(50)	(50)	(50)	(50)	(300)
Total Increase or (Decrease) in working capital	<u>844</u>	<u>(1,829)</u>	<u>(5,120)</u>	<u>4,573</u>	<u>12,851</u>	<u>7,171</u>	<u>18,490</u>
TOTAL APPLICATION OF FUNDS	<u>20,055</u>	<u>22,759</u>	<u>30,064</u>	<u>28,248</u>	<u>34,332</u>	<u>35,106</u>	<u>170,654</u>
Cash Balances							

MEMORANDUM DE EVALUACION Y RESULTADOS

ARGENTINA: PROYECTO DE ENERGIA ELECTRICA DE EL CHOCON (PRESTAMO 577-AR)

1. Este memorándum se refiere a la evaluación de los resultados del proyecto hidroeléctrico de El Chocón, cuya fecha de cierre del Préstamo 577-AR, de diciembre de 1968 a Hidroeléctrica Norpatagónica, Sociedad Anónima (HIDRONOR), fue enero de 1975. Este memorándum se basa en el correspondiente informe de terminación del proyecto, aquí adjunto, en el que se presentan satisfactoriamente los aspectos técnicos, y también en la información de los archivos del Banco y las reuniones con personal del Banco y los principales consultores.

2. Antes de la concesión del Préstamo 577-AR, el Banco había otorgado dos préstamos al sector de energía eléctrica en Argentina, ambos a Servicios Eléctricos del Gran Buenos Aires, S.A. (SEGBA), y, desde entonces, ha concedido otro préstamo al mismo sector. Este último se concedió también a SEGBA.^{1/} HIDRONOR fue fundada por el Gobierno el 13 de diciembre de 1967, como sociedad anónima, con el objeto de llevar a cabo el proyecto de "Complejo de El Chocón-Cerros Colorados" (que, en adelante, se denomina Proyecto de "El Chocón"). Los accionistas de HIDRONOR son el Gobierno y dos entidades de distribución de energía eléctrica, propiedad del Gobierno, una de las cuales (SEGBA) es el principal cliente de HIDRONOR (aproximadamente dos tercios del total de ventas); otros tres clientes más son también entidades de distribución de energía eléctrica, propiedad del Gobierno.

3. El préstamo que se evalúa tenía originalmente como fin facilitar la construcción de la Fase 1 del proyecto de El Chocón pero, en enero de 1973, fue enmendado con objeto de que unos US\$12 millones (de hecho, US\$13 millones) del préstamo (que de otro modo no se habrían desembolsado) pudieran utilizarse para facilitar también la construcción de la Fase 2. En esta fase figurarán asimismo más generadores, obras de control de crecidas y represas secundarias. Las obras proceden satisfactoriamente según los planes previstos, estando fijada su terminación para 1977. La Fase 1 comprende: represa de terraplén, central (con capacidad para

^{1/} Véanse el documento de la Junta Sec M76-121, del 27 de febrero de 1976, "Informe de evaluación y resultados: Argentina, tercer proyecto eléctrico de SEGBA", el Informe No. 1055 del BIRF y el Documento R72-131, de marzo de 1972, "Operations Evaluation Report: Electric Power", Informe No. Z-17 del BIRF, sobre cobertura de préstamos anteriores.

6 turboalternadores de 200 MW), 3 turboalternadores de 400 MW y una red de transmisión de 500 Kv (dos líneas de un solo circuito) cuyo largo es de aproximadamente 1.080 km y distribuye la electricidad generada a los principales clientes de HIDRONOR. El proyecto comprende asimismo el riego de nuevas tierras de cultivo y el control de crecidas. La Fase 1, cuya construcción se ajustó en gran medida a los planes previstos, se ha ceñido al presupuesto y calendario fijados, si bien han ocurrido algunos accidentes técnicos graves antes y después de la terminación del proyecto. Este resultado, que cabe calificar de satisfactorio, se debe en gran parte a la competencia técnica del Prestatario (unida a la del contratista principal), pese a los frecuentes cambios ocurridos en la dirección de HIDRONOR. El que la construcción de la Fase 1 se haya ceñido al costo presupuestado significa que el costo de la Fase 1 en términos reales ha sido menor. Entre otros factores, esto se debe a que los costos de las compuertas, tuberías de carga y diversos aceros fueron inferiores a los estimados, además de menores cargos financieros, aspectos todos ellos que fueron imposibles de prever en el momento de la evaluación.

4. Los incidentes técnicos fueron graves y, en el período 1973/74, afectaron considerablemente en algunos casos a la regularidad del suministro de energía a SEGBA, el principal suministrador al mayor mercado de energía eléctrica de Argentina, es decir, al Gran Buenos Aires. No es posible calcular la pérdida ocasionada a la economía por estos incidentes, pero no ha de ser insignificante dado el gran número de clientes industriales, comerciales y particulares en la zona de suministro de SEGBA. Dos de los tres incidentes técnicos principales estuvieron relacionados con un turboalternador y el tercero tuvo que ver con la línea de transmisión de 1.080 km de recorrido. Como uno de los incidentes en un turboalternador se debió a una falla de diseño, el proveedor lo rectificó sin costo alguno para HIDRONOR. No ha podido determinarse si la responsabilidad por el segundo incidente en un turboalternador corresponde a HIDRONOR o al proveedor. El tercero de los incidentes técnicos se produjo durante las primeras etapas de funcionamiento del proyecto, cuando 16 torres de la línea de transmisión fueron abatidas durante dos fortísimas tormentas. Ha sido difícil determinar la responsabilidad por este incidente. Pendiente todavía un acuerdo entre HIDRONOR y el contratista, continúa sin reemplazo un alto número de cimientos de los vientos de las torres. Parece que el Banco y el Prestatario se han mantenido en debido contacto sobre estos problemas durante la ejecución del proyecto.

5. En el momento de la evaluación, el proyecto (Fases 1 y 2) era la solución menos costosa, US\$225/KW, frente al desarrollo de energía térmica, a los fines de facilitar la mayor capacidad generadora que la región del Gran Buenos Aires exigía entre 1973 y 1978 a un costo del capital inferior a 7½%-10%, gama que depende de los valores que se asignen al capital y a los datos de costos de explotación. El extremo inferior de la gama indicaba un proyecto marginal. El desarrollo de la Fase 1, realizado aproximadamente a US\$400/KW, entrañó una primera etapa realista y económica del desarrollo del proyecto, que satisfizo el incremento previsto en la demanda durante el período 1973/1974. Las ventas efectivas de energía eléctrica a la región del Gran Buenos Aires han sido algo inferiores al pronóstico realizado para el período de 1972 hasta la fecha, debido principalmente a las dificultades económicas atravesadas por el país. Sin embargo, esto no reduce la justificación económica del proyecto, pues la cuadruplicación del precio de los combustibles fósiles durante el mismo período significa que cada unidad de energía eléctrica generada por el proyecto de El Chocón es en igual medida más valiosa. Ese mismo encarecimiento de los combustibles fósiles asegura que el proyecto (Fases 1 y 2) continúa siendo la solución menos costosa para satisfacer el aumento de la demanda en la región del Gran Buenos Aires en el período 1973-1980, incluso con costos de capital que alcancen un 18%. En el momento de la evaluación, no se calculó la tasa incremental financiera interna de rendimiento de la inversión en el proyecto para la Fase 1 o la Fase 2. Con las estimaciones más actualizadas de costos e ingresos incrementales (que se utilizan como sustituto de los beneficios) atribuíbles a la Fase 1, se obtiene una tasa financiera interna de rendimiento de la inversión en el proyecto (calculado ese rendimiento en relación con la vida útil del proyecto) de aproximadamente un 8% (Anexo A). Los beneficios no incluyen los que se derivan del regadío adicional ni tampoco los de control de crecidas, que se consideraron comparativamente limitados en el momento de la evaluación. Ahora bien, se ha estimado que, de hecho, la Fase 1 ha representado un ahorro de US\$24 millones en el equivalente de los daños que sólo las crecidas de 1975 habrían causado.

6. Desde el punto de vista financiero, las diversas devaluaciones del peso argentino en el período de construcción del proyecto hacen que toda comparación entre las previsiones en el momento de la evaluación y los resultados obtenidos carezca de mucho significado. Aparte de que la disponibilidad de agua, que en 1974 (primer año de plena explotación) fue inferior a la normal y redujo las ventas en un 20% frente a las

estimaciones, hubo tres factores importantes que influyeron directamente en el balance financiero de HIDRONOR en ese año. El primer factor fue un cambio en el método de valoración del activo. La concesión recibida por HIDRONOR dispone que el activo fijo de la sociedad se valore en dólares de EE.UU., convirtiéndose luego el valor en pesos argentinos al tipo de cambio financiero a mitad de año. Este método presenta la desventaja (imprevisible cuando se dispuso la concesión) de que no refleja adecuadamente las condiciones económicas argentinas, y en especial no tiene en cuenta la circunstancia de que los tipos de cambio del peso argentino se han mantenido en ocasiones a niveles alejados de la realidad; tampoco permite la modificación gradual o progresiva de la valoración del activo que conviene (especialmente) para la fijación de tarifas. Por consiguiente, es loable que HIDRONOR haya decidido utilizar un método que refleja mejor la situación económica argentina y que casi todas las empresas comerciales del país utilizan desde 1972. El método revisado constituye una revaluación basada en las variaciones del índice general de precios al por mayor excluidos los productos agrícolas.

7. El segundo factor financiero fue una modificación en el método de calcular la depreciación. El método de depreciación que dispone la concesión a HIDRONOR (pagos anuales de igual magnitud a un fondo de amortización) encaja mejor en el caso de una empresa que posea y explote un solo proyecto, es decir, lo que HIDRONOR había previsto cuando se dispuso la concesión. En 1974, en vista de que se comprometía a un segundo proyecto, HIDRONOR decidió acertadamente que debía pasar al método de depreciación "uniforme", más adecuado para la categoría de empresa, como HIDRONOR, que explota más de un proyecto. Lamentablemente, la diferencia en la depreciación calculada con estos métodos ha sido importante --en 1974 entrañó un aumento de diez veces-- y habría sido mejor utilizar una transición más gradual. Aun así, la modificación no habría tenido tanta repercusión en el balance financiero de HIDRONOR si la empresa no hubiera decidido simultáneamente una modificación en el coeficiente base para el cálculo del rendimiento y pasar del activo bruto (como dispone la concesión) al activo menos la depreciación.

8. El tercer factor, que influyó en los resultados financieros de HIDRONOR en 1974, fue una modificación en el método de fijar las tarifas de energía eléctrica, modificación que fue impuesta por el Gobierno. La concesión otorgada a HIDRONOR dispone que las tarifas permitirán un rendimiento financiero anual (ingresos de explotación dividido

por el activo fijo bruto en explotación) del 8% y, en el Contrato de Garantía relativo al préstamo, el Gobierno se comprometió a cumplir este aspecto de la concesión. En la práctica, por decreto del Gobierno, las tarifas de HIDRONOR se fijaron en noviembre de 1973, al mismo tiempo que se fijaban las tarifas de todas las entidades argentinas de producción y distribución de energía eléctrica, en función de la suma de dos factores, a saber: i) el costo de la energía (Kwh) y ii) el costo de la potencia (demanda máxima en Kw). El costo de la energía se basó acertadamente en el precio de los combustibles, pero la indexación del costo de la potencia con el tipo de cambio del peso y el salario de un trabajador quizá no haya sido tan acertada, si bien este método de indexación produjo variaciones semejantes a las que habría producido la indexación del costo de la potencia a otros indicadores macroeconómicos, por ejemplo, el índice de precios al consumidor. El efecto global del método mencionado de fijar las tarifas de HIDRONOR fue establecer un precio para la energía eléctrica que representa aproximadamente una milésima de dólar de EE.UU. por Kwh vendido (al tipo de cambio de 1975), lo que parece excesivamente bajo incluso en un sistema totalmente hidroeléctrico. Además, la tasa financiera anual de rendimiento ha sido correspondientemente baja (del 3,6%, en vez del 8% que se había previsto en el momento de la evaluación, en ambos casos en función de la misma metodología utilizada para la evaluación). Por consiguiente, cabe suponer que los clientes de HIDRONOR han gozado de una subvención bastante considerable gracias al método utilizado por el Gobierno para fijar las tarifas. Además de fomentar el despilfarro de energía eléctrica, la situación ha entrañado un subsidio del conjunto de la economía en favor de la masa de población, relativamente acomodada, que reside en la región del Gran Buenos Aires. En 1974, el Banco, que ha desplegado un interés directo en el precio que HIDRONOR cobra por la electricidad, señaló al Gobierno los probables graves efectos del decreto sobre precio de la energía eléctrica, y el Gobierno indicó la posibilidad de excluir a HIDRONOR del alcance de las disposiciones. La exclusión no se ha concretado, si bien el Banco ha recordado el asunto al Gobierno en varias ocasiones.

9. Aunque en los años siguientes a la concesión del préstamo cabe considerar que las misiones de supervisión enviadas por el Banco, aproximadamente dos veces al año, eran suficientes, a partir de 1971 las misiones de supervisión fueron pocas e infrecuentes, como promedio una misión cada 16 meses. Esto entraña un ritmo que probablemente no fue suficiente

para mantener relaciones firmes y fructíferas con el Prestatario y el Gobierno a efectos del estudio de problemas como el precio de la energía eléctrica o las modificaciones en los métodos de cálculo del valor del activo o la depreciación. Al no permitir que las tarifas subieran al nivel que hubiera producido un rendimiento financiero anual del 8%, el Gobierno no cumplió con lo dispuesto en el Contrato de Garantía. Ahora bien, es probable que el Prestatario necesitara más apoyo del Banco del que HIDRONOR obtuvo para hacer frente al Gobierno sobre esta cuestión con alguna probabilidad de éxito. En todo caso, era la primera vez que HIDRONOR obtenía un préstamo del Banco y es probable que se hubiera beneficiado de más comunicación de la que obtuvo, a iniciativa del Banco, y así cumplir las disposiciones del Contrato de Prestamo y comprender los requisitos de información fijados por el Banco (en el Informe de Terminación se indica que HIDRONOR no mantuvo informado al Banco sobre ciertos aspectos financieros importantes, y la circunstancia que aquí se señala puede que explique en parte el motivo de que no se hiciese). Cabe también manifestar que se habría necesitado más orientación del Banco cuando HIDRONOR concedió, por iniciativa propia, dos préstamos. En 1971 HIDRONOR otorgó un préstamo a uno de sus principales clientes (DEBA) con objeto de que éste pudiera conectarse a la red y, así, obtener energía eléctrica del sistema de HIDRONOR. El préstamo se otorgó en condiciones relativamente concesionarias (6% de interés --los bancos de desarrollo del Gobierno exigían entonces el 15%-- sobre el saldo pendiente durante un período de aproximadamente diez años) pero, en vista del impacto económico en la región a la que DEBA suministraba energía (hasta entonces dependiente de energía eléctrica de costosa generación térmica y relativamente poco confiable), es probable que las condiciones se justificasen, aunque cabría señalar si el Banco no debió haber expresado al Gobierno que el subsidio que la operación entrañaba correspondía más bien al propio Gobierno, en vez de correr por cuenta de HIDRONOR. La empresa otorgó otro pequeño préstamo (aproximadamente por el equivalente de US\$1 millón), libre de intereses, por un plazo de cuatro años, a una de sus empresas eléctricas accionistas, Agua y Energía (AE), con objeto de que ésta adquiriese equipo eléctrico para un proyecto que, una vez concluido, permitiría que HIDRONOR suministrara energía (en cantidad muy limitada) a AE. De otro modo HIDRONOR habría tenido que instalar al principio del período de construcción una fuente de producción de energía mayor que la instalación prevista en El Chocón, confiar

en esa fuente para uso contingente de las instalaciones auxiliares de la central, en lugar de contar con la conexión propuesta con la red de AE, y prescindir del pequeño volumen de ventas a AE. Las razones económicas generales parecen indicar que la conexión con AE justificaba el otorgar un préstamo libre de intereses, pues HIDRONOR reemplazaba así la energía que AE generaba a un alto costo de producción térmica y combustibles fósiles por energía hidroeléctrica. No obstante, una vez más, cabe esgrimir que el Banco debió haber señalado al Gobierno que la subvención implícita otorgada a AE debía correr por cuenta del Gobierno y no de HIDRONOR.

10. El Banco ha desempeñado un papel positivo en las últimas etapas de preparación del proyecto, en la determinación de la magnitud y amplitud óptimas del proyecto y en la revisión de la descripción del mismo en 1973 pues, sin esta revisión (que, de por sí, era conveniente), habría quedado sin desembolsar un total de aproximadamente US\$13 millones. La supervisión del préstamo realizada por el Banco, ligada a otras formas de comunicación entre el Banco y el Gobierno/Prestatario, fue adecuada en todo aspecto durante los primeros años a partir de la aprobación del préstamo y, desde el punto de vista técnico, puede que en todos los años hasta la fecha. Sin embargo, el carácter irregular e infrecuente de las misiones de supervisión a partir de 1971, más la deficiente comunicación general entre el Banco y el Gobierno/Prestatario, no bastaron para hacer frente a los problemas financieros. Por consiguiente, en esta evaluación de los resultados se aceptan los aspectos centrales del razonamiento expuesto en la última sección del Informe de Terminación ("Lecciones que se derivan"), si bien se considera que ciertos fragmentos de la redacción pueden dar lugar a interpretaciones equívocas. En especial, la referencia a que HIDRONOR necesita una estructura firme de gestión podría inducir al lector a error pues, pese a los frecuentes cambios ocurridos en los altos directivos de la empresa, todo el personal directivo de HIDRONOR parece haber superado bien las circunstancias muy difíciles del país y de la economía. En ocasiones, han estado ligados a fuerte interferencia gubernamental.

11. Con respecto al sector eléctrico en general, es lamentable que este préstamo (así como otros préstamos para electrificación subsiguientes) no haya sido usado por el Banco para ayudar en el mejoramiento de la estructura institucional del sector.

INFORME DE TERMINACION DEL PROYECTOARGENTINAPRESTAMO 577-ARProyecto de energía eléctrica de El Chocón

1. Prestatario: HIDRONOR, S.A. (Hidroeléctrica Norpatagónica Sociedad Anónima)
2. Garante: La República Argentina
3. Importe del préstamo: El equivalente de US\$82 millones
4. Fecha del préstamo: 19 de diciembre de 1968
(se firmó una enmienda el 16 de enero de 1973)
5. Fecha efectiva: 21 de marzo de 1969
6. Fecha de cierre: 31 de diciembre de 1974
7. Período de gracia: 6 años y 3 meses
8. Condiciones del préstamo: 25 años y 3 meses
9. Tipo de interés: 6 - $\frac{1}{2}\%$
10. Cargo por compromiso: 0,75%
11. Amortización: Pagos semestrales a partir del 15 de marzo de 1975 hasta el 15 de marzo de 1994, con un pago final de US\$3.625.000
12. Tipo de cambio: Tipo original en el momento de la evaluación
1 US\$ = M\$N350 = \$a3,50. Tipo de cambio más reciente (mayo de 1976) 1 US\$ = \$a250,00
13. Informe de evaluación: PU-la, de fecha 2 de diciembre de 1968
14. Ejercicio económico: Año civil
15. Descripción del proyecto:
 - 15.01 El proyecto original comprendía parte del complejo "El Chocón-Cerros Colorados". El complejo prevé una capacidad definitiva de 1.200 MW en El Chocón, 450 MW en Planicie Banderita y una línea de transmisión a 500 kV hasta la región del Gran Buenos Aires. El proyecto inicial (Fase 1) comprendía lo siguiente:
 - a) El poblado de El Chocón; comprende éste viviendas, iglesia, escuela, casa de reposo, edificios comerciales, centro socio-deportivo y calles pavimentadas, aceras, drenajes, sistemas de distribución de agua y alcantarillado, y red de distribución eléctrica;

- b) Represa de terraplén sobre el río Limay con capacidad de embalse hasta un nivel máximo normal de aproximadamente 381 metros sobre el nivel de mar. Vertedero de hormigón, provisto de compuertas, en la orilla derecha y una estructura de carga levantada en hormigón, provista de compuertas, en la orilla izquierda.
- c) Central hidroeléctrica de El Chocón, en la orilla izquierda, aguas abajo de la represa, y tres turbogeneradores de 200 MW, tipo Francis, y equipo auxiliar. Canales de carga, revestidos de acero, entre la toma de aguas y la central. Canal de descarga para devolver las aguas al río.
- d) Red de transmisión de energía eléctrica a 500 kV, en dos circuitos sencillos trifásicos, de tendido aéreo, con un recorrido de aproximadamente 1.080 km. Playa de distribución en la central de El Chocón, estaciones intermedias de distribución cerca de Puelches y Henderson, y subestación disminuidora (o subestaciones) cerca de Buenos Aires.

15.02 El 16 de enero de 1973, el Banco y el Prestatario convinieron en una enmienda del Contrato de Préstamo en virtud de la cual se modificaba el proyecto como sigue (Fases 1 y 2):

- a) El poblado de El Chocón; comprende éste viviendas, iglesia, escuela, casa de reposo, edificios comerciales, centro socio-deportivo y calles pavimentadas, aceras, drenajes, sistema de distribución de agua y alcantarillado, y red de distribución eléctrica.
- b) Represa de terraplén sobre el río Limay con capacidad de embalse hasta un nivel máximo normal de aproximadamente 381 metros sobre el nivel del mar. Vertedero de hormigón, provisto de compuertas, en la orilla derecha y una estructura de carga levantada en hormigón, provista de compuertas, en la orilla izquierda.
- c) Central hidroeléctrica de El Chocón, en la orilla izquierda, aguas abajo de la represa, y seis turbogeneradores de 200 MW, tipo Francis, y equipo auxiliar. Canales de carga, revestidos de acero, entre la toma de aguas y la central. Canal de descarga para devolver las aguas al río.

- d) Obras de desvío y control de crecidas en Portezuelo Grande, con objeto de encauzar aguas del río Neuquen hacia la depresión de Los Barreales y permitir así el control del caudal del río Neuquen río abajo.
- e) Represa de Loma de la Lata e instalaciones de regulación del caudal entre la depresión de Los Barreales y la depresión Mari Menuco.
- f) Central hidroeléctrica de Planicie Banderita, incluida la toma en la depresión de Mari Menuco, túneles de carga de acero, dos turbogeneradores de 225 MW, tipo Francis, y canal de descarga para devolver las aguas al río Neuquen.
- g) Red de transmisión de energía eléctrica a 500 kV, en dos circuitos sencillos trifásicos, de tendido aéreo, con un recorrido de aproximadamente 1.080 km. Playas de distribución en El Chocón y Planicie Banderita, estaciones intermedias de distribución cerca de Puelches y Henderson, y subestación disminuidora cerca de Buenos Aires.

15.03 La modificación en la descripción del proyecto fue solicitada por HIDRONOR y aceptada por los Directores Ejecutivos del Banco porque el costo de la parte del proyecto financiada por el préstamo del Banco resultó ser inferior a la estimación obtenida de la evaluación inicial. En consecuencia, se estimó que a la terminación del proyecto quedarían en la Cuenta del Préstamo unos US\$12 millones de los fondos aportados por el Banco. El menor costo se debía a que:

- a) Las compuertas, los túneles de carga y diversos aceros se consiguieron a precios más bajos, y
- b) Cargas financieras menores.

16. Desembolso previsto y efectivo del préstamo

		<u>Previsto</u>	<u>Efectivo</u>
		(equivalente en US\$)	
<u>Categoría</u>			
I.	<u>Obras civiles en El Chocón</u> (costo en divisas)		
a)	Contrato principal (salvo equipo de construcción)	27.600.000	
b)	Equipo de construcción	<u>10.000.000</u>	
	Subtotal	37.600.000	44.191.916,56

	A4	<u>Previsto</u>	<u>Efectivo</u>
II. <u>Compuertas, túneles de carga y diversos aceros</u>		21.400.000	7.386.908,16
III. <u>Servicios de ingenieros consultores</u>		6.300.000	7.035.777,42
IV. <u>Intereses y otros cargos sobre el Préstamo durante la construcción</u>		<u>16.700.000</u>	<u>10.400.000,00</u>
Desembolso total durante el proyecto original		82.000.000 =====	69.014.602,18 =====
V. <u>Enmienda</u>			
<u>Obras civiles en Planicie Banderita</u> (costo en divisas)			
a) Contrato principal (salvo equipo de construcción)		9.200.000	
b) Equipo de construcción		<u>3.000.000</u>	<u>12.985.397,00</u>
Desembolso total de la enmienda		12.200.000	12.985.397,00
Desembolso total		n.d. =====	81.999.999,18 =====

17. Objetivo y justificación

17.01 Los fines del proyecto eran:

- i) Producir energía eléctrica, que a finales de 1973 se consumiría principalmente en el sistema de Buenos Aires y Litoral, utilizando las aguas de la cuenca del río Negro, y
- ii) Reducir simultáneamente el peligro de las crecidas en el valle.

Además, el proyecto contribuiría al regadío de nuevas tierras de cultivo. Estos objetivos se cumplieron, inclusive el control de las crecidas, pues las importantes inundaciones ocurridas en 1972 y 1975 casi no produjeron daños. Se ha calculado que el proyecto ha ahorrado el equivalente de US\$24.000.000 por los daños que se evitaron nada más que en las inundaciones de 1975. Asimismo, están en cultivo tierras que antes quedaban inundadas periódicamente, y se riegan 60.000 nuevas hectáreas. La central de El Chocón inició el suministro de energía al sistema de Buenos Aires y Litoral en 1973, y generó 2.570.000 MWh en 1974. El 73% del total de las ventas se efectuaron a dicho sistema. Esta producción eléctrica es aproximadamente un 20% inferior a la estimada en el momento de la evaluación, lo que se debe a que la disponibilidad de agua haya sido menor de lo que es normal.

17.02 En el momento de la evaluación, el proyecto (Fase 1) se justificaba basado en una comparación frente a la generación térmica con tasas de descuento de equiparación entre el 7½ y el 10% (en función de dos estimaciones diferentes sobre el costo del proyecto). Sin que haya que repetir los cálculos, parece evidente que el proyecto se justifica hoy día con tasas de descuento de equiparación mucho más altas que las fijadas en el momento de la evaluación, pues:

- i) El costo del proyecto en dólares corrientes es básicamente el mismo que el costo en el momento de la evaluación (por consiguiente, en dólares constantes ha disminuido).
- ii) El costo de capital de la generación térmica es por lo menos el doble del costo en el momento de la evaluación.
- iii) Los costos del combustible se han cuadruplicado como mínimo.

18. Programa de construcción y problemas que se han planteado

18.01 Fase 1 - El programa original preveía la entrada en servicio de las dos primeras unidades generadoras para mediados de 1973, y de la tercera unidad para enero de 1974. Las fechas efectivas de terminación de las tres unidades fueron las siguientes:

Unidad No. 1	29-XII-1972
Unidad No. 2	5-XI-1973
Unidad No. 3	12-XII-1973

18.02 Durante las pruebas de la Unidad No. 1, en abril de 1973, la turbina sufrió una importante avería cuya causa, según luego se reveló, fue un defecto de diseño. El proveedor (Boving & Co. Ltd.) corrigió ese defecto en todas las unidades, sin costo alguno para HIDRONOR.

18.03 En marzo de 1975 el alternador de la Unidad No. 3 sufrió una grave avería cuando un cortocircuito en el bobinado produjo un fuego en el generador, lo que causó daños en una tercera parte del bobinado (previo acuerdo con HIDRONOR, los consultores no consideraron que hiciera falta instalar equipo de extinción de incendios). La causa del accidente fue un tornillo que se encontró albergado en las bobinas y que, al parecer, había quedado olvidado durante la instalación. El alternador ha sido reparado y debe estar actualmente en servicio. La responsabilidad por este accidente no ha sido todavía determinada entre HIDRONOR y el proveedor (Siemens).

18.04 Otro importante accidente ocurrido durante las etapas iniciales de puesta en marcha del proyecto se produjo en enero de 1974 cuando dos fortísimas tormentas debilitaron los vientos de 16 torres que fueron abatidas en la línea de transmisión de 500 kV. La investigación posterior indicó que el emplazamiento de los cimientos de los vientos no se había seleccionado adecuadamente, y gran parte de dichos cimientos han sido reemplazados. Resulta difícil asignar responsabilidades por este accidente, pero es indudable que los ingenieros consultores, Merz and McLellan, han incurrido en cierta culpa pues interpretaron indebidamente el estudio realizado sobre la mecánica del terreno. Con todo, todavía quedan por reemplazar unos 2.000 cimientos hasta que se llegue a un acuerdo sobre el costo entre HIDRONOR y el contratista.

18.05 Fase 2 - No hay retrasos de construcción y deberán cumplirse las fechas previstas para la terminación, es decir, 6 unidades en El Chocón entrarán en servicio en diciembre de 1975 y dos unidades en Planicie Banderita estarán terminadas en diciembre de 1977.

19. Costo del proyecto

19.01 La comparación de las estimaciones del costo del proyecto terminado presenta la dificultad intrínseca de la conversión de la moneda local en dólares. El Banco ha sugerido anteriormente que HIDRONOR convierta los gastos locales al tipo de cambio vigente en el momento del desembolso. No obstante, este método presenta el inconveniente de que produce estimaciones de costos muy alejadas de la realidad para los años 1973 y 1974 en que el tipo de cambio se mantuvo artificialmente a un nivel que no reflejaba los costos internos de Argentina. Por este motivo, la última comisión de supervisión recomendó a HIDRONOR que los costos locales efectivos de 1973 y 1974 se convirtieran en dólares con un ajuste del tipo de cambio efectivo por el índice de precios al por mayor, método que consigue reflejar mejor el verdadero valor de la moneda argentina. (Los costos locales de los años subsiguientes pueden convertirse de nuevo utilizando el tipo de cambio.) Con estos métodos se obtienen los valores siguientes, excluidos los intereses durante el período de construcción. (Para la Fase 1 se ha desembolsado más del 99% del costo total.):

----- millones de US\$ -----

	<u>Estimación de la evaluación</u>	<u>Estimación actual</u>	
		<u>Método anterior del Banco</u>	<u>Nuevo método propuesto por el Banco</u>
Fase 1	265,4	273,0 (+3%)	256,3 (-3,5%)
Fase 2	156,1	262,5 (+68%)	232,7 (+49%)

19.02 Puede verse que con uno u otro método las estimaciones del costo para la Fase 1 no han variado mucho desde la evaluación. La diferencia en las estimaciones del costo para la Fase 2 se deben a que en el momento de la evaluación no se había terminado el diseño de Planicie Banderita y, en el mejor de los casos, las estimaciones eran meras aproximaciones.

