Public Disclosure Authorized

Public Disclosure Authorized

Document of

The World Bank

FOR OFFICIAL USE ONLY

Report No. 14718

IMPLEMENTATION COMPLETION REPORT

JAMAICA

CLARENDON ALUMINA PRODUCTION PROJECT
(LOAN 3062-JM)

JUNE 26, 1995

Public Sector Modernization and
Private Sector Development Division
Country Department III
Latin America and the Caribbean Region

This document has a restricted distribution and may be used by recipients only in the performance of their official duties. Its contents may not otherwise be disclosed without World Bank authorization.

CURRENCY EQUIVALENTS

Currency Unit = Jamaican Dollar (J$)

US$1.00 = J$33.0 May 1995

GLOSSARY

CAP	Clarendon Alumina Production Ltd.
EEC	European Economic Community
ERR	Economic Rate of Return
ICR	Implementation Completion Report
FRR	Financial Rate of Return
LME	London Metal Exchange

FISCAL YEAR

April 1 - March 31

IMPLEMENTATION COMPLETION REPORT

JAMAICA

CLARENDON ALUMINA PRODUCTION PROJECT
(Loan 3062-JM)

TABLE OF CONTENTS

This document has a restricted distribution and may be used by recipients only in the performance of their official duties. Its contents may not otherwise be disclosed without World Bank authorization.

IMPLEMENTATION COMPLETION REPORT

JAMAICA

CLARENDON ALUMINA PRODUCTION PROJECT
(LOAN 3062-JM)

PREFACE

This is the Implementation Completion Report (ICR) for the Clarendon Alumina Production (CAP) Project, for which Loan 3062-JM in the amount of US$ 15 million was approved on May 6, 1989 and made effective on May 31, 1990.

The Loan was closed on December 31, 1994, to be compared with the original closing date of December 31, 1993. Final disbursement took place on May 9, 1995. US$9.2 million was disbursed and a balance of US$ 5.8 was canceled. The project was to be cofinanced by the European Economic Community (EEC); however, the EEC money was not used because of eligibility difficulties.

The ICR was prepared by John Strongman, Task Manager, Industry and Mining Division, Industry and Energy Department and reviewed by Peter van der Veen, Krishna Challa and Constance Bernard. The borrower provided comments that were used in finalizing the report. The Borrower also provided its own contribution to the report which is annexed to the report. In addition, the Borrower's views on Project Implementation and Operation, the beneficiary's views on Project Implementation and Operation and a Summary Operating Plan for 1995-99 prepared by the beneficiary are included in the Project Completion Mission Aide Memoire which is also annexed to the report.

Preparation of this ICR was begun during the Bank's completion mission, which visited Jamaica in January 1995. It is based on material in the project file and discussions with representatives of the Borrowers staff and the beneficiary.

JAMAICA

CLARENDON ALUMINA PRODUCTION PROJECT
(LOAN 3062-JM)

EVALUATION SUMMARY

Introduction.

In March 1985, the Government of Jamaica requested the Bank's advice when two of the four alumina plants in the country closed due to the recession in the world aluminum industry. The Government had a small 6% holding in the Clarendon Alumina plant and, according to agreements with the majority shareholder ALCOA, could keep the plant operating on its own account. The Government was considering re-opening the Clarendon plant. At the request of the Government, a Bank mission reviewed the Clarendon operations and found them competitive. The Government requested assistance to finance re-opening on a sustainable basis and the project was initially appraised in July 1987. However, as world aluminum market conditions improved, ALCOA approached the Government to re-negotiate the agreement and the proposed Bank project was put on hold. A new 50/50 joint venture was established between the Government and ALCOA. The Government then requested the Bank to help fund its share of the plant's five year investment program. The Bank agreed and the project was re-appraised in March 1988 and a loan of US$15 million was approved in May 1989.

Project Objectives.

The objectives of the project were: (i) to sustain production and increase efficiency at the Clarendon plant; (ii) to improve environmental conditions related to its operations; (iii) to help establish the holding company (CAP) as an effective joint venture partner; and (iv) to support sound sectoral policy. The objectives, unmodified during the project, were clear, important for both the country and the sector, and realistic. With hindsight, it appears that the project lacked explicit financial objectives. CAP has experienced financial difficulties in the early 1990's and, while it is not evident that financial objectives would have caused a different outcome, they would have provided a better context in which to examine and to improve CAP's performance.

Implementation Experience and Results.

The outcome of the project is considered satisfactory.

Achievement of Objectives. The project has substantially achieved its objectives. (i) Production has been sustained, production costs have been reduced and efficiency increased. Physical progress has been satisfactory although the timetable has been stretched out due to difficult world alumina market conditions The project

implementation period was five and one half years rather than four years as originally planned which has slowed the build up of alumina production towards a targeted 900,000 tpy capacity (of which CAP's share is 50%). All project components are substantially completed with the exception of a red mud lake for waste disposal which has been postponed since it is not yet needed and cheaper waste disposal methods are presently being studied. Since this was one of the largest components to be financed by the Bank, and little other expenditures were eligible for Bank financing, US$5.8 million of the Bank loan was cancelled. (ii) Emissions and pollution have been reduced, and the plant is in compliance with Jamaica's standards for SO_2 emission, suspended particulates and ground water quality. The project included the resettlement of about 200 families which was undertaken in a satisfactory manner. (iii) CAP has established itself as an effective joint venture partner. (iv) The Government maintains a sound sectoral policy in terms of encouraging private sector operation and ownership in the mining sector, with sound regulatory and fiscal arrangements.

Project Financial Performance and Sustainability. The project costs, which consist of the capital expenditure program for the plant, totalled US$98 million for the five and one half years period compared with a plan of US$90 million for the four year period. Thus, capital expenditures averaged US$17.8 million per year compared with a plan of US$22.5 million per year. A shortfall in financing occured due to the project being ineligible for funds expected from the European Economic Community. Additional financing was mobilized by CAP from its main customer and from its shareholder through additional equity funds. CAP was very profitable in the 1980's but experienced losses during FY91-94, due to much lower product prices than expected. At the time of appraisal, the Rate of Return for the Government was estimated at 54%. It has been re-estimated as 26%, which is lower than initially expected but is still very good, confirming that the re-opening decision was well warranted. The outlook for sustainability is very positive. The Government has established sound sectoral policies and satisfactory institutional arrangements that are working to the benefit of the major stakeholders in the sector. The project has maintained its position as one of the lowest-cost alumina operations in the world and is operated in a fully satisfactory manner by CAP's partner ALCOA. Projections indicate that CAP's financial situation should steadily improve.

Key Factors Affecting the Project. Project performance was satisfactory in terms of factors subject to Government control and in terms of factors subject to implementing agency control. Project performance was substantially affected by the world aluminum price which has been much lower than estimated at the time of appraisal. It reached record lows during the 1992-94 period (but has recovered to much higher levels since) and put CAP in financial difficulties in 1992-93. CAP's situation was improved by an increase in Government equity and by amendments to the sales contract. In addition, the plant operator has successfully placed emphasis on holding down and reducing cash operating costs.

Bank Performance. The Bank's performance in project preparation and design was highly satisfactory. The Bank worked closely with the Government in the

initial project, and was supportive and flexible in the subsequent re-design. The Bank's performance in appraisal was highly satisfactory. The project has proved to be well-designed, and the major stakeholders have remained strongly committed. The performance indicators were well selected although not all were well quantified. The Bank also assisted in ensuring sound policy for the sector. The Bank's supervision performance has been satisfactory. Extensive discussions between CAP and Bank missions were held at the time of the depressed alumina prices on how to improve CAP's performance. The Bank was flexible in terms of extending the loan closing date to complete the financing of major project components. There were no significant deviations from Bank procurement and disbursement policy.

