BLACK SEA TRADE AND DEVELOPMENT BANK

Operation Performance Evaluation Report

Project: Technical and Environmental Improvements of Metallurgical (non-ferrous metals smelter) Plant in Bulgaria

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GLOSSARY OF TERMS AND ABBREVIATIONS

BGL	Bulgarian Lev, the national currency
BOD	Biochemical oxygen demand
BGN	Bulgarian Lev, the national currency
BSECEE	Balkan Science and Education Centre of Ecology and Environment
BSTDB	Black Sea Trade and Development Bank
CAPEX	Capital expenditure
Collateral	Asset pledged to a lender until a loan is repaid. If the borrower defaults, the lender has the legal right to seize the collateral and sell it to pay off the loan.
EAP	Environmental Action Plan
EBITDA	Earnings before interest, taxes, depreciation and amortization
ECG	Evaluation Cooperation Group
EIA	Environmental Impact Assessment
EIP	Environmental Improvement Program
EIRR	Economic Internal Rate of Return
EU	European Union
FIRR	Financial Internal Rate of Return
FMTE	Focused Mid Term Evaluation
GDP	Gross Domestic Product
GVA	Gross Value Added
H2SO4	Sulfuric acid
IDI	Institutional Development Impact
IFI	International Financial Institution
IFRS	International Financial Reporting Standards
IPPC	Integrated Pollution Prevention and Control
JBIC	Japanese Bank for International Cooperation
MPC	Maximum Permissible Concentration
NGO	Non-governmental organization
OPR	Overall Project Rating (an evaluation rating)
PAER	Project Appraisal Evaluation Report
PED	Post Evaluation Department
PR	Public Relations
Q1	Quarter one
SO2	Sulfuric Dioxide, a toxic gas
USD	United States Dollar

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BASIC DATA: The Project at a Glance

TITLE & No OF PROJECT:	Technical and Environmental Improvements	1st DISBURSEMENT DATE:	19 December 2001
TYPE OF PRODUCT(S):	Project Finance Loan	REPAYMENT STATUS:	Fully repaid, July 2007.
INDUSTRY/SECTOR:	Manufacturing (non-ferrous metals smelter)	IMPLEMENTATION STATUS:	Fully disbursed, completed and repaid.
PRIVATE OR SOVEREIGN:	Private	TIME OVERRUN (MONTHS):	2
COUNTRY OF OPERATION:	Bulgaria	COST OVERRUN (USD; %):	None
NATIONALITY OF CLIENT:	Bulgarian	OTHER SOURCES OF FINANCING:	JBIC - JPY 5,995,M (sovereign guarantee); Borrower – USD 10,3M; BSTDB – USD 9,171M; TOTAL: USD 75,041,000
SIGNING DATE:	11/04/2001	REMARKS:	The first and only completed BSTDB Environmental Project.
LOAN SIZE:	USD 9,171,000		

NARRATIVE PROJECT DESCRIPTION:
The project provided financing for various elements of a large-scale environmental improvement program at a recently privatized enterprise, a major employer and exporter with severe polluting and health hazard history. Key objectives: (i) achieve environmental compliance and thus prevent production cut-offs, (ii) prevent further environmental damage, (iii) modernize production units in line with best worldwide zinc/lead industries and EU regulations, (iv) improve workers health/safety conditions, (v) increase output/revenue (6-7%).

I. BACKGROUND

A. Evaluation of operation's performance

A.1. Role of evaluation

This evaluation report provides in-depth assessment of project performance and impact, ensuring accountability and quality management. Its findings should assist the BSTDB Management, Board of Directors and Staff in their efforts to improve performance.

A.2. Methodological issues and limitations

The evaluation process followed the BSTDB policies/manuals, as well as the internationally harmonized methods/procedures, as defined by the Evaluation Cooperation Group of the Multilateral Development Banks. This report utilized the findings of a mid-term evaluation, performed in 2002, through a novel evaluation methodology, developed by the Evaluation Office at that time. The methodology is now known as Focused Mid Term Evaluation, and has been widely used after its effectiveness on evaluating this project and was published by the World Bank as best practice (Influential Evaluations, January 2005[1]). It has three steps:

Step 1: Sampling and Timing: A nine point rating scale is used to assess the need and justification for a particular FMTE. In order to justify a FMTE positive ("yes') must be obtained for questions 1-4 as well as at least three questions of the remaining 5 questions. Due to the positive response to all questions, PED concluded that there was a clear justification for FMTE.

Step 2: Focus: A brief desk review explores some of the initial screening questions in more depth to: define the type of risks and to identify the indicators that may confirm or reject these risks; determine the Borrower's commitment and whether lessons could be learned which can be applied to other projects; and determine the policy implications-project.

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[1]http://lnweb90.worldbank.org/oed/oeddoclib.nsf/DocUNIDViewForJavaSearch/920F6ECD297978D785256F650080BB9E/$file/influential_evaluation_case_studies.pdf

Step 3: Evaluation: The methods used for the evaluation included a desk review and a two-day visit to the borrower's site and neighboring community. To ensure independence of the evaluation process the following procedures were used:

- Triangulation, i.e. obtaining and comparing sensitive data from at least three independent sources.
- Clear articulation of the project risks, stakeholders' commitment and external lessons learned.
- Observing the Evaluation Cooperation Group (ECG) of the Multilateral Development Banks for Good Practice standards.[2]

All relevant project information, including interviews with the Bank staff and borrower, as well as all available project files[3] was studied with due diligence. The evaluation findings reflect fairly, in all material aspects, the project performance. The professional opinion contained in this report, although reflecting comments of the parties concerned to the extent possible, remains a sole responsibility of the Evaluation Head[4], not necessarily representing the views of any of these parties.