20. Consultores

20.01 HIDRONOR contrató los servicios de Alexander Gibb y Socios (Reino Unido) como consultor principal, quien subcontrató a Merz and McLellan (Reino Unido) para la labor de ingeniería de la parte electromecánica de las centrales y el sistema de transmisión. La actuación de ambos consultores parece haber sido buena, si bien inicialmente HIDRONOR expresó algunas quejas acerca de la preparación técnica de parte del personal enviado a Argentina por Merz and McLellan.

21. Contratistas principales

Los contratistas principales del proyecto fueron:

21.01 Fase 1 (Central hidroeléctrica)

Obras civiles:	Impregilo-Sollazzo, S.A. (Italia)
Turbinas:	Boving & Co. Ltd. (Reino Unido)
Generadores:	Siemens A.G. (Alemania)
Grúas:	" " "
Transformadores de la central:	Mitsubishi Shoji Kaisa Ltd. (Japón)
Disyuntores:	Brown Boveri, S.A. (Suiza-Argentina)

21.02 Fase 1 (Sistema de transmisión)

Línea a 500 kV:	Anglo Argentinian Power Construction Consortium (Reino Unido-Argentina)
Disyuntores 500 kV:	Brown Boveri, S.A. (Suiza-Argentina)
Transformadores:	Parsons Peebles Ltd. (Reino Unido)
Equipo de control:	Brown Boveri, S.A. (Suiza-Argentina)
Cables 132 kV:	Industrias Pirelly SAIC (Argentina)
Condensadores sincrónicos:	A.E.I. (Reino Unido)

21.03 Fase 2

Generadores:	Siemens A.G. (Alemania)
Turbinas:	Boving & Co. Ltd. (Reino Unido)
Obras civiles:	Impregilo-Sollazzo, S.A. (Italia)

22. Organización y administración

22.01 El Prestatario, HIDRONOR, fundada en 1967, es una sociedad anónima cuyos accionistas son el Estado argentino, por conducto de la Dirección Nacional de Energía y Combustibles, y dos entidades de propiedad del Gobierno, Empresa de Estado Agua y Energía Eléctrica (AE) y Servicios Eléctricos del Gran Buenos Aires (SEGBA). Fundada inicialmente para encargarse de la contrucción y explotación del complejo de El Chocón-Cerros Colorados, incluidas las líneas de transmisión y las instalaciones secundarias, en 1973 HIDRONOR inició una segunda fase de actividades y vende ahora energía eléctrica a cuatro compañías de distribución propiedad del Gobierno; su principal cliente es SEGBA (el 73% del total de ventas de 1974)

22.02 La administración de la empresa desde su fundación ha sido eficiente y competente si se juzga desde el punto de vista de los resultados generales obtenidos: HIDRONOR concluyó los trabajos dentro del calendario previsto y lo hizo a un costo final inferior a la estimación inicial (véase el párrafo 19). Este resultado se ha conseguido pese a numerosos cambios de personal directivo en el Consejo de Administración y el Comité Ejecutivo. A juzgar por los datos disponibles, dichos cambios se debieron a factores ajenos a la empresa. Algunos de los cambios en los altos puestos directivos no se comunicaron al Banco, como había quedado convenido con HIDRONOR.

22.03 La gestión financiera de HIDRONOR es adecuada. Desde la evaluación realizada por el Banco, la empresa ha mejorado considerablemente la presentación de sus cuentas, que han sido normalizadas según el sistema dispuesto por la Comisión Federal de Energía para las empresas de servicio público de Estados Unidos. Se procede a la programación por computadora con la colaboración de un consultor universitario, pero los resultados son todavía incompletos para poder evaluarlos adecuadamente. La firma bonaerense de Drysdale, Reig y Vazquez realiza una labor muy satisfactoria de verificación de cuentas.

23. Resultados de la explotación

23.01 A causa de las diversas devaluaciones de la moneda argentina

durante el período del proyecto, la comparación entre las previsiones efectuadas durante la evaluación y los resultados obtenidos no es del todo significativa y, por consiguiente, los datos se presentan en cuadros separados. En el estado que refleja los fondos efectivos, el tipo de cambio utilizado corresponde a la cotización a fin de año. Por estos motivos no figura una columna con cifras totales para todo el período del proyecto.

23.02 En el informe de evaluación se preveía que la producción de electricidad comenzase a tiempo para satisfacer las necesidades del período punta del invierno a mediados de 1973; no obstante, la explotación experimental comenzó en diciembre de 1972 e HIDRONOR consideró que 1973 era un período de prueba para el sistema de El Chocón. Por consiguiente, previo acuerdo con los auditores de la empresa, HIDRONOR decidió capitalizar las pérdidas producidas por el período de explotación experimental. Debido a las consecuencias del procedimiento sobre las condiciones que determinan las Secciones 5.13 y 5.14 del Contrato de Préstamo, es indudable que debió consultarse al Banco antes de tomar esa medida.

23.03 Como consecuencia de que la disponibilidad de agua resultó inferior a lo normal, las ventas en 1974 no llegaron en aproximadamente un 20% al nivel que se había estimado en la evaluación, con lo que los ingresos de explotación de la empresa fueron menores. Los resultados de la explotación en el primer año de actividades de HIDRONOR han sufrido a causa de que la empresa no ha cumplido algunas de las disposiciones previstas en la concesión, ni tampoco algunos de los compromisos que figuran en el Contrato de Préstamo con el Banco. Cabe reunir las infracciones en tres categorías generales: valuación del activo, método de depreciación y determinación de las tarifas.

23.04 A efectos de la determinación del tipo de cambio, el Artículo 11 de la concesión dispone que el activo fijo de HIDRONOR en explotación se valorará en dólares de EE.UU., reconvirtiéndose luego ese valor en pesos al tipo de cambio financiero a mitad de año. Esto presenta el inconveniente de no reflejar las condiciones económicas argentinas pues los tipos de cambio no se ajustan a la realidad y se crean grandes variaciones en la revaluación de activos y la determinación de tipos de cambio.

23.05 En lugar de seguir el método señalado, la empresa decidió acogerse a las disposiciones de la ley 19742, promulgada en julio de 1972, que autorizaba a toda persona jurídica a revaluar su activo mediante un coeficiente de revaluación basado en las variaciones del índice general

al por mayor excluidos los productos agrícolas. La empresa tomaba ese paso con el loable propósito de colocarse en las mismas condiciones generales que se aplicaban a las demás entidades comerciales argentinas. La decisión se tomó sin previa consulta al Banco, no obstante lo dispuesto en la Sección 6.02, párrafo b), del Contrato de Préstamo, que exige la aprobación del Banco a toda modificación o a toda falta de cumplimiento de las disposiciones de la concesión. No se tomó ninguna medida encaminada a enmendar como correspondía las disposiciones de la concesión.

23.06 La concesión otorgada a HIDRONOR disponía acertadamente que el cálculo del rendimiento del activo fijo bruto incluiría un fondo de amortización. La ventaja de seguir este método para la depreciación era evitar la disminución gradual de tarifas que habría entrañado la técnica de seguir efectuando reducciones uniformes. Con el fondo de amortización, las reducciones habrían sido mucho más bajas en los primeros años de explotación que con la técnica de reducciones uniformes. Sin embargo, HIDRONOR decidió pasar a ese segundo método sin que, simultáneamente, calculase el rendimiento de su activo neto. Aunque ~~el método~~ refleja adecuadamente una modificación en la situación de una empresa que pasa de explotar una sola inversión (para la cual vale un rendimiento del tipo de anualidad) a explotar varias inversiones (para la cual ya no vale), la medida se tomó sin previa consulta al Banco ni modificación de lo dispuesto en la concesión. El resultado ha sido que la depreciación por activos eléctricos durante el primer año de operaciones, es decir, 1974, saltó de \$a9,2 millones a \$a92,2 millones, con lo que el ingreso de explotación disminuyó de \$a109,9 millones a \$a26,9 millones.

23.07 La Sección 5.13 del Contrato de Préstamo exige que el Prestatario fije una tarifa de venta de electricidad que permita obtener el rendimiento del 8% que autoriza el Artículo 14 de la concesión. Ahora bien, esta cláusula nunca se ha cumplido y en la práctica se ha derogado --sin que se haya informado al Banco-- por el decreto No. 171, de fecha 17 de abril de 1974, con efecto retroactivo para HIDRONOR a noviembre de 1973. El propósito del decreto era unificar las tarifas de todas las empresas de energía eléctrica y de suministro en el país, y determinar esas tarifas como la suma de dos factores que representaban el costo de la energía y el costo de la potencia. El costo de la energía se basaba en el precio del fuel-oil en la fecha del decreto, mientras que el costo de la potencia

era función lineal del tipo de cambio del dólar de EE.UU. y del salario de un trabajador en el momento del cómputo; se indexaban ambas variables a partir de la fecha del decreto como base. Los inconvenientes de este sistema eran que divorciaban totalmente las tarifas de la energía eléctrica de toda característica interna de la empresa, sobre todo a causa de la selección de valores base para la indexación y, asimismo, vinculaban las tarifas a variables no directamente relacionadas con la explotación de la empresa, pero sí dependientes de factores macroeconómicos y aun de decisiones políticas. Si bien, a posteriori, tenidas en cuentas las dificultades de fijar precios en períodos de alta inflación, el sistema de indexación parece haber producido variaciones semejantes a las del índice de precios al consumidor, el coeficiente de la fórmula utilizada para la indexación era bastante bajo y produjo un tasa de rendimiento del 3,6 % en 1974 , en vez del 8% previsto. Mientras que el ingreso medio por KWh vendido, correspondiente a una tasa de rendimiento del 8%, habría sido de 14,1 centavos, el efectivo fue de únicamente 8,2 centavos (aproximadamente una milésima de US\$ al tipo de cambio de diciembre de 1975), lo que es extraordinariamente bajo y significa un subsidio --y por ello una distorsión económica-- para los clientes principales, sobre todo SEGBA.

23.08 Informada de la gravedad de la situación, la dirección de HIDRONOR explicó que el decreto 171 había sido promulgado sin previa consulta con HIDRONOR. En contestación a una pregunta de la misión del Banco, el Ministerio de Asuntos Económicos mencionó la posibilidad de excluir en fecha próxima a HIDRONOR de la aplicación del decreto. En consecuencia, sería conveniente que en un futuro préstamo del Banco al sector las negociaciones que el Banco celebre con el Gobierno traten de conseguir una fijación más razonable de tarifas para el suministro bruto de energía eléctrica en Argentina, con lo que se eliminarían las distorsiones mencionadas que, sin duda, afectan a todo el sector. En caso contrario, debido a los precios bajos que se apartan de toda realidad, el consumidor recibe un subsidio que lleva a un consumo de despilfarro.

24. Plan de financiación

24.01 El componente del proyecto en divisas ha sido financiado mediante préstamos. Durante los tres primeros años del proyecto los desembolsos fueron inferiores a los previstos debido a que el costo fue más bajo que lo estimado (párrafo 15.03) y a que ocurrieron algunos retrasos en las obras.

24.02 El Banco es el principal acreedor de HIDRONOR; US\$12 millones del préstamo de US\$82 millones han sido reasignados en virtud de una enmienda al Contrato de Préstamo (párrafo 15.02).

24.03 Además, la empresa obtuvo aproximadamente US\$130 millones de bancos privados en varios países, lo que alcanza unas tres veces el mínimo que se había previsto en el momento de la evaluación. El 90% de esos préstamos se obtuvieron en condiciones relativamente concesionarias (aproximadamente a 15 años y a un interés entre el 5,5% y el 8%), pero dos de dichos préstamos, obtenidos en 1974 del Banco Central, S.A. de Madrid y de Lloyds & Bolsa Int. se concedieron en condiciones más estrictas. El primero de estos, por US\$2 millones, fue a 18 meses, sin período de gracia, a un tipo de interés que rebasa en 2% el tipo interbancario corriente en Londres para depósitos en dólares a 6 meses, y el segundo, por US\$9 millones, fue a 4,5 años, con un período de gracia de un año, a un tipo de interés de 1,125% por encima del tipo de Londres. En vista de lo dispuesto en la Sección 5.16 del Contrato de Préstamo, donde se exige que el Prestatario haga todo lo posible por obtener crédito en las condiciones que sean satisfactorias para el Banco y el Prestatario, se debió haber consultado al Banco sobre estos dos últimos préstamos mencionados.

24.04 HIDRONOR concedió en 1971 un préstamo a la Dirección de la Energía de la provincia de Buenos Aires (DEBA) con objeto de que esta terminase en la subestación de Henderson la conexión con el proyecto de El Chocón-Cerros Colorados y la red de distribución de DEBA. El préstamo, a un 6% anual sobre el saldo pendiente, se concedió por un período estimado de diez años, con un período de gracia de dos años, y el total de los desembolsos durante el período de 1972-74 alcanzó \$176,6 millones. El propósito del proyecto era reducir el recorrido de las líneas de transmisión y disminuir así las pérdidas de electricidad (que se estimaron en 20 millones de KWh al año) y mejorar la regularidad del suministro a la red de DEBA.

24.05 HIDRONOR también concedió un préstamo a Empresa del Estado Agua y Energía Eléctrica (AE) para que ésta pudiera completar la construcción de 65 km de línea de transmisión desde la central térmica de AE en Alto Valle hasta Planicie Banderita, y de 50 km de línea de transmisión hasta El Chocón, una estación de transformadores en Planicie Banderita, líneas de transmisión desde Planicie Banderita a Loma de la Lata y Portezuelo Grande y estaciones de transformadores en ambos lugares. El préstamo, libre de intereses, se otorgó por un período estimado de cuatro años,

un período de gracia de un año, y el total de los desembolsos en 1972-74 alcanzó \$a12,2 millones. El objeto del proyecto era obtener una fuente de energía para la construcción de El Chocón y Planicie Banderita, y alimentar energía al sistema de AE una vez terminadas las obras del complejo de El Chocón. Como HIDRONOR no necesitaba la energía una vez que terminase el proyecto, se trataba de una solución económica para obtener energía durante la construcción sin tener que incurrir en el costo de la inversión y, al mismo tiempo, aseguraba un suministro contingente de energía para las instalaciones auxiliares de la central en caso de emergencia después de la terminación del proyecto. Si bien cabe señalar una justificación técnica para los programas de construcción a que estos préstamos correspondieron, uno de los préstamos se concedió libre de intereses y el segundo fue a un interés del 6%, cuando el tipo de interés de los préstamos a medio plazo concedidos por los bancos de desarrollo del Gobierno no era entonces inferior al 15%. No está claro si los beneficios mencionados para HIDRONOR justifican el subsidio financiero que la empresa concedió a DEBA y AE.

24.06 Como la generación interna de fondos comenzó únicamente en 1973, casi todos los recursos necesarios para el componente local del proyecto se obtuvieron en forma de participación del Gobierno en el capital mediante aportes que fueron especialmente importantes en 1974 (se desembolsaron \$a840 millones de un total autorizado de \$a1.000 millones) y cuya fuente indirecta fue el fondo de El Chocón creado por la ley 17574. En 1973 y 1974, a causa de retrasos en el pago de esos aportes, la empresa tuvo que recurrir a préstamos a medio plazo en los bancos locales para poder financiar las obras del proyecto. Concedidos a intereses que oscilaron entre el 11% y el 20%, por períodos entre 5 y 15 años, estos préstamos alcanzaron la suma de \$a232,0 millones en 1973 y de \$a54,6 millones en 1974. Sin embargo, hasta que pudieron obtenerse estos préstamos, fue necesario obtener préstamos a corto plazo en el Banco de la Ciudad de Buenos Aires. Con todo, a finales del año 1974, la situación de caja de la empresa era favorable a causa de retrasos ocurridos en las obras del complejo de Alicopa.

24.07 Las grandes fluctuaciones del capital de explotación en 1971-1974 fueron creadas por un pequeño número de cuentas. Las variaciones del capital social por recibir se debieron a la suscripción y pago de las participaciones, y el constante crecimiento de los pagos por recibir

se debió a partir de 1972 a los préstamos concedidos a DEBA y AE y, a partir de 1974, al considerable número de cuentas de clientes sin saldar (\$al21 millones de un total de ventas de \$al99, es decir, más de 7 meses) a causa principalmente de la deuda de SEGBA (esta cuenta se liquidó en abril de 1975). El fuerte incremento de las cuentas pendientes en 1973 se debió a las deudas por pagar a los contratistas y al comienzo del reembolso de los préstamos a corto plazo y a medio plazo obtenidos de los bancos locales.

25. Cláusulas

25.01 El Prestatario no ha cumplido varias de las disposiciones de las cláusulas convenidas durante las negociaciones.

25.02 No cumplió lo dispuesto en la Sección 5.13 del Contrato de Préstamo, que establece que el Prestatario obtendrá el rendimiento de la inversión previsto en la concesión.

25.03 No cumplió lo dispuesto en la Sección 5.17 del Contrato de Préstamo, que establece que el Prestatario hará todo lo posible por obtener crédito en las condiciones que sean satisfactorias para el Banco y el Prestatario.

25.04 No cumplió lo dispuesto en el párrafo b) de la Sección 6.02 del Contrato de Préstamo, que dispone que el Prestatario cumpla todas las disposiciones establecidas en la concesión (y, en este caso, lo dispuesto en relación con la depreciación y el rendimiento de la inversión).

25.05 Cabe discutir si el Prestatario cumplió lo dispuesto en el párrafo a) de la Sección 5.04 del Contrato de Préstamo, que establece que el Prestatario mantendrá una posición financiera que se ajuste a prácticas financieras saludables (véase el ejemplo de los préstamos concedidos a DEBA y AE), o lo dispuesto en la Sección 5.06 d), donde se exige que el Prestatario facilite al Banco toda información que éste solicite razonablemente sobre aspectos de la administración, explotación y situación financiera del Prestatario (por ejemplo, importantes cambios en el personal de dirección, los préstamos a DEBA y AE). El motivo de que esta cuestión no pueda calificarse a ciencia cierta es que las solicitudes del Banco fueron muy infrecuentes porque no se enviaron bastantes misiones de supervisión.

25.06 El Garante no cumplió lo dispuesto en el párrafo b) de la Sección 3.06 del Contrato de Garantía, que dispone que se autorizarán tarifas al Prestatario que le permitan obtener el rendimiento previsto en la concesión.

26. Previsión de resultados financieros

26.01 A corto plazo, las perspectivas financieras de HIDRONOR se presentan algo sombrías. Pese a la fuerte interferencia del Gobierno, principalmente por aplicación del decreto 171 y presiones en la alta dirección de la empresa, HIDRONOR lucha por obtener un mínimo de independencia administrativa y financiera. Toda mejora tendrá que lograrse mediante la aplicación estricta de lo dispuesto en la concesión, que quizá haya que enmendar para tener en cuenta las fuertes presiones inflacionarias y el carácter más complejo de las inversiones.

26.02 Si no se modifican las condiciones generales de fijación de tarifas, HIDRONOR sobrevivirá únicamente si recibe subvenciones y aportes del Gobierno a su capital social. La empresa tiene el proyecto de poner en marcha a partir de 1975 un importante programa de inversiones para la construcción del complejo de Alicopa, pero aguarda con ansiedad que el Gobierno defina su política de energía y el financiamiento correspondiente; esto depende lamentablemente de las medidas drásticas que habrá que tomar para reformar la economía argentina y corregir las deficiencias que presenta el sector de energía eléctrica en general, a saber:

- a) El gran número de distintas entidades que generan, transmiten y distribuyen energía eléctrica con diferente grado de competencia.
- b) Falta de una coordinación eficaz en la planificación del sector.
- c) Insuficiente coordinación entre el sector de energía eléctrica y otros sectores energéticos.

Se desprende de lo anterior que el Banco, al conceder este préstamo a HIDRONOR, debió haber insistido más en que el Gobierno argentino iniciara medidas para racionalizar la estructura institucional y/o la administración del sector.

27. Lecciones que se derivan

27.01 Desde el punto de vista financiero, la relación de HIDRONOR con el Banco no ha sido tan estrecha como era de prever durante los períodos de construcción y de explotación del proyecto, y no se informó al Banco sobre ciertos aspectos importantes de explotación y administración, algunos de los cuales contravienen el espíritu y la letra de las disposiciones del Contrato de Préstamo.

27.02 Como HIDRONOR es una empresa de reciente creación, su personal no ha tenido experiencia anterior en las relaciones con el Banco, si bien se habría mostrado abierto a una cooperación más estrecha. El Banco debió haber prestado más atención a los aspectos de organización y de desarrollo institucional, y debió haber exigido informes periódicos y detallados sobre las operaciones y la puesta en marcha de una estructura firme de gestión. La dirección de la empresa ha manifestado su propósito de mantener un flujo constante y completo de información hacia el Banco.

Oficina Regional para América Latina y el Caribe

Mayo de 1976

INCOMING TELEX

TLX GEF 1782

1. ~~24~~ ~~6/6~~
2. Mr. Martinez^{sj}
1976 AUG -1 PM 1:49

Distribution:

A: BCO. MUNDIAL

Mr. Kapur

AT: DIRECTOR DE EVALUACION OPERACIONES

SR. SHIV S. KAPUR

REF: PRESTAMO 577/AR - PROYECTO EL CHOCON

COMO ES DE V/CONOCIMIENTO, EL DIA 21 DEL CTE. MES HE ASUMIDO EL CARGO DE PRESIDENTE DEL COMITE EJECUTIVO DE HIDRONOR SA.

UNO DE LOS TEMAS PUESTO A MI INMEDIATA CONSIDERACION, ES V/REQUERIMIENTO DE FECHA 3 DEL CTE. Y CONVERSACIONES MANTENIDAS CON V/SR. MARTINEZ LOS DIAS 14 Y 15 DEL MISMO MES.

SI BIEN SE HA ELABORADO UN AMPLIO INFORME QUE MODIFICA SUSTANCIALMENTE LAS APRECIACIONES CONTENIDAS EN V/PRIMER BORRADOR DE AUDITORIA SOBRE LA PERFORMANCE DEL PROYECTO, DESEARIA ANALIZAR EN DETALLE AMBOS TEXTOS EN CUESTION EN FUNCION DE LA TRASCENDENTAL IMPORTANCIA QUE LE ASIGNO AL TEMA.

POR ELLO Y ATENTO A LOS PLAZOS FIJADOS EN V/ COMUNICACION, SOLICITO A USTED UNA PRORROGA DE 10 DIAS PARA LA RECEPCION DE N/ INFORME QUE ENCONTRARIAN EN SU PODER A MEDIADOS DEL MES DE JULIO DEL CTE. A20

AGRADEZCO LA COLABORACION QUE PUEDA DISPENSAR Y QUEDO AL AGUARDO DE SUS NOTICIAS SOBRE LA FACTIBILIDAD DE LO SOLICITADO.

ATTE- CARLOS M. SUREDA

PRESIDENTE COMITE EJECUTIVO - HIDRONOR S.A.

1.7.76

440098 WORLDBANK

15732AR HINOR (Telex n°.)

M

BA 012 2240

Let's agree to this. Please have a suitable cable response prepared for me.

280
7/1

June 3, 1976

Ing. Antonio Federico
HIDRONOR
Cipoletti
Rio Negro
Argentina

Dear Ing. Federico,

Re: Loan 577-AR -- El Chocón Project

Further to our cable to HIDRONOR dated May 25, 1976, and HIDRONOR's cable to us dated May 27, 1976, I now enclose for your comments a copy of the first draft of the Project Performance Audit Report on the El Chocón Power Project, for which Loan 577-AR was fully disbursed by January 1975. This Performance Audit Report is based on IBERD records, as well as discussions with IBERD staff and the staff from the main consulting firms involved.

I must thank you for the gracious way in which HIDRONOR accepted the suggestion that Mr. Martinez, Senior Evaluation Officer from my department, holds preliminary discussions with HIDRONOR on this report, while he is in Argentina this month. As you know Mr. Martinez has arranged with you that these discussions take place on June 14 and 15, 1976. I hope that this draft reaches you in time for these discussions, but Mr. Martinez will bring another copy of the draft in any case.

We intend to finalize the report and to submit it to the Bank's Executive Directors about the middle of July. We would, therefore, appreciate any further comments which you may have (in addition to those given to Mr. Martinez during the preliminary discussions) by July 5, 1976.

We are sending separately a copy of this report to Dr. Guillermo Zubaran, Secretaria de Energía y Combustible.

Yours sincerely,

Shiv S. Kapur
Director
Operations Evaluation Department

cc: Messrs. Wyss
Van der Meer
Royani
Lehbert
Kikuchi
Montfort
Bohr/Martinez/Berrie

TBarrie:cmn

WORLD BANK / IFC
OUTGOING MESSAGE FORM
(TELEGRAM/CABLE/TELEX)

☒ IBRD
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TO: HIDRONOR
CIPOLLETI
RIO NEGRO
ARGENTINA

DATE: Mayo 25, 1976

ORIGINATOR'S EXT.: 2563

COUNTRY:

CLASS OF TELEX 122240 HINOR
SERVICE:

CABLE NO. & TEXT: REFERENCIA PRESTAMO BIRF 577-AR stop EL DEPARTAMENTO DE EVALUACION DE OPERACIONES ES UNA UNIDAD DEL BANCO MUNDIAL DEPENDIENTE DIRECTAMENTE DEL DIRECTORIO DEL MISMO stop NUESTRA FUNCION ES PREPARAR UN INFORME SOBRE EJECUCION Y RESULTADOS PARA CADA UNO DE LOS PRESTAMOS FINANCIADOS POR EL BANCO stop ESTE INFORME SE PREPARA POCO TIEMPO DESPUES DEL ULTIMO DESEMBOLSO DEL PRESTAMO CON EL FIN DE EVALUAR LA MEDIDA EN QUE LOS OBJETIVOS DEL PRESTAMO SE HAN REALIZADO Y LA CONTRIBUCION DEL BANCO EN LA CONCRECION DEL PROYECTO stop EL PRINCIPAL OBJETIVO ES DERIVAR EXPERIENCIA QUE CONTRIBUYA A MEJORAR LA POLITICA Y LOS TRAMITES DEL BANCO PARA COOPERACION CON SUS PAISES MIEMBROS stop ESTE TRABAJO ESTA FUNDAMENTALMENTE BASADO EN DISCUSIONES CON LA ENTIDAD QUE HA RECIBIDO EL PRESTAMO stop ESTAMOS TRABAJANDO EN EL INFORME SOBRE EL PROYECTO DEL CHOCON Y DESEARIAMOS QUE EL DOCTOR MIGUEL E. MARTINEZ SENIOR EVALUATION OFFICER DE ESTE DEPARTAMENTO VISITARA CIPOLLETI POR DOS DIAS (JUNIO 14/15) PARA DISCUTIR CON SU STAFF EL PRIMER BORRADOR DE ESTE INFORME stop COMO ESTA VISITA ES PARTE DE UN PROGRAMA MAS AMPLIO DE VISITAS A OTROS PAISES LATINOAMERICANOS comma QUEDARE MUY AGRADECIDO SI USTED PUDIERA CONFIRMARME A LA BREVEDAD POSIBLE SI LA FECHA ES CONVENIENTE stop FINALMENTE DESEO ENFATIZAR EL CARACTER INDEPENDIENTE

(continued...)

NOT TO BE TRANSMITTED

REFERENCE:	AUTHORIZED BY (Name):
DRAFTED BY:	DEPARTMENT:
CLEARANCES AND COPY DISTRIBUTION:	SIGNATURE (Of individual authorized to approve):
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☐ IDA
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☐ ICSID

TO: HIDRONOR
CIPOLLETI
RIO NEGRO
ARGENTINA

DATE: May 25, 1976

ORIGINATOR'S EXT.:

COUNTRY:

CLASS OF
SERVICE:

CABLE NO. & TEXT:

Page 2

DE ESTE DEPARTAMENTO Y EL HECHO QUE LA VISITA DEL DOCTOR MARTINEZ
NO ESTA RELACIONADA CON LA MISION DE OPERACIONES QUE ENTIENDO
LES VISITARA EN LA SEGUNDA SEMANA DE JUNIO stop ATENTAMENTE

CHRISTOPHER R. WILLOUGHBY
DIRECTOR
DEPARTAMENTO DE EVALUACION
DE OPERACIONES
INTBAFRAD

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REFERENCE:

AUTHORIZED BY (Name):

DRAFTED BY: Miguel E. Martinez

DEPARTMENT:

Operations Evaluation

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see show*

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TO: DR ZUBARAN- SECRETARIA DE ENERGIA y COMBUSTIBLE

DATE: MAY 21, 1976

BUENOS AIRES

ORIGINATOR'S EXT.: 8003

COUNTRY: ARGENTINA

CLASS OF
SERVICE:

CABLE NO. & TEXT:

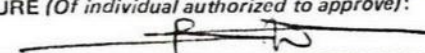
FOR REVIEWING STATUS OF ARGENTINA'S POWER SECTOR, INCLUDING PROPOSED
SEGBA IV DISTRIBUTION PROJECT WE PLAN TO SEND MESSRS. MANFREDO LINDER
AND CLAUDE BESSE, ENGINEER & FINANCIAL ANALYST RESPECTIVELY, TO
ARGENTINA ABOUT JUNE 1 TO HOLD DISCUSSIONS WITH SECRETARIA, SEGBA
AND HIDRONOR STOP PLEASE ADVISE IF DATE CONVENIENT TO DISCUSS INTER
ALIA FOLLOWING WITH OFFICIALS OF SECRETARIA DE ~~ENERGIA~~ **ENERGIA**:
II
AAA STATUS OF FINANCIAL AND TECHNICAL PLANNING OF THE SECTOR
BBB COORDINATION OF OPERATIONS OF VARIOUS ENTITIES
CCC UPDATED NATIONAL DEMAND FORECAST
DDD EXPANSION PROGRAM AND GOVERNMENT PRIORITIES
EEE TARIFF LEVELS FOR FINAL AND BULK SUPPLY CONSUMERS STOP
WE ARE CABLING SEPARATELY TO SEGBA AND HIDRONOR

REGARDS

MONTFORT

~~MONTFORT~~

NOT TO BE TRANSMITTED

REFERENCE: Argentina - Power Sector Review	AUTHORIZED BY (Name): B. Montfort, Acting Div. Chief
DRAFTED BY: BMontfort:mrl/sg	DEPARTMENT: LAC/LCPPT
CLEARANCES AND COPY DISTRIBUTION: cleared w/ & cc: Mr. Leibert	SIGNATURE (Of individual authorized to approve): 
cc: Messrs. Wessels, Linder, Besse, <u>Berrie</u>	SECTION BELOW FOR USE OF CABLE SECTION
	CHECKED FOR DISPATCH:



371
hacientemente reactiva
2. marzo 1974

resolución #71

Ministerio de Economía
Secretaría de Estado de Energía

BUENOS AIRES, 17 ABR 1974

VISTO el decreto N° 2562/72, los términos de la Resolución N° 40/73 y el expediente SEE N° 557.765/71, relacionados con las transacciones económicas del Despacho Unificado de Cargas, y

CONSIDERANDO:

Que corresponde al PODER EJECUTIVO NACIONAL la fijación y concertación de las políticas energéticas;

Que la regulación de los despachos unificados de sistemas eléctricos interconectados, por sus importantes implicancias, debe responder también a los objetivos más amplios de las políticas económicas del país;

Que algunas de las empresas involucradas han formulado expresas reservas con respecto a los resultados de la aplicación de la Resolución SEE N° 40/73;

Que la SECRETARIA DE ESTADO DE ENERGIA, conforme a sus atribuciones se halla realizando los estudios necesarios para la implementación de una política definitiva al respecto;

Que hasta tanto, es conveniente que las transacciones económicas por energía del Despacho Unificado de Cargas se realicen atendiendo a los mayores gastos en que incurren las empresas vendedoras;

Por ello y de acuerdo a las atribuciones conferidas por los decretos N° 41 y 75/73;

EL SECRETARIO DE ESTADO DE ENERGIA

RESUELVE:

ARTICULO 1°.- Fijar como criterio económico para el Despacho Unificado de Cargas y el futuro Despacho Nacional de Cargas, el de la integración de los costos de los servicios de generación y transmisión comprometidos de cada una de las empresas intervinientes, para la consecuente determinación de una tarifa única de Despacho a aplicar en las transacciones económicas entre el mismo y -

*Ministerio de Economía**Secretaría de Estado de Energía*

cada una de dichas empresas.