Borrower Performance. The borrower's performance in project preparation was highly satisfactory. The only area of questionable design was the alumina sales arrangements, although it is a matter of speculation as to whether a better contract could have been obtained. The Borrower's performance has been satisfactory in terms of sectoral and financial policies, institutional development, physical and social objectives, and overall implementation and operation. Compliance with loan covenants has been highly satisfactory. CAP has been soundly managed, with administrative expenses well controlled and a positive working relationship with its joint venture partner ALCOA. While CAP has remained viable even during the very low price period, it is possible that transfers to Government could have been improved by selling part of CAP's shareholding to ALCOA or another investor: the new shareholder would have been released from the obligations under CAP's sales contract and would have been able to sell alumina at a better price. However, the management were reluctant to pursue this option because they felt that it would be disadvantageous to sell part of the Government's share in a depressed market.

Findings and Key Lessons Learned. (i) While private sector-driven mineral development is generally most efficient, a situation can arise in which the interests of investors conflict with the best interests of the economy. Specifically, while the ALCOA decision to close Clarendon was logical from a corporate standpoint, it would have been sub-optimal and costly for the economy. In the same context, the time frames in which governments and private investors have to react are different (long vs. medium-short term), and the World Bank may prove to be a useful link between the two. (ii) A joint-venture between Government and a private investor can be an effective vehicle for industry or mining operation, in the case where the Government acts as a responsible, commercial shareholder. (iii) Financial objectives are very important for industrial projects. Even though initial objectives may prove to be unsustainable, financial parameters would have been relevant tools to examine the project's performance and examine measures to improve it. (iv) This project again demonstrates the importance of being a low-cost producer in view of the price risks involved for projects producing mineral commodities.

No future operation is required or anticipated.

PART 1: PROJECT IMPLEMENTATION ASSESSMENT

A. *Background and Objectives*

Request for Assistance. In March 1985, the Government of Jamaica requested the Bank's advice when two (namely the Clarendon and Alpart plants) of the four alumina plants in Jamaica closed due to a severe recession in the world aluminum/alumina industry. At the request of the Government, the Bank sent a mission to examine the market position, competitiveness and prospects.for the Clarendon Plant in which the Government had a small holding, (6%), with the balance of 94% being owned by the ALCOA company. According to the shareholders agreement the Government could keep the plant operating on its own account if it so desired. The Government was seriously considering re-opening the Clarendon plant, which was a relatively low-cost plant with the potential to operate viably. (The other plant, Alpart, was a higher cost plant which did not warrant re-opening under the prevailing aluminum market conditions at that time).

Bank Response. The findings of the Bank mission endorsed the Government's view that the Clarendon Plant was worth re-opening and, with the backing of the Bank, the Government negotiated an agreement with ALCOA the majority shareholder to keep the plant operating. The Government requested assistance from the Bank to finance investments required to keep the plant operating on a sustainable basis and, following project identification and preparation work, the project was initially appraised in July 1987. Subsequently, as world market conditions improved, ALCOA approached the Government to re-negotiate the agreement and the proposed Bank project was put on hold. The outcome of the discussions was to establish a new 50/50 unincorporated joint venture between the Government and ALCOA. The Government then requested the Bank to consider helping to fund the government's share of the plant's five year capital expenditure program. The Bank agreed to do this and the project was subsequently re-appraised in March 1988.

Statement of Objectives. The objectives of the project were to: (i) sustain production and increase efficiency and productivity at the Clarendon plant; (ii) to improve environmental conditions related to the plant operations; (iii) to help establish the holding company (Clarendon Alumina Production - CAP) as an effective Joint Venture partner; and (iv) to support sound sectoral policy.

Evaluation of Objectives The objectives were clear, important for both the country and the sector, and realistic. They were not modified during the project. The design of the project required negotiation of complex legal agreements with ALCOA regarding plant ownership and operating arrangements as well as new alumina sales agreements with third parties. These tasks were within the capabilities of the implementing agencies. The project involved certain financial risks for the Government

but these were considered acceptable since the Clarendon plant was a very low cost producer by world standards.

Lack of Financial Objectives. In considering the above, it must be noted that the objectives did not specifically include financial viability or performance. With hindsight, this appears an omission, since CAP experienced significant financial difficulties. Financial objectives and performance data were approached indirectly because the project was subject to a secrecy agreement whereby certain information, in particular cost information, was held confidential to protect the competitive position of the plant and its owners. While it is not immediately evident that financial objectives would have caused a different outcome, they would have provided a more explicit context in which to examine CAP's performance and devise measures to improve it.

B. *Achievement of Objectives*

The project has substantially achieved the four objectives outlined above.

(i) Production has been sustained, unit production costs have been reduced and efficiency increased. From FY92-94, cash operating costs per ton of aluminum were 10% below budgeted projection and well within the lowest quartile of the world cost curve. From FY90-94, CAP's share of production averaged 360,000 tpy about 10% below the target of 410,000 tpy. Physical progress has been largely satisfactory although the timetable has been stretched out in view of the difficult world alumina market conditions. All project components are substantially completed with the exception of a red mud lake for waste disposal which has been postponed since existing waste disposal capacity is not yet fully utilized and potentially cheaper alternative waste disposal methods are presently being examined. Since this was one of the largest components to be financed by the Bank, the delay in constructing the facility has significantly reduced the requirement for Bank financing. Since there were no other large components eligible for Bank financing, a significant portion US$5.8 million out of US$15 million (about 39%) of the Bank loan was canceled.[1]

(ii) Emissions and pollution at the plant have been reduced through various measures including the introduction of electrostatic precipitators and environmental control equipment financed with the Bank loan proceeds so that in 1994 the project was in compliance with Jamaica's SO_2 emission, suspended particulates (with one exception which is not serious and is being remedied) and ground water quality standards. The project included the resettlement of about 200 families which was undertaken in a highly responsible and satisfactory manner. The resettled community now has much better living conditions than before resettlement took place although some problems are arising due to a lack of employment and income-generating opportunities to improve the situation of unemployed people in the community.

---

[1] It should be noted that the final loan cancellation amount was higher than estimated in the Project Completion Aide Memoire.

(iii) CAP has established itself as an effective joint venture partner and has a sound, professional relationship with the plant operator and its joint venture partner.

(iv) The Government maintains a sound sectoral policy in terms of encouraging private sector operation and ownership in the mining sector, with sound regulatory and fiscal arrangements.

Financial Performance. CAP was very profitable in the 1980's. From FY1986-90 CAP made an after-tax profit of US$41 million after paying bauxite levies and royalties of US$62 million and income taxes of US$14 million. According to financial projections in the Staff Appraisal Report, CAP was expected to make a before-tax profit of US$48 million for the five years FY1991-94. However, CAP's actual performance was a loss of US$33 million. The primary reason for the difference between expected profits and actual losses for the period FY1991-94 is much lower product prices than expected. The SAR projected an average price for the four year period of US$177 per ton of alumina, whereas CAP's actual price was US$124 per ton.

Financial and Economic Rates of Return. At the time of appraisal, the Economic Rate of Return and the Financial Rate of Return for the Government were each estimated at 54%. They have been re-estimated as [27%] (Table 9, Annex A). While the project has a much lower rate of return than expected at the time of appraisal, it still has achieved a very healthy rate of return, confirming that the Government's decision to re-open the plant was well warranted.

The lower rates of return are primarily due to lower than expected product prices. At the time that the Government decided to re-open the plant, a ten year sales contract was signed by the Government with Marc Rich Ltd. a metals trading company. According to the contract, the sales price for CAP's alumina was set a fixed percentage of the London Metal Exchange (LME) Aluminum price. As noted in the next section the LME Aluminum price was well below the projection. In addition, the percentage agreed was about 25% below typical contract terms - reflecting the fact that the contract was signed at a time of very soft world alumina and aluminum markets and that it also contained significant pre-financing concessions from the purchaser to the seller.

C. *Major Factors Affecting the Project*

Factors Not Subject to Government Control. Project performance was substantially affected by one factor not generally subject to Government control, namely: World Aluminum price which has been much lower than estimated at the time of appraisal as shown below.

London Metal Exchange Aluminum Price
(US$ ton)

	1990/91 a/	1991/2	1992/3	1993/4	1994/5
Appraisal	1,840	1,810	1,900	1,900	2,100
Actual	1,637	1,236	1,241	1,153	1,648

a/ Fiscal year April 1 - March 31

The LME aluminum price, (which as noted above is the basis for setting the price of the alumina sold by CAP), reached record lows in real terms for a three year period from 1992-1994 but has recovered to much higher levels since. The LME aluminum price has averaged US$1,927 per ton for the first three months of 1995 .