B. The operation

B.1. Rationale

The operation aimed to contribute to the BSTDB development mandate by promoting environmental improvements that will prevent the closure of a major employer in Bulgaria and thus contribute to employment, social/health benefits, growth and competitiveness. The Client is a strategically important enterprise for Bulgaria: a well-established large producer of non-ferrous heavy metals and their alloys. It employed more than 1500 people in 2000 and 2001. It exports metals with an average value of about USD 60M p.a. and has strong linkages to other sectors/companies, both nationally and worldwide.

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[2] http://www.ifc.org/ifcext/oeg.nsf/AttachmentsByTitle/MDB-ECG/$FILE/MDB-ECG_Good-Practice.pdf

[3] The Evaluation Office understands that all available and requested information was dully provided for the purpose of this evaluation. The evaluation did not reflect any other information that may have remained undisclosed, intentionally or otherwise.

[4] This is an integral part of the Evaluation Office impartiality and independence that assures a credible, transparent and non-compromised assessment of performance.

In the past, the Client became a major pollutant[5] of a large site (20km diameter), causing serious health/social hazards. Further to a deterioration of plant facilities (introduced during the 1950s-1960s by the former Soviet Union) and the company's failure to take adequate measures under the former socialist regime, the Client's zinc and lead smelting facilities for many years released emissions containing sulfur dioxide and heavy metals, as well as dust and water containing heavy metals substantially exceeding environmental standards. Pollution with zinc/lead has serious long-term human health implications as well as significant potential ecological impacts. The pollution has also affected a large stock of cultural heritage the area, to which the company is located, such as Roman monuments, churches, paintings, and other artifacts. In 2000, controlling such hazardous emissions became an issue of survival for the Client, as production had to be limited, with the prospect of closure, due to mounting public pressures. The company was privatized in March 2001, when JBIC and BSTDB agreed to finance its environmental program.

B.2. Scope

The operation constitutes a loan of USD 9,171,000, extended to the Client for financing a part of its large-scale environmental program. Before the provision of the loan, the Client had already commenced an impressive environmental program, with the technical/financial support (including concessional lending of about USD 60M) of JBIC and the Contractor. This program had already resulted in (i) reducing air pollution by up to 10 times through new filters; (ii) substantially reducing water contamination by introducing closed water circulation; (iii) lower SO2 emissions (by substituting oil fuel with gas) and (iv) introducing of constant dust/SO2 monitoring.

Upon loan appraisal, the environmental program envisaged the following activities to be done (some through the BSTDB loan): (i) new roasting and acid plant (to reduce both air and water pollution); (ii) new sintering machine; (iii) central waste water treatment plant (BSTDB); (iv) air monitoring system; (v) closed water systems

[5] Substantial contamination of (i) air with toxic lead/zinc dust and SO2 (causing acid rains); (ii) river/underground (possibly water supplies) contamination with heavy metals and other toxic substances; (iii) soil contamination with heavy metals. The Client was the biggest polluter in the region. The widespread contamination of residential and agricultural areas has created severe social tensions and risks, including bans and restrictions on agricultural activities and frequent social unrest in the past.

(BSTDB); (vi) refurbishment of electrolytic plant; (vii) refurbishment of bag filters; (viii) modernizing the tank house (BSTDB); (ix) expanding the zinc concentrate storage yard; and others.

At the end of 2005, the overall cost of the Client's loan-financed environmental program was estimated at about USD 80M, whereas about USD 70M were provided by the co-financier, JBIC. Upon commencement of this plan, due to exchange rate fluctuations and lack of counterpart funds, the Client divided the scope into two sections whereby JBIC would finance only section I. With respect to the complete wastewater treatment facilities of remaining section II, the Client used USD 7.371 million from the Bank's USD 9M loan to complete these facilities. Thus the overall environmental investment, financed by BSTDB and JBIC reached the envisaged target of about USD 80M.

Project components and sources of financing

Item	**USD '000**	**Source of Financing**
Project Section 1		
Roasting, Gas Cleaning and Acid Plant	43,567	JBIC (sov.guarantee)
Water Demineralization Plant	3,304	
Weak Acid Neutralization Plant	2,363	
Total	**49,235**	
Project Section 2		
Central Waste Water Treatment Plant	5,771	BSTDB
Closed Water Circles in Lead Plant	300	
Modernization of Tank House	1,800	
Expansion of Zn Cakes Filtering	1,300	
Total	**9,171**	
Reconstruction of S-DL Sintering Machine	**6,305**	JBIC (postponed)
Project Section 3		
Revamping of Dust Filter No 5	270	BORROWER
Monitoring	210	
Reconstruction of Sewerage Water	300	
Modernization of Calcine Leaching	1,200	
New Solution Purification in Zinc Plant	800	
Zinc Alloys Casting Facilities	450	
Expansion of Metal DORE Refinery	100	
Expansion of Zn Concentrates Storage Yard	2,000	
Other projects for revamping of ex.	5,000	
Total	**10,330**	
Grand Total	**75,0541**	

B.3. Objectives

The key project objectives were: (i) achievement of environmental compliance and thus prevent production cut-offs/closure, (ii) mitigation of a past environmental contamination and prevent further environmental damage, (iii) modernization of production units in line with best worldwide zinc/lead industries, (iv) improvement of workers health/safety conditions, (v) increase of output/revenue (6-7%).

