Nepal: Rehabilitation of Chobhar Cement Factory

Final inspection and ex-post evaluation

Project:	Rehabilitation of Chobhar Cement Factory	
OECD sector	32166 – Cement/lime/gypsum	
BMZ project ID	1983 65 322	
Project-executing agency	Himal Cement Company Ltd. (HCC)	
Consultants	a) Dyckerhoff Engineering GmbH - Technische Unterstützung und Trainingsmaßnahmen b) Price Waterhouse, Calcutta (PWC) - Finanzconsulting c) ITECO Engineering Ltd. - Technische Unterstützung Umwelt	
Year of ex-post evaluation	2004	
	Project appraisal (planned)	**Ex-post evaluation (actual)**
Start of implementation	1. Investment in fixed assets: Q 1/85	1. Investment in fixed assets Q 1/87
	Financial management: Q 4/96	Financial management: Q 4/96
Period of implementation	Investment in fixed assets: 18 months	Discontinued after 191 months
	Financial management: Q 4/96	Discontinued after 65 months
Investment costs	EUR 6.5 million	EUR 12.3 million
Counterpart contribution	EUR 2.9 million	EUR 0.0 million
Financing, of which Financial Cooperation (FC) funds	EUR 3.6 million	EUR 12.3 million
Other institutions/donors involved	None	None
Performance rating	**5**	
• **Significance / relevance**	5	
• **Effectiveness**	5	
• **Efficiency**	6	

Brief Description, Overall Objective and Project Objective with Indicators

The project comprises the rehabilitation of the state-owned cement works Himal Cement Company (HCC) in Chobhar, Nepal, which was originally financed from German commodity aid. The complete production line, which was delivered in 1967 but did not go into operation until 1975, was designed for an output of 48,000 tonnes of cement annually (300 days at 160 tonnes). If it had reached the intended capacity utilisation of 90% after its rehabilitation it would have covered around 18% of Nepal's cement needs (around 250,000 tonnes). In 1984 FC funds were made available for the first time to finance the rehabilitation measures in an amount of EUR 3.58 million. In 1987 the FC funds were increased by EUR 0.51 million, in 1992 by EUR

4.60 million and finally, in 1995, again by EUR 3.58 million to a total of EUR 12.27 million. In addition, in 1990 the sum of EUR 21,700 was provided from the Studies and Experts Fund for the preparation of a restructuring concept and a further EUR 123,700 was provided from the Special Fund for Project Preparation between 1993 and 1996 for three short-term expert assignments. The remaining available balance amounts to EUR 251,507.95 and can be reprogrammed. Annex 1 contains a summary of key project data.

Target system: At the time of project appraisal (1983) there was no formalised target formulation with a clear hierarchy of targets and indicators. A target system was subsequently formulated only in the course of project implementation which, however, failed to contain a clear hierarchy (overall objective, project objective) or a comprehensive quantification supported by corresponding indicators.

Overall objective/project objective: (a) To improve the continuous output of the German cement line to 45,000 tonnes per annum, (b) to reduce dust emissions, (c) to durably restructure the project-executing agency. No indicators were defined for project objectives (b) and (c).

Project Design / Major Deviations from the original Project Planning and their main Causes

The basic idea of the project was to rehabilitate the cement line of the Chobhar Cement Factory (HCC) which had been financed and supplied from funds of German commodity aid in 1967. It was not put into operation by the project-executing agency until 1975, after all warranties on materials and equipment had expired and after the supplier, the firm Loesche, had withdrawn the personnel that was breaking the line in after disputes with the HCC management. The technical operation of the plant was never satisfactory. The contractually scheduled output (48,000 tonnes per annum) was not achieved. Already in the early 1980s important parts of the plant were heavily worn down, mostly because of negligent or inadequate maintenance, which lead to a considerable decline in production. As the HCC nevertheless managed to generate profits as a result of the very favourable situation on the cement market in the early 1980s, the technical rehabilitation of the plant was considered a sound approach.