ARTICULO 2°.- Disponer que la DIRECCION NACIONAL DE ENERGIA ELECTRICA convoque en forma inmediata a las empresas integrantes del Despacho Unificado de Cargas a fin de reglamentar la implementación de las transacciones previstas en el artículo 1°.

ARTICULO 3°.- Dejar sin efecto la Resolución de la Subsecretaría de Energía N°40/73 y aprobar la metodología adjunta, que forma parte de la presente, cuya vigencia se establece desde el 10 de marzo de 1973 hasta el momento en que se aplique el nuevo criterio establecido en el artículo 1°.

ARTICULO 4°.- Disponer que AGUA Y ENERGIA ELECTRICA liquide en el futuro las transacciones económicas según la metodología aquí aprobada y que practique los reajustes correspondientes sobre las facturas emitidas desde el 10 de marzo de 1973 para adecuarlas a las nuevas condiciones de esta resolución.

ARTICULO 5°.- Regístrese, notifíquese a AGUA Y ENERGIA ELECTRICA, HIDRONOR S.A. SERVICIOS ELECTRICOS DEL GRAN BUENOS AIRES S.A. y COMPANIA ITALO ARGENTINA DE ELECTRICIDAD S.A., comuníquese a la DIRECCION DE ENERGIA DE LA PROVINCIA DE BUENOS AIRES y gírese a la DIRECCION NACIONAL DE ENERGIA ELECTRICA para su conocimiento y demás fines. Cumplido, archívese.

RESOLUCION N° 171

ING. HERMINIO R. SBARRA
SECRETARIO DE ESTADO DE ENERGIA



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ANEXO A LA RESOLUCIÓN SEE N° 171
METODOLOGÍA PARA LA REALIZACIÓN DE LAS TRANSACCIONES ECONÓMICAS DE
POTENCIA Y ENERGÍA DEL DESPACHO UNIFICADO DE CARGAS

1.1 Se considerará como Sistema Unificado el constituido por los subsistemas interconectados de Agua y Energía Eléctrica, de la Compañía Italo Argentina de Electricidad, de la Dirección de la Energía de la Provincia de Buenos Aires, de Servicios Eléctricos del Gran Buenos Aires S.A., agregándose además a partir del 1° de noviembre de 1973, el de Hidronor S.A. y el del Alto Valle de Agua y Energía Eléctrica, este último con el equipamiento que se detalla en el agregado 1 al presente anexo.

A los efectos de esta metodología se fijan como puntos de interconexión los indicados en el agregado 2.

1.2 Para la determinación de las transacciones económicas, se utilizarán los valores de potencia reales registrados en el despacho diario, homogeneizados a nivel de bornes de máquinas.

1.3 Cuando las mediciones en una determinada interconexión no se realizan en bornes de máquinas, los valores de potencia medidos en dicha interconexión, serán incrementados en: a) 5% cuando deban considerarse servicios internos de las centrales, b) 2% cuando deba pasarse de tensión de barras de generador a tensión de barras de central y c) 3% cuando la medición se realice en transmisión para retrotraer a barras de central. En caso de tener que utilizar más de un coeficiente, estos deberán ser directamente sumados.

1.4 Se adopta como período de despacho el lapso de media hora.

1.5 Se define como período de pico, el lapso comprendido entre las 18 y las 23 horas de cada día. El horario establecido, ha sido fijado sobre la base de la hora correspondiente al huso de tres horas al oeste de Greenwich, y cuando la hora oficial varíe con respecto a dicho huso, el horario estipulado variará correspondientemente.

2. POTENCIA

2.1 La potencia efectiva disponible en el período de pico en las centrales de los subsistemas interconectados arriba señalados, será determinada diariamente partiendo de las potencias efectivas actuales y reduciéndolas en el valor que corresponda por indisponibilidades y/o limitaciones de turboalternadores, calderas, equipos auxiliares, líneas de transmisión, y de toda otra



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indole que pudieran existir, siempre que tales indisponibilidades y/o limitaciones ocurrieran dentro del período de pico definido en el inciso 1.5.

A partir del 1 de noviembre de 1973 la potencia que Hidronor S.A. ponga a disposición del sistema interconectado, será igual a su potencia efectiva - disponible, menos la suma de la demanda del Comahue (Alto Valle) y la reserva correspondiente a esa demanda.

La demanda del Comahue (Alto Valle) cada media hora, se determinará sumando la generación de las máquinas del subsistema interconectado Alto Valle y el aporte de Hidronor S.A. al Comahue (Alto Valle) corregido con los coeficientes que correspondan según el inciso 1.3.

2.2 Asimismo serán considerados como potencia efectiva de las empresas los aportes efectivos que le suministren terceros ajenos al sistema interconectado.

2.3 Cada media hora de todos los días se determinará la carga de las centrales interconectadas de las partes, midiendo las potencias de bornes de generadores mediante lectura simultánea de los instrumentos correspondientes. El valor máximo del día, igual a la suma de todas estas cargas leídas simultáneamente, será la carga máxima conjunta del sistema.

2.4 La reserva de potencia efectiva disponible en el período de pico, será la diferencia entre la potencia efectiva disponible y la carga máxima conjunta del sistema.

2.5 Diariamente se repartirá la reserva de potencia efectiva disponible entre las partes en proporción a sus respectivas participaciones en la carga máxima conjunta del sistema. Dichas participaciones se calcularán para cada Empresa como la suma de la generación menos (o más) el saldo de la potencia suministrada - (o recibida) del sistema previamente corregido por los coeficientes del inciso 1.3; para la hora de la carga máxima conjunta del sistema.

Con igual criterio las empresas compartirán los déficit de potencia mediante bajada de tensión y/o cortes, proporcionales a sus respectivas participaciones en la carga máxima conjunta del sistema.

(c) carga máxima = oferta



Excmo.

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✓

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- 2.6 Diariamente para cada una de las empresas participantes se determinará el sobrante o faltante de potencia efectiva disponible que será igual a: la potencia efectiva disponible de cada empresa menos su participación en la carga máxima conjunta del sistema, menos la alícuota de la reserva de potencia efectiva disponible que le corresponda, calculada según inciso 2.5.
- 2.7 Para cada una de las empresas se calculará un promedio mensual de potencias, que será igual a la diferencia entre la sumatoria de sus potencias sobrantes, y la sumatoria de sus potencias faltantes, dividida por el número total de días del mes correspondiente. A este valor promedio de potencia así determinado se le aplicará el precio del inciso 2.9.
- 2.8 El importe así obtenido para cada empresa corresponderá, cuando sea positivo a su crédito por haber puesto a disposición del sistema potencia efectiva y cuando resulte negativo significará su débito, por haber tomado del sistema potencia efectiva disponible. La consolidación de todos los importes deberá ser nula.
- 2.9 Se fija a partir del 10 de marzo de 1973 en pesos 19,82 kWh/mes el precio de la potencia efectiva disponible.
- 2.10 La fórmula de reajuste para el precio de la potencia es:

precio del dólar a la fecha de la resolución

$$P = 12,83 \frac{D}{9,98} + 6,99 \frac{S}{1588,40}$$

donde: *valor el tiempo de la resolución*

D = cotización del dólar estadounidense tipo vendedor, en el mercado financiero de cambios de Buenos Aires, al cierre del último día hábil del mes de facturación en que haya habido cotización.

S = Sueldo básico del personal escalafonado correspondiente a la categoría "K" con diez años de antigüedad, según el Convenio Colectivo de Trabajo suscripto con la Federación Argentina de Trabajadores de Luz y Fuerza más todo aumento de carácter general que se agregue como sueldo.

3. ENERGIA

- 3.1.A los efectos de las transacciones de energía se calculará para cada empresa vendedora un costo en bornes de máquina, de la energía entregada al sistema

fecha S Fuel

18 - Mayo 21,650000 +

16 - Jul 23,170000 +

Sept - Dcto 169



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cada media hora. El cálculo se hará en función de los valores de las cargas reales registradas durante el despacho diario en la/s interconexión/es y en cada una de sus máquinas, así como de los costos incrementales de éstas, asociados a sus respectivos niveles de carga.

3.2. Para el cómputo de las transacciones de energía se procederá, en cada período de despacho, en la siguiente forma:

3.2.1 Se calculará la potencia transferida o recibida del sistema para cada una de las empresas, como la resultante de los valores registrados en las interconexiones definidas en el agregado 2 (previamente corregidos por los coeficientes enunciados en el inciso 1.3.).

3.2.2 Para cada empresa que resulte vendedora, se clasificarán sus máquinas en servicio en tres grupos.

3.2.2.1 Grupo A: comprenderá las máquinas despachadas económicamente que funcionaron encima de su mínimo técnico.

3.2.2.2 Grupo B: las máquinas despachadas económicamente que funcionaron en su mínimo técnico.

3.2.2.3 Grupo C: las máquinas que se mantuvieron o entraron en servicio debido a restricciones propias y/o de la red.

3.2.3. Para cada empresa que resulte vendedora, las máquinas del grupo A se ordenarán según sus costos incrementales decrecientes. A continuación de la máquina de menor costo incremental del grupo A se colocarán las máquinas del grupo B, ordenadas según costos unitarios crecientes.

Las máquinas del grupo C no serán consideradas, salvo en los casos en que su estado de carga fuera superior al que fijan las restricciones, o que en el período de pico del sistema fuera necesario efectuar cortes o bajadas de tensión. En tales casos estas máquinas pasarán a integrar los grupos A o B según corresponda.

3.2.4 Para cada empresa que resulte vendedora se integrará la potencia transferida con la fracción de, o, la carga de la primera máquina del grupo A. En caso no cubrirse tal valor se agregará la carga de la inmediata siguiente o la

..///



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fracción que corresponda, continuando así sucesivamente de acuerdo al ordenamiento establecido en el inciso 3.2.3, hasta completar el valor de la potencia transferida. Si la suma de las cargas de las máquinas del grupo

A, resulta inferior a la potencia transferida, ésta se completará con las cargas de las máquinas del grupo B, ordenadas según el inciso 3.2.3.

3.2.5 Se determinará el importe que le corresponde recibir a cada empresa vendedora como la suma de los productos que resultan de multiplicar cada una de las cargas de las máquinas que integraron la potencia transferida, por el intervalo de despacho, y por el costo incremental respectivo. En el caso de máquinas en mínimo técnico, el costo a utilizar será el unitario correspondiente.

3.2.6 Se determinará el precio medio de la energía entregada al sistema por las empresas vendedoras, como la relación entre la suma de los importes calculados según 3.2.5 y la suma de la energía transferida por dichas empresas al sistema, que resulta del producto de la potencia total transferida por el período de despacho.

3.2.7 Se determinará el importe que le corresponde pagar a cada empresa compradora como el producto de: la potencia recibida, el período de despacho y el precio medio determinado en el inciso 3.2.6.

3.2.8 A la energía aportada al sistema por Hidronor S.A. se le fija de acuerdo con el precio del fuel-oil indicado en 3.4 un precio uniforme equivalente a 1900 Kcal por kwh.

3.3 La integración mensual de los importes así determinados para cada intervalo de despacho, dará los importes a facturarse.

3.4 Los costos incrementales y unitarios correspondientes al parque térmico serán reajustados proporcionalmente, en ocasión de producirse variaciones en el precio básico del fuel-oil para centrales eléctricas de servicio público con relación al de 130\$/ton. considerado en fecha 12 de febrero de 1973.

3.5 A partir del 1 de noviembre de 1973 la energía aportada cada media hora por Hidronor S.A. al sistema se obtendrá restando de su generación la demanda

$130 \text{ ton} \times 9700 \text{ cal } 10^3 \text{ cal por ton} \times 1900 \text{ Kcal}$

$0,0255 \text{ /kwh}$

$25,5 \text{ /mwh}$

$62,653 \text{ mwh}$



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del Comahue (Alto Valle) en el mismo lapso.

- 3.6 Las máquinas térmicas que integran el subsistema Alto Valle costearán la energía que provean de acuerdo al método establecido en los incisos 3.2.1 a 3.2.7. y las máquinas hidráulicas lo harán de acuerdo al inciso 3.2.8.

4. FACTURACIONES Y PAGOS

- 4.1 Dentro de los quince días posteriores a cada mes calendario, Agua y Energía Eléctrica realizará los cálculos para la determinación de los importes a facturarse entre empresas, previa conformidad de las mismas respecto a los datos a utilizar.

Las facturaciones que en consecuencia se formulen, deberán ser abonadas dentro de los 30 días corridos de su presentación. Vencido dicho plazo y sin necesidad de interpelación judicial o extra judicial alguna, se computarán intereses sobre los importes de las mismas, calculados a la tasa de descuento que en todo momento cobre el Banco de la Nación Argentina para sus operaciones a 120 días.



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Agregado: 1

1/3

DETALLE DE UNIDADES GENERADORAS
DEL SUBSISTEMA INTERCONECTADO ALTO VALLE

<u>CENTRALES</u>	<u>TIPO</u>	<u>MARCA</u>	<u>POTENCIA</u> (KW)	<u>SUBTOTAL</u> (KW)	<u>TOTAL P/ TIPO</u> (KW)
Ing. C. Cipolletti	H	Riva	5.700	5.700	
Gral. Roca	H	Riva	1.232	1.232	
Ing. G. Céspedes	H	F. Tosi	2.760		
	H	" "	2.760	5.520	
Ing. J. Romero	H	A.S. Giorgio	3.100		
	H	" " "	3.100	6.200	18.652
Alto Valle	V	Parson	15.000		
	V	"	15.000	30.000	30.000
	D	Fiat	3.000		
	D	"	3.000	6.000	
Obrador Chocón	D	Sulzer	500		
	D	"	500		
	D	Niigata	1.000	2.000	
Zapala	D	Fiat	2.120		
	D	"	2.120		
	D	"	2.120		
	D	Mirrlees	1.098	7.458	15.458
Alto Valle	TG	Fiat	16.000	16.000	16.000
				TOTAL	80.110



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Agregado: 2

PUNTOS DE INTERCONEXIONES

CIAE - SEGDA : Central Nuevo Puerto de CIAE: Cuatro cables de SEGDA
AYEE - SEGDA : Subestación Morón de SEGDA
AYEE - DEDA : Central San Nicolás de AYEE
SEGDA - DEDA : Subestación Morón y/o Rodríguez de SEGDA
HIDRONOR - SEGDA : Subestación Ezeiza de Hidronor y SEGDA

Toda modificación de los puntos de interconexión o adición de nuevos puntos, deberá ser dispuesta por la D.N.E.E.

File

SIR ALEXANDER GIBB & PARTNERS

CONSULTING ENGINEERS



STANDARD HOUSE

LONDON STREET

READING RG1 4PS

TELEPHONE: READING 586171 (15 LINES)

TELEGRAMS: GIBBOSORUM READING

TELEX: 847404

AND AT

24 QUEEN ANNE'S GATE
WESTMINSTER SW1H 9AJ
TELEPHONE: 01-930 9700

PARTNERS
SIR ANGUS PATON CMG BSC FRSE FICE FASCE
L. G. BOOEN BSC FICE FISTRUCTE
J. H. LANDER OBE MA FICE FISTRUCTE FNZIE
A. D. S. MANGNALL OBE
K. F. SCOTT MC FICE FNZIE
W. T. N. REEVE MA FICE MEIC
J. V. CORNEY MA FICE FIMECHE
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A. R. MURRAY BSC FICE
J. R. HENNESSY MA MICE MIWES
GIBB ASSOCIATES LTD

CONSULTANTS
H. G. KEEFE FICE FISTRUCTE
I. P. HAIGH MA FICE
R. MARWICK BSC FICE
W. R. RANGELEY BSC FICE FISTRUCTE
B. E. ROBERTS BSC FICE FIWES
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C. H. SWAN BSC FICE
T. A. SAMUELS MA FICE

CONSULTANT ARCHITECT
H. L. FORD FRIBA MRTPI

ASSOCIATES
R. A. CROW MBIM
R. REATCHLOUS BSC FICE
A. G. GOWERS MSC FICE FISTRUCTE
J. W. G. PIRIE
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T. J. WOODS BALLARD MA FICE
J. R. E. KENT BA MICE
K. B. NORRIS FICE FASCE
T. G. CARPENTER BA MICE
J. W. S. JAMES OBE MICE MIEAUST FIP
A. J. WOODFORD BSC FICE FIWES

SENIOR CONSULTANTS
R. L. FITT CMG BSC FICE FASCE FISTRUCTE
R. G. T. LANE BSC FICE FIEAUST

PLEASE REFER TO S/3959

15th April 1976

CONFIDENTIAL

DECLASSIFIED

NOV 10 2021

WBG ARCHIVES

T. W. Berrie, Esq.
Senior Evaluation Officer,
Operations Evaluation Department,
International Bank for Reconstruction
and Development,
1818 H Street,
Washington DC 20433,
U.S.A.

Dear Tom,

El Chocon - Cerros Colorados IBRD Summary and Project Completion Reports

I promised to write to you clearing up one or two points on the above report which we discussed during your visit to our office at the beginning of March.

1. Cost Estimates: p.1 Supervision Summary

Our base estimate was prepared in January 1968 and submitted to Hidronor in February 1968. We presume this estimate was used by IBRD in its Appraisal. This estimate compares with the current (31 December 1975, quarterly report Exhibit 'D') as under for Stage I, i.e. for El Chocon 3 x 200 MW and transmission.

(a) Gibb (February 1968 Estimate)	US \$ 302.6 million
(b) Current (31 December 1975)	US \$ 276.1 million
(c) IBRD Supervisory Summary	
Appraisal	US \$ 265.4 million
Current	US \$ 265.3 million

The above figures in (a) and (b) include Engineering and Administration and in (a) escalation at 4% per year, but exclude interest during construction. I do not know the date of the IBRD current estimate - if it is at June 1975, we would quote the Exhibit 'D' estimate for that quarter of US \$ 273.8 million.

2. Cost Estimates - Attachment 2 IBRD Summary

Stage II

El Chocon 3 x 200 MW additional to Stage I

Portezuelo Grande, Loma de la Lata
Planicie Banderita 2 x 225 MW

Remainder of Transmission

The figures in (a) and (b) below include engineering and administration and in (a) escalation at 4% per year but exclude interest during construction.

(a)	Gibb (February 1968 estimate)	US \$ 187.5 million
(b)	Current (31 December 1975)	US \$ 297.7 million
(c)	IBRD Summary	
	Appraisal	US \$ 156.1 million
	Current	US \$ 232.7 million

(c) above appears to omit the first stage cost of Portezuelo Grande estimated by us in 1968 at US \$ 31.4 million which explains the difference between our figure of \$ 187.5 million and the IBRD Appraisal estimate of \$ 156.1 million.

The Gibb estimate of February 1968 assumed escalation at a rate of 4% per annum. The current estimates contain conversion from Pesos to Dollars at ruling rates of exchange at the time payments were made, and are therefore suspect, probably exaggerating real costs. The increase is largely attributable to increased rates of escalation, and partly to the method of converting Pesos to Dollars. Again, we do not know the ruling date of the IBRD current estimate - the Exhibit 'D' figure for June 1975 is \$ 262.5 million.

3. Cost Estimates: p.3 Project Completion Report

Our base estimate of February 1968 gave \$ 15.0 million (at January 1968 prices) as the cost for the hydraulic gates and penstocks including contingencies at about 20%.

The provisional sum allowed in the Bill of Quantities for Contract 200 Section VIII Item 25 for:

"Provide for structural steelwork, crane rails, all floor, wall and roof finishes, water, drainage, heating, lighting and ventilating services, doors, windows etc. in Power Station, all as may be ordered by the Engineer"

was Pesos 12 500 000. Our records show that this included Pesos 6 300 000 for estimated costs of structural steel - equivalent to US \$ 1.8 million.

The same Bill of Quantities (Section X Items 1 - 4) contained provisional sums for the supply and erection of the gates and penstocks totalling US \$ 15.9 million. Thus at the beginning of 1968 the Gibb estimated cost of gates, penstocks and miscellaneous steelwork was US \$ 17.7 million.

On 7th October 1968 Ing. Ondarts told us that IBRD had increased their loan to US \$ 82 million, made up as follows:

Civil Works	US \$ 36.6 million
Hydraulic Equipment and Penstocks	US \$ 12.3 million
Contingencies	US \$ 10.1 million
Engineering	US \$ 6.3 million
Interest during construction	US \$ 16.7 million
Total	US \$ 82.0 million

The amount given above of US \$ 12.3 million for hydraulic equipment and gates coincides with our original January 1968 estimate of US \$ 15.0 million after spreading contingencies over the first two items.

In December 1968 we were advised by IBRD that the make up of the loan was amended to the figures quoted in para 16 of the Project Completion Report, and in an exchange of telexes at that time we concurred.

In the event tenders for the three sub-contracts for gates and penstocks totalled US \$ 7.04 million, compared with our estimated cost of US \$ 12.3 million (without contingencies) and the final cost of these items has been reported as US \$ 6.3 million, after making the appropriate conversions from Pesos to Dollars.

The reduction from US \$ 12.3 million to the actual expenditure of US \$ 6.3 million is partly accounted for by the change in design from the original arrangement of 8 x 150 MW sets to 6 x 200 MW (estimated at the time as a saving of about US \$ 3.0 million), and partly by over cautious estimating bearing in mind the expected proportion of Argentinian manufacture. It happened that very favourable tenders were received from firms anxious to participate with the result that actual costs were far less than could be predicted by normal estimating procedures, for example, the accepted price per ton for the penstocks was lower than the prices obtained for similar work on another project two years earlier supplied by the same contractor. The tender price for the structural steel in the Power Station was Pesos 8 025 961 and the actual final cost Pesos 10 479 577, equivalent to about US \$ 2.4 million.

I cannot comment on actual disbursements of the loan.

4. Paragraph 19: Project Costs

I have commented on the project cost of Stage 2 in para 2 above.

The appraisal estimate, which was presumably taken from the Gibb February 1968 estimate, was the estimated cost of the original 'Executive Project' design. Subsequently we revised the project introducing savings by limiting the variations in the water level of Cuenca Mari Menuco. The February 1968 estimate assumed escalation at a rate of 4% per annum. By the time the main contracts were awarded for Planicie Banderita (January 1973) sharp price rises had already taken place, continuing at a faster rate still until now. I consider that the increase shown in the current estimate (not forgetting Portezuelo Grande) is entirely due to inflation having occurred at rates quite unforeseen in January 1968.

I hope the foregoing will be of some help to you, but please let me know if I can be of any further assistance.

Yours sincerely,

Tom Roe.

440098 1BRD UI

From:

KENDON WOKING

INCOMING TELEX

File sj
El Chocon.

1976 FEB 20 0910:37

Distribution:

Mr. Berrie ✓
Mr. Willoughby

859123

20/2/76

MR T W BERRIE

MY VISIT TO COLOMBIA FURTHER POSTPONED HENCE I WILL BE IN UK EARLY
MARCH. AT THE MOMENT I CAN OFFER WEDNESDAY 3RD OR FRIDAY 5TH FOR
MEETING IN WOKING BUT IF THESE NOT SUITABLE PLEASE RING ON ARRIVAL
FOR AD-HOC ARRANGEMENT.

REGARDS

MAL JOHN+++

TLX E 108

TO: HIDRONOR
CIPOLLETI
RIO NEGRO
ARGENTINA

DATE: May 25, 1976

COUNTRY:

ORIGINATOR'S EXT.: 2563

Telex No.122240

CLASS OF SERVICE: ~~XXXXXX~~

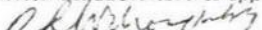
HINOR

CABLE NO. & TEXT: REFERENCIA PRESTAMO BIRF 577-AR stop EL DEPARTAMENTO DE EVALUACION DE OPERACIONES ES UNA UNIDAD DEL BANCO MUNDIAL DEPENDIENTE DIRECTAMENTE DEL DIRECTORIO DEL MISMO stop NUESTRA FUNCION ES PREPARAR UN INFORME SOBRE EJECUCION Y RESULTADOS PARA CADA UNO DE LOS PRESTAMOS FINANCIADOS POR EL BANCO stop ESTE INFORME SE PREPARA POCO TIEMPO DESPUES DEL ULTIMO DESEMBOLSO DEL PRESTAMO CON EL FIN DE EVALUAR LA MEDIDA EN QUE LOS OBJETIVOS DEL PRESTAMO SE HAN REALIZADO Y LA CONTRIBUCION DEL BANCO EN LA CONCRECION DEL PROYECTO stop EL PRINCIPAL OBJETIVO ES DERIVAR EXPERIENCIA QUE CONTRIBUYA A MEJORAR LA POLITICA Y LOS TRAMITES DEL BANCO PARA COOPERACION CON SUS PAISES MIEMBROS stop ESTE TRABAJO ESTA FUNDAMENTALMENTE BASADO EN DISCUSIONES CON LA ENTIDAD QUE HA RECIBIDO EL PRESTAMO stop ESTAMOS TRABAJANDO EN EL INFORME SOBRE EL PROYECTO DEL CHOCON Y DESEARIAMOS QUE EL DOCTOR MIGUEL E. MARTINEZ SENIOR EVALUATION OFFICER DE ESTE DEPARTAMENTO VISITARA CIPOLLETI POR DOS DIAS (JUNIO 14/15) PARA DISCUTIR CON SU STAFF EL PRIMER BORRADOR DE ESTE INFORME stop COMO ESTA VISITA ES PARTE DE UN PROGRAMA MAS AMPLIO DE VISITAS A OTROS PAISES LATINOAMERICANOS comma QUEDARE MUY AGRADECIDO SI USTED PUDIERA CONFIRMARME A LA BREVEDAD POSIBLE SI LA FECHA ES CONVENIENTE stop FINALMENTE DESEO ENFATIZAR EL CARACTER INDEPENDIENTE

~~XXXXXXXXXXXXXXXXXXXX~~

(continued)

NOT TO BE TRANSMITTED

REFERENCE:	AUTHORIZED BY (Name):
DRAFTED BY:	DEPARTMENT:
CLEARANCES AND COPY DISTRIBUTION:	SIGNATURE (Of individual authorized to approve): 
	SECTION BELOW FOR USE OF CABLE SECTION
	CHECKED FOR DISPATCH:

WORLD BANK / IFC
OUTGOING MESSAGE FORM
(TELEGRAM/CABLE/TELEX)

☒ IBRD
☐ IDA
☐ IFC
☐ ICSID

TO: HIDRONOR
CIPOLLETI
RIO NEGRO
ARGENTINA

DATE: May 25, 1976

ORIGINATOR'S EXT.:

COUNTRY:

CLASS OF
SERVICE:

CABLE NO. & TEXT:

Page 2

DE ESTE DEPARTAMENTO Y EL HECHO QUE LA VISITA DEL DOCTOR MARTINEZ
NO ESTA RELACIONADA CON LA MISION DE OPERACIONES QUE ENTIENDO
LES VISITARA EN LA SEGUNDA SEMANA DE JUNIO stop ATENTAMENTE

CHRISTOPHER R. WILLOUGHBY
DIRECTOR
DEPARTAMENTO DE EVALUACION
DE OPERACIONES
INTBAFRAD

NOT TO BE TRANSMITTED

REFERENCE:	AUTHORIZED BY (Name):  WILLOUGHBY
DRAFTED BY: Miguel E. Martinez	DEPARTMENT: Operations Evaluation
CLEARANCES AND COPY DISTRIBUTION:	SIGNATURE (Of individual authorized to approve): 
	SECTION BELOW FOR USE OF CABLE SECTION
	CHECKED FOR DISPATCH:

File

Mr. Fajans (for distribution to the Working Party)

March 11, 1968

C. Eugene Webb

ARGENTINA: El Chocan: Cerros-Colorados Project

In preparation for the Working Party held on March 7, I reviewed the legal documents summarized and commented upon below.

1. Act (Law) No. 17318 dated June 19, 1967. This law permits the creation of a legal entity of an unusual type. The law requires that the State, that is, the National Government of Argentina, own not less than 51% of the corporate capital, but the entity will have a form of organization traditionally limited to the private sector. In other words, the entity is a hybrid, an attempt to adapt a share corporation to the special needs of state economic activity.