B.4. Modus operandi

Execution was managed and closely monitored by the borrower, who started the environmental program with substantial Japanese technical and financial support. While the original plan was drafted already in 1992, it took many years to develop it, including the preparation of Environmental Impact Assessment (EIA) and an Environmental Improvement Program (EIP). Further to a Governmental approval of the EIA/EIP in October 2000 (when the Client was still a state-owned enterprise), the engineering contractor was selected and operations commenced.

The Bulgarian Government invited BSTDB and the Client to consider the eventual financing of some of the project components and BSTDB committed USD 9 M for the components described by the table under B.2. above.

II. PERFORMANCE AND OUTCOMES

A. Formulation and structuring

A.1. Strengths: exceptional additionality and mandate relevance

The project rationale and formulation were appropriate and fully in line with BSTDB's (i) Mandate; (ii) Country Program for Bulgaria; (iii) Environmental Policy; and (iv) Operation's Cycle Policy. The Board Memorandum provided a fair formulation of the operation, with adequate information on its relevance towards the BSTDB mandate. Both eligibility review and appraisal were performed diligently, with the exception of some aspects of the market/economic analyses, as noted below. Credit risks and mitigation were adequately addressed. The agreed security structure was adequate, diversified and reliable, and actually excessively high relative to the loan[6].

Both at the time of appraisal and at the time of evaluation, the operation's relevance was very high. In 2000, smelting plants in the non-ferrous sector were under extreme pressures to reduce or close their production in Bulgaria, due to severe environmental issues and the need to meet newly adopted EU environmental standards. The Client was one of the most serious polluters in the country, which had to either completely renew its facilities and image or close down. The closure would have implied a loss of over 2000 jobs and about 8% the Bulgarian exports and foreign exchange revenues. On the other hand, running the obsolete plant even under reduced volumes would have caused further irreparable harm to the environment, health and cultural heritage in the area. For these reasons, it is clear that the urgency and priority of the Client's environmental project were exceptionally high. To this end the evaluation considers this project as one of the most relevant BSTDB operation, from a mandate point of view.

The project's additionality and mobilization of resources were also exceptional: (i) without the environmental program (and BSTDB contribution) the Client would have faced severe restrictions or even termination of operations; and (ii) the concessional lending of JBIC was conditional upon the availability of additional financing that was

[6] The loan collateral is valued at 234% of the loan value.

provided by BSTDB. Further to the importance of the BSTDB loan as a condition for utilizing the JBIC loan, the Bank's loan did not require a sovereign guarantee, as was the case with JBIC. A private lender at that time and under similar terms would be very hard to find.

BSTDB prudently asked the Client to prepare a comprehensive Environmental Action Plan (EAP) for the entire project duration and required regular reporting on progress.

A.2. Some shortcomings, mitigated soon after commencement

Despite the very sound overall design, some issues could have been handled better:

The Economic analysis should have been more comprehensive/ reliable and should have included quantitative references for measuring performance and development impact. The market analysis was overoptimistic and failed to anticipate a drop in the metal price levels that caused substantial financial losses for the Client already in 2001-2002[7]. Due to the sensitivity of the project results towards commodity prices, price volatility and mitigation should have been more thoroughly addressed under the item of Market Risk. The shortcomings were revealed by a mid-term evaluation report in 2002 and were promptly mitigated, to the greatest extend possible.

The respective commodity price projections (Lead and Zinc) were based on external market forecasts, as BSTDB dos not have such expertise. However, given the importance of these commodity prices, BSTDB could have contracted an independent expert, to obtain a more rigorous analysis.

The sensitivity analysis performed by the Bank was based on the standard deviation of those prices over 1991-2000. The Bank ran a simplified version of Monte Carlo Probabilistic Simulation as Risk ease advanced Monte Carlo Simulation software was

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[7] While the analysis properly highlighted that "*Major factors influencing revenues are the market prices for Zinc and Lead*", it estimated the probability "*that both Zinc and Lead prices are below USD 1,023 and USD 461 respectively, is 3.4%*". However, the prices not only dropped much below these levels one year after the analysis was made, but remained that low for long periods. Estimated 2002 zinc and lead prices per ton were USD 1100-1200 and USD 472 respectively. The analysis assumed a base case scenario with prices per ton for zinc and lead of USD 1107 and USD 633 respectively and worst-case scenario with USD 994 (zinc) and USD 520 (lead). However actual prices (30/09/02) were USD 740 (zinc) and USD 413 (lead). This represents over a 33% deviation from the base case and over a 25% from the worst-case scenario (zinc price).

not available at that time to the Bank. In its analysis the Bank used cross correlations and very technical production cost formulae provided by the Client. However, the eventual use of an independent expert could have been beneficial, as the evaluation found that the borrower's financial expertise was not very advanced, at the time of appraisal, when a dedicated technical assistance from JBIC was meant to enhance it, among other managerial aspects.