At the time of project appraisal in 1983, it was assumed that (a) the procurement of new stone quarrying equipment; (b) the laying of a mixing bed and a clay dryer; (c) the installation of a new mill for the production of raw meal (d) the replacement of the bottom part of the shaft kiln; and (e) minor mechanical and electrical improvements would essentially be the way to reduce the production bottlenecks so as to allow the existing plant to produce 45,000 tonnes of cement annually. In order to reduce the negative impact on the environment the dust emissions were to be reduced through the installation of electrical filters. Under a service agreement concluded in addition to the supply contract the operating personnel were to be given technical training by the supplier. Because of the positive earnings situation of HCC the financing was based on the assumption that HCC would be able to finance the total local costs and part of the further rehabilitation costs (EUR 2.9 million in total) from funds of its own.

At the same time the FC project was being implemented, HCC pursued the construction of a further commercially financed cement production plant (output of 60,000 tonnes a year). For this plant it had concluded a contract with a Chinese supplier at commercial terms and conditions. The plant was to start production in 1986.

The original project conception for the Chobhar cement factory was never implemented satisfactorily. The construction and operation of the Chinese production line was fraught with

unexpectedly serious difficulties. It was completed two years behind schedule. Because of technical flaws, only 25% to 30% of the planned capacity was utilised, and it had to be shut down again in 1990. The Chinese production line turned out to be a bad investment and led to high losses of revenue. It also turned out that the simultaneous implementation of the two projects was much too high a burden for HCC's financial, technical and management capacities. For this reason the contract for the rehabilitation measures on the German production line was not awarded until the end of 1986. Because the FC funds originally made available were insufficient due to cost increases for the financing of the planned measures, they were increased for the first time by EUR 0.51 million in 1987. By the end of 1988, after the supplies were completed, it became apparent that the financial position of HCC was already extremely precarious, particularly because of its debt service obligations for the Chinese plant. HCC was unable to raise the local costs, particularly for the assembly of the delivered plant. Despite the German government's intervention the Nepalese state did not provide HCC with the necessary funds. The plant components already delivered had to be stored for several years. Warranties on material and workmanship expired.

In 1990 the auditing firm PWC was commissioned with the preparation of a financial status and restructuring concept for HCC to clarify its financial situation and explore possibilities for financial restructuring. This work was financed from the Studies and Experts Fund. The result was that HCC was de facto insolvent. However, it appeared to be an economically sound idea to rehabilitate the German and Chinese cement production lines. For one thing, the cement price was still quite high because of the demand overhang. For another thing, HCC enjoyed considerable transport cost advantages over foreign producers as it was located directly in the centre of consumption. It was considered that a local cement production would still be economically reasonable provided the state restructured HCC's finances prior to rehabilitation.

At the beginning of 1991 all parties agreed to a restructuring concept. It consisted in converting outstanding state loans into equity and in a moratorium on bank loans taken up by HCC. The German and the Chinese cement production line were to be rehabilitated from FC funds. The decision on a the restructuring concept represented the fulfilment of a precondition for a further increase of the FC funds (EUR 4.6 million), which was effected in March 1992. In order to support the restructuring of HCC, it was agreed that the local rehabilitation costs and the necessary working capital for the German cement production line would also be financed from the supplemental FC funds. PWC was commissioned to control the execution of the reconstruction of HCC and to support HCC in setting up a financial management and accounting system.

The civil works now financed from FC funds and carried out in 1992/93 enabled the assembly of the plant components that had been stored for five years, most of which were in good technical condition. The examination of the existing plant revealed that further damage had occurred in the meantime. This damage had to be repaired to enable uninterrupted operation. In order to determine additional replacement needs an extended reconstruction concept was worked out by the end of 1993. It included a three-stage rehabilitation (REHA 1 to 3). REHA 1 was to cover the replacement of damaged or missing small components from the supplies of 1987/88 and the acquisition of some laboratory equipment for quality control. REHA 2 comprised supplies for the long-term recovery of the intended production output and for the improvement of pollution control through the modernisation of filter equipment for the German production line (installation of a wet separator). REHA 3 comprised supplies also for the Chinese production line with

modern jet filters and a wet separator. To finance the measures of REHA 1-3 we had proposed in our progress report of March 10, 1994 to increase the German FC contribution by a further EUR 3.58 million to a total of EUR 12.27 million. A corresponding financing agreement was signed in April 1995.