Under Article 1 this law, not only the Central Government but provinces, municipalities, "legally authorized agencies" or share corporations may own, individually or jointly, shares that represent at least 51% of the corporate capital, and their shares are to be sufficient in number to form per se a quorum and provide a majority at regular and special share meetings of shareholders.

COMMENT: Consideration should be given to the applicability of Op. Mem. 3.02 (16) and 3.04 (4), but see also 3.04 (5), (7) and especially 3.04 (8).

Certain provisions of the Commercial Code are declared not applicable to this type of corporation; e.g., requirements with respect to a minimum number of shareholders, to qualifications of shareholders who are directors, and voting limitations laid down in Article 350 of the Commercial Code.

The law, Articles 4 and 5, provides for the appointment of directors, lays down certain restrictions, e.g., with respect to appointment of relatives. The Act, Article 6, provides for the appointment of one or more "sindicos" representing minority shareholders.

Article 10 fixes standards for the report of the Directors: that such reports show the principles adopted for the valuation of assets: the criteria adopted in calculating depreciation rates and in determining the level of reserves to cover the risk of devaluation and depreciation; the bases of relations with subsidiaries or associate companies; and changes in assets and special expenditures.

2. Decree No. 7925/67 of October 23, 1967 authorizes the Direccion Nacional de Energia y Combustibles and Agua y Energia Electrica to form a corporation of the type permitted under the law cited above.

Article 2 of this Decree expands the powers conferred on Agua y Energia Electrica to enable it to subscribe for shares in the new corporation and provides for an addition to its budget for this purpose.

3. Estatutos of Hidronor. An entity named Hidro Electrica Norpatagonica, Sociedad Anonima (Hidronor, S.A.) domiciled in Buenos Aires, is established for 100 years.

The Central Government and the type of agencies described in Law 17318 (see above) must hold at least 51% of the shares.

The object of the Company is stated to be to construct and operate water power and electric power works in the Comahue region and more especially, those of the El Chocón-Cerro Colorado Complex.

The Company has wide powers (Article 6). Of interest to the Bank are the right to make contracts of all kinds, to furnish and accept pledges and mortgages, to accept and receive loans and enter into other operations with public or private banks, international or other lending agencies, both corporate or private persons within Argentina or abroad, and to issue in Argentina or abroad, debt obligations including bonds (debentures).

COMMENT: It follows that this entity is one with which the Bank can enter into a relationship of lender to borrower.

These estatutos set forth the authorized capital as M\$N 20,000 million.

The Company is to be administered by a Board of Directors, the number of which shall be between 4 and 6. If private shareholders represent 20% or more, they are entitled to be proportionately represented.

It is the Board of Directors which chooses the Chairman and Vice Chairman.

The remuneration of the Board is set out in Article 18 as equivalent to 4/10,000's of the annual profits but not less than M\$N 2 million per annum for each member of the Board regardless of whether or not profits have been made.

The Chairman is entitled to receive 6/10,000 of the profits, but not less than M\$N 3 million per annum.

The Board possesses very wide powers (Article 19): to furnish mortgages, to issue bonds (debentures), and to borrow at home and abroad. Thus, Article 19, in effect, reflects the powers commented upon above. Hence, the Bank can deal with Hidronor officers as representatives of a Borrower.

There is provision for an Executive Committee consisting of the Chairman or Vice Chairman of the Board of Directors plus two other members of the Board. Certain significant powers can be exercised by this Executive Committee (in addition to others delegated by the Board) including agreement on terms for the interchange of electric power and within limits set by the Board arranging for purchase and contracts for works and services.

Attention is drawn to Article 25 which fixes the joint remuneration for the Executive Committee at 3.5/1,000ths of the annual profits except during the period of construction when joint remuneration shall be 1/1,000 of the net value of investments made in the works.

4. Decree 6489/67 of September 11, 1967 permits The National Electric Power Fund to purchase shares of the corporation authorized by Law 17318, that is, in corporations such as Hidronor.

It also permits the National Electric Power Fund to be invested in shares of companies that do not operate in accordance with Law 17318, but "are engaged in the operation of electric power undertakings and are required to carry into effect, international or inter-provincial plans for the production, transmission or distribution of electric power".

COMMENT: The significance of this authority cannot be inferred from the Decree alone. It might, for example, result in a diminution of resources available for Hidronor.

This Decree also requires the Central Department of Fuel and Power to incorporate among its assets shares purchased pursuant to the decree and to exercise rights of shareholders.

4. Law 17574 of December 21, 1967. Article 1 grants Hidronor a concession to build and operate the El Chocon-Cerros Colorados Complex, including electric power transmission lines and supplementary installations from the power stations of the Complex to the Greater Buenos Aires Coastal Electric Power System and such other electric power systems and consumption centers as the Ministry of Power and Mines may authorize.

Article 2 creates the El Chocon-Cerros Colorados Fund to be administered by the Ministry of Power and Mines through which the Executive Branch of the Central Government, directly or through state agencies, or through enterprises controlled by the State, will contribute to Hidronor and provide funds required for construction of the works. The Fund is to be composed of the following resources:

- a) Those collected under Article II of Law No. 16882;
- b) A surcharge of up to 5% of each kilowatt sold, payable by the ultimate consumer;
- c) A surcharge of up to 5% on crude oil processed in Brazil to be imposed on the prices which the Ministry of Power and Mines fixes;
- d) Annual appropriations from Fondo Nacional de la Energia and Fondo Nacional de la Energia Electrica;
- e) Contributions of the Executive Branch to meet the cost of the parts of the works linked with irrigation and regulation of water courses;
- f) Other tax funds to be established for the works.

The Executive Branch decides the percentages applicable in respect of the surcharge on electric power and crude oil and has considerable flexibility with respect to the maintenance, full or partial, of such surcharge, which is to be paid into a special account in Banco de la Nacion, Argentina.

If this Fund is temporarily without resources, the Argentine Treasury is to advance, as a loan, the sum needed to meet construction costs, Article 3.

The Executive Branch is to furnish the guarantee of the Argentine Government in respect to obligations either in Argentine or foreign currency entered into by Hidronor to "such extent as [the Executive Power] has previously authorized".

COMMENT: Though this Article 4 authorizes Argentina's required guarantee as a Member, the quoted qualification signifies that we should, as usual, be sure all terms are satisfactory to the Government in Buenos Aires before submitting our papers to our Executive Directors.

The Executive Branch shall decide the means by which Hidronor can obtain financing/imported goods and services, taking care to assure adequate participation by Argentine industry by means of the application of pertinent promotional legislation. (Article 5).

COMMENT: This provision seems to imply negotiations and arrangements of the Second Segba type.

By Article 6 the Minister of Finance is to introduce special procedures for customs inspections to cover the import of items included above to avoid delays which might affect construction schedules.

COMMENT: I don't recall a similar provision for Second Segba. Perhaps such procedures will aid in getting foreign participation and expedite matters in Argentina.

The El Chocón-Cerro Colorado works are declared to be of national importance.

COMMENT: The special legal significance of this is not known, but it is clearly A Good Thing.

Hidronor is authorized to transfer abroad such amounts in foreign exchange as are needed to amortize the principal and interest of payments on loans made for the execution of work and to pay installments due on goods purchased. The Executive Branch is to ensure that foreign exchange is made available when required. (Article 8)

Hidronor is exempted from payment of import duties, sales taxes, and other charges. (Article 9).

It is stated that Argentine enterprises supplying goods and services for the benefit of exemptions from sales taxes and tax payments under the terms of Law 16877. Decision regarding goods so exempted are to be made in advance by joint resolution of the Ministry of Power and Mines, Industry and of Trade and Finance (Article 9).

COMMENT: This would probably grant the same remissions permitted to bidders on the Second Segba Project, but this will have to be checked.

This law (Article 10) defines the Comahue region.

COMMENT: Projects Department may wish to check the territorial limits, since they determine the area within which Hidronor may function.

The law (Article 11) states that Hidronor is to make plants available for service as soon as it is in a position to supply power in such manner as permanently to ensure that the prior needs for electricity of the states of the Comahue region are met. To this end, if further development of the region so requires the return of electric power supply from outside the region will be made mandatory, Hidronor being required to notify distributors and consumers not less than four years in advance so that the latter may take steps necessary to replace power.

COMMENT: The technical likelihood of this exchange of power through time are not clear to me, but Projects Department may wish to look into this point.

According to Article 12, the average selling price of Hidronor power to the Comahue region is based on standards for rates laid down in Article 39 of Law 15336.

COMMENT: The significance of this provision is not known to me, but Projects Department may wish to check this point also.

The same Article permits preferential rates to very large consumers, but does not allow such preferential rates until the Executive Branch of the Central Government has determined that the objectives of promotion and development in the Comahue Region have been attained. This Article also provides that the Executive Branch shall compensate Hidronor for amounts not received as a result of the application of preferential rates for the Comahue Region.

Article 15 provides all matters in it are subject to Law 15336.

Article 16 repeals any provisions of Law 16882 that may conflict.

COMMENT: The significance of references to these two Laws is not clear to me, but Projects Department may wish to make inquiries of the Argentines.

Appended to this Law is what appears to be a draft of the Concession granted by the Government. It sets forth the objectives of the Concession, a description of the works and the standards for their execution, the system of transmission to be included, standards for the regulation of the use of water in the Concession area - the volume of water to be retained behind the El Chocon and Carros-Colorados dams, the regulation of water during flood and dry periods; standards for the utilization of energy; sets forth the number of megowatts for each of the central stations; fixes the period during which the works are to be executed; fixes the term of the Concession as indefinite (the Government can revoke the Concession when it deems it convenient); Article 8 describes in detail timing for the Government's financial contribution; sets forth the bases for tariffs and for depreciation and amortization funds; and describes in great detail the geographic area included within the Concession.

COMMENT: The Projects Department will wish to examine this Annex or the Concession itself, carefully. It seemed inappropriate to reproduce the details in this memorandum.

CEW:bmc

File

March 15, 1976

Mr. Geoffrey G. R. Argent
Merz and McLellan
Consulting Engineers
Amberley
Killing Worth
Newcastle Upon the Tyne NE12 0RS
England

Dear Geoffrey:

Re: Argentina - El Chocon - Hydro Project

Thank you for the many hours which you and your friends spent with me last week talking about the above subject. I am sure that all the discussion will prove valuable when we put together our Project Performance Audit. I will keep you in touch with this and any further questions to which I may need the answers.

Meanwhile, I enclose copies of the four documents which I promised. Please treat all of these as confidential.

Sincerely yours,

Tom

Thomas W. Berrie
Senior Evaluation Officer
Operations Evaluation Department

Enclosure

TWBerrie:mod

4 March, 1976

File
El Chocón

EL CHOCON-CERROS COLORADOS COMPLEX

JUNE 1967. SUMMARY OF STATEMENT BY ING. GOTELLI TO
CONSULTING ENGINEER INVITED TO VISIT ARGENTINA

Scheme under consideration since 1955. The various credit institutions had doubts and reservations about its feasibility and hence IBRD were consulted.

A revised appraisal was made at IBRD's request by ITSOHAR and reviewed subsequently by Jacobs. IBRD provided the funds for these studies. As a result IBRD now consider the scheme to be feasible. The Jacobs study expected in Buenos Aires during the week commencing June 12 1967. International credit situation had changed considerably in last few months in favour of Argentina. IBRD, IADB and other credit institutions now interested in assisting Argentina with finance for feasibility/viable projects.

Up to recently there has been competition between Chocon and other schemes, but Government had now decided to proceed with Chocon in order to provide power to Buenos Aires by 1973.

OFFICE MEMORANDUM

TO: Mr. Mervyn L. Weiner, Director-General
Operations Evaluation
FROM: Shiv S. Kapur, Director, OED
SUBJECT: Project Performance Audit Report on Argentina: El Chocon
Power Project (Loan 577-AR)

DATE: October 22, 1976

please find this in

first shape, taking

into account

Mr. Sheehan's

comments.

I am submitting herewith the Project Performance Audit Report on Argentina: El Chocon Power Project (Loan 577-AR). The report has been revised in light of comments received from the Latin America and the Caribbean Regional Office, Central Projects Staff, and the borrower.

11/5

well written

Attachment

cc: Messrs. Krieger
Baum

10/28 (Sheehan)

Copy sent to Mr. Bengenk for comment 10/26
Note sent to Baum + Krieger - 10/26

See § 11

Highlights

Sheehan's small corrections. I believe
you have LAC's reaction (Van der Meer note!)

Mr. Kapur:

with above small amendments, OK

to issue

W 11/5

1001
11/5

Argentina

Your Ref: ABW/ris

May 14, 1976

Mr. A. B. Wood
Partner
Merz and McHellan
Amberley
Killingworth
Newcastle Upon Tyne NE 12 ORS
England

Dear Alan,

This is a very belated apology for the many things to which I have not replied to you and your colleagues. First, thank you for your telephone conversation on March 24, 1976, concerning the El Chocon project, also for your letter of the same date sending me the details; second, I am sorry for not getting in touch with you just after Easter as I promised, and for not replying, as yet, to the letter from Geoff Argent of April 13, 1976. I feel that you both are due some explanation.

With respect to El Chocon, I found your information very useful, as has been the information on the project from all your firm. In fact, following recent discussions with my colleagues in the Latin American and Caribbean Regional office, I believe that I understand the project and its history thoroughly enough to begin my Performance Audit Report on it which I am now doing. I did not contact you immediately after Easter as I promised in that I arrived back later than expected from Western Africa. In fact, I did not get to our London office until late on Tuesday, April 20. During that week I kept hoping that I might be able to go up North again before returning to Washington, but this in fact proved not to be possible and I had to return to Washington at the weekend.

Fortunately your letter of March 24, 1976, is self explanatory and so my not being able to visit you has not been a disaster. I have not yet replied to Geoff Argent's letter of April 13, 1976, because it needed a lot of thinking about and I am puzzled by some of the things to which it refers. I would be obliged if you would let him know this, and that I will be replying shortly.

My regards to all,

T. W. Berrie
Senior Evaluations Officer
Operations Evaluation Department

WTB/rb

Argentina

FORM NO. 75
(7-73)

WORLD BANK GROUP

ROUTING SLIP		DATE May 11, 1976	
NAME		ROOM NO.	
Mr. B. Montfort			
APPROPRIATE DISPOSITION		NOTE AND RETURN	
APPROVAL		NOTE AND SEND ON	
COMMENT		PER OUR CONVERSATION	
FOR ACTION		PER YOUR REQUEST	
INFORMATION		PREPARE REPLY	
INITIAL		RECOMMENDATION	
NOTE AND FILE		SIGNATURE	
REMARKS Re: <u>El CHOCON: Attached</u> We like to get the Borrower's views directly if we can for an Audit Report in draft. One of my colleagues, Miguel Martinez, is going to Buenos Aires on other business. I would like him to deliver the draft report on El Chocon and to ask some preliminary views on some topics. The draft Audit Report will have been circulated in the Bank before he goes and we will have had time to discuss the topics. Please ask your program colleagues for their views and advise names and addresses (spare copy included).			
FROM T.W. Berrie		ROOM NO. G-1043	EXTENSION 4442

D R A F T
TWBerrie:med

May 11, 1976

MR.

SECRETARIA DE ESTADO DE ENERGIA Y MINERIA

BUENOS AIRES

ARGENTINA

IN CONNECTION WITH PREPARATION OF PROJECT PERFORMANCE AUDIT REPORT CONCERNING
STAGE ONE OF LOAN 577 EYE WOULD LIKE MIGUEL MARTINEZ COMMA ONE OF MY
COLLEAGUES COMMA TO VISIT BUENOS AIRES FROM JUNE SEVEN THROUGH NINE TO
DELIVER FIRST DRAFT OF AUDIT TO YOURSELF AND HIDRONOR STOP HE WOULD ALSO
ASK YOUR FIRST VIEWS ON SOME TOPICS WHICH WE CONSIDER IMPORTANT FOR
WRITING AUDIT REPORT STOP THIS DEPARTMENT IS RESPONSIBLE WITHIN WORLD
BANK FOR PREPARING PERFORMANCE AUDITS ON ALL PROJECTS SHORTLY AFTER
DISBURSEMENT COMPLETION COMMA WITH MAIN FOCUS ON WHAT WORLD BANK CAN
LEARN FROM PAST EXPERIENCE STOP SIMILAR CABLE HAS BEEN SENT TO HIDRONOR
STOP PLEASE LET US KNOW IF DATES CONVENIENT STOP LETTER WILL FOLLOW
LATER CONCERNING TOPICS

BERRIE
SENIOR EVALUATION OFFICER
OPERATIONS EVALUATION DEPARTMENT
INTBAFRAD

D R A F T
TWBerrie:med

May 11, 1976

MR.

HIDRONOR

BUENOS AIRES

ARGENTINA

AS AN INDEPENDENT EVALUATION DEPARTMENT WITHIN WORLD BANK WE PREPARE PERFORMANCE
AUDITS ON ALL PROJECTS AFTER COMPLETION OF LOAN DISBURSEMENTS STOP PURPOSE
OF AUDITS IS TO EXAMINE EXTENT PROJECT OBJECTIVES ACHIEVED WITH MAIN
FOCUS ON WHAT WORLD BANK CAN LEARN FROM PAST EXPERIENCE STOP IN CONNECTION
WITH PREPARATION OF PROJECT PERFORMANCE AUDIT REPORT CONCERNING STAGE
ONE OF LOAN 577 EYE WOULD LIKE MIGUEL MARTINEZ COMMA ONE OF MY
COLLEAGUES COMMA TO VISIT BUENOS AIRES FROM JUNE SEVEN THROUGH NINE TO
DELIVER FIRST DRAFT OF AUDIT TO YOURSELF AND ENERGY AND MINERALS SECRETARIAT
STOP HE WOULD ALSO ASK YOUR FIRST VIEWS ON SOME TOPICS WHICH WE CONSIDER
IMPORTANT FOR WRITING AUDIT REPORT STOP SIMILAR CABLE HAS BEEN SENT TO
ENERGY AND MINERALS SECRETARIAT STOP PLEASE LET US KNOW IF DATES
CONVENIENT STOP LETTER WILL FOLLOW LATER CONCERNING TOPICS

BERRIE
SENIOR EVALUATION OFFICER
OPERATIONS EVALUATION DEPARTMENT
INTBAFRAD

MR. B. WELLENHUS
P.O. BOX 55
SANTIAGO 12

June 4, 1976

4443

CHILE

FULL RATE

FURTHER TO CABLE OF JUNE 1 COLUMBIA FINAL REPORT HAS BEEN
SENT STOP EYE NOW NEED INFORMATION PREVIOUSLY MENTIONED BY
JUNE 11 INSTEAD OF JUNE 21 STOP REGARDS

BERRIE

TWBerrie:cmn

Thomas W. Berrie
Senior Evaluation Officer
Operations Evaluation Dept.

cc: Mr. Kapur

WORLD BANK / IFC
OUTGOING MESSAGE FORM
(TELEGRAM/CABLE/TELEX)

☐ IBRD
☐ IDA
☐ IFC
☐ ICSID

TO: INGENIERO ANTONIO FEDERICO
PRESIDENTE HIDRONOR SA
CIPOLLETI
RIO NEGRO

DATE: Junio 4, 1976

ORIGINATOR'S EXT.: 2563

COUNTRY: ARGENTINA

CLASS OF SERVICE: TELEX No. 122240
HINOR

CABLE NO. & TEXT:

REFERENCIA PRESTAMO 577-BIRF stop AGRADEZCO SU TELEX FECHA 25-5
Y DESEO CONFIRMAR MI VIAJE A CIPOLLETI stop ESPERO ARRIBAR NEUQUEN
DOMINGO 13 comma AR 666 DESDE BUENOS AIRES stop ATENTAMENTE

DR. MIGUEL E. MARTINEZ
DEPARTAMENTO EVALUACION OPERACIONES - BANCO MUNDIAL

NOT TO BE TRANSMITTED

REFERENCE:	AUTHORIZED BY (Name): Kenneth A. Bohr <i>KAB</i>
DRAFTED BY: Miguel E. Martinez	DEPARTMENT: Operations Evaluation Department
CLEARANCES AND COPY DISTRIBUTION:	SIGNATURE (Of individual authorized to approve):
	SECTION BELOW FOR USE OF CABLE SECTION
	CHECKED FOR DISPATCH:

OFFICE MEMORANDUM

Mr. Pereira

Have these taken

into account in

DATE: November 1, 1976

the final version?

11/12

TO: Mr. Mervyn Weiner, Director General (OED)

FROM: S.M.L. van der Meer, Director (LCPDR)

SUBJECT: ARGENTINA - Performance Audit Memo
(October 22, 1976) on El Chocon Power Project
Loan 577-AR

1. With reference to your note of October 26, 1976 to Messrs. Baum and Krieger, we believe that our earlier comments have been adequately taken into account and do not think that further substantive comments are called for.
2. You might, however, consider making the following changes in Paragraphs 4 and 5. The change in Paragraph 4 would reflect in more exact technical terms the nature of the failure alluded to, while the change in Paragraph 5 would eliminate a sentence irrelevant to the argument pursued. Both these changes have been discussed with Mr. Thomas A. Pereira of your staff, who agrees.
3. Paragraph 4 - We suggest the following wording for the last five sentences of this paragraph:

"The third failure, which interrupted the electric supply for about 14 days, occurred during the initial stages of operation of the project when 16 towers of the transmission line collapsed due to two extremely serious wind and rain storms. The collapse was caused by the failure of the foundations of the windward guy wires due to an inadequate choice of these foundations. They are currently being replaced by the original contractor with Hidronor only bearing the cost of the difference between the new foundations and the original ones. The responsibility for the incident has not yet been resolved. The borrower has kept the Bank adequately informed on the problem".

4. Paragraph 5 - We suggest eliminating the sentence beginning with "However" and ending with "economic difficulties." and rewording the next sentence as follows:

"Even though sales have been below expectation (see Paragraph 7) the economic justification for the Project was enhanced by the quadrupling of fossil fuel prices since the time of appraisal".

MLinder/mo.

cc: Messrs. Krieger (LCNVP); Wiese (LC2DR); Rovani (EWTDR); Leibert (LC2DC)

1053
11/12

Mr. PerkinsMr. Kaper

Any comments from CPs

or the ^{Region?} As you will note, Benjamin ~~did~~ not look at these and when Norman Horseley asked me whether to hold them for Knapp, who is inundated with accumulated papers, I said no and told him to return them.

I've returned the other copies this morning — to issue as noted

W 11/1. 951
11/1

Mr. Mervyn Weiner, Director General (CDB)

November 1, 1976

S.M.L. van der Meer, Director (LCPDR)

ARGENTINA - Performance Audit Memo

(October 22, 1976) on El Chaco Power Project
Loan 577-AR

1. With reference to your note of October 26, 1976 to Messrs. Raus and Krieger, we believe that our earlier comments have been adequately taken into account and do not think that further substantive comments are called for.
2. You might, however, consider making the following changes in Paragraphs 4 and 5. The change in Paragraph 4 would reflect in more exact technical terms the nature of the failure alluded to, while the change in Paragraph 5 would eliminate a sentence irrelevant to the argument pursued. Both these changes have been discussed with Mr. Thomas A. Pereira of your staff, who agrees.
3. Paragraph 4 - We suggest the following wording for the last five sentences of this paragraph:

"The third failure, which interrupted the electric supply for about 14 days, occurred during the initial stages of operation of the project when 16 towers of the transmission line collapsed due to two (~~extreme~~) serious wind and rain storms. [The collapse was caused by the failure of the foundations of the windward guy wires due to an inadequate choice of these foundations. They are currently being replaced by the original contractor with Alironox only bearing the cost of the difference] between the new foundations and the original ones. The responsibility for the incident has not yet been resolved. The borrower has kept the Bank adequately advised on the problem".
4. Paragraph 5 - We suggest eliminating the sentence beginning with "however" and ending with "economic difficulties," and rewording the next sentence as follows:

"Even though sales have been below expectation (see Paragraph 7) the economic justification for the Project was enhanced by the quadrupling of fossil fuel prices since the time of appraisal".

MLinder/uo.

cc: Messrs. Krieger (LCNVP); Wiese (LC2DR); Rovani (ENHTR); Lohbert (LC2DC)

Mr. Weiner
E1204

Mr. W. C. Baum

October 28, 1976

R. H. Sheehan

ARGENTINA: El Chocón Power Project - Loan 577-AR
Project Performance Audit

Per Mr. Weiner's note to you of October 26, 1976, our earlier comments on the Project Performance Audit Memo have all been taken care of but I note that two new points have been added with which I disagree.

First, the explanation re: the transmission line at the end of paragraph 4 is now incorrect: the problem was not "defective towers"; it would probably also be incorrect to say the foundations were defective. I think the failure was caused by using the wrong type of footing (of the various choices) at that particular site.

Second, the last sentence of paragraph 15 does not tell the whole story. The Bank did make a strong effort in the direction of supporting institutional improvements when we told the Argentines very clearly in 1971 that we would make no further loans in the power sector until they coordinated the sector planning, in particular the generation and transmission aspects. Although we are still waiting for this plan, and even though the Bank just weakened its position somewhat by making a distribution loan to SEGBA, I doubt very much if the Bank will resume lending for generation or transmission until an acceptable plan is submitted, and the new Minister knows it.

RHSheehan:smo

cc: Mr. Weiner ✓
LAC and EWT Files

OFFICE MEMORANDUM

TO: Mr. Shiv S. Kapur, Director, OED

FROM: Bernard Montfort, Acting Division Chief, LCPPT

SUBJECT: ARGENTINA - Draft Project Performance Audit Report of June 3, 1975
"El Chocon" Power Project (Loan 577-AR) - Detailed Comments

1. As a result of HIDRONOR's comments on the Draft Project Performance Audit Report (PPAR) and the Project Completion Report (PCR) and of a more detailed review of the PPAR on our part, we would like to suggest some changes for your consideration. The changes resulting from HIDRONOR's comments have already been included in the PCR (see attached copy).

2. The changes we suggest are the following:

- (a) Paragraph 4, page 2 - As the use of the word "turbo-alternator" is generally restricted to steam turbine alternator groups, we suggest that the last three sentences of page 2 read:

"Two of the three main technical incidents were in connection with one turbine and one alternator, and one was in connection with the 1080 km transmission line. Because the turbine incident was found to be due to a design fault, the defect was rectified on all units by the supplier without any cost to HIDRONOR. The responsibility for the alternator's incident....."
- (b) Paragraph 4, page 3 - The last but one sentence of this paragraph reflects the situation at the time of writing of the PCR (i.e. December 1975), but a recent mission to Argentina established that the contractor was presently replacing the tower guy-wire foundations and that it is expected that this work will be completed during 1977.
- (c) Paragraph 5, page 4, and Annex A - We understand that the rate of return calculation carried out in Annex A is a proxy for the economic rate of return rather than the financial rate of return. We suggest this be amended. (See also the Basic Data Sheet where the wording "Economic rate of return" is used, and where the value shown should be 8% and not 12% to make it consistent with the text).
- (d) Paragraph 5, page 4 - The PCR contained an error regarding the date of occurrence of the flood which would have caused damage equivalent to US\$24 million without the project. The date should be changed from 1975 to 1972. (The PCR has been changed correspondingly).
- (e) Paragraphs 6, 7 and 8 - As a result of HIDRONOR's comments, certain changes were made in the PCR, such as, eliminating the paragraphs 23.05 and 23.06 of the original version. Consequently, paragraphs 6, 7 and 8 of the PPAR should be changed accordingly.

MLinder/mo.

cc: Messrs. Krieger (LCNVP); Wiese (LC2DR); Rovani (EWTDR); Leibert (LC2DC)

116
9/29

ROUTING SLIP		DATE <i>Sep. 15, 1976</i>	
NAME		ROOM NO.	
<i>Mr. Shiv S. Kapur</i>			
<i>Mr. Pereira</i>			
<i>Please see below</i>			
APPROPRIATE DISPOSITION		NOTE AND RETURN	
APPROVAL		NOTE AND SEND ON	
COMMENT		PER OUR CONVERSATION	
FOR ACTION		PER YOUR REQUEST	
INFORMATION		PREPARE REPLY	
INITIAL		RECOMMENDATION	
NOTE AND FILE		SIGNATURE	
<p>REMARKS <i>At yesterday's meeting, I found it difficult (and embarrassing because of the presence of other Sr. Evaluation Officers) to provide you with an adequate explanation to your query on Argentina (El Chocón) Audit Memorandum. I had planned to incorporate, unobtrusively, the changes in the Audit Memo., after the necessary changes were made to the PCR. Reluctantly, I attach my comments on the present state of Audit Memo.</i></p>			
FROM <i>T. Pereira</i>		ROOM NO.	EXTENSION

Comments on PCR and Audit Memorandum and Suggestions.

1. The PCR, apart from the errors and some omissions in the financial section, seems to have been well done.
2. The Audit Memorandum is, almost entirely, a summary of the issues already discussed in the PCR. It has not added a new dimension to the issues or to the report as a whole.
3. The Audit Memorandum has included the "Financial Rate of Return for the Project". But I seem to have doubts on its validity.
4. Some of detailed explanations provided by Stidman to Miguel Martinez [namely: the design defect in the turbo-alternator which became the subject of discussion in an International Congress; the area through which the transmission lines (some 16 transmission towers ~~failed~~ collapsed) passes gets flooded, and there is no good drainage, hence special consideration required for tower foundations] should have emerged during the discussion Mr. Benie had with the engineering consultants, when he visited them in England.

Two choices are available (other than having to write a fresh Audit Memo and then going through the whole cycle of circulating it within the Bank, etc.).

- a) Reduce the Audit Memo to about 3 or 4 pages and to say that it is in general agreement with PCR (after the necessary changes are incorporated), and retain the existing financial rate of return.
- b) Retain the existing format of the Audit Memo and incorporate the necessary changes (and also the changes in the PCR).

I am sure
would air
getting
as possible

T. K. S. Just marginally, I would favour the second choice. 676
9/1/6

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2. The Audit Memorandum is, almost entirely, a summary of the issues already discussed in the PCR. It has not added a new dimension to the issues or to the report as a whole.
3. The Audit Memorandum has included the "Financial Rate of Return for the Project". But I seem to have doubts on its validity.
4. Some of detailed explanations provided by Hidrovic to Miguel Martinez (namely: the design defect in the turbo-alternator which became the subject of discussion in an International Congress; the area through which the transmission line (some 16 transmission towers ~~failed~~ collapsed) passes gets flooded, and there is no good drainage, hence special consideration required for tower foundations) should have emerged during the discussion Mr Benne had with the engineering consultants, when he visited them in England.