Factors subject to Government control. Project performance was generally satisfactory in terms of factors subject to Government control such as macroeconomic and sector policies, Government commitment, appointment of key staff, provision of counterpart funds and administrative procedures.

Factors subject to Implementing Agency control. Project performance was also generally satisfactory in terms of factors subject to implementing agency control such as management effectiveness, staffing, cost changes, etc. World Bank supervision missions held extensive discussion with CAP management regarding strategic options to CAP's position when CAP faced major financial difficulties in 1992/93. CAP's financial situation was improved (a) by an increase in Government equity in CAP by US$12.1 million and a corresponding reduction in CAP's unpaid bauxite levy; and (b) by amendments to the sales contract including advance payments to improve the cash flow to CAP during periods of extremely low LME aluminum prices.

Cost changes. Capital expenditures during the project implementation period were significantly reduced by the postponement of construction of a red mud disposal lake. In the face of low product prices, the plant operator has successfully placed emphasis on holding down and reducing cash operating costs.

Implementation Delays. In addition to postponing the red mud lake, some other modest implementation delays have also occurred as a result of delaying capital expenditures including a two year slippage in completing the electrostatic precipitator which was the largest component being financed by the Bank.. The implementation delays have slowed the build up of alumina production to a targeted 900,000 tpy capacity for the plant. CAP's share of production is 50%.

D. *Project Sustainability*

Sustainability. The outlook for sustainability is very positive at both the sectoral and project levels. The Government has established sound sectoral policies and satisfactory institutional arrangements that are working to the benefit of the major stakeholders in the sector - i.e., the Government, foreign investors, the workforce employed by the industry and the local communities. The project has maintained its position as one of the lowest-cost alumina operations in the world and is operated in a fully professional and commercial manner with a high degree of competence by CAP's joint venture partner ALCOA, which is one of the leading world aluminum and alumina producers.

Financial and Economic Outlook. Financial and Economic projections indicate that CAP's financial situation should steadily improve on account of (a) improved world aluminum and alumina prices and (b) modifications to the alumina sales agreement agreed in 1994. CAP should achieve a significant profit in FY96 (year ending March 31, 1996) and financial projections presented in the operating plan indicate that CAP should be increasingly profitable each year. Based on conservative assumptions, CAP estimates that retained earnings will increase from US$6 million at present to US$78 million by 1999.

Environmental and Social Impacts. Environmental performance is satisfactory and should be maintained since the plant has state of the art technology and fully competent operational management. The plant's workforce has good living standards and ALCOA and CAP are examining ways to improve the economic opportunities for the poorest groups in the resettled community that lack regular employment and income earning opportunities.

E. *Bank Performance*

Preparation. The Bank's performance in project preparation and design was highly satisfactory. The Bank worked closely with the Government in the initial assessment of the viability of re-opening the plant and provided strong support to the government in its dealings with ALCOA. The Bank was also flexible in terms of delaying, modifying and re-appraising the project after ALCOA announced its interest in developing the 50/50 joint-venture with the Government.

Appraisal. The Bank's performance in appraisal was highly satisfactory. The project has proved to be well-designed, it was not overly complex and there are strong incentives to sustain project performance. The Government and the implementing agency have remained strongly committed to the project. The risk section noted that adverse aluminum price development was one of the principal risks facing the project but that the project should be able to survive even in the most adverse market circumstances. In fact, the project did face extremely adverse market circumstances and was able to weather the storm. The size of the loan and selection of the lending instrument was

appropriate for the project. The project was designed with support from the European Economic Community (EEC) who were to be co-financiers of the project. Subsequently the EEC money was not provided due to eligibility difficulties. Additional financing was provided by CAP's main customer and from the Government in the form of additional equity funds. The implementation plan has been satisfactory. The performance indicators were well selected but not all were well quantified. The Bank assisted in ensuring sound policy for the sector and satisfactory project arrangements for the Clarendon plant. The outcome was a project that has proved to be well designed and completed in terms of its technical characteristics and its operational, managerial and legal arrangements.

Supervision. The Bank's supervision performance has been satisfactory. The project has been supervised on a regular basis. Extensive discussions were held around the time of the very low alumina prices and the Bank staff supervising the project took the initiative in examining with CAP management the various strategic options for improving CAP's financial performance and the transfers to Government. The Bank was responsive to the Government's request to extend the loan closing date by one year so that the Bank could complete the financing of the electrostatic precipitator and the Bank staff also helped ensure that all eligible packages were financed by the Bank prior to loan closing. There were no significant deviations from Bank procurement and disbursement policy.

F. *Borrower Performance*

Preparation. The borrower's performance is considered highly satisfactory in terms of project preparation. The project was well prepared and soundly designed by the borrower in terms of its technical, financial, economic, institutional, environmental and sociological factors. The only area of questionable design were the alumina sales arrangements. The sales contract was negotiated in a confidential manner by the then Minister of Mines and, with hindsight, greater attempts to obtain better sales terms would have been warranted. However, it is a matter of speculation as to whether a better contract could have been obtained.

Project Implementation. The borrower's performance has been satisfactory in terms of sector policies, financial policies, institutional development, physical objectives, social objectives and overall implementation and operation. Sector policies have been sound supporting private sector operations. Financial policies have been sound, with initiatives to strengthen CAP's balance sheet in the face of financial difficulties. Institutional development has been satisfactory. CAP has been soundly managed and with administrative expenses well controlled and a positive working relationship with its joint venture partner. Physical progress has been satisfactory given budget constraints and social and environmental impacts have been managed responsibly.

Compliance with loan covenants. Compliance with loan covenants has been highly satisfactory. Audits were undertaken with internationally qualified auditors, although some delays occurred in receiving audits in a timely fashion. Faced by financial

difficulties, CAP management worked closely with Bank supervision missions to examine different approaches to improving CAP's financial performance.

Financial Performance. As noted previously, CAP's management improved CAP's financial situation by delaying bauxite levy payments, arranging with the shareholder (the Government) to convert the unpaid levy into equity , and negotiating certain concessions and sales advances . While CAP has remained viable, it is possible that the overall transfers to Government could have been improved by selling part of CAP's shareholding to ALCOA or another investor acceptable to ALCOA.. In the event of such a sale, the new shareholder would have been released from the obligations under CAP's sales contract and would have been able to sell alumina at a higher price than CAP. However, CAP management were reluctant to investigate this option more fully because they felt that it would be disadvantageous trying to sell part of the Government's share of the joint-venture in a depressed market. Nevertheless, as part of their decision-making process CAP's management could have usefully obtained the services of independent advisers to more carefully investigate the possible benefits.

G. *Assessment of Outcome*

The outcome of the project is considered satisfactory. The project achieved most of its objectives, and the ex-post economic and financial rates of return are very attractive even if they re much lower than anticipated.

H. *Future Operations*

No future operation is required or anticipated.

I. *Key Lessons Learned*

The most significant lessons learned are as follows:

(i) While private sector-driven mineral development is generally most efficient, a situation can arise in which the strategic interests of investors conflict with the best interests of the economy. Specifically, while the ALCOA decision to close Clarendon was logical from a corporate standpoint, it would have been sub-optimal and costly for the economy if the Government had not re-opened the plant. In the same context, the time frames in which governments (long term) and private investors (medium-short term) have to react are different, and the World Bank may prove to be a useful link between the two.

(ii) A joint-venture between Government and a strategic private investor can be a highly effective vehicle for industry or mining operation, at least in the case where the Government acts as a responsible, commercial shareholder.

(iii) Financial objectives are very important for industrial projects. Even though initial projections and objectives may prove to be unsustainable, financial parameters would have been relevant tools to examine the project's performance and examine measures to improve it.

(iv) This project again demonstrates the importance of being a low-cost producer in view of the price risks involved for projects producing mineral commodities.