The financial analysis of BSTDB diligently stated: "Projections were based on the market information provided by External Market Analysts, the Contractor and the Client. An *attempt* to extract, challenge and synthesize data to support these projections has been made accordingly". The evaluation confirmed this statement, with an emphasis on "attempt", as the Bank did not deploy any independent due diligence which should have been the case as the industry is very specific and specialized.

The focus of the Bank's financial analysis was the debt service capacity of the borrower.

This analysis adequately suggested that with the reduced loan amount from USD 15.4M to USD 9.1M the client would remain current on its obligations.

While the evaluation acknowledges that the Bank's financial analysis used adequate methodology and was sufficiently detailed, it found that the information provided to the Bank by the Client was not of sufficient quality. Despite the limitations of provided information, overall the BSTDB's analysis has revealed the main possible downside effects and has therefore suggested to lend USD 9.171M instead of the initially proposed USD 15.4M, thereby effectively controlling the risk of default. Furthermore, after the mid-term evaluation in 2002, the Bank promptly dealt with all identified weaknesses and succeeded to execute one of its most successful operations, as noted further.

B. Operational performance

B.1. Overall utilization and results

Overall, the operational performance was in line with the Project Schedule. The loan was fully disbursed by mid 2004, with some minor delays, relative to the original plan. The EAP was implemented as agreed, after some deviations/delays, noted by the mid-term evaluation report of 2002.

The operation was completed as intended, with the following exceptions:

(i) In 2004, the Client requested a rescheduling of its debt to BSTDB to free some of its funds and have a more comfortable cash flow management in the beginning of 2005. However after reconsiderations and consultations with BSTDB they decided to go ahead with the prescheduled repayment scheme, as the market conditions improved and Eur/ USD parity partly recovered the accrued loss.

(ii) In 2004-2005 an increasing number of occupational injuries at the workplace have been registered. These occurred mainly due to failure of the employees to observe the occupational safety rules. The Occupational Safety & Health Department made an effort in raising the employees' awareness regarding occupational health and safety issues and the situation improved.

(iii) The Client has exceeded, on various occasions, the pollution limits of the discharged wastewaters and has been charged with respective financial penalties (2003-2005).

(iv) While the complex environmental plan was implemented in full, some components experienced delays of 2-3 years due to exchange-rate driven cost overruns and related self-financing difficulties.

Item & Other Key Components	Currency	Cost			Completion Date		% Complete	
		Initial (FRD)	**Revised**	**Variance %**	**Initial (FRD)**	**Revised**	**By Value**	
CWWTP	USD	570,000	570,000	0	2001	2004	100%	
Closed Water Circles	USD	150,000	150,000	0	2001	2003	196%	
Modernization of Tank House	USD	600,000	600,000	0	2001		100%	
Expansion of Zinc cake filtering Department	USD	200,000	200,000	0	2001		100%	
CWWTP	USD	1,600,000	1,600,000	0	2002	2004	100%	
Closed Water Circles	USD	150,000	150,000	0	2002	2003	196%	
Modernization of tank House	USD	1,200,000	1,200,000	0	2002		100%	
Expansion of Zink cakes filtering department	USD	1,100,000	1,100,000	0	2002		100%	
CWWTP	USD	3,601,000	3,601,000	0	2003	2004	100%	
Overall Completion Dates:					**2003**	**2004**	**100%**	

In line with the original expectations, the operation was instrumental in achieving significant environmental/social impact. In particular, the following impact was verified:

(i) Substantial environmental improvement at a site (20km diameter) with serious past contamination/consequences;

(ii) Output/revenue growth in a range greater than originally targeted;

(iii) Compliance with the EU environmental standards (the Ministry of Environment issued the first Integrated Permit[8] in Bulgaria to the Client in 2004);

(iv) increased tax contributions, in line with output/revenue growth;

(v) employment preservation in the range of 2000 people (no target figures);

[8] Based on EU Council Directive, IPPC (Integrated Pollution Prevention and Control)

(vi) improvement of health and working conditions (no target figures);

(vii) transfer of know-how and skills (no target figures);

(viii) demonstration/ replication effects on both environmental compliance and corporate social responsibility (no target figures).

The Client reaffirmed its leading role in the production of lead and zinc. Over 85.96% of the Client's output is exported, thus generating a substantial share of Bulgaria's foreign exchange. At the time of the appraisal the Client did not have adequate technology or facilities to comply with emission standards, and the company responded by reducing its production volume to a level of about 80% of capacity. This consequently had an impact on foreign currency income from exports. Looking at the value of exports of lead and zinc (nominal base) calculated international non-ferrous metal prices, foreign currency income obtained from exports of both products in Financial Year 2005 reached US$ 146 million, or about 3.5 times compared to 1991. Taking into account that the Client's production capacity itself expanded through the life of the operation (25% increase in the zinc plant), it can be concluded that this project has brought a great impact on foreign currency revenue of Bulgaria.

While this project was not expected to have direct cooperation impact, some contribution to regional trade/cooperation took place due to the Client's trade relations within the BSTDB region: 25% of its annual export of USD 60 M covers Greece, Turkey and Romania.