Two choices are available (Other than having to write a fresh Audit Memo and then going through the whole cycle of circulating it within the Bank, etc.).

- a) Reduce the Audit Memo to about 3 or 4 pages and to say that it is in general agreement with PCR (after the necessary changes are incorporated), and retain the existing financial rate of return
- b) Retain the existing format of the Audit Memo

is a fine
would not
getting it
while

ROUTING SLIP		DATE <i>Sep. 15, 1976</i>	
NAME		ROOM NO.	
<i>Mr. Shiv S. Kapur</i>			
<i>Mr. Pereira</i>			
<i>Please see below</i>			
APPROPRIATE DISPOSITION		NOTE AND RETURN	
APPROVAL		NOTE AND SEND ON	
COMMENT		PER OUR CONVERSATION	
FOR ACTION		PER YOUR REQUEST	
INFORMATION		PREPARE REPLY	
INITIAL		RECOMMENDATION	
NOTE AND FILE		SIGNATURE	
<p>REMARKS <i>At yesterday's meeting, I found it difficult (and embarrassing because of the presence of other Sr. Evaluation Officers) to provide you with an adequate explanation to your query on Argentina (El Chocón) Audit Memorandum. I had planned to incorporate, unobtrusively, the changes in the Audit Memo., after the necessary changes were made to the PCR. Reluctantly, I attach my comments on the present state of Audit Memo.</i></p>			
FROM		ROOM NO.	EXTENSION
<i>T. Pereira</i>			

Argentina: El Chocón Power Project. Loan 577-AR.
Comments on PCR and Audit Memorandum
and Suggestions.

1. The PCR, apart from the errors and some omissions in the financial section, seems to have been well done.
2. The Audit Memorandum is, almost entirely, a summary of the issues already discussed in the PCR. It has not added a new dimension to the issues or to the report as a whole.
3. The Audit Memorandum has included the "Financial Rate of Return for the Project". But I seem to have doubts on its validity.
4. Some of detailed explanations provided by Hidrocor to Miguel Martínez [namely: the design defect in the turbo-alternator which became the subject of discussion in an International Congress; the area through which the transmission line (some 16 transmission towers ~~failed~~ collapsed) passes ~~got~~ flooded, and there is no good drainage, hence special consideration required for tower foundations] should have emerged during the discussion Mr Benie had with the engineering consultants, when he visited them in England.

Two choices are available (other than having to write a fresh Audit Memo and then going through the whole cycle of circulating it within the Bank, etc.).

- a). Reduce the Audit Memo to about 3 or 4 pages and to say that it is in general agreement with PCR (after the necessary changes are incorporated), and retain the existing financial rate of return.
- b). Retain the existing format of the Audit Memo and incorporate the necessary changes (and also the changes in the PCR).

I agree. I would air it as soon as possible.

T. Kene just marginally, I would favour the second choice

676
9/16

OFFICE MEMORANDUM

TO: Mr. Yves Rovani, Director, EWTDR

DATE: September 9, 1976

FROM: B. Montfort, Acting Division Chief, LCPPT *BN*SUBJECT: ARGENTINA - Draft Project Performance Audit Report and
Project Completion Report
El Chocon Power Project (Loan 577-AR)*1. Project File**2. Mr. Perching: do**we wait for 'A', or**go ahead and**revise the PPR.**anyway? Please**discuss with*

1. The Project Completion Report for El Chocon Power Project (577-AR) was prepared by this Division in December 1975. The two staff members responsible for this report were: Manfredo Linder (Engineer) and André Leoni (Financial Analyst). *implications.*

2. After receiving the draft Performance Audit Report (PAR) and the Project Completion Report (PCR), the borrower (HIDRONOR) has made some comments which were sent to the Operations Evaluation Department by letter of July 8, 1976 (attached). These comments basically refer to some financial aspects of the PCR and it seems necessary to introduce some changes in it, and as a consequence, in the PAR. Since Mr. Leoni prepared the financial chapters of the PCR, it appears preferable that he himself incorporates the pertinent changes in the PCR (changes in the PAR will, of course, be handled by OED). I would appreciate it if you could arrange for this to be done upon Mr. Leoni's return from home leave next week. Apparently, it is only a matter of a few hours. *9/9*

Attachment

ML
MLinder/mo.cc: Messrs. Kapur (OED); Wessels (LCPPT)o/r; Vasudevan (EWT); Leoni (EWT); Wyss (LCPDR)
Linder (LCPPT); LAC Files.*641
9/9*



HIDRONOR

HIDROELECTRICA NORPATAGONICA SOCIEDAD ANONIMA

Cipolletti, 8 de julio de 1976
FA 1014/76

Sr. Shiv Kapur
Director Departamento de
Evaluación de Operaciones
Banco Internacional de
Reconstrucción y Fomento
1818, H. Street, N.W.
Washington D.C. 20433
U.S.A.

De nuestra consideración :

Atento al memorando preliminar de Evaluación y Resultados que tan gentilmente usted nos hiciera llegar, entendemos necesario clarificar algunas de las afirmaciones en él contenidas :

1. Hoja 3.- Punto 6, Hojas A 9 y A 10 - Puntos 23.04 y 23.05

En este punto creemos existe un malentendido entre el Balance Comercial y el Balance Tarifario.

El Balance Comercial de la empresa, confeccionado de acuerdo a las disposiciones vigentes, refleja valores de activo fijo que han sido sometidos al proceso de actualización autorizado por la Dirección General Impositiva, a efectos del revalúo contable.

Los índices publicados por dicha Dirección responden a la evolución del Índice de Precios Mayoristas no Agropecuarios.

En cambio, a los fines de la determinación del Balance Tarifario se han seguido estrictamente las disposiciones del Contrato de Concesión.

En efecto, la base tarifaria conforme a lo dispuesto en la Sección II del Art. 11 y Sección I del Art. 12 del Contrato de Concesión, se ha calculado en dólares de los Estados Unidos de Norteamérica y convertido al cambio vigente al cierre del último día hábil del año para el cual se determina el beneficio.

Es decir que en lo concerniente a la determinación de los elementos constitutivos de la tarifa se ha respetado minuciosamente lo establecido en el Contrato de Concesión.

/ / / 2.

2. Hoja 4 - Punto 7 y Hoja A.10 - Punto 23.06

En este punto se señala que Hidronor ha modificado el método de calcular la depreciación, al adoptar el método lineal en lugar del fondo amortizante conforme lo establece el Contrato de Concesión.

Al respecto consideramos se repite el malentendido señalado en el punto anterior.

El método lineal se ha adoptado únicamente a los efectos contables.

Para el cálculo tarifario se ha adoptado el método del fondo amortizante según lo prueban nuestros registros extracontables que avalen la tarifa reclamada a la Secretaría de Estado de Energía.

3. Hoja 4 - Punto 8 y Hojas A.10 y A.11 - Puntos 23.07 y 23.08

La modificación tarifaria impuesta por la Resolución No. 171 de la Secretaría de Estado de Energía si bien genera un perjuicio financiero transitorio, no afecta los derechos de Hidronor en cuanto a la rentabilidad que debe obtener sobre su base tarifaria.

Hidronor ha formulado el correspondiente reclamo ante la Secretaría de Energía a efectos de obtener el resarcimiento de los ingresos dejados de percibir por imperio de la Resolución No. 171.

Por otra parte cuando el informe se refiere al efecto global del método tarifario impuesto por la Resolución No. 171, cabe aclarar que el hecho de convertir pesos de 1974 al tipo de cambio de 1975, provoca una injustificada depresión en la tarifa resultante, que no se ajusta a la realidad y torna los guarismos incomparables. El precio medio de venta de la energía para 1974 resultó de \$0,009 por KW según esa Resolución.

Si bien este precio no es el que corresponde según las normas de la concesión es substancialmente mayor que el que señala el informe.

Asimismo deseamos destacar que Hidronor estaba en pleno conocimiento de la gravedad de la situación, habiendo planteado la cuestión ante la Corporación de Empresas Nacionales y dejando expresa constancia de la situación en la Memoria y Balance del año 1974, cuya copia entendemos se encuentra en poder de ese Banco.

/ / / ...

También consta en el dictamen de nuestros auditores externos una reserva respecto a la tarifa aplicada.

Ello nos lleva a afirmar que nuestra empresa tenía perfectamente detectado y planteado el problema.

4. Hoja A 6 - Punto 18.04

La responsabilidad primera sobre la caída de las torres le cabe al constructor toda vez que era él el autor del proyecto; él era el encargado de realizar los estudios de suelo. El Consultor, como Director de Obra, debe supervisar y revisar los cálculos, de ahí su responsabilidad en este tema.

El criterio para prorratar los gastos de las reparaciones fue que Hidronor pagaría la diferencia entre la nueva fundación y la que había pagado primitivamente. El resto corrió por cuenta del contratista.

5. Hoja A 12 - Punto 24.03

Con fecha 6.6.72 y 8.11.73 Hidronor recibió del Banco Central S.A. de Madrid y de Lloyds & Bolsa Ltd. Int. ofertas de financiamiento por u\$s 2 y 9 millones respectivamente.

Con fecha 17.1.73 y 1.4.74 se suscribieron los respectivos acuerdos con ambas instituciones en el orden anteriormente indicado.

En este punto deseamos aclarar que se trataba de préstamos de libre disponibilidad y no de fomento de exportaciones como los otorgados por países proveedores y cuyas condiciones especiales son señaladas en el informe.

Sobre esta base podemos asegurar que las condiciones financieras eran totalmente adecuadas, al punto tal que merecieron la aprobación del Ministerio de Economía y del Banco Central, quienes para esa fecha estaban aprobando préstamos con sobretasas algo superiores a las obtenidas por Hidronor.

6. Hoja A 14 - Punto 25

Puntos 25.01, 25.02, 25.03, 25.04 y 25.05

Pase a las dificultades surgidas con posterioridad a la puesta en marcha de la central de El Chocón, Hidronor ha bregado por la obtención de las

condiciones económico financieras que le asegura su contrato de concesión.

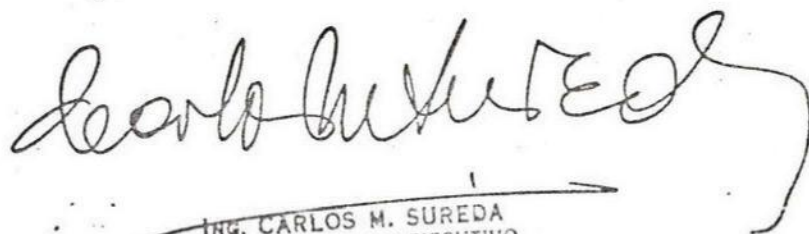
7. Hoja A 15 - Punto 26.01

El cambio operado en el Gobierno Nacional en marzo de 1976 y la nueva orientación económica permiten alentar un adecuado tratamiento de este asunto, por dichas autoridades.

Les agradecemos mucho nos hayan hecho conocer
vuestro informe preliminar del proyecto EL Chocón Cerros Colorados.

Nuestra máxima preocupación reside en que se juzgue adecuadamente la actuación de nuestra empresa, dentro de sus circunstancias.

Sin otro particular, saludamos a usted muy atentamente.



ING. CARLOS M. SUREDA
PRESIDENTE COMITE EJECUTIVO
HIDRONOR S.A.

LMG/mwv

THE WORLD BANK

ROUTING SLIP		DATE <i>Aug 11 '76</i>	
NAME		ROOM NO.	
<i>Mr. Kaper</i>			
<i>Mr. Pereira</i>			
<i>This means early September</i>			
<i>Please follow up with Linder</i>			
APPROPRIATE DISPOSITION		NOTE AND RETURN	
APPROVAL	<i>Y</i>	NOTE AND SEND ON	
COMMENT		PER OUR CONVERSATION	
FOR ACTION		PER YOUR REQUEST	
INFORMATION	<i>Y</i>	PREPARE REPLY	
INITIAL	<i>8/12</i>	RECOMMENDATION	
NOTE AND FILE		SIGNATURE	
<p>REMARKS <i>Please see the attached comments from Mr. Wyrns. Because of the unexpected SEGBA appraisal rush, the best we can do is have Mr. Linder give priority to the Chocon PPAR in September. I hope this will not inconvenience you too much.</i></p> <p style="text-align: right;"><i>PRV</i></p>			
FROM <i>A. Vander Meer</i>		ROOM NO.	EXTENSION

*Mr. van der Meer - on I explained
to Mr. Kapur, Mr. Linder
who took the full brunt
of the Haste power problem
in May/June, was put on*

Mr. Suithbertus M. L. van der Meer, Director, LAC P

Shiv S. Kapur, Director, OED

ARGENTINA: El Chocón Power Project (Loan 577-AR);
Project Performance Audit Report

August 11, 1976

*SEGBA right after Haste
Board presentation and
cannot be taken off the
approval until completed
early in September. Although
a follow-up on.*

The draft Project Performance Audit Report was sent to your Department for initial comments on May 25, 1976. This was cleared by you for dispatch to the borrower for comments, with some minor modifications. Under Mr. Montfort's memorandum of June 2 to Mr. Willoughby, further detailed comments were promised by June 30. The draft PPAR was accordingly sent to the borrower after the suggested amendments had been made.

*"before
SEGBA"*

A Senior Evaluation Officer from this Department visited Argentina on June 14-18 and had a detailed discussion with the Hidronor authorities. He brought back extensive comments which were supplemented by a letter from Hidronor of July 8. We thus have complete borrower response to enable us to go ahead with the PPAR.

However, the detailed comments from your Department which were promised before June 30 are still missing. What is more disquieting is that I understand from Mr. Wyss that these comments would not be available until October.

As you will appreciate, OED functions on an extremely tight budget and it is possible for us to complete our work program only by strict adherence to our manpower planning and schedule. Drastic and last-minute changes in PCR revision or in the Region's comments on the draft audit are difficult to accommodate without seriously disrupting our manpower planning. The more so in this case when detailed comments of the borrower have already been obtained and so far as OED is concerned we are ready to go ahead with the finalization of the audit.

In the circumstances I have suggested to Mr. Wyss that the Evaluation Officer should contact his counterpart in your Department to discuss the main issues, revise the audit report, and generally do most of the work at this stage so as not to make heavy demands on your staff's time. Despite this, there is no evidence that we can expect the required changes in the PCR and detailed comments on the audit memorandum before the time mentioned by Mr. Wyss.

I shall appreciate your personal intervention to ensure that the procedure outlined above is implemented and that we are placed in a position to finalize the PPAR within the next two weeks.

cc: Messrs. Weiner, o/r

Wyss ✓
Pereira

SSKapur:rm

*Haste is most urgent in September, Mr. Linder would
give priority to PPA El Chocón to accommodate OED.*

508
8/12



HIDRONOR

HIDROELECTRICA NORPATAGONICA SOCIEDAD ANONIMA

Cipolletti, 8 de julio de 1976
FA 1014/76

1. RM
2. Hoja 3 - Punto 6, Hojas A 9 y A 10 - Puntos 23.04 y 23.05
us now get in with
this report
7/26

Sr. Shiv Kapur
Director Departamento de
Evaluación de Operaciones
Banco Internacional de
Reconstrucción y Fomento
1818, H. Street, N.W.
Washington D.C. 20433
U.S.A.

De nuestra consideración :

Atento al memorando preliminar de Evaluación y Resultados que tan gentilmente usted nos hiciera llegar, entendemos necesario clarificar algunas de las afirmaciones en él contenidas :

1. Hoja 3 - Punto 6, Hojas A 9 y A 10 - Puntos 23.04 y 23.05

En este punto creemos existe un malentendido entre el Balance Comercial y el Balance Tarifario.

El Balance Comercial de la empresa, confeccionado de acuerdo a las disposiciones vigentes, refleja valores de activo fijo que han sido sometidos al proceso de actualización autorizado por la Dirección General Impositiva, a efectos del revalúo contable.

Los índices publicados por dicha Dirección responden a la evolución del Índice de Precios Mayoristas no Agropecuarios.

En cambio, a los fines de la determinación del Balance Tarifario se han seguido estrictamente las disposiciones del Contrato de Concesión.

En efecto, la base tarifaria conforme a lo dispuesto en la Sección II del Art. 11 y Sección I del Art. 12 del Contrato de Concesión, se ha calculado en dólares de los Estados Unidos de Norteamérica y convertido al cambio vigente al cierre del último día hábil del año para el cual se determina el beneficio.

Es decir que en lo concerniente a la determinación de los elementos constitutivos de la tarifa se ha respetado minuciosamente lo establecido en el Contrato de Concesión.

/ / / ...

DOMICILIO PRINCIPAL: VILLA EL CHOCON - NEUQUEN - TEL. 3136-3138

X DOMICILIO LEGAL: AV. L.N. ALEM 1074 - TEL. 32-6031/9 - TELEX 2240 - CABLES HIDRONOR BUENOS AIRES

OFICINAS CIPOLLETTI (RIO NEGRO): PRESIDENTE YRIGOYEN 379 - TEL. 7-1148-7-1163

399
7/26



HIDRONOR

FA 1014/76

/ / / 2.

2. Hoja 4 - Punto 7 y Hoja A.10 - Punto 23.06

En este punto se señala que Hidronor ha modificado el método de calcular la depreciación, al adoptar el método lineal en lugar del fondo amortizante conforme lo establece el Contrato de Concesión.

Al respecto consideramos se repite el malentendido señalado en el punto anterior.

El método lineal se ha adoptado únicamente a los efectos contables.

Para el cálculo tarifario se ha adoptado el método del fondo amortizante según lo prueban nuestros registros extracontables que avalan la tarifa reclamada a la Secretaría de Estado de Energía.

3. Hoja 4 - Punto 8 y Hojas A.10 y A.11 - Puntos 23.07 y 23.08

La modificación tarifaria impuesta por la Resolución No. 171 de la Secretaría de Estado de Energía si bien genera un perjuicio financiero transitorio, no afecta los derechos de Hidronor en cuanto a la rentabilidad que debe obtener sobre su base tarifaria.

Hidronor ha formulado el correspondiente reclamo ante la Secretaría de Energía a efectos de obtener el resarcimiento de los ingresos dejados de percibir por imperio de la Resolución No. 171.

Por otra parte cuando el informe se refiere al efecto global del método tarifario impuesto por la Resolución No. 171, cabe aclarar que el hecho de convertir pesos de 1974 al tipo de cambio de 1975, provoca una injustificada depresión en la tarifa resultante, que no se ajusta a la realidad y torna los guarismos incomparables. El precio medio de venta de la energía para 1974 resultó de \$0,009 por KW según esa Resolución.

Si bien este precio no es el que corresponde según las normas de la concesión es substancialmente mayor que el que señala el informe.

Asimismo deseamos destacar que Hidronor estaba en pleno conocimiento de la gravedad de la situación, habiendo planteado la cuestión ante la Corporación de Empresas Nacionales y dejando expresa constancia de la situación en la Memoria y Balance del año 1974, cuya copia entendemos se encuentra en poder de ese Banco.

/ / / ...



HIDRONOR
FA 1014/76

/ / / 3.

También consta en el dictamen de nuestros auditores externos una reserva respecto a la tarifa aplicada.

Ello nos lleva a afirmar que nuestra empresa tenía perfectamente detectado y planteado el problema.

4. Hoja A 6 - Punto 18.04

La responsabilidad primera sobre la caída de las torres le cabe al constructor toda vez que era él el autor del proyecto; él era el encargado de realizar los estudios de suelo. El Consultor, como Director de Obra, debe supervisar y revisar los cálculos, de ahí su responsabilidad en este tema.

El criterio para prorratear los gastos de las reparaciones fue que Hidronor pagaría la diferencia entre la nueva fundación y la que había pagado primitivamente. El resto corrió por cuenta del contratista.

5. Hoja A 12 - Punto 24.03

Con fecha 6.6.72 y 8.11.73 Hidronor recibió del Banco Central S.A. de Madrid y de Lloyds & Bolsa Ltd. Int. ofertas de financiamiento por u\$s 2 y 9 millones respectivamente.

Con fecha 17.1.73 y 1.4.74 se suscribieron los respectivos acuerdos con ambas instituciones en el orden anteriormente indicado.

En este punto deseamos aclarar que se trataba de préstamos de libre disponibilidad y no de fomento de exportaciones como los otorgados por países proveedores y cuyas condiciones especiales son señaladas en el informe.

Sobre esta base podemos asegurar que las condiciones financieras eran totalmente adecuadas, al punto tal que merecieron la aprobación del Ministerio de Economía y del Banco Central, quienes para esa fecha estaban aprobando préstamos con sobretasas algo superiores a las obtenidas por Hidronor.

6. Hoja A 14 - Punto 25

Puntos 25.01, 25.02, 25.03, 25.04 y 25.05

Pese a las dificultades surgidas con posterioridad a la puesta en marcha de la central de El Chocón, Hidronor ha bregado por la obtención de las

/ / / ...



HIDRONOR
FA 1014/76

/ / / 4.

condiciones económico financieras que le asegura su contrato de concesión.

7. Hoja A 15 - Punto 26.01

El cambio operado en el Gobierno Nacional en marzo de 1976 y la nueva orientación económica permiten alentar un adecuado tratamiento de este asunto, por dichas autoridades.

Les agradecemos mucho nos hayan hecho conocer
vuestro informe preliminar del proyecto EL Chocón Cerros Colorados.

Nuestra máxima preocupación reside en que se juzgue adecuadamente la actuación de nuestra empresa, dentro de sus circunstancias.

Sin otro particular, saludamos a usted muy atentamente.

ING. CARLOS M. SUREDA
PRESIDENTE COMITE EJECUTIVO
HIDRONOR S.A.

LMG/mwv

Cipolletti, July 8, 1976

FA 1014/76

Mr. Shiv S. Kapur
Director
Operations Evaluation Dept.
IBRD
1818 H St. N. W.

We believe it necessary to clarify some of the statements mentioned in your preliminary memorandum of Evaluation and (Results) which you recently sent to us.

1. Page 3 - Point 6, Pages A 9 and A 10 - Points 23.04 and 23.05

In this point we believe there is a misunderstanding between Trade Balance and Rate Balance.

The Trade Balance of the company, which was elaborated according to the prevailing legal dispositions, reflects the values of the fixed assets which had been submitted to the up-dating process authorized by the Tax Department, for its accounting re-evaluation.

The indexes published by the Tax Department are in accordance with the Wholesale Price and not for Agriculture and Cattle Index.

However, for the purpose of determining the Rate Balance we have followed estrictly the clauses of the Concession Contract.

It is true that according to Section II of Art. 11 and Section I of Art. 12 of the Concession Contrart, the rate base was calculated in US dollars and converted to the rate of exchange in force during the last working day of the fiscal year for which the benefits are determined.

This means that in order to determine the rate we followed very carefully the constituent elements established in the Concession Contract.

2. Page 4 - Point 7 and Page A.10 - Point 23.06

You point out that Hidronor has modified the method for calculating depreciation by adopting the lineal method instead of the amortization fund established in the Concession Contract.

Regarding the above mentioned we believe it is a repetition of the misunderstanding mentioned in numeral one.

The lineal method has been used exclusively for accounting purposes.

When calculating the rate we have used the amortization fund method which is shown in our accounting records which endorsed the rate claimed to the Secretariat of State and Energy.

3. Page 4 - Point 8 and Pages A.10 and A.11 - Points 23.07 and 23.08

Although the rate modification imposed by Resolution No. 171 of the Secretariat of State and Energy generates a transitory financial damage, it does not affect the rights of Hidronor regarding the profitability which must be obtained based on its rate base.

Hidronor has ^{submitted} ~~formulated~~ the corresponding claim to the State Secretariat in order to obtain the compensation for unearned income due to the issuance of Resolution No. 171.

The report refers to the global effect of the rate method imposed by Resolution No. 171, we must clarify that the fact of converting "pesos" of 1974 into the 1975 exchange rate produced an unjustified depression to the resulting rate which is not adapted to reality and turns figures unrealistic. According to Resolution No. 171, the average sales price of energy in 1974 came to \$0.009 per KW.

Although according to the grating rules, this is not the corresponding price, it is substantially large than the one mentioned in your report.

We want to point out that Hidronor was completely aware of the serious situation and raised up the matter to the Corporation of National Enterprises and has a written proof in the Statements and Balance of 1974, copy of such we believe can be found in your files.

There is also a written proof of the reticence of our external auditors regarding the rate applied.

This confirms that our company had detected and tackled the problem.

4. Page A 6 - Point 18.04

The main responsibility for the fall of the towers lies on the constructor because he designed the project and was in charge of the ground studies. The Consultant, as Director of the Construction Job must supervise and check all the calculations.

In quoting the reconstruction cost the criteria followed was that Hidronor would pay the difference between the new foundation cost and the one paid previously. The rest was due to the contractor.

5. Page A 12 - Point 24.03

In June 6, 1972 and August 11, 1973, Hidornor received financial offers from the Central Bank of Madrid and Lloyds and Bolsa Ltd., of US\$ 2 and 9 million, respectively.

In January 17, 1973 and 1.4.74 the agreements were signed with both institutions, in the same order as mentioned above.

We would like to point out that such loans were free disponibility loans and not for exportation development as the ones granted by supplying countries and whose special conditions are pointed out in your report.

Based on the latter we can assure you that the financial conditions were totally adequate and received the approval of the Ministry of Economy and the Central Bank, who by that time were approving loans with subcharges slightly higher than the ones obtained by Hidronor.

6. Page A 14 - Point 25

Points 25.01, 25.02, 25.03, 25.04 and 25.05

Even with the constraints encountered right after the start-up of El Chocon plant, Hidronor has worked hard in order to obtain the economic-financial conditions which secures your Concession Contract.

7. Page A 15 - Point 26.01

The change operated in the Government in March 1976 and the new economic ~~(order)~~ orientation allows the authorities to handle this matter adequately.

We thank you for letting us know your preliminary report on the El Chocon Cerros Colorados project.

Our main concern is that the performance of our company is judged properly.

Very truly yours,

Ing. Carlos M. Sureda
President of the Executive Committee
Hidronor S.A.

Av. L. N. Alem 1074
Buenos Aires
Argentina.

WORLD BANK / IFC
OUTGOING MESSAGE FORM
(TELEGRAM/CABLE/TELEX)

☒ IBRD
☐ IDA
☐ IFC
☐ ICSID

TO: SENOR CARLOS SUREDA
PRESIDENTE HIDRONOR
CIPOLLETTI - RIONEGRO
ARGENTINA

DATE: Julio 2, 1976

ORIGINATOR'S EXT.: 2563

COUNTRY:

CLASS OF
SERVICE: TELEX No.
122240 HINOR

CABLE NO. & TEXT:

REF: PRESTAMO 577/AR PROYECTO EL CHOCON

AGRADEZCO SU CABLE FECHA PRIMERO JULIO Y CUMPLO INFORMARLE QUE
GUSTOSAMENTE ESPERAREMOS SUS COMENTARIOS HASTA EL 16 DE JULIO PROXIMO

ATENTAMENTE

SHIV KAPUR
DIRECTOR
DEPARTAMENTO EVALUACION OPERACIONES

NOT TO BE TRANSMITTED

REFERENCE:	AUTHORIZED BY (Name): SHIV S KAPUR
DRAFTED BY: Miguel Martinez	DEPARTMENT: Operations Evaluation
CLEARANCES AND COPY DISTRIBUTION:	SIGNATURE (Of individual authorized to approve): [Signature]
	SECTION BELOW FOR USE OF CABLE SECTION
	CHECKED FOR DISPATCH:

WORLD BANK GROUP

ROUTING SLIP		DATE <i>May 11, 76</i>	
NAME		ROOM NO.	
<i>MR Willoughby</i>			
	APPROPRIATE DISPOSITION		NOTE AND RETURN
	APPROVAL		NOTE AND SEND ON
<input checked="" type="checkbox"/>	COMMENT		PER OUR CONVERSATION
	FOR ACTION		PER YOUR REQUEST
	INFORMATION		PREPARE REPLY
	INITIAL		RECOMMENDATION
	NOTE AND FILE		SIGNATURE
REMARKS <i>As sent to Region for comment</i>			
FROM <i>T.W. Bernie</i>		ROOM NO.	EXTENSION

W. Willoughby
D R A F T
TWBerrie:med

May 11, 1976

*file
loan 577*

MR.

SECRETARIA DE ESTADO DE ENERGIA Y MINERIA

BUENOS AIRES

ARGENTINA

IN CONNECTION WITH PREPARATION OF PROJECT PERFORMANCE AUDIT REPORT CONCERNING
STAGE ONE OF LOAN 577 EYE WOULD LIKE MIGUEL MARTINEZ COMMA ONE OF MY
COLLEAGUES COMMA TO VISIT BUENOS AIRES FROM JUNE SEVEN THROUGH NINE TO
DELIVER FIRST DRAFT OF AUDIT TO YOURSELF AND HIDRONOR STOP HE WOULD ALSO
ASK YOUR FIRST VIEWS ON SOME TOPICS WHICH WE CONSIDER IMPORTANT FOR
WRITING AUDIT REPORT STOP THIS DEPARTMENT IS RESPONSIBLE WITHIN WORLD
BANK FOR PREPARING PERFORMANCE AUDITS ON ALL PROJECTS SHORTLY AFTER
DISBURSEMENT COMPLETION COMMA WITH MAIN FOCUS ON WHAT WORLD BANK CAN
LEARN FROM PAST EXPERIENCE STOP SIMILAR CABLE HAS BEEN SENT TO HIDRONOR
STOP PLEASE LET US KNOW IF DATES CONVENIENT STOP LETTER WILL FOLLOW
LATER CONCERNING TOPICS

BERRIE
SENIOR EVALUATION OFFICER
OPERATIONS EVALUATION DEPARTMENT
INTBAFRAD

D R A F T
TWBerrie:med

May 11, 1976

MR.