JAMAICA
CLARENDON ALUMINA PROJECT
LOAN 3062-JM

Table 1: Summary of Assessments

A.	**Achievement of Objectives**	**Substantial**	**Partial**	**Negligible**	**Not Applicable**
	Macroeconomic policies				✓
	Sector policies	✓			
	Financial objectives		✓		
	Institutional development	✓			
	Physical objectives		✓		
	Poverty reduction				✓
	Gender concerns				✓
	Other social objectives	✓			
	Environmental objectives	✓			
	Public sector management	✓			
	Private sector development	✓			
	Other (specify)				

B.	**Project sustainability**	**Likely**	**Unlikely**	**Uncertain**
		✓		

		Highly satisfactory	**Satisfactory**	**Deficient**
C.	**Bank performance**			
	Identification	✓		
	Preparation assistance	✓		
	Appraisal	✓		
	Supervision	✓		

D.	**Borrower performance**	**Highly satisfactory**	**Satisfactory**	**Deficient**
	Preparation	✓		
	Implementation	✓		
	Covenant compliance	✓		
	Operation (if applicable	✓		

E.	**Assessment of outcome**	**Highly satisfactory**	**Satisfactory**	**Unsatisfactory**	**Highly Unsatisfactory**
			✓		

Table 2: Related Bank Loans/Credits

Loan/credit title	Purpose	Year of approval	Status
Preceding operations			
None			
Following operations			
None			

Table 3: Project Timetable

Steps in project cycle	Date planned	Date actual/ latest estimate
Identification		12/86
Preparation		03/87
Appraisal		07/87 and 03/88
Negotiations		04/04/89
Letter of development policy (if applicable)		-
Board presentation		05/06/89
Signing		08/08/89
Effectiveness		05/31/90
First tranche release (if applicable)		-
Midterm review (if applicable)		-
Second (and third) tranche release (if applicable)		-
Project completion	06/30/93	12/31/94
Loan closing	12/31/93	12/31/94

Table 4: Loan/Credit Disbursements: Cumulative Estimated and Actual
(US$ millions)

	FY90	FY91	FY92	FY93	FY94	FY95
Appraisal Estimate	2.0	10.0	14.0	15.0		
Actual	0	3.4	3.4	3.4	3.4	9.2
Actual as % of estimate	0	34%	24%	23%	23%	61%
Date of final disbursement	-	-	-	-	-	05/09/95

Table 5: Key Indicators for Project Implementation

I. Key implementation indicators in SAR/President's Report	**Estimated**	**Actual**
1. JAMALCO Capital Expenditure	FY89 US$28.9 million FY90 US$40.5 million FY91 US$20.8 million	US$25.2 million US$25.4 million US$15.6 million
2. Physical Program of Capital Expenditure Program	Not specified	Ongoing
3. Program of Roof Replacement Program	Not specified	Completed
4. Progress of Resettlement Program	Not specified	Completed
II. Modified indicators (if applicable)		
None		
III. Other indicators (if applicable)		
None		

Table 6: Key Indicators for Project Operation

I. Key operating indicators in SAR/President's Report	Estimated	Actual
1. Cost of Sales/ton (US$ per ton alumina)		
FY90	116	171
FY91	111	124
FY92	115	93
FY93	118	106
FY94	115	108
2. CAP's Share (50%) of Alumina Production (tons)		
FY90	425,000	351,565
FY91	362,000	348,801
FY92	400,000	388,468
FY93	425,000	345,258
FY94	450,000	368,309
3. Aluminum Sales		
FY91	US$60.3 million	US$43.2 million
FY92	US$68.1 million	US$36.0 million
FY93	US$74.7 million	US$36.7 million
FY94	US$87.4 million	US$39.9 million
4. Key Financial Indicators	See Table 6A	
II. Modified indicators (if applicable)		
None.		
III. Modified indicators for future operation (if applicable)		
None		

Table 6A: Key Financial Indicators

Indicators as per SAR

Indicator	FYs 1989	FYs 1990/92	FYs 1993/95
Debt/Capitalization	16.1%	11.3%	12.2%
Op. Profit/Net Fixed Assets	174.2%	44.7%	39.9%
Net Income/Net Fixed Assets	84.5%	17.1%	17.2%
Op. Profit /Sales	42.8%	28.4%	33.9%
Net Income/Sales	20.8%	10.5%	14.5%
Op. Profit/Debt Service	430.0%	301.5%	879.8%

Note: Operating profit excludes levy and royalties. High return in net assets in FY89 reflects price peak. It is assumed that all after-tax income is retained.

Actual Performance

Indicator	1990 %	1991 %	1992 %	1993 %	1994 %
Debt/Capitalization	6	20	41	47	46
Op. Profit/Net Fixed Assets	32	5	8	(7)	(1)
Net Income/Net Fixed Assets	3	(10)	(21)	(11)	(2)
Op. Profit/Sales	18	5	8	(9)	(1)
Net Income/Sales	2	(9)	(22)	(14)	(3)
Op. Profit/Debt Service	100	79	174	(140)	(32)

Note: Operating profit excludes levy and royalties.
It is assumed that all after tax income is retained.

Table 7: Studies Included in Project

Study	Purpose as defined at appraisal/redefined	Status	Impact of study
Evaluation of dry stacking technology for disposal of red mud.	Examine technical and economic feasibility of alternative waste disposal method.	Study is presently being undertaken by a JAMALCO team in conjunction with an ALCOA taskforce taking into account ALCOA's worldwide experience.	When available, result will be used to determine if waste disposal methods can be improved.

Table 8A: Project Costs

Item	Appraisal Estimate (US$M)			Actual/Latest Estimate (US$M)		
	Local Costs	Foreign Costs	Total	Local Costs	Foreign Costs	Total
Complete Mudlake #3	2,150	2,150	4,300	12,662	1,407	14,069
Prepare Mudlake #4	800	1,300	2,100	0	803	803
Bowens Resettlement	4,600	4,300	8,900	3,484	8,128	11,612
Mining Development	3,315	11,882	15,197	4,538	10,588	15,126
Spare Parts Plant		6,900	6,900	3,598	8,395	11,993
Debottlenecking and Upgrade		29,000	29,000	7,539	17,590	25,129
Environmental Control		4,295	4,295	3,000	7,000	10,000
Other	1,303	9,415	10,718	2,852	6,656	9,508
Total	12,168	69,242	81,410	37,673	60,567	98,240
Physical Contingencies	946	3,785	4,731	-	-	-
Price Contingencies	550	3,539	4,089	-	-	-
Total	13,664	76,566	90,230	37,673	60,567	98,240

Source: Appraisal - World Bank; actuals - CAP.

Table 8B: Project Financing

Source	Appraisal Estimate (US$M)			Actual/Latest Estimate (US$M)		
	Local Costs	Foreign Costs	Total	Local Costs	Foreign Costs	Total
IBRD/IDA	0	15,027	15,027	0	9,200	9,200
EEC	4,600	4,300	8,900	0	0	0
ALCOA	0	34,338	34,338	n.a	n.a	49,120
CAP	9,064	22,901	31,965	n.a	n.a	39,920
Total Project Cost	13,664	76,566	90,230	37,673	60,567	98,240

Note: n.a = not available.

Table 9: Rate of Return

According to Staff Appraisal Report, the estimated financial rate of return for the project to the Government, as the owner of the joint venture partner, was 54%; the economic rate of return (ERR) was the same. The calculations took into account the capital expenditure required to re-open and operate the plant, CAP's net after-tax profit, the income taxes paid and other transfers to Government by CAP and ALCOA. The Staff Appraisal Report stated that no adjustments were needed to calculate the ERR for the following main reasons: (i) there are no taxes on intermediate and investment goods imported by alumina companies; (ii) fuel is imported directly by JAMALCO and not affected by domestic pricing; and (iii) the U.S. dollar/Jamaican dollar exchange rate is assumed to be at equilibrium.

The economic and financial rates of return were re-estimated using actual data for the period 1989-94 and updated estimates for 1995-2005. The re-estimated FRR and ERR are 26%. Details are not provided due to the confidentiality agreement.