After the board of supervisors dominated by government representatives had replaced the qualified general manager of HCC serious problems occurred among the staff of HCC because of the management weakness of the successor (formation of factions). The implementation of the restructuring plan began to stagnate. The proposal contained in our progress report dated December 19, 1994 to the BMZ, which was to explicitly demand from the Nepalese partner the creation of the staff and organisational prerequisites for a successful implementation of the project or otherwise to suspend it, was not answered. In the inter-governmental consultations of May 1995 the BMZ made it clear that it was not prepared to provide any further FC funds for the project. All further requests for financing from the Nepalese government were subsequently denied with reference to this decision.

The incompetent management had grave consequences for the technical and financial operation of HCC (sloppiness, lack of sense of responsibility, financial problems). At the end of 1995 we were convinced that the operational problems could be solved only by privatising HCC or by having it taken over by a private management (buy-in), and we submitted corresponding proposals to the BMZ. In the inter-governmental negotiations of December 1995 it was agreed that PWC would work out a concept for the takeover of HCC by a private management. However, the proposals contained in the report submitted in 1996 were not pursued further because the Nepalese side in the meantime had decided to privatise HCC completely. On the other hand, no specific steps were taken until the German side threatened to suspend the project on the occasion of the inter-governmental consultations at the end of 1997. Yet the privatisation of HCC did not materialise because the Nepalese government rejected the bids submitted under the tender claiming they were financially unacceptable, but it did not order a new tender.

The FC-financed rehabilitation measures had been continued and completed in August 1997 with the exception of the pollution control measures (entry into operation of the already installed wet separator for the German and installation of the wet separator for the Chinese production line). The higher performance of the rehabilitated plant components, however, failed to achieve the intended production increase because of repeated shutdowns owing to neglected or inadequate maintenance. For example, the roof of the clinker hall of the HCC was not cleaned for years. Rainfall made the cement dust that had settled on the roof so heavy that it caved in.

After the German Consultant Dyckerhoff Engineering GmbH refused to renew the repeatedly extended contract at the end of 1997, the Swiss consulting firm ITECO Engineering Ltd. was contracted for these tasks. In early 2000 it determined that the already installed wet separator on the German production line could be put into operation after minor modifications. The parts supplied for the Chinese production line were also rated as being complete and ready for operation. Yet the wet separators were not put into operation because the Nepalese government was not willing to provide the necessary counterpart funds (around NPR 34 million or approximately EUR 0.4 million). Negligent maintenance further deteriorated the condition of the two production lines of the cement factory. Its capacity utilisation fell to about 20% in 1999/2000.

In the middle of the year 2000 rumours spread about the imminent shutdown of the HCC. The official explanation was that the limestone reserves in the nearby quarry were running low and that the population in the Kathmandu valley was increasingly concerned about pollution caused by the cement factory. The decisive reason, however, was most likely the financial difficulties of HCC, which were becoming increasingly acute. In 2001 it was no longer able to pay raw-material supplies and electricity bills or purchase spare parts. HCC suspended its debt service. At the end of 2001 the operation of HCC was stopped by government decree and the staff was laid off as per January 18, 2002. However, the Nepalese Supreme Court ordered the personnel to be rehired by preliminary injunction on January 22, 2002. Production, however, was not resumed. The plant was finally shut down on May 1, 2002.

At the inter-governmental negotiations of April 2002 the Nepalese government pledged to send us a report about the current financial and material situation of HCC. It also announced that it would attempt to sell plant components that were still in working order to reduce the book losses. Despite repeated inquiries we have not yet received in this report.