HIDRONOR

BUENOS AIRES

ARGENTINA

AS AN INDEPENDENT EVALUATION DEPARTMENT WITHIN WORLD BANK WE PREPARE PERFORMANCE
AUDITS ON ALL PROJECTS AFTER COMPLETION OF LOAN DISBURSEMENTS STOP PURPOSE
OF AUDITS IS TO EXAMINE EXTENT PROJECT OBJECTIVES ACHIEVED WITH MAIN
FOCUS ON WHAT WORLD BANK CAN LEARN FROM PAST EXPERIENCE STOP IN CONNECTION
WITH PREPARATION OF PROJECT PERFORMANCE AUDIT REPORT CONCERNING STAGE
ONE OF LOAN 577 EYE WOULD LIKE MIGUEL MARTINEZ COMMA ONE OF MY
COLLEAGUES COMMA TO VISIT BUENOS AIRES FROM JUNE SEVEN THROUGH NINE TO
DELIVER FIRST DRAFT OF AUDIT TO YOURSELF AND ENERGY AND MINERALS SECRETARIAT
STOP HE WOULD ALSO ASK YOUR FIRST VIEWS ON SOME TOPICS WHICH WE CONSIDER
IMPORTANT FOR WRITING AUDIT REPORT STOP SIMILAR CABLE HAS BEEN SENT TO
ENERGY AND MINERALS SECRETARIAT STOP PLEASE LET US KNOW IF DATES
CONVENIENT STOP LETTER WILL FOLLOW LATER CONCERNING TOPICS

BERRIE
SENIOR EVALUATION OFFICER
OPERATIONS EVALUATION DEPARTMENT
INTBAFRAD

yellow

577

February 9, 1976

Mr. Pitt
Sir Alexander Gibbs and Partners
Consulting Engineers
24, Queen Anne's Gate
Westminster
London SW1H 9AJ
England

Dear Mr. Pitt:

Re: Argentina: El Chason Project

Mr. Pedder of Herz and McLellan has kindly informed me that he has had a word with Mr. Reeve and yourself, and that you will be in London from March 1 to March 10, 1976. I do not need to fill you in on the purpose of my visit, as Mr. Pedder and Mr. Reeve will no doubt have done this. I have suggested to Mr. Pedder that we three have our initial meeting at 2:30 p.m. on Monday, March 1, 1976, in the offices of Herz and McLellan in Warwick Row, London. Further meetings can be arranged at that time. I understand that you do not know yet what your international activities in meeting, but no doubt we can alter things to accommodate this if necessary.

Looking forward to meeting you,

Yours sincerely,

Thomas W. Herxle
Senior Evaluation Officer
Operations Evaluation Department

cc. Mr. Willoughby

INTFRAD 64145

FROM: LONDON

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Argentina -
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Distribution: Mr. Berrie G1040 ✓
Mr. Willoughby

4FEB76

1976 FEB -5 AM 8:07

COMMUNICATIONS
SECTION

FOR MR. T.W. BERRIE

FROM A.W. PEDDER

HAVE INFORMED FITT AND REEVE OF YOUR INTENDED VISIT AS PROMISED.
ROBERT FITT WILL BE IN LONDON 1ST TO 10TH MARCH AND WILL BE
PLEASED TO SEE YOU AND HELP. HE HAS AN INTERNATIONAL COMMITTEE
ONE POSSIBLY TWO DAYS IN THAT PERIOD (NOT YET KNOWN WHICH) BUT
IS OTHERWISE FREE.

UNLESS SUMMONED TO ARGENTINA I ALSO EXPECT TO BE AVAILABLE
AND FITT SUGGESTS WE THREE FIRST MEET FOR GENERAL TALK INCLUDING
PLANNING OTHER NECESSARY MEETINGS.

FITTS TELEPHONE IN LONDON 9309700 ADDRESS 24 QUEEN ANNES GATE,
WESTMINSTER, LONDON SW1H 9AJ.

SENT 5FEB76

AMBERKRAFT LDN

440096 18RD UI

From: KENDON WOKING

INCOMING TELEX

sj

1976 FEB 20 AM 10:37

Distribution:

Mr. Berrie

Mr. Willoughby ✓

859123

file loan 577

20/2/76

MR T W BERRIE

MY VISIT TO COLOMBIA FURTHER POSTPONED HENCE I WILL BE IN UK EARLY MARCH. AT THE MOMENT I CAN OFFER WEDNESDAY 3RD OR FRIDAY 5TH FOR MEETING IN WOKING BUT IF THESE NOT SUITABLE PLEASE RING ON ARRIVAL FOR AD-HOC ARRANGEMENT.

REGARDS

MAL JOHN+++

TLX E 108

588
FEB 20 1976

OFFICE MEMORANDUM

TO: Mr. Christopher R. Willoughby

FROM: Hans Wyss

SUBJECT: Argentina: "El Chocon" Power Project - Completion Report

DATE: January 12, 1976

The above report (dated December 19, 1975) suggests a comment which you may wish to consider for the eventual PPA on this project. The report concludes "regarding the power sector as a whole it is regrettable that this and other power loans were not used by the Bank as a vehicle for improving the institutional structure of the sector" (Section 6). To my knowledge major efforts on institutional issues were made in the context of the early SEGBA loans, as well as in the "El Chocon" loan. It is probably true that in the implementation of these agreements the Bank has faced greater difficulties than it originally anticipated. In good part this was probably the result of political changes in Argentina during project implementation.

But there is another aspect to the apparently limited results of these loans on improvements in the institutional structure of the sector, and this is more related to the Bank's role in the power sector: the Bank's own commitment to lend to Argentina has not been consistently strong; the prospect for a long-run (say ten to fifteen years) continuous relationship with the power sector through a series of loans has barely ever existed. Therefore, the close relationship with this sector, such as we have in Brazil, could not develop. But this was basically for country rather than for sector reasons. The question therefore seems to me not so much whether the Bank has insisted on using power loans for achieving sector and institutional improvements, but rather whether in a country like Argentina we should expect significant improvements in this field without a clear prospect for a long-term association with the sector.

Cleared in substance and cc: Mr. Knox
cc: Mr. Wiese
cc: Montfort/Wessels

HWyss:plh

3557
JAN 13 1976

INTFRAD 64145

FROM: LONDON

AMBERKRAFT LDN

4FEB76

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Distribution: Mr. Berrie G1040 ✓
Mr. Willoughby

1976 FEB -5 AM 8:07

COMMUNICATIONS
SECTION

*file
1a 577*

FOR MR. T.W. BERRIE

FROM A.W. PEDDER

HAVE INFORMED FITT AND REEVE OF YOUR INTENDED VISIT AS PROMISED.
ROBERT FITT WILL BE IN LONDON 1ST TO 10TH MARCH AND WILL BE
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ONE POSSIBLY TWO DAYS IN THAT PERIOD (NOT YET KNOWN WHICH) BUT
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UNLESS SUMMONED TO ARGENTINA I ALSO EXPECT TO BE AVAILABLE
AND FITT SUGGESTS WE THREE FIRST MEET FOR GENERAL TALK INCLUDING
PLANNING OTHER NECESSARY MEETINGS.

FITTS TELEPHONE IN LONDON 9309700 ADDRESS 24 QUEEN ANNES GATE,
WESTMINSTER, LONDON SW1H 9AJ.

SENT 5FEB76

AMBERKRAFT LDN

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FEB 5 1976

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D1006

OFFICE MEMORANDUM

TO: All listed below

DATE: September 24, 1976

FROM: Bernard Montfort, Acting Division Chief, LCPPT *BM*

SUBJECT: ARGENTINA - Loan 577-AR - Project Completion Report

Attached is a newly revised and final version of the Project Completion Report on Loan 577-AR (El Chocon) which incorporates changes as a consequence of the Borrower's (HIDRONOR) comments on the previous version.

MLinder/mo.

cc: Messrs. van der Meer (LCPDR); Wyss (LCPDR); Perez (LCNVP); Leibert (LC2DE)(2); Wessels (LCPPT); Montfort (LCPPT); Kikuchi (LC2DE); Linder (LCPPT); van der Tak (VPSVP)(8); Rovani (EWTDR)(5); Kapur (OED)(3); Israel (VPSVP); Leoni; Rodriguez (PAB); J.D. Elliott (CTR); J. Lee (VPSVP); Mole (CTR); Cabezas (LEG); Besse (LCPPT); Ms. Steiner (LCPPT); LAC Files; Project Folder; Black Books.

156
9/29

IBRD AND IDA - SUPERVISION SUMMARY

This summary is ☐ the initial summary
☐ part of a mission report
☐ a semi-annual update
☒ the completion summary

Regional Office: L	Project Name: "El Chocon" Power Project	Project Code: 6ARGPHO1	Loan <input checked="" type="checkbox"/> Credit <input type="checkbox"/> No.: 577-AR	L/C Amount (\$xx.xm): 82.00
Country: Argentina	Borrower/Beneficiary: HIDRONOR, S.A.	Board Date: 12/18/68	Signing Date: 12/19/68	Effective Date: 3/21/69
Projects Dept./Div. Name: LAC/LCPPT	Org. Code No.: 166/40	Projects Officer: M. Linder	Loan Officer: R. Kanchuger	

SECTION 1: SUMMARY PROJECT DESCRIPTION

See Attachment 1

SECTION 2: PERFORMANCE RATING

STATUS: 1 - Problem-free or Minor Problems; 2 - Moderate Problems; 3 - Major Problems

TREND: 1 - Improving; 2 - Stationary; 3 - Deteriorating

TYPES OF PROBLEMS: F - Financial; M - Managerial; T - Technical; P - Political; O - Other (Explain in Section 5)

If more than one type of problem, enter most critical factor first.

Designated a "problem project" in most recent SVP review? Y - Yes; N - No ☒ N

This Summary Last Summary

1	1
2	1
F	F

SECTION 3: PROJECT DATA

SECTION 3: PROJECT DATA			Total	of which:		Cumulative Disbursements
Estimated/Actual:	Project Completion	Loan/Credit Closing	Project Cost	Foreign Currency	Local Currency	through most recent Quarter ended (6 / 30 / 75)
	(Mo./Yr.)	(Mo./Day/Yr.)	(\$xx.xm)	(\$xx.xm)	(\$xx.xm)	(\$xx.xm)
Appraisal Est.	<u>12, 74</u> 1/	<u>12, 31</u> 74	<u>265.4</u> 1/	<u>120.7</u> 1/	<u>144.7</u> 1/	<u>82.02</u> (Est.)
Last Summary (8 / 5 / 75)	<u>12, 74</u> 1/	<u>6, 30</u> 75	<u>n.a.</u> 1/	<u>n.a.</u> 1/	<u>n.a.</u> 1/	
Current	<u>12, 74</u> 1/	<u>6, 30</u> 75	<u>265.3</u> 1/	<u>133.1</u> 1/	<u>123.2</u> 1/	<u>82.02</u> (Actual)

SECTION 4: MISSION SCHEDULE

	No. of Staff on Mission	No. of Days in Country	Return to HQ (Mo./Day/Yr.)	Final Report Date (Mo./Day/Yr.)
Latest/Present Mission	2	14	8.28.75	9.30.75 (CS)
Previous Mission	1	n.a.	4.15.74	4.30.74 (CS)
Next Mission Departure (Mo./Yr.)	8.76	Recommended interval between missions (Months)	End of period covered by latest progress report (Mo./Day/Yr.)	6.30.75

* Type of Report: FS = Full Supervision; CS = Combined Full/B-T-O; C = Completion; A = Appraisal; O = Other (explain below)

SECTION 5: COMMENTS (Explain "other" in Section 2 and clarify, if necessary, data in Sections 3 and 4)

1/ All this information refers to Stage 1. For Stage 2 see Attachment 2.

2/ The disbursed sum corresponding to: Stage 1 = US\$69 million. Stage 2 = US\$13 million.
Costs exclude interest during construction.

SECTION 6: SUMMARY OF PROJECT STATUS, TREND, AND MAJOR PROBLEMS:

The project was well-executed within the budget and time schedule (Stage 1 completed in 1974; Stage 2 expected for completion by mid-1977) in spite of several technical incidents. This performance was mainly due to the technical competence of the Borrower in spite of frequent changes in top management.

The level of bulk tariffs, fixed by Governmental Decree 171, is very low (equivalent to one US mill per kWh at the December 1974 exchange rate), resulting in a 3.6% rate of return (1974), instead of the projected level of 8%. In addition to the adverse effect on HIDRONOR's finances, this results in a subsidization of the final consumers in the wealthy Buenos Aires area, who are served by SEGBA, HIDRONOR's main client.

The relationship with the Bank up to now could have been better, but the main responsibility for this seems to be with the Bank due to inadequate supervision. Regarding the power sector as a whole it is regrettable that the Bank was not able to use this and other power loans as vehicles for obtaining improvements in the institutional structure and/or management of the sector.

SECTION 7: ACTIONS TAKEN AND RECOMMENDED: Supervision missions should be scheduled every 12 months until completion of stage 2 of project.

Preparing Officer: M. Linder / A. Leoni Initials: M.L. Date: 12/19/75

El Chocon Power Project

SECTION 2: Summary Project Description

Originally the project consisted of (Stage 1):

- a) the first stage of the El Chocon-Cerros Colorados Complex, consisting of El Chocon village, an earthfill dam on the Rio Limay at El Chocon, El Chocon powerhouse, including 3 x 200 MW turbine generators and ancillary equipment, and
- b) a 500 kV transmission system consisting of two single-circuit three-phase overhead lines about 1,080 km long, with a switchyard at El Chocón, intermediate switching station near Puelches and Henderson, and a step-down substation near Buenos Aires.

On January 16, 1973 an agreement amending the loan agreement was signed, expanding the project to include (Stage 2):

- a) 3 additional machines of 200 MW at the El Chocon power plant;
- b) the Portezuelo Grande diversion and flood control works;
- c) the Loma de la Lata dam; and
- d) the Planicie Banderita power plant including 2 x 225 MW turbine generators.

El Chocon Power Project

	<u>Project Completion</u>	<u>Total Project Cost</u> (US\$ million)	<u>F. C.</u> (US\$m)	<u>L. C.</u> (US\$m)
Appraisal estimate	12/31/77	156.1	n.a.	n.a.
Current estimate	12/31/77	232.7	102.4	130.3

(excluding interest during construction)

PROJECT COMPLETION REPORT 1/

ARGENTINA

LOAN 577-AR

El Chocón Power Project

1. Borrower: HIDRONOR, S.A. (Hidroeléctrica Norpatagónica Sociedad Anónima)
2. Guarantor: The Argentine Republic
3. Loan Amount: US\$82 million equivalent
4. Date Loan Signed: December 19, 1968
(an amendment was signed on January 16, 1973)
5. Effective Date: March 21, 1969
6. Closing Date: December 31, 1974
7. Period of Grace: 6 years, 3 months
8. Terms of Loan: 25 years, 3 months
9. Interest Rate: 6 - 1/2%
10. Commitment Charge: 3/4 of 1%
11. Amortization: Semi-annual payments starting March 15, 1975 and ending on March 15, 1994, with a final payment of US\$3,625,000.
12. Exchange Rate: Original at time of Appraisal 1 US\$ = M\$N350 = \$a3.50. Latest (8/11/75) 1US\$ = \$a42.50
13. Appraisal Report: PU-1a, dated December 2, 1968
14. Fiscal Year: Calendar year
15. Project Description

15.01 The original project consisted of a part of the "El Chocon-Cerros Colorados Complex". The complex comprises an ultimate development of 1,200 MW at El Chocon, 450 MW at Planicie Banderita, and 500 kV transmission facilities to transmit power to the Greater Buenos Aires area. The original project (Stage 1) consisted of the following elements:

- (a) The El Chocon village, including housing, a church, a school, a rest house, commercial buildings, and a social and sports center, as well as paved streets, sidewalks, drains, water supply and sewerage systems, and an electrical distribution network;

1/ This report was written in December 1975, taking into account the economic conditions prevailing at that time in Argentina.

- (b) The El Chocon earthfill dam across the Rio Limay capable of storing water up to a normal maximum level of about 381 meters above sea level. A gated concrete spillway on the right bank and a gated concrete intake structure on the left bank;
- (c) The El Chocon powerhouse on the left bank downstream of the dam and three 200 MW Francis-type turbine generators and related ancillary equipment. Steel-lined penstock tunnels to connect the intake to the powerhouse. A tailrace channel to return the water discharge from the powerhouse to the river; and
- (d) A 500 kV transmission system consisting of two single-circuit three-phase overhead lines about 1,080 kilometers long. A switchyard at the El Chocon powerhouse, intermediate switching stations near Puelches and Henderson, and step-down substation(s) near Buenos Aires.

15.02 On January 16, 1973 the Bank and the Borrower agreed on an amendment of the Loan Agreement in which the project was changed to consist of the following: (Stages 1 and 2):

- (a) The El Chocon village, including housing, a church, a school, a rest house, commercial buildings, and a social and sports center as well as paved streets, sidewalks, drains, water supply and sewerage systems, and an electrical distribution network;
- (b) The El Chocon earthfill dam across the Rio Limay capable of storing water up to a normal maximum level of about 381 meters above sea level. A gated concrete spillway on the right bank and a gated concrete intake structure on the left bank;
- (c) The El Chocon powerhouse on the left bank downstream of the dam and six 200 MW Francis-type turbine generators and related ancillary equipment. Steel-lined penstock tunnels to connect the intake to the powerhouse. A tailrace channel to return the water discharged from the powerhouse to the river;
- (d) The Portezuelo Grande diversion and flood control works diverting water from Rio Neuquen into the Los Barreales depression thus allowing regulation of the Rio Neuquen flows downstream;
- (e) The Loma de la Lata dam and regulating facilities controlling the flow between the Los Barreales depression and the Mari Memuco depression;
- (f) The Planicie Banderita power plant, including the intake in the Mari Memuco depression, steel penstocks, two 225 MW Francis-type turbine generators, and tailrace channel to return the water discharged from the turbines into Rio Neuquen;
- (g) A 500 kV transmission system consisting of two single-circuit three-phase overhead lines about 1,080 kilometers long. Switchyards at El Chocon and Planicie Banderita, intermediate switching stations near Puelches and Henderson, and step-down substation near Buenos Aires.

15.03 The change in project description was requested by HIDRONOR and accepted by the Executive Directors of the Bank due to the fact that the cost of that part of the project financed by the Bank loan turned out to be less than the original appraised estimate. As a result, it was estimated that about US\$12 million of the Bank's loan would remain in the Loan Account upon completion of the project. This was mainly due to:

- (a) Lower costs for gates, penstocks and miscellaneous steel; and
- (b) Lower financial charges.

16. Projected and Actual Disbursements of Loan

<u>Category</u>	<u>Projected</u> (in US\$ equivalent)	<u>Actual</u>
I. <u>Civil works at El Chocon (foreign cost)</u>		
(a) Main contract (excluding construction equipment)	27,600,000	
(b) Construction equipment	<u>10,000,000</u>	
Sub-total	37,600,000	44,191,916.56
II. <u>Gates, penstocks, miscellaneous steel</u>	21,400,000	7,386,908.16
III. <u>Consulting Engineers Services</u>	6,300,000	7,035,777.42
IV. <u>Interest and other charges on the Loan during construction</u>	<u>16,700,000</u>	<u>10,400,000.00</u>
Total disbursements for Original Project	<u>82,000,000</u> =====	<u>69,014,602.18</u> =====
V. <u>Amendment</u>		
<u>Civil works at Planicie Banderita (foreign cost)</u>		
(a) Main contract (excluding construction equipment)	9,200,000	
(b) Construction equipment	<u>3,000,000</u>	<u>12,985,397.00</u>
Total disbursement for Amendment	<u>12,200,000</u>	<u>12,985,397.00</u>
Total disbursements	n.a. =====	<u>81,999,999.18</u> =====

17. Objective and Justification

17.01 The project was designed to:

- i) Produce electric energy, to be consumed mainly by the end of 1973 by the Buenos Aires-Litoral system using the waters of the Rio Negro system; and
- ii) At the same time reduce floods in the valley.

Additionally the project was to help irrigate additional agricultural land. These objectives were met, including flood control as two heavy floods occurred in 1972 and 1975 which produced practically no damage at all. The project is estimated to have saved US\$24,000,000 equivalent in damage that would have been caused by the 1972 flood alone. Additionally 60,000 new ha. are being irrigated and land previously flooded periodically is now being used for agricultural production. The Chocon power plant began delivering energy to the Buenos Aires-Litoral system in 1973 and generated 2,570,000 MWh during 1974. 73% of total sales was delivered to Buenos Aires-Litoral system. This generation is about 20% less than estimated during appraisal due to lower than normal water availability.

17.02 At the time of appraisal, the project (Stage 1) was justified when compared with an alternative thermal development for equalizing discount rates between 7 1/2 and 10% (depending on two different estimates of the cost of the project). It appears evident, without repeating these calculations, that the project is justified today for much higher equalizing discount rates than those established at the time of appraisal, since:

- i) The cost of the project measured in current dollars is basically the same as at time of appraisal (in constant dollars, therefore, it decreased);
- ii) The capital costs of alternative thermal schemes are at least double than those used during appraisal; and
- iii) Fuel costs at least four times as much.

18. Construction Schedule and Problems Encountered

18.01 Stage 1 - The original schedule called for the first two generating units to be in service by mid-1973, and the third unit in January 1974. Actual completion dates of the three units are as follows:

Unit No. 1	12/29/1972
Unit No. 2	11/05/1973
Unit No. 3	12/12/1973

18.02 During tests of Unit No. 1 in April 1973 the turbine suffered a serious accident which was later revealed to have been caused by a faulty design. This design defect was corrected on all units by the supplier (Boving & Co. Ltd.), without any cost to HIDRONOR.

18.03 In March 1975 the alternator of Unit No. 3 had a serious accident when a fault between coils produced a fire inside the generator, damaging about a third of the windings (in agreement with HIDRONOR, the consultants had not considered it necessary to install fire extinguishing equipment). The cause of the accident was a bolt found wedged in the windings and presumably left there inadvertently during erection. The alternator has been repaired and should by now have been commissioned. The responsibility for this accident has not yet been resolved between HIDRONOR and the supplier (Siemens).

18.04 Another important accident which occurred during the initial stages of operation of the project was that 16 towers of the 500 kV transmission line collapsed in January 1974 due to two very severe wind and rain storms which caused the failure of the foundations of the windward guy wires. Later investigation showed that the foundations were inadequately chosen and a major proportion of these foundations have been replaced. It is difficult to pin down the responsibility for this accident, but undoubtedly the consulting engineers, Merz and McLellan, must bear a part of the blame due to inadequate interpretation of the soil mechanics investigation. However, about 2,000 foundations have still to be replaced pending agreement on costs between HIDRONOR and the contractor.

18.05 Stage 2 - Construction is on schedule and the estimated completion dates should be met i.e. 6 units at Chocon in service by December 1975 and the two units at Planicie Banderita by December 1977.

19. Project Cost

19.01 The comparison of the cost estimates of the completed project present an inherent difficulty due to the conversion of local currency into dollars. The Bank had previously suggested that HIDRONOR convert local expenditures into dollars at the rate of exchange prevalent at the moment of disbursement. However, this had the disadvantage to result in unrealistically high cost estimates for 1973 and 1974 because the rate of exchange was artificially maintained during those years at a level that did not reflect internal costs in Argentina. Due to this, the last supervision mission recommended HIDRONOR to convert the actual local costs of 1973 and 1974 into dollars, adjusting the actual rate of exchange by means of the whole-sale price index, a method which represents more clearly the true value of the Argentinian currency. (Local costs for subsequent years could again be converted at rate of exchange). Using both methods the following values result, excluding interest during construction. (For Stage 1, more than 99% of total cost has been disbursed):

		US\$ million	
	<u>Appraisal Estimate</u>	<u>Present Estimate</u>	
		<u>Previous Bank method</u>	<u>New Bank proposed method</u>
Stage 1	265.4	273.0 (+3%)	256.3 (-3.5%)
Stage 2	156.1	262.5 (+68%)	232.7 (+49%)

19.02 One can see that using either method the cost estimates for Stage 1 have not varied appreciably since appraisal. The difference in the cost estimates for Stage 2 are due to the fact that the design of Planicie Banderita was not completed at the time of appraisal and at the very best the cost estimates were rough guesses.

20. Consultants

20.01 HIDRONOR retained Sr. Alexander Gibb and Partners (U.K.) as the main consultant who subcontracted Merz and McLellan (U.K.) who were responsible for the engineering of the electro-mechanical part of the power plants and the transmission system. The overall performance of both consultants appears to have been good although HIDRONOR had initially some complaints about the technical competence of some of the people sent to Argentina by Merz and McLellan.

21. Main Contractors

Main contractors for the project were:

21.01 Stage 1 (Power Plant)

Civil works:	Impregilo-Sollazzo, S.A. (Italy)
Turbines:	Boving & Co. Ltd. (U.K.)
Generators:	Siemens A.G. (Germany)
Cranes:	" " "
Powerhouse Transformers:	Mitsubishi Shoji Kaisa Ltd. (Japan)
Breakers:	Brown Boveri. S.A. (Switzerland-Argentina)

21.02 Stage 1 (Transmission system)

500 kV Transmission line:	Anglo Argentinian Power Construction Consortium (U.K. - Argentina)
500 kV Breakers:	Brown Boveri, S.A. (Switzerland-Argentina)
Power Transformers:	Parsons Peebles Ltd. (U.K.)
Control Equipment:	Brown Boveri, S.A. (Switzerland-Argentina)
132 kV Cables:	Industrias Pirelly SAIC (Argentina)
Synchronous condensers:	A.E.I. (U.K.)

21.03 Stage 2

Generators:	Siemens A.G. (Germany)
Turbines:	Boving & Co. Ltd. (U.K.)
Civil Works:	Impregilo-Sollazzo, S.A. (Italy)

22. Organization and Management

22.01 The Borrower, HIDRONOR, created in 1967, is a stock Corporation whose shareholders are the Argentinian state, through the "Dirección Nacional de Energía y Combustibles", and two Government-owned institutions, "Empresa de Estado Agua y Energía Eléctrica" (AE) and "Servicios Eléctricos del Gran Buenos Aires" (SEGBA). Established at its inception to carry out and operate the Chocon-Cerros Colorados complex, including transmission lines and secondary installations, the Corporation has entered in 1973 into the second phase of its activities and is now selling bulk power to four Government-owned utilities, its main customer being SEGBA (73% of the total 1974 sales).

22.02 The management of the Corporation, from its inception has been efficient and competent when judging it from an over-all result stand point as the Corporation was able to complete a complicated project within the estimated time schedule and with a final cost below the original estimate (see para. 19). This has occurred in spite of numerous personnel changes in the Board and in the Executive Committee. These changes, in general, from the information available were due to reasons stemming from outside the Corporation. Some of these changes in top management were not communicated to the Bank as HIDRONOR was expected to do.

22.03. HIDRONOR's present financial management is adequate. Since the Bank's appraisal, the Corporation has considerably improved the presentation of its accounts which have been standardized according to the system prescribed by the Federal Power Commission for the utilities in the U.S. They are being computerized with the help of a university consultant, but the results are still too incomplete to be adequately appraised. External auditing is very satisfactorily performed by the Buenos Aires firm of Drysdale, Reig and Vazquez.

23. Operating Results

23.01 Because of the several devaluations incurred by the Argentinian currency over the project period, a comparison between appraisal forecasts and actual results is not altogether meaningful, and the corresponding figures are therefore given in separate tables. In the actual funds statement, the exchange rate which is used is the one at the end of each year. Consequently, no column has been included for the total figures over the project period.

23.02 The appraisal report expected electricity production to start in time for the winter peak of mid-1973, however, experimental operations already started in December 1972, and 1973 was considered by HIDRONOR as a testing period for the Chocon system. Therefore, with the agreement of the Corporation's auditors, HIDRONOR decided to capitalize the revenues resulting from this period of experimental operation. Because of the consequences of this procedure on the conditions of applicability of Sections 5.13 and 5.14 of the Loan Agreement, the Bank should clearly have been consulted before its implementation. Due to lower than normal water availability, the 1974 sales were inferior to the appraisal estimates by about 20%, therefore lowering the Corporation's operating income.

23.03 For purpose of rate base determination, Article 11 of the Concession requires that HIDRONOR's fixed assets in operation be valued in US dollars, the value being then reconverted into pesos at the mid-year financial exchange rate. This has the disadvantage of not reflecting economic conditions in Argentina due to unrealistic rates of exchange and of creating sharp variations in asset revaluations and rate determination.

23.04 Section 5.13 of the Loan Agreement requires the Borrower to obtain rates for the sales of electricity such as to provide the 8% return authorized by Article 14 of the Concession. However, this provision was never enforced and has been superseded in practice-without the Bank being informed- by Decree No. 171 dated April 17, 1974, with retroactive effect for HIDRONOR as of November 1973. The purpose of this Decree was to unify the rates of all the electrical utilities involved over the country in the production and transmission of electricity and to determine them as the sum of two factors representing the cost of energy and the cost of power. The cost of energy was based on the price of fuel-oil at the date of the Decree, while the cost of power was a linear function of the exchange rate of the US\$ and of the salary of a worker at the time of the computation, both variables being also indexed from the date of the Decree as a basis. The drawbacks of this system are to completely separate the electricity rates from the internal characteristics of the company, especially in the choice of the base values of the indexation and, conversely, to link them to variables which were not directly related to the operations of the company but were dependent on macroeconomic factors or even political decisions. While, a posteriori, and taking into account the difficulties of pricing in a period of high inflation, the indexing system seems to have produced variations rather similar to those of the consumption index, the coefficients of the formula used for indexing were rather low and resulted in a 3.6% rate of return for the year 1974, instead of a projected 8%. Whereas the average revenue per KWh sold corresponding to a 8% rate of return should have been 14.1 centavos, the actual one was only 8.2 centavos (approximately one US mill at 1974 rate of exchange), which is extremely low, resulting in an implicit subsidy - and a corresponding economic distortion - for the main consumers, principally SEGBA.

23.05 When informed about the seriousness of the situation, HIDRONOR's present management explained that Decree 171 had been issued without prior consultation of HIDRONOR. Replying to the Bank mission's inquiry, the Ministry of Economic Affairs raised the possibility of excluding HIDRONOR at a later date from the field of application of Decree 171. It would therefore be desirable that during any future Bank loan to the Sector that during negotiations with the Government, the Bank obtain more reasonable tariff settings for bulk sales in Argentina, to eliminate the distortions described above, which undoubtedly affect the whole Sector.

Otherwise the ultimate consumer is subsidized because of unrealistically low prices, a practice that leads to wasteful consumption patterns.

24. Financing Plan

24.01 The foreign exchange component of the project has been financed through borrowing. Disbursements were lower than forecasted for the first three years of the project, both because of the cost being inferior to the estimates (para. 15.03) and because of some delays in the works.

24.02 The Bank is HIDRONOR's largest creditor, US\$12 million of its US\$82 million loan having been reallocated, through an amendment to the Loan Agreement (para. 15.02).