Table 10: STATUS OF LEGAL COVENANTS

Agreement	Section	Covenant Type	Present Status	Original fulfillment date	Revised fulfillment date	Description of covenant	Comments
Loan	2.02 (b)	3	C			Government to maintain a special account in Central Bank	Fulfilled
Loan	3.01 (a)	5	C			Govt, CAP, ALCOA and IBM to enter into an Implementation Agreement approved by the Bank	Fulfilled
Loan	3.01 (d)	3	C			Subsidiary loan Agreement between Government and CAP	Fulfilled
Loan	4.01 (d)	12	C			Amendment to the Mining Legislation that materially and adversely affects the ability of Government, CAP or ALCOA to comply with agreements	In compliance
Loan	4.01 (e)	4	C			Availability of EEC loan or alternative funding	Fulfilled
Loan	4.01 (l)	12	C			Substantial change in Government's bauxite and alumina policy that materially and adversely affects the project's viability	In compliance
	5.01 (a)	3	C			Subsidiary loan is effective between Government and CAP	Fulfilled
	5.01 (b)	5	C			Implementation agree-ment executed between Government and CAP	Fulfilled
	5.01 (c)	5	C			Operating manual adopted by CAP	Fulfilled
	5.01 (d)	4	C			EEC loan approved or alternative financing in place	Fulfilled

5.01 (e)	6	C	CAP to furnish air quality test data satisfactory	Fulfilled
5.02 (a)	5	C	Project Agreement ratified by CAP	Fulfilled
5.02 (b)	5	C	Subsidiary loan agreement ratified by Government and CAP	Fulfilled
5.02 (c)	5	C	Implementation agreement authorized by Government, CAP, ALCOA and JAM	Fulfilled

Table 11: Compliance with Operational Manual Statements

Statement number and title	Describe and comment on lack of compliance
No known lack of compliance	

Table 12: Bank Resources: Staff Inputs

State of project cycle	Planned		Revised		Actual	
	Weeks	US$	Weeks	US$	Weeks	US$
Through appraisal					49	
Appraisal--Board					12	
Board--effectiveness					7	
Supervision					21	
Completion					6	
TOTAL					95	n.a.

Note: n.a. not available.

Table 13: Bank Resources: Missions

Stage of project cycle	Month/ year	Number of persons	Days in field	Specialized staff skills represented	Performance rating		Types of problems
					Implementation status	Development impact	
Through appraisal	12/86 03/87 06/87 07/87	2 2 2 2	10 10 4 10	Econ. Eng Econ. Eng Eng..	--	--	--
Appraisal through Board approval	03/88	2	10	Econ. Eng.	--	--	--
Board approval through effectiveness	05/90	1	4	Eng.	1	1	--
Supervision	04/91 09/91 03/92 06/93 12/94	1 1 1 2 2	5 3 5 10 6	Eng. Proc. Eng. Econ. Eng. Resettlement Econ.	2 - 2 3 -	1 - 1 2 - 	Financial Financial Financial
Completion	01/95	1	5	Econ.	2	2	--

Aide Memoire

JAMAICA - Clarendon Alumina Project (Loan 3062-JA)

Final Supervision and Project Completion Mission

January 20, 1995

This Aide Memoire presents the findings of a World Bank Final Supervision and Completion Mission conducted by Mr. John Strongman, who visited Jamaica from January 17-20, 1995. The findings of the Mission are subject to subsequent confirmation by World Bank Management in Washington, DC. The Mission thanks the representatives of Clarendon Alumina Production Ltd. (CAP), in particular CAP's Financial Manager, Mr. Winston Hayden, Jamaica Bauxite Institute (JBI), the Planning Institute of Jamaica (PIOJ) and JAMALCO for excellent cooperation and constructive discussions during the Mission. A list of senior persons met is attached as Annex 1.

PROJECT STATUS

The project was approved by the World Bank Board on April 27, 1989 for a Loan amount of US$15 million equivalent. The original closing date was December 31, 1993. The Loan closing date was extended to December 31, 1994 to facilitate completion of the electrostatic precipitators which will improve the environmental performance at the JAMALCO plant. Following a request from the borrower on April 7, 1994, US$3.75 million of the Loan was cancelled. Thus, the present Loan amount is US$11.25 million of which S$8.2 million has been disbursed as of January 20, 1995. Further disbursement applications are expected before the end of April 1995.

PROJECT PERFORMANCE AND SUPERVISION

The world aluminum industry has faced an extremely difficult situation in the past few years with aluminum prices reaching the lowest levels ever in real terms. The London Metal Exchange (LME) Aluminum price averaged US$1,139 per ton in 1993 compared with US$1,254 per ton in 1992. In FY94 (ending March 31, 1994), CAP had a trading loss of US$8.883 million and a net loss after exceptional items, bauxite levy and taxes of US$8.536 million. In order to strengthen its financial position, CAP obtained commitment for a US$16.5 Loan from the Caribbean Development Bank and the Government contributed an additional US$12.100 million equity to CAP and CAP's unpaid bauxite levy was reduced accordingly. For FY95 (ending March 31, 1995) CAP is expected to make a profit as a result of higher sales prices, improved plant performance and higher sales volumes. CAP's improved performance reflects higher world aluminum prices, lower real production costs and improved sales contract terms. In 1994 LME

aluminum prices increased to average US$1,477 per ton and as of January 17, 1995 had increased to US$2,050 per ton. CAP's agent, BATCO, had entered into a ten-year Alumina Supply Agreement with Marc Rich Limited in 1986. The agreement was amended in 1994 and guarantees alumina prices to December 31, 1996 and provides CAP with considerably higher income than previously. CAP should achieve a significant profit in FY96 (ending March 31, 1996).

During the past year, considerable progress has been made regarding completion of the three electrostatic precipitators. The new smokestack was completed and Unit #2 was brought on-line in December 1993 and the other two Units (#1 and #3) were brought on-line in 1994. The three Units are operating in a satisfactory manner and have been given preliminary certification. However, a problem has been identified regarding deterioration in the dampers of all of the Units due to inadequate design specification. The contractor has been notified but the plant operation JAMALCO reports that the contractor is presently unwilling to rectify the problem under the terms of the construction contract and instead requires an additional payment (of US$0.3 million) in order to make the necessary repairs. The repairs are required as a matter of urgency and the plant operator is presently working to try and resolve the matter with the contractor although the timeframe and mechanism for the resolution of the matter remain uncertain.

The status of the resettlement of the Bowens Community was reviewed by World Bank specialists in December 1994. The Mission informed JAMALCO and CAP that the preliminary findings of the specialists were that the resettlement has been undertaken in a responsible and satisfactory manner and that after more than two years, the community is in good shape and has overall better living standards than before resettlement took place. The specialists noted that some of the families in the community face problems associated with lack of employment opportunities and JAMALCO could consider using some local specialists to assist the community to develop an income recovery plan aimed at enabling the community to achieve greater independence from the plant. A follow-up letter will shortly be sent from the World Bank in Washington, DC, regarding the findings of the specialists and Ms. Patricia Shako of the World Bank Kingston Office can help provide any follow-up assistance as appropriate.

Since late 1994, environmental performance at the Project is being monitored by the JBI Environmental Unit. The Project is meeting Jamaica's interim compliance standards regarding SO2 emissions (readings of averaging 0.008-0.012 ppm compared with a standard of 0.3 ppm), total suspended particulates except for one exceedence at the bauxite loading area in 1994 (standard of 60 ug/m^3 maximum annual geometric mean); and ground water quality (meeting compliance standards for drinking water quality). With the exception of some exceedences at the bauxite loading area, the Project is also in compliance with World Health Organization dust-fall standards (performance of 0.5-4 g/m^2/mth compared with a standard of 5 g/m^2/mth) which are being used until Jamaica develops its own interim standards. None of the exceedences are considered serious since there are no neighboring communities nearby. ALCOA also conducted its own internal environmental audits of the Clarendon Plant in 1992 and 1994 and an internal environmental improvement program is being implemented in order to bring the plant in line with ALCOA's own internal standards which in some cases go beyond both local standards and USA

EPA standards. The plant has established procedures for dealing with hazardous wastes for example asbestos and is presently seeking approval from the Jamaica Natural Resources Conservation Authority regarding procedures for disposal of polychlorinated biphenyls.