The supply contracts included in the list of goods and services were financed from FC funds (reimbursement procedure). The wet separator financed from FC funds for the German production line was installed but did not go into operation. The wet separator for the Chinese production line, also financed from FC funds (purchase price of EUR 303,000) has been standing on the operating premises of HCC since 1996. Two Toyota all-terrain vehicles financed from FC funds (purchase price EUR 33,000) were confiscated by the Ministry of Industry already during the operation of HCC. The Nepalese side failed to respond to our protests. The vehicles cannot be returned because the project-executing agency no longer exists. In January 2000 the last payment was made in favour of the working capital fund (EUR 148,000). The use of these funds was not documented but it can be assumed that the working capital was exhausted by the time the plant was shut down so that a demand for reimbursement of these funds can be dispensed with. After the dissolution of the project-executing agency HCC and the hardly cooperative attitude of the Nepalese government, there would have been little likelihood of this demand being met.

In summary, the main deviations from the original project conception were as follows:

(1) Delayed implementation from originally 18 months (up to II/86) to 191 months.
(2) Repeated expansion of the originally planned rehabilitation measures because of defects that occurred in the meantime.
(3) A large share of the domestic costs was financed from FC because of financial weakness of HCC.
(4) The total cost increased by approx. 240% because of (2) and (3).
(5) The wet separator for the German production line was installed but did not go into operation. The wet separator for the Chinese production line was not installed.

The main reasons for these deviations were:

- The technical problems with the Chinese production line which produced serious financial problems for HCC from the second half of the 1980s. HCC was then no longer capable of providing the agreed counterpart contribution. In addition, the parallel

implementation of two large investment projects proved to be too heavy a burden for the management, a fact that delayed the implementation of the FC project.
- The replacement in 1994 of the general manager by a technically and financially not qualified successor who was appointed by the Industry Minister.
- Negligent maintenance of the plant and insufficient acquisition of spare parts and imports necessary for operation.
- Lack of a sense of ownership (indifference, no sense of responsibility) of the project on the part of almost all Nepalese authorities involved.
- Non-fulfilment of obligations which the Nepalese side assumed towards the German federal government in the inter-governmental negotiations/consultations.

Key Results of the Impact Analysis and Performance Rating

At project appraisal less than 50% of the existing production capacity of HCC was being utilised. After a slight improvement at the beginning of the 1990s capacity utilisation fell from 44% (German line 55%, Chinese line 32%) to 20% (German line 27.4%, Chinese line 14.1%) from 1996/97 to 2000/01. HCC shut down its operation completely in 2002. The intended production targets were never achieved.

It became apparent for the first time in the 1980s and then again from 1994 that HCC did not have the strength to maintain a sustainable production.

The project conception was altogether fraught with considerable risks which were inadequately recognised both at the time of project appraisal and in the course of implementation. Thus, at the time of appraisal a risk was seen only in regard to proper maintenance and repairs of the plant for lack of foreign currency for the purchase of spare parts. Risks stemming from the inadequate financial qualification of the management and political meddling in the state-owned HCC ultimately had been underestimated. The economic risk from the purchase of a Chinese production line for HCC was not evident until project implementation. During the course of further implementation, risks resulting from the low willingness of the Nepalese government to consistently implement a viable restructuring of HCC and the risk of politically motivated intervention in the management (staffing of the general manager position) of HCC were underestimated. Its position as a state-owned enterprise proved to be a liability for the quality of the management and the entrepreneurial decisions taken by HCC. As became evident during implementation, the underlying assumption at project appraisal that the problems of HCC could be solved by eliminating technical defects in the area of production was ultimately not appropriate.