B.2. Notable environmental and health achievements

(i) Pollution kept within regulatory limits

According to the Department of Industrial Pollution Prevention of the Ministry of Environment, compliance with environmental standards after issuance of the Integrated Environmental Permit in 2004 has been highly satisfactory. The respective government authorities highly regard the environmental facilities and technologies introduces by the Client through its environmental program, partly financed by BSTDB.

The Client is carrying out regular monitoring of emissions, discharges, soil and groundwater contamination, waste generation, workplace environment, undertaken by its own environmental laboratory (accredited in 2005). The Borrower's environmental management system has been certified according to ISO 14001/2004 and is well-functioning, properly maintained and improved. Overall, despite minor exceeding of some pollution limits, and occupational injuries at the work place, the Environmental, Health and Safety performance is considered to be satisfactory and is improving.

Changes in Environmental Standard Indexes

U Standard (2005)	Actual at the Client			
1-Emissions of Flue gas	2002	2003	2004	2005
SO2 (acid plant) 500mg/Nm3 or less	n.a	244	190	452
Dust (lead plant) 10mg/Nm3 or less	6.00	8.13	5.50	6.21
Cd 0.2mg/Nm3 or less	0.03	0.02	0.03	0.04
Pb 5mg/Nm3 or less	2.40	1.46	2.20	1.85
2-Wastewater				
Ph 6.0-9.0 or less	7.05	7.10	7.65	7.33
US 1000mg/l or less	38.00	25.00	25.00	15.00
BOD 25mg/l or less	n.a	5.6	8.0	12.0

During 2004 and 2005, when the environmental program was close to completion, a particularly sharp reduction in the concentration of the harmful substances in emissions was observed, and the concentration of lead in emissions declined despite production increases. The Close Water Circles, introduced in 2003 have substantially reduced the use of fresh water – from the 2002 consumption of 1950 m3 per hour to 250 m3 per hour (85%). The only remaining incompliance with the EU standards is the SO2 emission from the obsolete sintering machine (lead smelting plant, actual level of about 1000 mg/Nm3 vs. a norm of 500 mg/Nm3). The Client stated that they will address the issue soon.

Finally, the evaluation observed that health and safety working conditions were improved substantially in 2005, mostly as a result of a sharp reduction of unorganized gas emissions and reduction of H2SO4 mist in the working environment.

(ii) Positive impact on health and agriculture, but past contamination remains

As a result of the completed environmental program, the concentration of lead (still above accepted levels) in the blood of children living in the surrounding area tended to decline, and the level of cadmium was harmless.

A survey performed in 2003 found that pollution with heavy metals (lead, cadmium, copper, zinc, arsenic, and nickel) in the soil surrounding the plant remained at serious levels[9]. After implementation of the project, however, a definite downward trend in the levels of lead, zinc, and cadmium in the soil was observed. The report concluded that although the process of removing heavy metals from the soil was slow, the project contributed to reducing soil contamination in this area. With respect to vegetation and crops, pollution of agricultural land continues today, and there are large zones where farming is prohibited. The perception that the farmland in the area is polluted affects sales of farm products. However, it was ascertained from the survey that lead and cadmium concentration in hay, livestock feed, grass, and maize, etc., has been declining since implementation of the project.

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[9] Compared with the average concentration in soil in Bulgaria, levels of lead were 4.6-230 times higher, cadmium 6.2-250 times higher, and arsenic 0.6-11.5 times higher.

With respect to the impact on livestock, a heavy metal content investigation of fresh milk performed between 2002 and 2003 found that levels were below the maximum permissible concentration (MPC).

(iii) Contribution to the local community

The Client has shown its commitment to local community as a part of their policy. For example, he supports microfinance projects (lavender cultivation[10]) to local residents and contributes in a variety of ways to the community.

The Client's public relations activities include the publication of a monthly PR magazine and a semi-annual magazine. As an example of the Client's commitment to information disclosure, there is an article on the concentration of lead in the blood of employees by doctors who work at the client's health center in the latter magazine. These activities are good examples to show their Corporate Social Responsibility, and local newspapers speak highly of them.

However, the results of a beneficiary survey, financed by JBIC revealed that such publicity activities are still not necessary recognized widely by ordinary residents in the area, and the dissemination of information reaches no further than highly-educated people.

The educational effect on students of the local educational institution (University) was also observed. This university encourages site visit to the Client's smelter to study its measures against environmental pollution as a learning model. Students in agricultural environment studies are required to take the course. It is thought that these activities have a significant PR effect relating to Japan's assistance and the JBIC loans, and less so as far as the BSTDB loan is concerned.

The evaluation office of JBIC financed a beneficiary survey through door-to-door visits to 500 persons selected randomly (400 residents and 100 students living in four

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[10] The lavender assumes polluted substances from the ground. Therefore, the Client planted lavender in the polluted area around its plant. The cultivated lavender is refined within the Client's factory and sold as essential oil. This activity not only encourages farmers to grow commercial crops not for food, but also contributes to income growth of the farmers.

districts). This was complemented by an in-dept interview survey with 20 local experts, administrative authorities, farmers and doctors, etc. its results indicate that compared to the 1990s, local residents' image toward the Client has improved gradually and steadily. In the 1990s, demonstrations were held against the environmental pollution caused by the Client, but at present, the stance adopted by the Client up to now toward environmental measures and information disclosure has come to be recognized by local residents. The degree of awareness of the Client's environmental measures appears to be positively correlated with the educational level of residents.