PROJECT COMPLETION AND PREPARATION OF THE IMPLEMENTATION COMPLETION REPORT

In line with the requirements of the World Bank operational guidelines for preparing Implementation Completion Reports, this Aide Memoire is required to:

(i) record the views of the Bank, borrower and implementing agencies on project implementation and operation; (although the EEC was originally included in the Project documents as an expected co-financier, the EEC financing was not subsequently realized, thus there is no co-financier of the Project); and

(ii) confirm that the mission has provided support and advice to the borrower for preparing its own contribution to the ICR and to include a copy of the Operational Plan as an attachment.

The views of the various parties are recorded in the context of the Project Objectives and Components which are summarized below from the Loan Agreement.

The **Project Objectives** were:

(a) to sustain production and increase efficiency and productivity of the operation of the Joint Venture;

(b) to improve the environmental conditions related to the plant's operations;

(c) to help establish CAP as an effective Joint Venture partner; and

(d) to support sound sectoral policy.

The **Project Components** included:

(a) alumina plant improvements including the acquisition and utilization of cost reduction equipment, environmental control equipment and process control instrumentation;

(b) development of mining infrastructure to gain access to new mining areas as well as acquisition and utilization of equipment for loading and transporting bauxite;

(c) acquisition and utilization of spare parts for maintenance;

(d) construction of a conventional wet-type mud lake including earth-moving, installation of a new pump station and pipes to recover caustic soda solutions;

(e) evaluation of the economic and technical feasibility of using dry-stacking technology for the disposal of red mud; and

(f) resettlement of about 200 families residing in the community of Bowens including replacement of houses, churches, a school and a community centre, installation of infrastructure including roads, supply of water, sewerage and power services, as well as replacement of agricultural land, fruit-bearing trees and cemeteries.

World Bank View of Project Implementation and Operation

In the view of the Mission, the Project has substantially achieved its objectives. Production has been sustained, unit production costs have been reduced and efficiency increased. Emissions and pollution have been reduced through various measures including the introduction of the electrostatic precipitators and environmental control equipment. CAP has established itself as an effective Joint Venture partner and the Government maintains a sound sectoral policy. The Project components have been substantially completed with some modest slippage compared with the original timetable (for example the electrostatic precipitators). The alumina plant improvements have been made, access has been developed to new mining areas, new bauxite loading and transportation equipment has been introduced, spare parts were acquired and used for maintenance, and the resettlement of 200 families has been satisfactorily achieved and the settlement of New Bowens established. There is one part of the Project which is not yet complete, which is the evaluation of the dry-stacking technology for disposal of red mud waste. The time by which a decision is needed has been put back to 1997/8 because modifications are increasing the capacity of the existing disposal facilities and because production has been lower than previously projected. The situation now is that JAMALCO have established an in-house team to undertake the evaluation. The JAMALCO team is working in conjunction with an ALCOA corporate task force that is addressing the question from an overall corporate standpoint. The JAMALCO team will benefit from the experience at other ALCOA plants presently using dry stacking methods including Point Comfort in the USA and plants in Australia.

While physical progress has been satisfactory, the benefits from the Project will be much lower than expected at the time of appraisal due to lower world aluminum and alumina prices than projected. For example, financial and economic projections in the SAR indicated a net foreign exchange benefit to Jamaica in FY94 of US$73 million based on an LME aluminum price of US$2,100 per ton for the period. The actual price was about US$1,160 per ton and actual benefits about US$30 million consisting of wages and salaries and payments of income tax, levy and royalty by ALCOA and CAP. CAP faced major financial difficulties in 1992/3 at which time there were extensive discussions between CAP and World Bank supervision mission regarding CAP's strategic options, and the Bank subsequently agreed to extend the completion date of the Project so that Bank financing would be available to cover the electrostatic precipitators. This

assisted CAP's cash flow in 1994. CAP has delayed levy payments, converted levy obligations into additional equity and taken on additional loans and sales advances in order to remain viable in recent years. For the future, financial projections presented in the Operational Plan for 1995-1999 indicate that CAP should be increasingly profitable each year and that the Project should be sustainable.

CAP's Views on Project Implementation and Operation

CAP is of the view that the Project was an overall success. Resettlement was effected with general success. There are on-going citizens issues, but these are in general outside of the terms of reference of the Project. The ESP Units have comfortably surpassed the minimum performance standards required by the plant and the Units are regarded as a showpiece of the operation. CAP has survived the difficult period following the Project's commencement by working with its Joint Venture partner to identify major problem areas, and to seize opportunities for avoiding performance variations. Plant performance improved considerably in 1994, and the final product was substantially compliant with target specifications. Due to improved world aluminum prices as well as strategic price fixing initiatives on CAP's part, the medium- to long-term viability of the operation seems assured. Even while using conservative assumptions, CAP is convinced that its retained earnings will improve from approximately US$6 million at present to some US$78 million by 1999.

Borrowers Views on Project Implementation and Operation

The Planning Institute of Jamaica is satisfied with the overall implementation of the Project. Project objectives have largely been achieved and components significantly completed. The extension of the Closing Date of the Project does not reflect a weakness on the part of the Project's management, but cognizance had to be taken of the wider external conditions that impacted upon CAP's resources and its expansion plan. The Institute notes the responsible manner in which the relocation of the Bowens Community was undertaken and hopes that the findings of the resettlement specialists will be adequately addressed.

The Institute notes the successful implementation of the electrostatic precipitators and is confident that the outstanding issue of damper corrosion in the Units will be resolved. The Institute requests that environmental problems within the sphere of influence of the plant's operational zone be given priority treatment whenever they occur. With regards to resource flows, the Institute notes the cancellation of US$3.75 million which represents 25% of the original Loan amount, following a request from the Borrower. This was unavoidable in light of modifications to the expansion plan, namely, a rescheduling of the timing of the mud lakes to be constructed. The GoJ is committed to the development of CAP and is of the position that prospects for the operational phase and Project sustainability are positive.

OPERATIONAL PLAN AND PERFORMANCE INDICATORS

CAP have prepared a Summary Operational Plan for 1995-1999 and Performance Indicators which is attached as Annex 2.

PREPARATION OF BORROWERS CONTRIBUTION TO ICR

CAP has confirmed that it will prepare a draft of the Borrowers Evaluation Report to be included in the ICR and submit it to PIOJ for finalization and submission to the World Bank. CAP and PIOJ have indicated that the document should be available by the end of March. The Mission have provided advice as requested regarding the document which should provide the Borrower's evaluation of:

- the Project's execution and initial operation including an assessment of the Project objectives, design, implementation and operation experience;

- the Project's costs and benefits, and the extent to which the purposes of the Loan were achieved;

- the Borrower's own performance during the evolution and implementation of the Project including the Borrower's obligations under the Loan Agreement; special emphasis should be given to lessons learned that may be relevant in the future; and

- the performance of the Bank during the evolution and implementation of the Project including the Bank's obligations under the Loan Agreement and the effectiveness of the relationship between the Borrower and the Bank; special emphasis should be given to lessons learned that may be relevant in the future.

The Borrower's Evaluation Report will be attached unedited to the ICR unless it is over ten pages long, in which case a summary should be prepared which will instead be included in the ICR. To assist in the preparation of the document, CAP have previously been provided with a copy of World Bank Operational Policies OP 13.55 and Bank Procedures BP 13.55, and the Mission also provided CAP with a copy of Good Practices GP 13.55. PIOJ have also been provided with OP 13.55, BP 13.55 and GP 13.55. **The content of the Borrowers Report is outlined in Good Practices GP 13.55 page 2, para. 5 (a) and in Operational Policies OP 13.55 page 1, para. 3**.

CAP also confirmed that they would provide information requested by the Mission to prepare certain cost, financial and implementation progress tables required in the ICR. Such information should be available by the end of January. In addition, the JBI Environmental Unit provided the Mission with environmental data regarding compliance standards and project performance for JAMALCO's operations.

A draft of the Bank's ICR will be provided to CAP and PIOJ by mid-April for comment which should be provided if possible by the end of May, so that the document can be finalized and issued by the end of June.