24.03 In addition, the Corporation was able to obtain about US\$130 million from private banks from various countries, which was about three times the minimum expected at appraisal time. 90% of these loans were on relatively soft terms (about 15 years, and 5.5% to 8%) but two of them, obtained in 1974 from the Banco Central S.A., Madrid and from Lloyds & Bolsa Int., were on more stringent conditions. The first one, of US\$2 million, was for 18 months, without grace period, and at a rate of 2% above the current interbank rate in London for deposits in dollars at six months, and the second one, of US\$9 million, was for 4-1/2 years, with a one year grace period, at a rate of 1.125% above the London rate. In view of Section 5.17 of the Loan Agreement which requires the Borrower to make its best efforts to obtain credit on such terms and conditions as shall be satisfactory to the Bank and the Borrower, the Bank should have been consulted on the two latter loans.

24.04 HIDRONOR granted in 1971 to the "Dirección de la Energía de la provincia de Buenos Aires" (DEBA) so that the latter may complete, in the Henderson substation, the interconnection with the El Chocon-Cerros Colorados project and the distribution system of DEBA. The loan, at 6% yearly on the unpaid balance was over an estimated period of ten years with a two year grace period and the total disbursements during the period 1972-74 amounted to \$176.6 million. By reducing the length of the transmission lines, the purpose of the project was to cut down electricity losses (by an estimate of 20 millions of KWh a year) to improve the reliability of supply to the DEBA system.

24.05 Another loan was granted by HIDRONOR to the "Empresa del Estado Agua Y Energía Eléctrica" (AE) so that the latter may complete the construction of a 65 km transmission line from AE thermal power house Alto Valle to Planicie Banderita, and of a 50 km transmission line to El Chocon, of a transformer station at Planicie Banderita, of transmission lines from there to Loma de la Lata and Portezuelo Grande and of transformer stations at both locations. The loan, without interest, was over an estimated period of four years with one-year grace period and the total disbursements during the period 1972-74 amounted to \$12.2 million. The purpose of the project was to obtain a source of energy

for the construction of El Chocon and Planicie Banderita, and to feed energy into the AE system after the completion of the Chocon complex. As HIDRONOR did not need this energy after completion of the project, this was an economic solution for obtaining energy during project construction without bearing the cost of the investment and, at the same time, as a way for ensuring a back-up supply of energy for the plant auxiliaries, in case of emergency after completion of the project. While the construction programs corresponding to these two loans might well have been technically justified, one of the loans was interest-free and the second was at 6% interest, while at the same time the usual rate for medium-term loans available from Government development banks was not inferior to 15%. It is not clear whether such financial subsidization of DEBA and AE by HIDRONOR was justified by the benefits to HIDRONOR mentioned above.

24.06 As internal cash generation started in 1973 only, most of the resources needed for the local component of the project had to come from Government equity contributions which were specially important in 1974 (\$1,000 million, of which \$840 million were actually paid), indirectly coming from the El Chocon fund created by law 17574. In 1973 and 1974, and as a consequence of delays in the payment of the funds, the Corporation had to resort to medium-term loans from local banks in order to finance the project works. Granted at interest ranging between 11% and 20% and for periods from 5 to 15 years, these loans amounted to \$232.0 million in 1973 and \$54.6 million in 1974. However, until such loans were obtained, it was necessary to obtain short-term loans from the Banco de la Ciudad de Buenos Aires. At the end of the year 1974 however, the Corporation's cash situation was favorable due to delays in the works of the Alicopa complex.

24.07 The sharp fluctuations in working capital during the period 1971-1974 were created by a small number of accounts. The variations in capital stock receivables were the outcome of the subscription and payments of equity contributions, and the steady increase in receivables from 1972 onwards was the consequence of the DEBA and AE loans and, for 1974, of a considerable amount of customers receivable (\$121 million out of total sales of \$199 million, i.e., more than 7 months) mainly due to SEGBA's indebtedness (this account was settled in April 1975). The large increase in accounts payable in 1973 was brought about by debts due to contractors and by the starting of reimbursements of short-term and medium term loans from local banks.

25. Covenants

25.01 The Borrower has not complied with several of the covenants established during negotiations.

25.02 It did not comply with Section 5.13 of the Loan Agreement which requires to provide the return on investment authorized by the Concessions.

25.03 It did not comply with Section 5.17 of the Loan Agreement which requires the Borrower to make its best efforts to obtain credit on such terms and conditions as shall be satisfactory to the Bank and the Borrower.

25.04 It did not comply with paragraph (b), Section 6.02 of the Loan Agreement which requires the Borrower to comply with all the provisions of the Concession (and, in this case, the provision concerning the return on investment).

25.05 The question is debatable whether the Borrower complied with Section 5.04 paragraph (a) of the Loan Agreement which requires the Borrower to maintain its financial position in accordance with sound financial practices (cf. loans to DEBA and "Agua y Energia") and with Section 5.06 (d) which requires the Borrower to furnish to the Bank all such information as the Bank shall reasonably request concerning the administration, operations and financial condition of the Borrower (cf. major changes in management, loans to DEBA and "Agua y Energía"). The reason why this is debatable is that the Bank's requests occurred very infrequently due to insufficient supervision missions.

25.06 The Guarantor did not comply with Section 3.06 para (b), of the Guarantee Agreement which requires rates to be granted to the Borrower to provide the return authorized by the Concession.

26. Forecast Financial Performance

26.01 In the short run, HIDRONOR's financial prospects appear rather bleak. Despite a strong Government interference, mainly through the application of Decree 171 and pressures on its upper management, the Corporation is struggling towards a minimum of managerial and financial independence. Any improvement will have to come through a strict application of the Concession, perhaps preliminarily amended in order to take into account the existing strong inflationary pressures and the more complex nature of the investments.

26.02 If the general conditions regarding tariffs remain unchanged, HIDRONOR will have to depend for its survival on subsidies or government equity contributions. The Corporation plans to implement from 1975 onwards a considerable investment program in order to build the Alicopa complex, but a definition of the Government energy policy, and of its financing, is anxiously awaited and will unfortunately depend on the drastic measures which will have to be taken in order to reform the Argentinian economy - see Back-to-Office Report made by Messrs. Linder and Salazar dated September 30, 1975.

26.03 The Back-to-Office Report mentioned above also points out deficiencies found in the Sector as a whole as follows:

- (a) the great number of different entities engaged in generation, transmission and distribution of electric energy, with different degrees of competence;
- (b) lack of effective coordination of Sector planning; and
- (c) insufficient coordination between the electric power and other energy sectors.

It would seem from the above that the Bank, when granting this loan to HIDRONOR, should have been more insistent with the Argentinian Government to initiate steps to rationalize the institutional structure and/or the management of the Sector.

27. Lessons to be Learnt

27.01 From the financial point of view, HIDRONOR's relationship with the Bank has not been as close as expected during the construction and operating periods of the project, and the Bank was not informed about major operating and organizational developments, some of these being in violation of the spirit and letter of the covenants of the Loan Agreement.

27.02 Being a young Corporation, HIDRONOR was staffed with personnel who did not have any previous experience of relations with the Bank, but would have been quite receptive to a closer cooperation. The Bank should have lent more attention to the organizational aspects of institution building, and required periodic and detailed reports on operations and on the implementation of a sound management structure. The present management has declared its intention to maintain a constant and complete flow of information to the Bank.

ML
MLinder/ALeoni:mo

cc: Messrs. van der Meer (LCPDR); Wyss (LCPDR); Perez (LCNVP); Leibert (LC2DE(2); Wessels (LCPPT); Montfort (LCPPT); Kanchuger (LC2DE); Linder (LCPPT); van der Tak (VPSVP)(8); Rovani (EWTDR)(5); Willoughby (OED)(3); Isarael (VPSVP); Rodriguez (PAB); J.D. Elliott (CTR); J. Lee (VPSVP) Mole (CTR); Cabezas (LEG); Ms. Steiner (LCPPT); LAC Files; Project Folder; Black Books.

HIDRONORVariations of Rate ParametersJanuary 1974 - July 1975

	<u>US\$</u> (pesos)	<u>Salary K</u> (pesos)	<u>Fuel Oil</u> (pesos/Tm)	<u>Energy</u> (Mwh)	<u>Power</u> (Kw/monthly)
January 1974	9.98	2,001	220	42.7	21.7
April 1974	9.98	2,350	245	47.5	23.2
November 1974	9.98	2,829	245	47.5	25.3
January 1975	9.98	3,287	245	47.5	25.3
February 1975	9.98	3,287	335	64.9	25.3
March 1975	15.10	3,542	335	64.9	35.0
June 1975	30.00	5,313	500	97.0	62.0
July 1975	35.50	5,313	500	97.0	69.0



HIDRONOR

FECHAS DE DEVALUACION DEL PESO ARGENTINO CON
RESPECTO AL DOLAR ESTADOUNIDENSE - MERCADO
FINANCIERO

<u>Fecha</u>	<u>Cotización del Dólar Estadounidense</u>	
13/ 3/67	\$	3,50
18/ 6/70		4,00
6/ 4/71		4,04
3/ 5/71		4,12
7/ 6/71		4,20
25/ 6/71		4,40
30/ 7/71		4,70
25/ 8/71		5,00
20/ 9/71		7,45
Octubre/71 (Promedio)		7,27
Noviembre/71 (Promedio)		7,84
Diciembre/71 (Promedio)		8,45
Enero 1972 (Promedio)		9,32
Febrero/72 (Promedio)		9,66
Marzo/72 (Promedio)		9,74
Mayo/72 (Promedio)		9,88
Junio/72 (Promedio)		9,93
Julio/72 (Promedio)		9,95
22/ 8/72		9,98
4/ 3/75		15,10
9/ 6/75		30,00
16/ 7/75		35,50
11/8/75		42,50

ARGENTINA

LOAN 577-AR

Principal Points of Loan Agreement

- Section 5.05 - Borrower must coordinate its operation and expansion with SEGBA and other electric utilities in the Greater Buenos Aires area to prevent waste of energy, duplication of facilities and unnecessary investment and obtain agreements with SEGBA and other electric utilities regarding the most economic operation of generating plants.
- Section 5.13 - revenues must be sufficient to provide the rate of return authorized by Hidronor's concession.
- Section 5.14(b)- test provides that debt service coverage for preceding year may not be less than 1.5 times the maximum future annual debt service.
- Section 5.16 - prevents Borrower from prepaying long-term debt without prior Bank approval.
- Section 6.01 - changing Borrower's statute or concession without Bank approval are conditions for terminating the loan.
- Section 7.01(b)- as a condition of effectiveness for the loan, Hidronor's concession must become effective.
- Section 7.01(c)- as a condition of effectiveness, satisfactory arrangements must be made for the sale of power to SEGBA.
- Section 7.01(d)- as a condition of effectiveness, satisfactory arrangements must be made with the Guarantor that the proceeds from the surcharges on crude oil and electricity will be made available to Hidronor.

Principal Points of Guarantee Agreement

- Section 2.02(a)- requires Guarantor to provide Hidronor with the proceeds from the surcharges on crude oil and electricity.
- Section 2.02(b)- requires Guarantor to provide Hidronor, or cause Hidronor to be provided with, sufficient funds to complete the Project.
- Section 3.06 - guarantees that Borrower will be granted tariffs sufficient to achieve the rate of return authorized by the concession.

Section 3.07 - Guarantor must coordinate expansion of facilities of all electric utilities which supply power to the Greater Buenos Aires area.

ARGENTINAHIDROELECTRICA NORPATAGONICA S. A.EL CHOCON PROJECT - LOAN 577-ARIncome Statements - Appraisal Estimates

(M\$N million) (US\$1 = M\$N350)

<u>Year ending December 31:</u>	<u>1973 ^{/1}</u>	<u>1974</u>
Units generated (million Kwh)	1,535	3,200
Units sold (million Kwh)	1,473	3,072
Average revenue per Kwh sold (in pesos)	<u>3.60</u>	<u>3.46</u>
<u>Operating Revenue</u>	<u>5,309</u>	<u>10,631</u>
<u>Operating Expenses</u>		
Generation	263	525
Transmission	210	420
Administration	140	280
Depreciation	43	99
Amortization of non-power fixed assets	<u>137</u>	<u>274</u>
Total operating costs	<u>793</u>	<u>1,598</u>
<u>Operating Income</u>	<u>4,516</u>	<u>9,033</u>
<u>Interest Charges</u>		
Proposed IBRD loan	856	1,860
Proposed foreign loans (El Chocon Project)	522	1,217
Proposed medium-term loans	60	137
Proposed future foreign loan A (Stage II)	162	609
Proposed future foreign loan B (Stage II)	<u>---</u>	<u>51</u>
Total interest charges	<u>1,600</u>	<u>3,874</u>
Less: Interest charged to construction	<u>3,896</u>	<u>1,864</u>
Net interest charges	<u>(2,296)</u>	<u>2,010</u>
<u>Net Income</u>	<u>6,812</u>	<u>7,023</u>
Rate of return (operating income to gross fixed assets in operation plus 4% for working capital)	8%	8%
Times total interest charges covered by operating income	2.8	2.3

^{/1} Operations only during last six months of 1973.

ARGENTINAANNEX 5HIDROELECTRICA NORPATAGONICA S. A.EL CHOCON PROJECT - LOAN 577-ARINCOME STATEMENTS - ACTUAL RESULTS

(\$a million)(US\$1 = \$a 9.98)

<u>Year ending December 31:</u>	<u>1973</u>	<u>1974</u>
Units sold (million Kwh)	-	2,420.0
Average revenue per Kwh sold (in centavos)	-	8.2
<u>Operating Revenue</u>	-	199.1
<u>Operating Expenses</u>		
Generation	-	23.2
Transmission	-	21.7
Administration	-	28.9
Depreciation	-	9.2
Amortization of Non-Power Fixed Assets	-	6.2
<u>Total Operating Costs</u>	-	89.2
<u>Operating Income</u>	-	109.9
<u>Interest Charges</u>		
Long-Term Loans	-	185.3
Less: Interest Charged to Construction	-	17.0
Net Interest Charges	-	168.3
Other Income	-	16.7
Provincial Taxes	-	10.0
Exchange Losses	-	6.5
<u>Net Income</u>	-	(58.2)
Rate of Return		3.6
Times Total Interest Charges Covered by Operating Income		0.6

October 8, 1975

EL CHOCON PROJECT

Source and Application of Funds Statements - Appraisal Estimate
(M\$N million (US\$1 = M\$N350))

Year ending December 31:	1969	1970	1971	1971	1973	1974	1969-74
SOURCES OF FUNDS							
Internal Cash Generation							
Operating income					4,516	9,033	13,549
Depreciation					43	99	142
Amortization of non-power fixed assets					137	274	411
Total Internal Cash Generation					4,696	9,406	14,102
Borrowings							
Proposed IBRD loan	9,251	6,178	6,386	4,123	2,412	350	28,700
Proposed foreign loans (El Chocon Project)	595	1,750	7,700	3,920	4,200	980	19,145
Proposed medium-term loans	19	96	403	780	1,044		2,342
Proposed future foreign loan A (Stage II)				2,835	4,270	4,515	11,620
Proposed future foreign loan B (Stage II)						1,575	1,575
Total Borrowings	9,865	8,024	14,489	11,658	11,926	7,420	63,382
Equity Investments							
Ordinary shares - Class A	10,190	8,150	8,990	13,298	17,710	18,370	76,708
Ordinary shares - Class "C"		6,585	6,585	3,292			16,162
Total Equity Investments	10,190	14,735	15,575	16,590	17,710	18,370	22,170
TOTAL SOURCE OF FUNDS	20,055	22,759	30,064	28,248	24,332	25,196	170,654
APPLICATION OF FUNDS							
Construction Costs (excluding interest during construction)							
Stage I							
El Chocon Project	18,585	20,755	27,195	13,790	8,575	2,730	91,630
Portuñelo Grande	140	2,835	6,300	1,610			10,885
Total Stage I	18,725	23,590	33,495	15,400	8,575	2,730	102,515
Stage II							
El Chocon Project (completed)				350	1,610	4,270	6,230
Planicie Banderita				5,355	7,700	8,960	22,015
Total Stage II				5,705	9,310	13,230	28,245
Total Construction Costs	18,725	23,590	33,495	21,105	17,885	15,960	130,760
Debt Service							
Amortization							
Proposed IBRD loan						764	764
Proposed foreign loans (El Chocon Project)		4	23	104	260	463	859
Proposed medium-term loans							
Proposed future foreign loan A (Stage II)							
Total Amortization		4	23	104	260	1,227	1,623
Interest							
Proposed IBRD loan	466	893	1,241	1,533	1,712	1,860	7,705
Proposed foreign loans (El Chocon Project)	19	96	403	780	1,044	1,217	3,559
Proposed medium-term loans	1	5	22	61	120	137	346
Proposed future foreign loan A (Stage II)				92	323	609	1,024
Proposed future foreign loan B (Stage II)						51	51
Total Interest	486	994	1,666	2,466	3,199	3,874	12,635
Total Debt Service	486	998	1,689	2,570	3,459	5,106	14,258
Dividends Paid							
						6,661	6,661
Redemption of Ordinary Shares - Class "C"							
					137	274	411
Executive Committee's Share of Profits							
						24	24
Increase or (Decrease) in Working Capital							
Cash	844	(1,829)	(5,120)	4,573	12,421	6,760	17,649
Accounts Receivable					430	431	861
Materials and Supplies	40	40	40	40	40	20	220
Prepaid Expenses	10	10	10	10	10	10	60
Accounts Payable	(50)	(50)	(50)	(50)	(50)	(50)	(300)
Total Increase or (Decrease) in working capital	844	(1,829)	(5,120)	4,573	12,851	7,171	18,430
TOTAL APPLICATION OF FUNDS	20,055	22,759	30,064	28,248	24,332	25,196	170,654
Cash Balances							
Beginning of Year	4,966	5,810	3,981	(1,139)	3,434	15,355	
Increase or (Decrease) during Year	844	(1,829)	(5,120)	4,573	12,421	6,760	
End of Year	5,810	3,981	(1,139)	3,434	15,855	22,615	
Times Annual Debt Service Covered by Internal Cash Generation							
					1.4	1.8	

IBRD AND IDA - SUPERVISION SUMMARY

This summary is ☐ the initial summary
☐ part of a mission report
☐ a semi-annual update
☒ the completion summary

Regional Office: LAC	Project Name: "El Chocon" Power Project	Project Code: SARGPH01	Loan <input checked="" type="checkbox"/> Credit <input type="checkbox"/> No.: 577-AR	L/C Amount (\$xx.xm): 82.00
Country: ARGENTINA	Borrower/Beneficiary: HIDRONOR, S.A.	Board Date: 12/18/68	Signing Date: 12/19/68	Effective Date: 3/21/69
Projects Dept./Div. Name: LAC/LCPPT	Org. Code No.: 166/40	Projects Officer: M. Linder	Loan Officer: R. Kanchuger	

SECTION 1: SUMMARY PROJECT DESCRIPTION

See Attachment 1

SECTION 2: PERFORMANCE RATING

STATUS: 1 - Problem-free or Minor Problems; 2 - Moderate Problems; 3 - Major Problems

TREND: 1 - Improving; 2 - Stationary; 3 - Deteriorating

TYPES OF PROBLEMS: F - Financial; M - Managerial; T - Technical; P - Political; O - Other (Explain in Section 5)

If more than one type of problem, enter most critical factor first.

Designated a "problem project" in most recent SVP review?

Y - Yes; N - No ☒ N

This Summary

Last Summary

☐ 1☐ 1☐ 2☐ 1

F

F

SECTION 3: PROJECT DATA

Estimated/Actual:	Project Completion (Mo./Yr.)	Loan/Credit Closing (Mo./Day/Yr.)	Total		of which:		Cumulative Disbursements through most recent Quarter ended (6/30/75)
			Project Cost (\$xx.xm)	1/	Foreign Currency (\$xx.xm)	Local Currency (\$xx.xm)	
Appraisal Est.	12/74 1/	12.31.74	265.4	1/	120.7	144.7	82.0 2/ (Est.)
Last Summary (8/5/75)	12/74 1/	6.30.75	n.a.	1/	n.a.	n.a.	
Current	12/74 1/	6.30.75	265.3	1/	133.1	123.2	82.0 2/ (Actual)

SECTION 4: MISSION SCHEDULE

	No. of Staff on Mission	No. of Days in Country	Return to HQ (Mo./Day/Yr.)	Final Report Date (Mo./Day/Yr.)
Latest/Present Mission	2	14	8.28.75	9.30.75 (CS)
Previous Mission	1	n.a.	4.15.74	4.30.75 (CS)
Next Mission Departure (Mo./Yr.)	8.76	Recommended interval between missions (Months)	12	End of period covered by latest progress report (Mo./Day/Yr.)

* Type of Report: FS = Full Supervision; CS = Combined Full/B-T-O; C = Completion; A = Appraisal; O = Other (explain below)

SECTION 5: COMMENTS (Explain "other" in Section 2 and clarify, if necessary, data in Sections 3 and 4)

- 1/ All this information refers to Stage 1. For Stage 2 see Attachment 2.
- 2/ The disbursed sum corresponding to: Stage 1 = US\$69 million. Stage 2 = US\$13 million. Costs exclude interest during construction.

SECTION 6: SUMMARY OF PROJECT STATUS, TREND, AND MAJOR PROBLEMS:

The project was well-executed within the budget and time schedule (Stage 1 completed in 1974; Stage 2 expected for completion by mid-1977) in spite of several technical incidents. This performance was mainly due to the technical competence of the Borrower in spite of frequent changes in top management.

The level of bulk tariffs, fixed by Governmental Decree 171, is very low (equivalent to one US mill per KWh at the December 1975 exchange rate), resulting in a 3.6% rate of return (1974), instead of the projected level of 8%. In addition to the adverse effect on HIDRONOR's finances, this results in a subsidization of the final consumers in the wealthy Buenos Aires area, who are served by SEGBA, HIDRONOR's main client.

The relationship with the Bank up to now could have been better, but the main responsibility for this seems to be with the Bank due to inadequate supervision. Regarding the power sector as a whole it is regrettable that this and other power loans were not used by the Bank as a vehicle for improving the institutional structure of the sector.

SECTION 7: ACTIONS TAKEN AND RECOMMENDED: Supervision missions should be scheduled every 12 months until completion of stage 2 of project.

Preparing Officer: M. Linder
A. Leoni

Initials: ML Date: 12/19/75

El Chocon Power Project

SECTION 2: Summary Project Description

Originally the project consisted of (Stage 1):

- a) the first stage of the El Chocon-Cerros Colorados Complex, consisting of El Chocon village, an earthfill dam on the Rio Limay at El Chocon, El Chocon powerhouse, including 3 x 200 MW turbine generators and ancillary equipment, and
- b) a 500 kV transmission system consisting of two single-circuit three-phase overhead lines about 1,080 km long, with a switchyard at El Chocón, intermediate switching station near Puelches and Henderson, and a step-down substation near Buenos Aires.

On January 16, 1973 an agreement amending the loan agreement was signed, expanding the project to include (Stage 2):

- a) 3 additional machines of 200 MW at the El Chocon power plant;
- b) the Portezuelo Grande diversion and flood control works;
- c) the Loma de la Lata dam; and
- d) the Planicie Banderita power plant including 2 x 225 MW turbine generators.

El Chocon Power Project

	<u>Project Completion</u>	<u>Total Project Cost</u> (US\$ million)	<u>F. C.</u> (US\$m)	<u>L. C.</u> (US\$m)
Appraisal estimate	12/31/77	156.1	n.a.	n.a.
Current estimate	12/31/77	232.7	102.4	130.3

(excluding interest during construction)

PROJECT COMPLETION REPORT

ARGENTINA

LOAN 577-AR

El Chocón Power Project

1. Borrower: HIDRONOR, S.A. (Hidroeléctrica Norpatagónica Sociedad Anónima)
2. Guarantor: The Argentine Republic
3. Loan Amount: US\$82 million equivalent
4. Date Loan Signed: December 19, 1968
(an amendment was signed on January 16, 1973)
5. Effective Date: March 21, 1969
6. Closing Date: December 31, 1974
7. Period of Grace: 6 years, 3 months
8. Terms of Loan: 25 years, 3 months
9. Interest Rate: 6 - 1/2%
10. Commitment Charge: 3/4 of 1%
11. Amortization: Semi-annual payments starting March 15, 1975 and ending on March 15, 1994, with a final payment of US\$3,625,000.
12. Exchange Rate: Original at time of Appraisal 1 US\$ = M\$N350 = \$a3.50. Latest (8/11/75) 1US\$ = \$a42.50
13. Appraisal Report: PU-1a, dated December 2, 1968
14. Fiscal Year: Calendar year
15. Project Description

15.01 The original project consisted of a part of the "El Chocon-Cerros Colorados Complex". The complex comprises an ultimate development of 1,200 MW at El Chocon, 450 MW at Planicie Banderita, and 500 kV transmission facilities to transmit power to the Greater Buenos Aires area. The original project (Stage 1) consisted of the following elements:

- (a) The El Chocon village, including housing, a church, a school, a rest house, commercial buildings, and a social and sports center, as well as paved streets, sidewalks, drains, water supply and sewerage systems, and an electrical distribution network;

- (b) The El Chocon earthfill dam across the Rio Limay capable of storing water up to a normal maximum level of about 381 meters above sea level. A gated concrete spillway on the right bank and a gated concrete intake structure on the left bank;
- (c) The El Chocon powerhouse on the left bank downstream of the dam and three 200 MW Francis-type turbine generators and related ancillary equipment. Steel-lined penstock tunnels to connect the intake to the powerhouse. A tailrace channel to return the water discharge from the powerhouse to the river; and
- (d) A 500 kV transmission system consisting of two single-circuit three-phase overhead lines about 1,080 kilometers long. A switchyard at the El Chocon powerhouse, intermediate switching stations near Puelches and Henderson, and step-down substation(s) near Buenos Aires.

15.02 On January 16, 1973 the Bank and the Borrower agreed on an amendment of the Loan Agreement in which the project was changed to consist of the following: (Stages 1 and 2):

- (a) The El Chocon village, including housing, a church, a school, a rest house, commercial buildings, and a social and sports center as well as paved streets, sidewalks, drains, water supply and sewerage systems, and an electrical distribution network;
- (b) The El Chocon earthfill dam across the Rio Limay capable of storing water up to a normal maximum level of about 381 meters above sea level. A gated concrete spillway on the right bank and a gated concrete intake structure on the left bank;
- (c) The El Chocon powerhouse on the left bank downstream of the dam and six 200 MW Francis-type turbine generators and related ancillary equipment. Steel-lined penstock tunnels to connect the intake to the powerhouse. A tailrace channel to return the water discharged from the powerhouse to the river;
- (d) The Portezuelo Grande diversion and flood control works diverting water from Rio Neuquen into the Los Barreales depression thus allowing regulation of the Rio Neuquen flows downstream;
- (e) The Loma de la Lata dam and regulating facilities controlling the flow between the Los Barreales depression and the Mari Menuco depression;
- (f) The Planicie Banderita power plant, including the intake in the Mari Menuco depression, steel penstocks, two 225 MW Francis-type turbine generators, and tailrace channel to return the water discharged from the turbines into Rio Neuquen;
- (g) A 500 kV transmission system consisting of two single-circuit three-phase overhead lines about 1,080 kilometers long. Switchyards at El Chocon and Planicie Banderita, intermediate switching stations near Puelches and Henderson, and step-down substation near Buenos Aires.

15.03 The change in project description was requested by HIDRONOR and accepted by the Executive Directors of the Bank due to the fact that the cost of that part of the project financed by the Bank loan turned out to be less than the original appraised estimate. As a result, it was estimated that about US\$12 million of the Bank's loan would remain in the Loan Account upon completion of the project. This was mainly due to:

- (a) Lower costs for gates, penstocks and miscellaneous steel; and
- (b) Lower financial charges.

16. Projected and Actual Disbursements of Loan

<u>Category</u>	<u>Projected</u> (in US\$ equivalent)	<u>Actual</u>
I. <u>Civil works at El Chocon (foreign cost)</u>		
(a) Main contract (excluding construction equipment)	27,600,000	
(b) Construction equipment	<u>10,000,000</u>	
Sub-total	37,600,000	44,191,916.56
II. <u>Gates, penstocks, miscellaneous steel</u>	21,400,000	7,386,908.16
III. <u>Consulting Engineers Services</u>	6,300,000	7,035,777.42
IV. <u>Interest and other charges on the Loan during construction</u>	<u>16,700,000</u>	<u>10,400,000.00</u>
Total disbursements for Original Project	<u>82,000,000</u> =====	<u>69,014,602.18</u> =====
V. <u>Amendment</u>		
<u>Civil works at Planicie Banderita (foreign cost)</u>		
(a) Main contract (excluding construction equipment)	9,200,000	
(b) Construction equipment	<u>3,000,000</u>	<u>12,985,397.00</u>
Total disbursement for Amendment	<u>12,200,000</u>	<u>12,985,397.00</u>
Total disbursements	n.a. =====	<u>81,999,999.18</u> =====

17. Objective and Justification

17.01 The project was designed to:

- i) Produce electric energy, to be consumed mainly by the end of 1973 by the Buenos Aires-Litoral system using the waters of the Rio Negro system; and
- ii) At the same time reduce floods in the valley.

Additionally the project was to help irrigate additional agricultural land. These objectives were met, including flood control as two heavy floods occurred in 1972 and 1975 which produced practically no damage at all. The project is estimated to have saved US\$24,000,000 equivalent in damage that would have been caused by the 1975 flood alone. Additionally 60,000 new ha. are being irrigated and land previously flooded periodically is now being used for agricultural production. The Chocon power plant began delivering energy to the Buenos Aires-Litoral system in 1973 and generated 2,570,000 MWh during 1974. 73% of total sales was delivered to Buenos Aires-Litoral system. This generation is about 20% less than estimated during appraisal due to lower than normal water availability.

17.02 At the time of appraisal, the project (Stage 1) was justified when compared with an alternative thermal development for equalizing discount rates between 7 1/2 and 10% (depending on two different estimates of the cost of the project). It appears evident, without repeating these calculations, that the project is justified today for much higher equalizing discount rates than those established at the time of appraisal, since:

- i) The cost of the project measured in current dollars is basically the same as at time of appraisal (in constant dollars, therefore, it decreased);
- ii) The capital costs of alternative thermal schemes are at least double than those used during appraisal; and
- iii) Fuel costs at least four times as much.