Approximately 60% of residents agree that the Client is making a major contribution to the local economy (in terms of employment and tax revenues), while 43% recognize that the company shows concern toward its employees' health problems. Despite these improvements in image, residents still have concerns about environmental pollution. Particularly, there is deeply-rooted worry about the contaminated soil with heavy metals. It has also been reported that farmers are hesitant about revealing the names of the areas where they grow their crops. Residents appear, though, to have mixed feelings toward the Client: one-fifth responded that they would be positive about working for the Client but would like the company to relocate elsewhere.

(iv) Impact on cultural heritage

According to a study performed by BSECEE, the current damaging effects on cultural artifacts due to dust are negligible. In addition, the results of a test of a sulfur dioxide diffusion model confirmed that the maximum concentration of SO2 in the region declined to one-fifth of 1995 levels. This supports the claim that the operation made a contribution to the preservation of historical heritage and architecture.

(v) Impact on employee's health

The Client's health center monitors changes in the concentration of lead in the blood of company employees. In the data, changes in the concentration of lead in the blood of the companie's employees are recorded in the nine-year period from 1997 to 2005. They reveal that there has been a notable improvement since 2002. The concentration of cadmium in the blood has also declined. These changes coincide with completion phases of the operation, and are believed to be partly attributable to the improvement in the working environment achieved through the BSTDB and JBIC financing of environmental technologies.

C. Performance of the Client

C.1. General

The Client underwent a privatization process through (one of the very few) successful Management Buy Out. The post-privatization restructuring at the company was performed as intended, achieving various improvements in efficiency and overall development, e.g. the Client has separated several auxiliary functions[11] as financially autonomous units.

The President/CEO of the Client's holding occupies key positions in international industry organizations as a head of a major modern zinc/lead smelter of strategic importance. He has obtained a high reputation as a manager and received various national and international awards and honors for his achievements.

Since project inception, the Client, and its management in particular, demonstrated professional attitude and strong commitment to achieve the intended environmental improvements. Currently they comply in meeting both the Bulgarian and the EU environmental standards. They have prepared a comprehensive Past Environmental Damage Assessment in order to differentiate actions that need to mitigate past contamination from those that will be devoted to prevention of future pollution. Based on that, the Client has diligently prepared an Environmental Improvement Program, part of which was successfully financed by BSTDB. A comprehensive Environmental Action Plan (IAP) has been developed and implemented.

Further to the acquisition of ISO9001 certification in 2000, the Client was distinguished by the Gold Prize at an International Technology Trade Fair for its new product, zinc sulphate monohydrate.

[11] Like maintenance/technical services, canteen, etc.

The company successfully incorporated the concept of Corporate Social Responsibility by integrating social and environmental concerns in its business operations and its interrelations with stakeholders. The management has demonstrated a concern towards the problems and well being of its staff: salary levels are found to be well-above the average for the industry; no delays of salary payment have been recorded (except once); working conditions/safety continuously and rigorously improved[12]. Consequently, despite its large number of staff, the Client maintains smooth relations with the Trade Unions: social unrest, very frequent in the past, is now unlikely.

The pillars of the Client's corporate social responsibility program could be summarized as follows:

(i) Focus on environment, health, education and cultural heritage;

(ii) Observing prudently all relevant laws and regulations;

(iii) Adopting sound corporate values towards sustainable development; e.g. publication of Ecology and Sustainable Development;

(iv) Emphasis on human recourse development;

(v) Active involvement in community activities; e.g. sponsorship to public institutions, education, culture and sport;

Bulgaria's Ministry of Environment issued the company with an Integrated Permit in 2004 based on company's environment law and respective EU regulations. Under the permit, the Client performs environmental monitoring and the Ministry of Environment authorities oversee compliance with standards. The compliance by the Client with environmental standards after issuance of the permit has been highly satisfactory.

In contrast to the past, publicity is, with a few exceptions, generally positive, despite the high public sensitivity towards the enterprise, due to its record of severe contamination with widespread health hazards in the region.

[12] While general reduction of serious accidents has been observed and attributed to recently adopted rules/prudence (e.g. helmets, smoking regulations, etc.),.

C.2. Financial

The Client was at the time of this review financially sound and prudent, albeit with fluctuating profitability, mainly attributed to the prices of the main output (zinc and lead), which dropped to record low levels in 2001 (more than 30% in a few months) and continued to experience fluctuations.

In 2002, the mid-term evaluation report revealed that in the Financial Year 2001 the Client has accounted (IFRS) some losses from embedded derivatives / forward transactions. That evaluation noted the ability of the Client to overcome the apparent market turbulences[13] and remain internationally competitive. While many European competitors had to reduce production and even close down major units, with all negative financial and social consequences (staff reduction), the Client survived the market test and maintained its level of production/sales in a particularly volatile market period.

The Client's good cash-flow figures and balance sheet strength indicate that the Client is financially sound. In 2006 the client's liquidity, fixed asset ratio and debt ratio have improved in comparison with results from previous years. The long-term liability also improved substantially.