Clarendon Alumina Project - Project Completion Mission Aide Memoire

Signed

Dr Carlton E. Davis	**Mr Winston Anderson**	**John Strongman**
Chairman	**Director**	**World Bank Mission**
CAP	**Technical Cooperation Division**	
	PIOJ	

January 20, 1995

LIST OF SENIOR PERSONS MET

Clarendon Alumina Production Ltd.

Dr. Carlton E. Davis	Chairman
Mr. Winston Hayden	Financial Manager

Planning Institute of Jamaica

Mr. Winston Anderson	Director, Technical Cooperation Division

Jamaica Bauxite Institute

Ms. Claudette Hall	Environmental Officer

JAMALCO

Mr. Don Fint	Financial Vice President

CLARENDON ALUMINA PRODUCTION LIMITED

SUMMARY OPERATING PLAN

1995 - 1999

January 20, 1995

CLARENDON ALUMINA PRODUCTION LIMITED

SUMMARY OPERATING PLAN

The Operational Plan is based on operational plans that are prepared as a matter of regular practice both by JAMALCO the Project Manager and by CAP. Such plans cannot be made public because they are subject to secrecy agreements with CAP's joint venture partner ALCOA. The Operational Plan has therefore been prepared on a summary basis in order to comply with confidentiality agreements. Detailed supporting information which cannot be included in the Aide-Memoire has been provided separately to the mission.

Assumptions

In preparing the Operating Plan, the following assumptions were used:

Sales Prices

It is assumed that the following percentages of the projected average L.M.E. prices would be earned:

	1995	1996	1997	1998	1999
L.M.E. Price Projected	1,700	1,600	1,600	1,600	1,600
Projected Earnings (Alumina Prices) Percentage of L.M.E.	8.59	12.18	11.81	12.19	12.69

Capital Programme

The following annual levels are assumed for capital expenditures:

1995	1996	1997	1998	1999
$18.0M	$42.9M	$45.8M	$40.2M	$26.5M

These are seen as 'outside' long range projections. A list of projects is provided in a subsequent section of this plan.

A major project that will impact on production is the Precipitation Expansion Programme. When it is completed in mid 1998, the plant's capacity will be increased to 1 million tonnes.

The benefits to be derived from other major projects are set out in the listing of *Capital Projects Exceeding $1 Million in Cost.*

CLARENDON ALUMINA PRODUCTION LTD.
PROJECTED FIVE-YEAR BALANCE SHEET
(IN $'000)

	1995	1996	1997	1998	1999
Current Assets					
Cash	15,400	23,896	20,812	10,555	11,429
Accounts Receivable	10,236	10,833	11,893	13,930	16,018
Inventories	15,439	16,983	18,002	18,020	18,038
Total Current Assets	41,075	51,712	50,707	42,504	45,485
Less: Current Liabilities					
Current portion: long-term debt	7,194	7,004	7,622	7,621	7,621
Accounts Payable	8,355	8,856	9,388	9,951	10,548
Levy and Royalty Payable	1,149	1,144	1,139	1,149	1,153
Income taxes payable	8,246	8,246	13,777	12,277	12,277
Total Current Liabilities	24,944	25,251	31,926	30,998	31,599
Net Current Assets	16,131	26,462	18,781	11,507	13,887
Investment	140	140	140	140	140
Fixed Assets					
Plant in Service	104,894	126,363	149,262	169,378	182,653
Less: Accumulated Depre.	47,175	52,267	58,401	65,496	72,874
Net Plant in Service	57,719	74,096	90,861	103,882	109,779
TOTAL ASSETS	73,990	100,698	109,782	115,528	123,806
FINANCED BY					
Long-term Debt	29,266	33,057	29,425	21,799	14,173
Equity					
Paid in Capital	31,507	31,507	31,507	31,507	31,507
Retained Earnings & Reserves	13,217	36,134	48,850	62,222	78,126
TOTAL DEBT AND EQUITY	73,990	100,698	109,782	115,528	123,806
Debt as a % of total capitalization	49	40	34	25	18
Current Ratio	1.6	2.0	1.6	1.4	1.4
Quick Ratio	1.2	1.6	1.2	0.9	0.9

CLARENDON ALUMINA PRODUCTION LTD.
FIVE-YEAR CASH FLOW PROJECTION
(IN US$'000s)

	1995	1996	1997	1998	1999
INFLOWS:					
From Sales	59,951	80,025	77,585	86,470	92,619
World Bank Loan	3,012	0	0	0	0
CDB Loan	1,705	10,800	3,995	0	0
From Net Investments	1,500	2,600	3,240	2,300	2,200
	66,168	93,425	84,820	88,770	94,819
OUTFLOWS:					
Production Costs	41,432	46,039	47,846	50,494	52,565
Capital Projects	9,000	21,469	22,899	20,116	13,275
Loan Repayments	5,174	10,139	10,263	10,889	10,724
Royalty	504	493	493	522	544
Levy	6,938	6,165	5,754	6,652	6,844
Income Tax	-	-	-	9,679	9,291
Other	600	624	649	675	701
	63,648	84,929	87,904	99,028	93,944
Surplus	2,520	8,496	(3,084)	(10,258)	875
Opening Balance	12,880	15,400	23,896	20,812	10,555
Closing Balance	15,400	23,896	20,812	10,555	11,429

NOTE: These projections are based on calendar year.

CLARENDON ALUMINA PRODUCTION LTD.
PROJECTED FIVE-YEAR OPERATING STATEMENT
(IN $'000)

	1995	1996	1997	1998	1999
Income from sale of alumina	59,951	80,025	77,585	86,470	92,619
Cash Cost of Production	40,619	44,384	46,392	48,911	50,917
Gross Operating Margin	19,332	35,641	31,193	37,559	41,702
EXPENSES:					
Royalty	493	493	493	532	548
Bank Charges & Interest	1,608	2,945	3,259	3,267	3,103
Commissions	300	400	388	432	463
Depreciation	4,673	5,092	6,135	7,095	7,378
Other Charges	600	624	649	675	701
	7,674	9,554	10,924	12,001	12,193
Operating Profit	11,658	26,087	20,269	25,558	29,509
Other Income	1,725	2,990	3,726	2,645	2,530
Net Profit before Tax	13,383	29,077	23,995	28,203	32,039
Taxation - Income Tax	-	-	(5,531)	(8,179)	(9,291
Levy	(6,160)	(6,160)	(5,749)	(6,652)	(6,844
Net Profit after Tax	7,223	22,917	12,715	13,372	15,904

NOTE: These projections are based on calendar year.

Performance Indicators

The performance of the project will be monitored according to the following six categories of performance indicators:

a. Financial

	1995	1996	1997	1998	1999
Cash Cost of Alumina	----------	----------	CONFIDENTIAL	----------	----------
Caustic Soda/Tonne al.	$19.80	$26.90	$31.80	$32.10	$32.30
Fuel Cost/Tonne al.	$21.52	$21.52	$22.38	$22.38	$23.29
Minimum Average Monthly Cash Balance	$10 M	$15 M	$13 M	$9 M	$9 M
Current Ratio	1.0	1.0	1.0	1.0	1.0
Debt/Equity Ratio (Maximum)	60:40	60:40	60:40	60:40	60:40
Retained Earnings	$13.2M	$36.1M	$48:8M	$62.2M	$78.1M

b. Efficiency

	1995	1996	1997	1998	1999
Bauxite/Alumina DMT/MT	2.50	2.50	2.50	2.50	2.50
Caustic Soda/Alumina (MT/MT)	0.10	0.10	0.10	0.10	0.10
Fuel Oil Gj/MT	12.20	12.20	12.20	12.20	12.20
Permanent Employees	1,060	1,030	1,030	1,045	1,045

c. Safety

For each year, a maximum of two disabling accidents, which is equivalent to 0.2 per million manhours.

d. Production

Production figures reveal competitive information and are therefore confidential.

e. Environment

Standards used:

1.	Dustfall	-	sg/m²/mth. (W.H.O. standard)
2.	TSP	-	60 ug/m³ - maximum annual geometric mean (National Interim Air Quality Standard)
3.	SO_2	-	.03 ppm - maximum annual geometric mean (National Interim Air Quality Standard).

f. Quality

Percentage +325 mesh fraction in SGA: 91.5

Percentage -20 micron in SGA: 2.0

CAPITAL PROJECTS EXCEEDING $1 MILLION IN COST

	$
Mines	
Develop Denbigh CrawL/Phase II	1,693,000
Develop Sheckles Sub-division	965,000
Develop Whitney Sub-division	1,450,000
- Resettlement for land acquired in mines.	
Construct Haulroad to E-2	3,556,000
Construct Haulroad to D-20	3,807,000
- Mining roads to bauxite deposit.	
Mining railhead and Plant Manchester	39,500,000
- Relocation of railhead offices etc. after present reserves are depleted	
Replace 3 D9-H Dozers	1,500,000
Replace 7 Haultrucks	3,750,000
- Useful life exhausted.	
- Uneconomical to keep in operation. Benefit will be known on preparation of RFA.	
Refinery	
Residue Disposal Lake #4	28,750,000
- Future disposal area construction. The project will become necessary to sustain operation.	
- Increase production will bring forward the need.	
Upgrade Sand Classifier Throughput	1,000,000
- Sand Removal and classification unit. Sand used in filters will be 'layered' by size. RFA will quantify benefits.	

Agglomerate ESP Dust in Precipitators	2,250,000
- Recycle ESP dust to precipitators to increase particle size. This is a 'quality' requirement that will reduce variation from the +325 mesh specification.	
Upgrade Turbine Generators	15,000,000
- Rotors of existing generators have deteriorated to the point where rebuilding is necessary. This presents the opportunity to upgrade the generating capacity of the existing units. This will ensure enough power at 1M MT per year alumina production, minimize the reliance on JPS during overhaul, and produce power for the national grid. The minimum benefit projected at $5.6 million per annum.	
Raise Dykes of #3 Residue Lake	7,700,000
- Extend life of Lake #3 by 2 - 3 years to maximize mud-storage capacity/acre. The benefit is approximately $1 million per (cost of capacity) plus a 2 - 3 year delay in incurring the $29 million cost of constructing lake #4.	
Convert Washer/Thickener Rake Drives	1,100,000
- Replacement of drives to reduce/minimize failures which result from higher viscosities as the mud thickens. The cost/benefit results will emerge with the RFA.	
Major Boiler Refurbishment/Upgrade	13,500,000
- Refurbish the three field erected boilers to reduce tube failures and upgrade from 250,000 lb/hr each to 340,000 lb/hr each. Steam supplied at 2400 MTPD alumina is marginal. Additional capacity required for 1M MTPY. (2740 MT/day average 2950 MTPD maximum)	
Plant Upgrade Miscellaneous	4,745,000
- Debottlenecking projects - include pumps and piping in the plant.	

The RFA will 'pin point' the specific areas of the process needing attention and will quantify benefits from the resulting reduction in flow cuts.

Increase Capacity JPS Tie 1,200,000

- Increase power transferred to and from JPS. It will enable the plant to receive more power from the JPS, and will facilitate the benefits from the turbine upgrade.

Precipitation Upgrade 13,750,000

- An additional row of precipitators,

  classifiers and associated equipment. This is required for 1M MTPY alumina. This is the last major project in the upgrade to 1 million tonnes. Specific benefits await publication of the RFA.

CLARENDON ALUMINA PRODUCTION LIMITED

JAMAICA - CLARENDON ALUMINA PROJECT (LOAN #3062-JA)

BORROWERS CONTRIBUTION TO IMPLEMENTATION COMPLETION REPORT

The project objectives were to:

i. To facilitate and sustain the desired level of plant production while improving the efficiency of the joint venture operation;

ii. To improve the environmental conditions as affected by the plant's operation;

iii. To assist with the establishment of CAP as an effective joint venture; and

iv. To support and complement a sound sectoral bauxite/alumina policy.

The project components designed to achieve the objectives included:

i. The acquisition of equipment to enhance plant performance including process control, environmental control and cost effective operational equipment;

ii. Development and implementation of mining infrastructure to facilitate exploitation of new mining areas;

iii. Acquisition of spare parts;

iv. Construction of mud lake facilities;

v. Technical evaluation of the dry-stacking approach to red mud disposal; and

vi. Resettlement of 200 families from the community of Bowens, installing improved infrastructure and social facilities.

The four project objectives were distinctly identifiable. Measurable performance results achieved over the life of the project point to the overall attainment of these objectives.

Plant performance, though below the established production targets, has been good and the operation has remained competitive when compared to other operations world wide. The non-attainment of volume production targets has been largely as a result of slower than planned plant expansion.

This has been due largely to considerations arising from wider external conditions affecting the world aluminium industry and consequently affecting the strategic posture of the partners. CAP has worked with its partner to institute measures to reduce performance variations. This accounts substantially for the production improvement which was achieved in 1994 and which continued into 1995.

The major financial targets established were not achieved. This was largely due to the much lower than expected prices achieved on the London Metal Exchange (the basic component influencing prices to CAP) between 1990 and 1994. Inspite of this factor which was outside the company's control, CAP was able, through strategic price fixing and cash flow planning initiatives, to meet its financial obligations over the difficult period and the company's position as a joint venture partner has been effectively preserved. Strategic price fixing initiatives and improved world aluminium prices have, in recent months, combined to assure the future medium to long-term strength of the company. In this context it is projected that retained earnings will increase to US$78 million by 1999.

The country's sectoral policy affecting the bauxite alumina industry has been productive, fostering corporate responsibility among the companies, reflected in a sound environmental policy and community relations, while allowing the entities the operating freedom to optimise the technological, natural, financial and human resources at their disposal.

The environmental conditions relating to the plant's operations have been substantially improved. JAMALCO's environmental management team has been strengthened, thereby facilitating improved performance monitoring. The plant's own standards for monitoring environmental performance often surpass those established for North America, and the Electrostatic Precipitator (ESP) units have become a showpiece of the operation. At the same time, a model community was established to accommodate 200 families affected by the mining operations.

CAP's role as an effective, fully compliant joint venture partner is not in doubt. Over the years, complex and adequate agreements have been crafted with respect to fulfillment of the joint venture and plant management roles. In its role as partner, the company has, where necessary, used its position to ensure that the plant's focus has been appropriately directed at the targets established for production, quality, efficiency, corporate responsibility and environmental management.

The borrower's performance in preparing, designing and monitoring the project has been satisfactory. The established debt servicing and reporting requirements have been met. Implementation of certain plant de-bottlenecking project components has been delayed, in keeping with the realities of the marketplace and the timeframe for the new mud lake deferred. In the case of the latter, a cost-effective method has been found to extend the life of the exiting lake and the time gained is being used to explore alternative methods of storage.

Cancellation of approximately $5.8 million of the original loan amount was a disappointing development. This was in part due to modifications to the plant's expansion plans ($3.75 million) and non-qualification of certain sub-contracts affecting expenditure on the ESP units during 1994. The former contributing factor was, as has been noted elsewhere, due to wider world economic conditions beyond the borrower's control.

The major lesson learned from the project demonstrates that Government and the Private Sector can combine strengths, in the framework of a sound sectoral policy, to operate a successful joint venture. This particular venture has been able to respond to both the demands of the international environment and to local expectations in the areas of environmental management and social development.

The borrower found the Bank's performance to be satisfactory during all phases of the project. Bank personnel worked closely with the borrower during the evolutionary phases. During implementation, the Bank cooperated with the borrower, sharing information which facilitated the ongoing evaluation of the project's long-term viability, thereby allowing for the cross-checking of conclusions discerned from CAP's internal price, cost and cash flow projection models. CAP's request to extend the loan period was favourably considered and Bank personnel provided ongoing guidance regarding the reporting requirements. Disbursement requests were expeditiously processed, and the borrower found the lender to be generally helpful and cooperative.

The general lesson learned from the borrower's perspective is considered to be potentially instructive and relevant to the lender.

IMAGING

Report No: 14718
Type: ICR