? But see para 19.01 stage 1 only?

Not the ones ordered in 1968/69.

18. Construction Schedule and Problems Encountered

18.01 Stage 1 - The original schedule called for the first two generating units to be in service by mid-1973, and the third unit in January 1974. Actual completion dates of the three units are as follows:

Unit No. 1	12/29/1972
Unit No. 2	11/05/1973
Unit No. 3	12/12/1973

18.02 During tests of Unit No. 1 in April 1973 the turbine suffered a serious accident which was later revealed to have been caused by a faulty design. This design defect was corrected on all units by the supplier (Boving & Co. Ltd.), without any cost to HIDRONOR. However, the consultant must be held at least partly responsible for not taking more time than normal to ensure that the design was adequate, bearing in mind that the size of the turbine units was near the limit of what was being manufactured at the time with respect to size.

18.03 In March 1975 the alternator of Unit No. 3 had a serious accident when a fault between coils produced a fire inside the generator, damaging about a third of the windings (the need for fire extinguishing equipment had not been foreseen by the consultants). The cause of the accident was a bolt found imbedded in the windings and presumably left there inadvertently during erection. The alternator has been repaired and should by now have been commissioned. The responsibility for this accident has not yet been resolved between HIDRONOR and the supplier (Siemens).

18.04 Another important accident which occurred during the initial stages of operation of the project was that 16 towers of the 500 kV transmission line collapsed in January 1974 due to two very severe wind and rain storms which caused the failure of the foundations of the windward guy wires. Later investigation showed that the foundations were inadequately chosen and a major proportion of these foundations have been replaced. It is difficult to pin down the responsibility for this accident, but undoubtedly the consulting engineers, Merz and McLellan, must bear a part of the blame due to insufficient soil mechanics investigation. However, about 2,000 foundations have still to be replaced pending agreement on costs between HIDRONOR and the contractor.

18.05 Stage 2 - Construction is on schedule and the estimated completion dates should be met i.e. 6 units at Chocon in service by December 1975 and the two units at Planicie Banderita by December 1977.

19. Project Cost

19.01 The comparison of the cost estimates of the completed project present an inherent difficulty due to the conversion of local currency into dollars. The Bank had previously suggested that HIDRONOR convert local expenditures into dollars at the rate of exchange prevalent at the moment of disbursement. However, this had the disadvantage to result in unrealistically high cost estimates for 1973 and 1974 because the rate of exchange was artificially maintained during those years at a level that did not reflect internal costs in Argentina. Due to this, the last supervision mission recommended HIDRONOR to convert the actual local costs of 1973 and 1974 into dollars, adjusting the actual rate of exchange by means of the whole-sale price index, a method which represents more clearly the true value of the Argentinian currency. (Local costs for subsequent years could again be converted at rate of exchange). Using both methods the following values result, excluding interest during construction. (For Stage 1, more than 99% of total cost has been disbursed):

		US\$ million	
	<u>Appraisal Estimate</u>	<u>Present Estimate</u>	
		<u>Previous Bank method</u>	<u>New Bank proposed method</u>
Stage 1	265.4	273.0 (+3%)	256.3 (-3.5%)
Stage 2	156.1	262.5 (+68%)	232.7 (+49%)

19.02 One can see that using either method the cost estimates for Stage 1 have not varied appreciably since appraisal. The difference in the cost estimates for Stage 2 are due to the fact that the design of Planicie Banderita was not completed at the time of appraisal and at the very best the cost estimates were rough guesses.

20. Consultants

20.01 HIDRONOR retained Sr. Alexander Gibb and Partners (U.K.) as the main consultant who subcontracted Merz and McLellan (U.K.) who were responsible for the engineering of the electro-mechanical part of the power plants and the transmission system. The overall performance of both consultants appears to have been good although HIDRONOR had initially some complaints about the technical competence of some of the people sent to Argentina by Merz and McLellan.

21. Main Contractors

Main contractors for the project were:

21.01 Stage 1 (Power Plant)

Civil works:	Impregilo-Sollazzo, S.A. (Italy)
Turbines:	Boving & Co. Ltd. (U.K.)
Generators:	Siemens A.G. (Germany)
Cranes:	" " "
Powerhouse Transformers:	Mitsubishi Shoji Kaisa Ltd. (Japan)
Breakers:	Brown Boveri. S.A. (Switzerland-Argentina)

21.02 Stage 1 (Transmission system)

500 kV Transmission line:	Anglo Argentinian Power Construction Consortium (U.K. - Argentina)
500 kV Breakers:	Brown Boveri, S.A. (Switzerland-Argentina)
Power Transformers:	Parsons Peebles Ltd. (U.K.)
Control Equipment:.	Brown Boveri, S.A. (Switzerland-Argentina)
132 kV Cables:	Industrias Pirelly SAIC (Argentina)
Synchronous condensers:	A.E.I. (U.K.)

21.03 Stage 2

Generators:	Siemens A.G. (Germany)
Turbines:	Boving & Co. Ltd. (U.K.)
Civil Works:	Impregilo-Sollazzo, S.A. (Italy)

22. Organization and Management

22.01 The Borrower, HIDRONOR, created in 1967, is a stock Corporation whose shareholders are the Argentinian state, through the "Dirección Nacional de Energía y Combustibles", and two Government-owned institutions, "Empresa de Estado Agua y Energía Eléctrica" (AE) and "Servicios Eléctricos del Gran Buenos Aires" (SEGBA). Established at its inception to carry out and operate the Chocon-Cerros Colorados complex, including transmission lines and secondary installations, the Corporation has entered in 1973 into the second phase of its activities and is now selling bulk power to four Government-owned utilities, its main customer being SEGBA (73% of the total 1974 sales).

22.02 The management of the Corporation, from its inception has been efficient and competent when judging it from an over-all result stand point as the Corporation was able to complete a complicated project within the estimated time schedule and with a final cost below the original estimate (see para. 19). This has occurred in spite of numerous personnel changes in the Board and in the Executive Committee. These changes, in general, from the information available were due to reasons stemming from outside the Corporation. Some of these changes in top management were not communicated to the Bank as HIDRONOR was expected to do.

22.03. HIDRONOR's present financial management is adequate. Since the Bank's appraisal, the Corporation has considerably improved the presentation of its accounts which have been standardized according to the system prescribed by the Federal Power Commission for the utilities in the U.S. They are being computerized with the help of a university consultant, but the results are still too incomplete to be adequately appraised. External auditing is very satisfactorily performed by the Buenos Aires firm of Drysdale, Reig and Vazquez.

23. Operating Results

23.01 Because of the several devaluations incurred by the Argentinian currency over the project period, a comparison between appraisal forecasts and actual results is not altogether meaningful, and the corresponding figures are therefore given in separate tables. In the actual funds statement, the exchange rate which is used is the one at the end of each year. Consequently, no column has been included for the total figures over the project period.

23.02 The appraisal report expected electricity production to start in time for the winter peak of mid-1973, however, experimental operations already started in December 1972, and 1973 was considered by HIDRONOR as a testing period for the Chocon system. Therefore, with the agreement of the Corporation's auditors, HIDRONOR decided to capitalize the losses resulting from this period of experimental operation. Because of the consequences of this procedure on the conditions of applicability of Sections 5.13 and 5.14 of the Loan Agreement, the Bank should clearly have been consulted before its implementation.

23.03 Due to lower than normal water availability, the 1974 sales were inferior to the appraisal estimates by about 20%, therefore lowering the Corporation's operating income. The operating results for HIDRONOR's first year of operations have been hindered by the Corporation's noncompliance with some clauses of its Concession and with some of the covenants of the Loan Agreement with the Bank. These violations

can be centered around three points, the assets valuation, the depreciation method, and the rate determination.

23.04 For purpose of rate base determination, Article 11 of the Concession requires that HIDRONOR's fixed assets in operation be valued in US dollars, the value being then reconverted into pesos at the mid-year financial exchange rate. This has the disadvantage of not reflecting economic conditions in Argentina due to unrealistic rates of exchange and of creating sharp variations in asset revaluations and rate determination.

23.05 Instead of adopting this method, the Corporation decided to make use of the provisions of law 19742, promulgated in July 1972, which allowed assets revaluation for all judicial persons, using a revaluation coefficient based upon the variations of the general wholesale index, excluding agricultural products. The Corporation's commendable purpose was to put itself under the general conditions applicable to all Argentinian commercial entities. This decision was taken without prior consultation with the Bank, in spite of Section 6.02, para (b) of the Loan Agreement which required prior approval of the Bank to any modification or failure to enforce any of the provisions of the Concession. No steps were undertaken to amend accordingly the stipulations of the Concession.

23.06 HIDRONOR's Concession soundly provided for the calculation of the rate of return over gross fixed assets with the use of a sinking-fund method for depreciation purposes. The advantage of such an approach was to avoid the gradual decline in tariffs which would have been implied by the use of a straight-line technique. Under this system, depreciation charges would have been considerably lower during the first years of operations than with the straight-line technique. However HIDRONOR decided to use the straight-line depreciation method without, at the same time, computing the rate of return over its net assets. While this situation reflects appropriately a change in the Corporation's status from a single-investment situation (for which an annuity-type return is commendable) to a multi-investment one (for which it is not), it was put into practice without prior consulting the Bank nor seeking a change in the Concession. As a consequence, the depreciation for power assets for the first year of operations, i.e. 1974, jumped from \$a9.2 million, to \$a92.2 million, thereby decreasing the operating income from \$a109.9 million to \$a26.9 million.

23.07 Section 5.13 of the Loan Agreement requires the Borrower to obtain rates for the sales of electricity such as to provide the 8% return authorized by Article 14 of the Concession. However, this provision was never enforced and has been superseded in practice -without the Bank being informed- by Decree No. 171 dated April 17, 1974, with retroactive effect for HIDRONOR as of November 1973. The purpose of this Decree was to unify the rates of all the electrical utilities involved over the country in the production and transmission of electricity and to determine them as the sum of two factors representing the cost of energy and the cost of power. The cost of energy based on the price of fuel-oil at the date of the Decree as a basis while the cost of power was a linear function of the exchange rate of the US\$ and of the salary of a worker at the time of the computation both variables being also indexed from the date of the Decree as a basis. The drawbacks of this system are to completely separate the electricity rates from the internal characteristics of the company, especially in the choice of the base values of the indexation and, conversely, to link them to variables which were not directly related to the operations of the company but were dependent on macroeconomic factors or even political decisions. While, a posteriori, and taking into account the difficulties of pricing in a period of high inflation, the indexing system seems to have produced variations rather similar to those of the consumption index, the

coefficient of the formula used for indexing were rather low and resulted in a 3.6% rate of return for the year 1974, instead of a projected 8%. Whereas the average revenue per KWh sold corresponding to a 8% rate of return should have been 14.1 centavos, the actual one was only 8.2 centavos (approximately one US mill at December 1975 rate of exchange), which is extremely low, resulting in a implicit subsidy - and a corresponding economic distortion - for the main consumers, principally SEGBA.

23.08 When informed about the seriousness of the situation, HIDRONOR's present management explained that Decree 171 had been issued without prior consultation of HIDRONOR. Replying to the Bank mission's inquiry, the Ministry of Economic Affairs raised the possibility of excluding HIDRONOR at a later date from the field of application of Decree 171. It would therefore be desirable that during any future Bank loan to the Sector that during negotiations with the Government, the Bank obtain more reasonable tariff settings for bulk sales in Argentina, to eliminate the distortions described above, which undoubtedly affect the whole Sector. Otherwise the ultimate consumer is subsidized because of unrealistically low prices, a practice that leads to wasteful consumption patterns.

24. Financing Plan

24.01 The foreign exchange component of the project has been financed through borrowing. Disbursements were lower than forecasted for the first three years of the project, both because of the cost being inferior to the estimates (para. 15.03) and because of some delays in the works.

24.02 The Bank is HIDRONOR's largest creditor; US\$12 million of its US\$82 million loan having been reallocated, through an amendment to the Loan Agreement (para. 15.02)

24.03 In addition, the Corporation was able to obtain about US\$130 million from private banks from various countries, which was about three times the minimum expected at appraisal time. 90% of these loans were on relatively soft terms (about 15 years, and 5.5% to 8%) but two of them, obtained in 1974 from the Banco Central S.A., Madrid and from Lloyds & Bolsa Int, were on more stringent conditions. The first one, of US\$2 million, was for 18 months, without grace period, and at a rate of 2% above the current interbank rate in London for deposits in dollars at 6 months, and the second one, of US\$9 million, was for 4-1/2 years, with a one year grace period, at a rate of 1.125% above the London rate. In view of Section 5.16 of the Loan Agreement which requires the Borrower to make its best efforts to obtain credit on such terms and conditions as shall be satisfactory to the Bank and the Borrower, the Bank should have been consulted on the two latter loans.

24.04 HIDRONOR granted in 1971 a loan to the "Dirección de la Energía de la provincia de Buenos Aires" (DEBA) so that the latter may complete, in the Henderson substation, the interconnection with the El Chocon-Cerros Colorados project and the distribution system of DEBA. The loan, at 6% yearly on the unpaid balance, was over an estimated period of ten years with a two year grace period and the total disbursements during the period 1972-74 amounted to \$a176.6 million. By reducing the length of the transmission lines, the purpose of the project was to cut down electricity losses (by an estimate of 20 millions of KWh a year) to improve the reliability of supply to the DEBA system.

24.05 Another loan was granted by HIDRONOR to the "Empresa del Estado Agua y Energía Eléctrica" (AE) so that the latter may complete the construction of a 65 km

transmission line from AE thermal power house Alto Valle to Planicie Banderita, and of a 50 km transmission line to El Chocon, of a transformer station at Planicie Banderita, of transmission lines from there to Loma de la Lata and Portezuelo Grande and of transformer stations at both locations. The loan, without interest, was over an estimated period of four years with one-year grace period and the total disbursements during the period 1972-1974 amounted to \$a12.2 million. The purpose of the project was to obtain a source of energy for the construction of El Chocon and Planicie Banderita, and to feed energy into the AE system after the completion of the Chocon complex. As HIDRONOR did not need this energy after completion of the project, this was an economic solution for obtaining energy during project construction without bearing the cost of the investment and, at the same time, as a way for ensuring a back-up supply of energy for the plant auxiliaries, in case of emergency after completion of the project. While the construction programs corresponding to these two loans might well have been technically justified, one of the loans was interest-free and the second was at 6% interest, while at the same time the usual rate for medium-term loans available from Government development banks was not inferior to 15%. It is not clear whether such financial subsidization of DEBA and AE by HIDRONOR was justified by the benefits to HIDRONOR mentioned above.

24.06 As internal cash generation started in 1973 only, most of the resources needed for the local component of the project had to come from Government equity contributions which were specially important in 1974 (\$a1,000 million, of which \$a840 million were actually paid), indirectly coming from the El Chocon fund created by law 17574. In 1973 and 1974, and as a consequence of delays in the payment of the funds, the Corporation had to resort to medium-term loans from local banks in order to finance the project works. Granted at interest ranging between 11% and 20% and for periods from 5 to 15 years, these loans amounted to \$a232.0 million in 1973 and \$a54.6 million in 1974. However, until such loans were obtained, it was necessary to obtain short-term loans from the Banco de la Ciudad de Buenos Aires. At the end of the year 1974 however, the Corporation's cash situation was favorable due to delays in the works of the Alicopa complex.

24.07 The sharp fluctuations in working capital during the period 1971-1974 were created by a small number of accounts. The variations in capital stock receivables were the outcome of the subscription and payments of equity contributions, and the steady increase in receivables from 1972 onwards was the consequence of the DEBA and AE loans and, for 1974, of a considerable amount of customers receivable (\$a121 million out of total sales of \$a199 million, i.e. more than 7 months) mainly due to SEGBA's indebtedness (this account was settled in April 1975). The large increase in accounts payable in 1973 was brought about by debts due to contractors and by the starting of reimbursements of short-term and medium-term loans from local banks.

25. Covenants

25.01 The Borrower has not complied with several of the covenants established during negotiations.

25.02 It did not comply with Section 5.13 of the Loan Agreement which requires to provide the return on investment authorized by the Concessions.

25.03 It did not comply with Section 5.17 of the Loan Agreement which requires the Borrower to make its best efforts to obtain credit on such terms and conditions as shall be satisfactory to the Bank and the Borrower.

25.04 It did not comply with paragraph (b), Section 6.02 of the Loan Agreement which requires the Borrower to comply with all the provisions of the Concession (and, in this case, the provisions concerning the depreciation and the return on investment).

25.05 The question is debatable whether the Borrower complied with Section 5.04 paragraph (a) of the Loan Agreement which requires the borrower to maintain its financial position in accordance with sound financial practices (cf. loans to DEBA and "Agua y Energía") and with Section 5.06 (d) which requires the Borrower to furnish to the Bank all such information as the Bank shall reasonably request concerning the administration, operations and financial condition of the Borrower (cf. major changes in management, loans to DEBA and "Agua y Energía"). The reason why this is debatable is that the Bank's requests occurred very infrequently due to insufficient supervision missions.

25.06 The Guarantor did not comply with Section 3.06 para (b), of the Guarantee Agreement which requires rates to be granted to the Borrower to provide the return authorized by the Concession.

26. Forecast Financial Performance

26.01 In the short run, HIDRONOR's financial prospects appear rather bleak. Despite a strong Government interference, mainly through the application of Decree 171 and pressures on its upper management, the Corporation is struggling towards a minimum of managerial and financial independence. Any improvement will have to come through a strict application of the Concession, perhaps preliminarily amended in order to take into account the existing strong inflationary pressures and the more complex nature of the investments.

26.02 If the general conditions regarding tariffs remain unchanged, HIDRONOR will have to depend for its survival on subsidies or government equity contributions. The Corporation plans to implement from 1975 onwards a considerable investment program in order to build the Alicopa complex, but a definition of the Government energy policy, and of its financing, is anxiously awaited and will unfortunately depend on the drastic measures which will have to be taken in order to reform the Argentinian economy - see Back-to-Office Report made by Messrs. Linder and Salazar dated September 30, 1975.

26.03 The Back-to-Office Report mentioned above also points out deficiencies found in the Sector as a whole as follows:

- a) The great number of different entities engaged in generation, transmission and distribution of electric energy, with different degrees of competence;
- b) Lack of effective coordination of Sector planning; and
- c) Insufficient coordination between the electric power and other energy Sectors.

It would from the above seem that the Bank, when granting this loan to HIDRONOR, should have been more insistent with the Argentinian Government to initiate steps to rationalize the institutional structure of the Sector.

27. Lessons to be Learnt

27.01 From a technical point of view it can be seen that even the most reputable manufacturers and consultants can make mistakes which could turn out to have disastrous effects, and therefore it appears that when the projects financed by the Banks' loans contain components which, due to their dimensions or technological complexities, approach the threshold of the know-how available, consultants should be instructed to be more than normally thorough in their revisions of designs.

27.02 From the financial point of view, HIDRONOR's relationship with the Bank has not been as close as expected during the construction and operating periods of the project, and the Bank was not informed about major operating and organizational developments, some of these being in violation of the spirit and letter of the covenants of the Loan Agreement.

27.03 Being a young Corporation, HIDRONOR was staffed with personnel who did not have any previous experience of relations with the Bank, but would have been quite receptive to a closer cooperation. The Bank should have lent more attention to the organizational aspects of institution building, and required periodic and detailed reports on operations and on the implementation of a sound management structure. The present management has declared its intention to maintain a constant and complete flow of information to the Bank.

ML
MLinder/ALeoni/mo.

cc: Messrs. Knox (LCPDR); Wyss (LCPDR); Perez (LCNVP) Leibert (LC2DE)(2); Wessels (LCPPT); Montfort (LCPPT); Kanchuger (LC2DE); Linder (LCPPT); Leoni (LCPPT); Graves (LCPPT); Van der Tak (VPSVP)(8); Rovani (PBPDR)(5); Willoughby (OED)(3); Rodriguez (PAB); Israel (VPSVP); Elliott (CTR); Lee (VPSVP); Mole (CTR); Cabezas (LEG); Ms. Steiner (LCPPT); LAC Files Project Folder; Black Books

HIDRONORVariations of Rate ParametersJanuary 1974 - July 1975

	<u>US\$</u> <u>(pesos)</u>	<u>Salary K</u> <u>(pesos)</u>	<u>Fuel Oil</u> <u>(pesos/Tm)</u>	<u>Energy</u> <u>(Mwh)</u>	<u>Power</u> <u>(Kw/monthly)</u>
January 1974	9.98	2,001	220	42.7	21.7
April 1974	9.98	2,350	245	47.5	23.2
November 1974	9.98	2,829	245	47.5	25.3
January 1975	9.98	3,287	245	47.5	25.3
February 1975	9.98	3,287	335	64.9	25.3
March 1975	15.10	3,542	335	64.9	35.0
June 1975	30.00	5,313	500	97.0	62.0
July 1975	35.50	5,313	500	97.0	69.0



HIDRONOR

FECHAS DE DEVALUACION DEL PESO ARGENTINO CON
RESPECTO AL DOLAR ESTADOUNIDENSE - MERCADO
FINANCIERO

<u>Fecha</u>	<u>Cotización del Dólar Estadounidense</u>
13/ 3/67	\$ 3,50
18/ 6/70	4,00
6/ 4/71	4,04
3/ 5/71	4,12
7/ 6/71	4,20
25/ 6/71	4,40
30/ 7/71	4,70
25/ 8/71	5,00
20/ 9/71	7,45
Octubre/71 (Promedio)	7,27
Noviembre/71 (Promedio)	7,84
Diciembre/71 (Promedio)	8,45
Enero 1972 (Promedio)	9,32
Febrero/72 (Promedio)	9,66
Marzo/72 (Promedio)	9,74
Mayo/72 (Promedio)	9,88
Junio/72 (Promedio)	9,93
Julio/72 (Promedio)	9,95
22/ 8/72	9,98
4/ 3/75	15,10
9/ 6/75	30,00
16/ 7/75	35,50
11/8/75	42,50

ARGENTINA

LOAN 577-AR

Principal Points of Loan Agreement

- Section 5.05 - Borrower must coordinate its operation and expansion with SEGBA and other electric utilities in the Greater Buenos Aires area to prevent waste of energy, duplication of facilities and unnecessary investment and obtain agreements with SEGBA and other electric utilities regarding the most economic operation of generating plants.
- Section 5.13 - revenues must be sufficient to provide the rate of return authorized by Hidronor's concession.
- Section 5.14(b)- test provides that debt service coverage for preceding year may not be less than 1.5 times the maximum future annual debt service.
- Section 5.16 - prevents Borrower from prepaying long-term debt without prior Bank approval.
- Section 6.01 - changing Borrower's statute or concession without Bank approval are conditions for terminating the loan.
- Section 7.01(b)- as a condition of effectiveness for the loan, Hidronor's concession must become effective.
- Section 7.01(c)- as a condition of effectiveness, satisfactory arrangements must be made for the sale of power to SEGBA.
- Section 7.01(d)- as a condition of effectiveness, satisfactory arrangements must be made with the Guarantor that the proceeds from the surcharges on crude oil and electricity will be made available to Hidronor.

Principal Points of Guarantee Agreement

- Section 2.02(a)- requires Guarantor to provide Hidronor with the proceeds from the surcharges on crude oil and electricity.
- Section 2.02(b)- requires Guarantor to provide Hidronor, or cause Hidronor to be provided with, sufficient funds to complete the Project.
- Section 3.06 - guarantees that Borrower will be granted tariffs sufficient to achieve the rate of return authorized by the concession.

Section 3.07 - Guarantor must coordinate expansion of facilities of all electric utilities which supply power to the Greater Buenos Aires area.

ARGENTINAHIDROELECTRICA NORPATAGONICA S. A.EL CHOCON PROJECT - LOAN 577-ARIncome Statements - Appraisal Estimates

(M\$N million) (US\$1 = M\$N350)

<u>Year ending December 31:</u>	<u>1973</u> ^{/1}	<u>1974</u>
Units generated (million Kwh)	1,535	3,200
Units sold (million Kwh)	1,473	3,072
Average revenue per Kwh sold (in pesos)	<u>3.60</u>	<u>3.46</u>
<u>Operating Revenue</u>	<u>5,309</u>	<u>10,631</u>
<u>Operating Expenses</u>		
Generation	263	525
Transmission	210	420
Administration	140	280
Depreciation	43	99
Amortization of non-power fixed assets	<u>137</u>	<u>274</u>
Total operating costs	<u>793</u>	<u>1,598</u>
<u>Operating Income</u>	<u>4,516</u>	<u>9,033</u>
<u>Interest Charges</u>		
Proposed IBRD loan	856	1,860
Proposed foreign loans (El Chocon Project)	522	1,217
Proposed medium-term loans	60	137
Proposed future foreign loan A (Stage II)	162	609
Proposed future foreign loan B (Stage II)	<u>---</u>	<u>51</u>
Total interest charges	<u>1,600</u>	<u>3,874</u>
Less: Interest charged to construction	<u>3,896</u>	<u>1,864</u>
Net interest charges	<u>(2,296)</u>	<u>2,010</u>
<u>Net Income</u>	<u>6,812</u>	<u>7,023</u>
Rate of return (operating income to gross fixed assets in operation plus 4% for working capital)	8%	8%
Times total interest charges covered by operating income	2.8	2.3

^{/1} Operations only during last six months of 1973.

HIDROELECTRICA NORPATAGONICA S. A.EL CHOCON PROJECT - LOAN 577-ARINCOME STATEMENTS - ACTUAL RESULTS

(\$a million)(US\$1 = \$a 9.98)

<u>Year ending December 31:</u>	<u>1973</u>	<u>1974</u>
Units sold (million Kwh)	-	2,420.0
Average revenue per Kwh sold (in centavos)	-	8.2
<u>Operating Revenue</u>	-	199.1
<u>Operating Expenses</u>		
Generation	-	23.2
Transmission	-	21.7
Administration	-	28.9
Depreciation	-	9.2
Amortization of Non-Power Fixed Assets	-	6.2
<u>Total Operating Costs</u>	-	89.2
<u>Operating Income</u>	-	109.9
<u>Interest Charges</u>		
Long-Term Loans	-	185.3
Less: Interest Charged to Construction	-	17.0
Net Interest Charges	-	168.3
Other Income	-	16.7
Provincial Taxes	-	10.0
Exchange Losses	-	6.5
<u>Net Income</u>	-	(58.2)
Rate of Return		3.6
Times Total Interest Charges		0.6
Covered by Operating Income		

October 8, 1975

EL CHOCON PROJECT

Source and Application of Funds Statements - Appraisal Estimate
(M\$N million: (US\$1 = M\$N350))

Year ending December 31:	1969	1970	1971	1971	1973	1974	1969-74
SOURCES OF FUNDS							
Internal Cash Generation							
Operating income					4,516	9,033	13,549
Depreciation					43	99	142
Amortization of non-power fixed assets					137	274	411
Total Internal Cash Generation					4,696	9,406	14,102
Borrowings							
Proposed IBRD loan	9,251	6,178	6,386	4,123	2,412	350	28,700
Proposed foreign loans (El Chocon Project)	595	1,750	7,700	3,920	4,200	930	19,145
Proposed medium-term loans	19	96	403	780	1,044		2,342
Proposed future foreign loan A (Stage II)				2,835	4,270	4,515	11,620
Proposed future foreign loan B (Stage II)						1,575	1,575
Total Borrowings	9,865	8,024	14,489	11,658	11,926	7,420	61,382
Equity Investments							
Ordinary shares - Class A	10,190	8,150	8,990	13,298	17,710	18,370	76,708
Ordinary shares - Class "C"		6,585	6,585	3,292			16,162
Total Equity Investments	10,190	14,735	15,575	16,590	17,710	18,370	92,170
TOTAL SOURCE OF FUNDS	20,055	22,759	30,064	28,248	34,332	35,106	170,654
APPLICATION OF FUNDS							
Construction Costs (excluding interest during construction)							
Stage I							
El Chocon Project	18,585	20,755	27,195	13,790	8,575	2,730	91,630
Portezuelo Grande	140	2,835	6,300	1,610			10,885
Total Stage I	18,725	23,590	33,495	15,400	8,575	2,730	102,515
Stage II							
El Chocon Project (completed)				350	1,610	4,270	6,230
Planicie Banderita				2,355	7,700	8,960	22,015
Total Stage II				2,705	9,310	13,230	28,245
Total Construction Costs	18,725	23,590	33,495	21,105	17,885	15,960	130,760
Debt Service							
Amortization							
Proposed IBRD loan						764	764
Proposed foreign loans (El Chocon Project)		4	23	104	260	468	859
Proposed medium-term loans							
Proposed future foreign loan A (Stage II)							
Total Amortization		4	23	104	260	1,232	1,623
Interest							
Proposed IBRD loan	466	893	1,241	1,533	1,712	1,860	7,705
Proposed foreign loans (El Chocon Project)	19	96	403	780	1,044	1,217	3,559
Proposed medium-term loans	1	5	22	61	120	137	346
Proposed future foreign loan A (Stage II)				92	323	609	1,024
Proposed future foreign loan B (Stage II)						51	51
Total Interest	486	994	1,666	2,466	3,199	3,874	12,635
Total Debt Service	486	998	1,689	2,570	3,459	5,106	14,258
Dividends Paid							
						6,661	6,661
Redemption of Ordinary Shares - Class "C"							
					137	274	411
Executive Committee's Share of Profits							
						24	24
Increase or (Decrease) in Working Capital							
Cash	844	(1,829)	(5,120)	4,573	12,421	6,760	17,649
Accounts Receivable					430	431	861
Materials and Supplies	40	40	40	40	40	20	220
Prepaid Expenses	10	10	10	10	10	10	60
Accounts Payable	(50)	(50)	(50)	(50)	(50)	(50)	(300)
Total Increase or (Decrease) in working capital	844	(1,829)	(5,120)	4,573	12,851	7,171	18,490
TOTAL APPLICATION OF FUNDS	20,055	22,759	30,064	28,248	34,332	35,106	170,654
Cash Balances							
Beginning of Year	4,966	5,810	3,981	(1,139)	3,434	15,855	
Increase or (Decrease) during Year	844	(1,829)	(5,120)	4,573	12,421	6,760	
End of Year	5,810	3,981	(1,139)	3,434	15,855	22,615	
Times Annual Debt Service Covered by Internal Cash Generation							
	1.4	1.8					