Restructuring the Fertilizer Industry in Zambia

The Zambia Fertilizer Restructuring Project, recently audited by OED, was designed to improve the efficiency of Nitrogen Chemicals of Zambia Ltd. (NCZ) and to reduce Zambia's reliance on imported fertilizer. The disappointing outcome of this complex project had much to do with the incentives faced by the parties involved and with the company's ownership structure. The audit reviews the issues and draws lessons.*

Project goals, scope

NCZ, now Zambia's second largest industrial enterprise, was established in 1967 to produce ammonium nitrate explosives for copper mining. The plant also produced ammonium nitrate fertilizers and operated at high capacity through the 1970s. In the mid-1970s, to support an increased emphasis on agriculture, the government chose to expand NCZ to increase domestic fertilizer production. As a result, the company became largely a fertilizer producer.

The expansion project involved building a second production line which never worked well, and this prompted the restructuring project. The restructuring project (approved 1986, completed 1991) sought to raise NCZ's production efficiency so that Zambia could reduce its reliance on imports and save foreign exchange. The project played a part in the country's industrial strategy, whose goals included paying more attention to the links between industry and agriculture and to the performance of large-scale, capital-intensive public investments.

The project had two components:

- The policy and institutional component, financed by IDA, provided for increasing output prices, overhauling management, upgrading staff skills, and restructuring company finances. An operations management firm (OMF) was hired, following IDA guidelines, to implement the institutional component.
- The physical support component covered the technical rehabilitation of the first production line (NCZ I, a coal-based ammonium nitrate plant using proven technology), financed by Japan's Overseas Economic Cooperation Fund; the second production line (NCZ II, also a coal-based plant producing ammonium nitrate and compound fertilizers using unproven technology), financed by the German Kreditanstalt fur Wiederaufbau; and offsite infrastructure and environmental facilities, financed by NCZ itself. OMF had the mandate to coordinate and supervise the rehabilitation work.

IDA was to supply $10 million of a total project cost of $69 million.

Implementation

Both the NCZ I and NCZ II plants needed full technical restructuring. Successful restructuring depended on all the components within each plant being completed properly and on time. Poor work or a delay in one component would delay and jeopardize the entire restructuring of the plant.

But the project got off to a shaky start from which it never fully recovered. The NCZ I rehabilitation was successfully carried out, but not so the NCZ II remodeling or the off-site development, both of which had long delays and substantial cost overruns.

Government lacked the budgetary resources to meet the financing commitments set out in the credit agreement. The provision of foreign exchange was affected by the suspension of IDA disbursements to Zambia in 1987, IDA's performance was mixed; supervision in the initial years was poor.

The policy and institutional component was not successfully implemented. Policy measures to liberalize the industry were subject to the government's own timing and were delayed. Institutional issues were addressed through the OMF, whose resources were spread too thin for the ambitious changes sought, and which did not get along well with NCZ's top management.
Results

While the ERR expected at appraisal was 26.8 percent, the return calculated at project completion was negative, at -19.7 percent. The foreign exchange spent for the rehabilitation reached almost twice the appraisal estimate. NCZ is neither fully rehabilitated nor operating efficiently; it has not increased production by much, and capacity utilization is still very low. Its operations are not sustainable without further rehabilitation. On the positive side, substantial financial restructuring has been implemented since the restructuring project closed.

The project’s only major achievement is that all key NCZ management positions are now held by Zambians. High-level staff are better motivated and more experienced than before.

Issues and lessons

Design

Design for the NCZ II rehabilitation was based on a 1983 assessment of the plant that did not provide for the additional rehabilitation requirements that arose. Success would have been more likely had the contractor been given responsibility—tied to the achievement of performance standards—for full rehabilitation of the plant and of the off-site areas.

Another important design flaw was lack of clarity over the responsibilities of the OMF.

Management

The project failed partly because the government and the company’s board did not seem to have a clear strategy for NCZ’s rehabilitation and development. Eventually a dual management structure developed, widely differing in approach and management style: one deriving from the managing director (appointed by the Board/government) and the other from the management put in place by OMF to coordinate the rehabilitation work.

Performance incentives

The successful implementation of the NCZ I component, which was completed only one month behind schedule, differs sharply from the extremely poor implementation of the NCZ II rehabilitation, which had long delays and high cost overruns.

The Japanese firm assisting with NCZ I had a share in the company. This share, though very small, reflected a concrete interest in the success of the rehabilitation and a very strong commitment, as co-owner, to the project overall.

The German contractor assisting with NCZ II was not invited to participate as a joint venture partner, but only as a contractor with the task of executing part of the rehabilitation deemed necessary in a 1983 assessment. The limited contractual responsibility and the firm’s lack of ownership resulted in minimal motivation to do a good job.

The Board and management of NCZ lacked a true incentive to minimize costs. NCZ now faces competition from low-priced imports, but because fertilizer is viewed as a strategic industry the government will not let the company go out of business. As owner, manager, regulator, financier, and supplier of a “strategic” product, the government has conflicting objectives that do not necessarily lead to efficient production.

The experience suggests that owners of technology should have shares in the company’s capital so that they will have a stake in its long-term profitability, as well as a sense of commitment to, and responsibility for, the project. Their rewards should be tied to the successful performance of the technology.

• Looking to the future, if further rehabilitation is deemed profitable, the Bank may want to discuss with NCZ the potential costs and benefits of a diversified share-holding structure for the company, in which technical partners would be shareholders.

• Such complex projects will not succeed without an adequate enabling environment, especially price and competition policy incentives.

Supervision, monitoring

The Bank should have supervised this project more actively in the crucial early period; complaints raised early on were not addressed and contributed to mounting difficulties as time passed. It should have insisted on detailed plans for implementation of OMF’s work and been more thorough in assessing the work of OMF. Had the Bank thoroughly vetted the OMF team and effectively resolved complaints and problems as they arose, some of the difficulties and delays might have been prevented.

• While making price a major factor in selecting a contractor, care should be taken that this does not lead to false economies, if the winner tries to economize on the quality of staff.

• In such a complex project, a thorough evaluation of the management team and a detailed plan for monitoring implementation are vital. If problems arise they should be addressed early on.

Financing

• Rehabilitating technically complex installations requires large contingency funds and the acknowledgment of one donor as the leader, fully committed to promoting active participation of all parties and to achieving overall results.