Overall, the Client is efficient in its operations. Its debt service capability is high due to the long term nature of its borrowings. Although the Client's revenues increased significantly from 2004 to 2005 and the EBITDA margin increased by 3% from 2004 to 2005, the bottom line was red due to significant exchange rate loss. However this is only accounting loss as it is not reflected in the cash flow of the Company.

[13] The Client has successfully mitigated the effects of more severe market turbulence in the early nineties.

C.3. Reporting and covenants

The Client has provided most progress and other reports in due time and of good quality. There were some weaknesses in the initial period, as follows:

(i) Progress on the EAP implementation, has been, contrary to the Loan Agreement's requirement, poorly reported.

(ii) Delays in furnishing BSTDB with audited IFRS-financial statements.

(iii) Initially the Client failed to report its hedging exposures as part of the required financial/accounting reporting.

In 2001 and 2002 the Client breached the negative covenant, that limits its aggregate open position on derivative operations to USD 0.5M[14]. The explanation obtained from the Client is that during and since the time of negotiations, they did not realize that the covenant applies not only to currency hedging, but to commodity hedging as well. The mid-term evaluation report of 2002 recommended to the Project Team to review/discuss the issue and come up with a solution to the Credit Committee in due time. The issue was promptly resolved[15] as per the recommendations of the 2002 mid-term evaluation report.

[14] While the covenant's limit on such positions is USD 0.5M, the Client apparently maintained an open position of about USD 2M in late 2001/early 2002. Since then, the open position was maintained close to the limit.

[15] The established covenant's ceiling did not adequately reflect the normal business practice at the Client as well as the prevailing hedging norms for the industry.

D. Performance of BSTDB

D.1. General

BSTDB followed the relevant programs, strategies, procedures and guidelines with diligence. This first BSTDB environmental project is exceptional with its mandate-relevance and additionality and should foster the Bank's reputation of an environmentally and socially committed institution in the region. This reputation has already been supported by various local and international publications including a major publication of the World Bank in 2005 that lists the mid-term evaluation of this operation as best practice (presented under the section of Case Studies).

Project management was adequate and prudent. BSTDB maintained very smooth and cooperative relationship with the Client. It has tailored the loan adequately to the Client's needs and has shown sufficient degree of flexibility, while other loans (JBIC[16]) to the Client have created various difficulties/delays due to over bureaucratic requirements/management. In this aspect, the BSTDB loan structuring/management was found to be very good (and appreciated by the Client[17]). The only BSTDB-related bottleneck that led to some start-up project delays has resulted from the arrangement of the multiple-pledge security structure that took a lot of time and resources (e.g. the pledge of gold[18]).

The Bank safeguarded its investment/Client by appropriate covenants. It was particularly prudent to include the (breached) covenant on the Client's derivatives exposure, as hedging activities of commodity producers often result in unanticipated financial shocks. However, its ceiling of USD 0.5M was inadequate, as argued under II.C.3 above.

[16] The period of implementation of the JBIC loan exceeded with 176% the planned period due to the complexity and technical scope of the tender documents, changes in the Bulgarian legal system, the exchange rate fluctuations (depreciation of the yen), etc.

[17] The only dissatisfaction of the Client was related to the lengthy and resource-intensive legal preparatory work, required by BSTDB.

[18] That was a disbursement precedent condition delaying the start-up. BSTDB adequately waved this condition for 1 month in order to avoid further implementation delays. Within the one month envisaged, the pledge was arranged.

It was prudent to request[19] and perform a thorough mid-term evaluation in 2002, after the Bank's management started to have concerns about the financial and operational performance of the Client. The mid-term evaluation revealed a breach of covenant, as well as highlighted the exceptional potential of the operation, along with a number of instrumental recommendations that were promptly followed.

There was only one BSTDB weaknesses, already addressed in section II.A.2.: the insufficient depth/quantification of the economic analysis and the overoptimistic price forecast, due to the lack of sufficient external/independent expertise. However, the shortcomings were mitigated by various measures and prudent further monitoring and analysis, as per the recommendations of the mid term evaluation of 2002.

D.2. Financial

BSTDB negotiated terms and conditions that were assessed as very beneficial: The operation is a very good revenue generator and resulted in substantial profit.

[19] VP Banking requested the mid-term evaluation in early 2002.

III. EVALUATION RATING ON PROJECT PERFORMANCE

A. Rating system

The Evaluation Office applies five evaluation criteria, commonly used by the evaluation units of the Multilateral Development Banks[20]: *Relevance, Effectiveness, Efficiency, Sustainability, Institutional Development Impact.* The rating under these *5* criteria results in an aggregate rating category, the *Overall Performance Rating*. Details on the 5 *rating criteria* and their combined index are provided under *Annex 1.*

Under each of the main criteria, there are several sub-criteria that allow for a comprehensive rating through weighting and aggregation. Details of the rating rationale, process and benchmarks are provided under *Annex 2*. The Evaluation Office applies a symmetrical[21] four-scale IFI-harmonized rating system: *Excellent, Satisfactory, Partly Unsatisfactory and Unsatisfactory*.

B. Rating outcomes

B.1. Relevance

The project was exceptionally relevant given its compliance with: (i) BSTDB's overall mission; (ii) the Environmental Policy; (iii) the Country Program (Bulgaria); and (iv) the current economic/financial/environmental situation in Bulgaria. It served as a unique example of mandate fulfillment with broad impact, additionality and mobilization of funding.