After its rehabilitation the German production line was used at only around 55% of its annual production capacity. Components financed from FC funds (wet separator) did not go into operation or were not installed. At no point in time did the project achieve the overall objective or any of the project objectives. What is to be rated positively is that the cement produced with the aid of the FC-financed components between 1986 and 2002 (plant shutdown) was sold and part of the demand for cement was covered. We rate the **effectiveness** of the programme as **clearly inadequate** (sub-rating: 5).

The project was intended to strengthen the domestic cement production, contribute towards ensuring the low-price supply of cement for Nepal's economy and reduce cement imports. From today's perspective this objective is to be regarded as being of little developmental relevance. The project made a minor contribution overall to safeguarding the supply of cement. It was not

possible to reduce the dependence on cement imports as planned. In 2001/02 imports from India and China covered over 700,000 tonnes of Nepal's annual demand for cement (2001/02: 1.2 million tonnes). The economic effects (supply of cement for Nepal's economy at a price lower than that of imports) were achieved only to a minor degree and for only a limited period of time. We rate the **relevance/significance** of the project as **clearly inadequate** (sub-rating: 5).

A high commercial and economic benefit (ERR of 22%) had been forecast for the project at the time of its appraisal. The costs increased by around 240% because of constantly expanding rehabilitation measures. Plant components (wet separator) did not go into operation. Its production efficiency must be rated negative. The inadequate commercial efficiency ultimately led to the enterprise's bankruptcy (insufficient allocation efficiency). We rate the **efficiency** of the project as **a complete failure** (sub-rating: 6).

In consideration of the three key categories above, we rate the **developmental effectiveness** of the project as **clearly insufficient (rating 5)**.

As reported, the dust emissions from cement production were not reduced as planned because the wet separators were never put to use. As the cement factory was shut down, no action needs to be taken. We rate the environmental relevance of the project as E0. Immediate poverty or gender-specific impacts were not intended and did not occur (poverty identifier: EPA, gender identifier: G0). The project did not pursue the goal of improving governance. Impacts in this respect are not evident (PD/GG 0).

General Conclusion applicable to other Projects

The project confirms the finding obtained in other FC projects that unfavourable conditions of state-owned commercial enterprises as a rule harbour unacceptably high sustainability risks (lack of efficiency, lack of sense of ownership).
In such cases technical measures alone cannot ensure sustainability. What is also needed is a far-reaching restructuring of the enterprise (privatisation). As a result of the mostly negative experience gained, German FC has not financed state-owned industrial projects anymore for quite some time.

Legend

Developmentally successful: Ratings 1 to 3	
Rating 1	Very high or high degree of developmental effectiveness
Rating 2	Satisfactory degree of developmental effectiveness
Rating 3	Overall sufficient degree of developmental effectiveness
Developmental failures: Ratings 4 to 6	
Rating 4	Overall slightly insufficient degree of developmental effectiveness
Rating 5	Clearly insufficient degree of developmental effectiveness
Rating 6	The project is a total failure

Criteria for the Evaluation of Project Success

The evaluation of the "developmental effectiveness" of a project and its classification during the ex-post evaluation into one of the various levels of success described in more detail below concentrate on the following fundamental questions:

- Are the project objectives reached to a sufficient degree (aspect of project **effectiveness**)?
- Does the project generate sufficient developmental effects (project **relevance and significance** measured by the achievement of the overall development-policy objective defined beforehand and its effects in political, institutional, socio-economic and socio-cultural as well as ecological terms)?
- Are the funds/expenses that were and are being employed/incurred to reach the objectives appropriate and how can the microeconomic and macroeconomic impact be measured (aspect of efficiency of the project conception)?
- To the extent that undesired (side) effects occur, are these tolerable?

We do not treat **sustainability**, which is a key aspect of project evaluation, as a separate category (as the World Bank does) but instead consider it as a cross-cutting element that concerns all four fundamental questions of project success. A project is sustainable if the project-executing agency and/or the target group are able to continue to use the project facilities that have been built for a period of time that is, overall, adequate in economic terms or to carry on with the project activities on their own and generate positive results after the financial, organizational and/or technical support has come to an end.