Rating: ***Excellent*** Satisfactory Partly Unsatisfactory Unsatisfactory

B.2. Effectiveness

Objectives were achieved as envisaged, despite some delays and financial constraints.

Rating: ***Excellent*** Satisfactory Partly Unsatisfactory Unsatisfactory

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[20] For the purpose of international validity and comparability of assigned evaluation ratings, both evaluation methods and criteria are harmonized.

[21] I.e. two positive and two negative rating categories, thus avoiding ambiguous judgment "in the middle".

B.3. Efficiency

The overall progress, backed by a high additionality, reasonable costs, consultation with evaluation-derived lessons as well as the sound revenues obtained, is considered a success that deserves acknowledgement and should be maintained.

Rating: $\boxed{\textit{Excellent}}$ Satisfactory Partly Unsatisfactory Unsatisfactory

B.4. Sustainability

The project sustainability has been challenged by moderate financial weaknesses in the Client's performance, and a breach of covenant.

Rating: Excellent $\boxed{\textit{Satisfactory}}$ Partly Unsatisfactory Unsatisfactory

B.5. Institutional Development Impact

The facility has contributed to the Client's/country institutional development in terms of enhanced environmental prudence and compliance with EU standards.

Rating: Excellent $\boxed{\textit{Satisfactory}}$ Partly Unsatisfactory Unsatisfactory

B.6. Overall performance rating

The aggregation of the above ratings follows a particular logic[22] of weighting, as outlined in table.

Rating: $\boxed{\textit{Excellent}}$ Satisfactory Partly Unsatisfactory Unsatisfactory

[22] This logic does not apply any mechanistic/formalistic weighting approach but is addressing a specific set of combinations of ratings of the performance criteria in order to derive the OPR as a rating of combinations of criteria ratings rather than just a weighted arithmetic average of scores. While the aggregate nature of OPR gives useful single measure for a project's overall performance, it also allows for further analytical work, e.g. comparisons across sectors, countries, years, portfolios and IFIs. However, it does not diminish (or substitute) the use and importance of the ratings on each individual criterion, as these ratings reveal essential measures on particular issues that are masqued by the process of aggregation.

Table 2: Overall Performance Rating

CRITERIA:	**RELEVANCE***	**EFFECTIVENESS***	**EFFICIENCY***	**SUSTAINABILITY**	**INSTIT. DEV. IMPACT**
OPR					
<u>Excellent</u> **(4) ►►►►**	a) 4 b) $\boxed{\mathbf{4}}$ or 3 c) 4 or 3 d) 4	4 $\boxed{\mathbf{4}}$ 4 3	4 or 3 $\boxed{\mathbf{4}}$ 4 or 3 4 or 3	4 or 3 4 or $\boxed{\mathbf{3}}$ 4 4	4 or 3 4 or $\boxed{\mathbf{3}}$ 4 or 3 4
Satisfactory (3)	a) 4 or 3 b) 3 or 2 c) 4 or 3 d) 4 or 3	4 or 3 4 or 3 2 4 or 3	≥ 2 4 or 3 4 or 3 4 or 3	4 or 3 4 or 3 ≥ 1 3 or 2 or 1	≥ 1 ≥ 1 ≥ 2 ≥ 2
Partly Unsatisfactory (2)	a) ≥ 1 b) ≥ 1 c) ≥ 1 d) ≥ 2	≥ 1 ≥ 1 ≥ 2 4 or 3	≥ 1 ≥ 1 ≥ 1 ≥ 1	≥ 1 ≥ 2 ≥ 1 4 or 3	≥ 2 ≥ 1 ≥ 1 4 or 3
Unsatisfactory (1)	Any other	Any other	Any other	Any other	Any other

** If any two of the criteria marked with "*" is rated with "1", the Overall Performance receives a rating of 1, Unsatisfactory, regardless of the ratings on other Criteria.*

IV. CONCLUSION AND RECOMMENDATIONS

A. This project is particularly relevant towards the BSTDB mandate as it aimed and achieved a rare combination of multiple objectives: environmental improvement, health/safety, employment, export growth, private sector development, competitiveness and even some regional trade/cooperation. It underlines the BSTDB commitment to the environment and, being the first project of this type, has contributed to the enhancement of the Bank's image. BSTDB may use the project as a case for replication and further PR.

B. Project performance was kept on track with the prompt implementation of measures, some of which were recommended by a mid-term evaluation report that utilized a novel evaluation methodology. This allowed the operation to be the second one ever rated as excellent upon its final evaluation.

C. BSTDB has prudently prepared/managed the project, with two exceptions: (a) its economic/financial analysis did not have sufficient depth; it provided an overoptimistic "worse case price scenario" that mismatched actual prices by over 25%. The recommendation is to enhance (future) financial/economic analysis accordingly, whereas in the cases of specifically volatile situations (commodity price dependence) the Bank should seek independent external expertise; (b) the second issue was the inadequate setting-up and articulation of a hedging covenant whose level was too low and its scope too broad, and was not well understood (ant therefore breached by the borrower. As a general rule, the Bank should always be aware of its sponsors' hedging activities. A potential sponsor's hedging program should be reviewed thoroughly by specialized staff and/or by other expert advisors satisfactory to the Bank. The Bank should make sure that all covenants are realistic and well articulated.