

## Private Industry

In the primary and manufacturing sectors, joint ventures with Mexican companies are the principal mechanism for the exchange of capital and technology. Typically, the Mexican partner has a good knowledge of the local market, along with an established clientele. But it usually lacks sophisticated product or process technologies. The Canadian partner, on the other hand, has technology and expertise, in addition to capital, but faces formidable cultural barriers to moving into Mexico. Technological joint ventures provide a way of bringing these capabilities together. In sectors such as mining, where the product is a commodity not particularly vulnerable to cultural influences, Canadian companies tend to be the project leaders.

The modernization of Mexican industry has been impeded to some extent by the fact that, after decades of operating in a protected environment, many Mexican companies do not really understand their own limitations or how technology can improve their operations. They tend to see cheap labour as an inherent asset and to focus modernization efforts on management information and financial systems rather than on production. It takes time and patience to show them the power of product and process technologies.

Competitive factors will ultimately overcome these obstacles. Family-owned Mexican firms are being overtaken in the marketplace by multinational corporations and the *grupos*, huge Mexican holdings. Industrial concentration is increasing rapidly. Improving productivity and quality to take advantage of Mexico's export boom is the principal survival tactic in this environment.

## Public Infrastructure

Mexico's public infrastructure is in desperate need of expansion and modernization. Roads, telecommunications, electric power, water supply, waste treatment, natural gas

transportation and distribution, housing, schools, health care, railways and urban transit systems are all areas of major need. In the past, the construction of these facilities has been a public responsibility, but the tendency to use public enterprises as a job-creation tool, combined with an over-reliance on domestic technologies, has left the nation with an infrastructure that cannot meet the needs of its rapidly growing population.

Two developments are likely to provide solutions to this crisis. First, the Mexican government has already acted in several areas to reduce its reliance on home-grown solutions and to obtain foreign technology. For example, in 1992 Montréal-based Bombardier bought out Constructora Nacional de Carros de Ferrocarril (Concarril), the state-owned rail and subway car manufacturer. As a result, Canadian technology is being used in mass-transit developments in Mexico. In 1994, the CFE — the federal electricity commission — announced that it would be relying on private sector developers for 60 percent of its new electrical power projects. It has also allowed industrial customers to self-generate or co-generate their own power. Decision making for local projects has been decentralized, and state and municipal governments have been free to buy imported technology. Public-housing authorities are now acting as developers and financiers rather than construction firms. These examples reflect a pervasive change in policy. Privatization has supported the trend, as newly privatized companies such as Telmex have switched to more productive technology, much of it from foreign sources.

The second development has been a new attitude on the part of the government towards innovative financing mechanisms. The law has allowed public infrastructure projects to be built on a build-lease-transfer (BLT) or build-operate-transfer (BOT) basis for some time. A shortage of capital, exacerbated by the economic crisis, has made officials much more willing to put

these tools to work. Dozens of concessions have been let for several types of infrastructure projects and many more are planned.

So far, the BOT approach has not completely lived up to expectations. This is partly because it is a new concept for government officials, who have not always been able or willing to negotiate mutually acceptable terms, especially for future price increases. Another problem is that after many years of highly subsidized public services, the Mexican public is not very receptive to market pricing. To make matters worse, government demand projections do not usually take into account the effects of future price increases on consumption.

In spite of these hurdles, most observers believe that innovative financing will continue to be the basis of most large public infrastructure projects. Some consider BLT arrangements to be more feasible than BOT in the current environment. Canadian companies that can bid on these projects, most likely as part of an international consortium, will find opportunities for both investment and sales of technology-based services.

## Electric Power

Concessions for electricity generating plants have been granted on both BLT and BOT terms, although no plants have yet been built. Early in 1995, a consortium of American and Mexican utility and engineering companies received a concession for Samalayuca II, a 700-megawatt thermoelectric plant in northern Chihuahua state. The consortium will design, build and finance construction of the plant, which will then be leased back to the CFE. This is reported to be the first plant financed entirely with private funds and without government loan guarantees. Another new electricity generating facility in the planning stages is the gas-fuelled Mérida III plant, whose construction is due to begin soon. Mérida III will differ from Samalayuca II in that private companies will be hired to manage and operate the facility

following construction. The electricity generated at the 440-megawatt plant will then be sold to the CFE.

Industry experts believe that the BLT option is the most feasible for these new plants because it does not require the concession owner to control product prices. Carbón II, a proposed BOT project in Coahuila state, was scrapped because the major partners had demanded the right to set rates for electricity generated at the plant in order to pay for costly antipollution equipment.

## Water Supply and Treatment

The Comisión Nacional de Agua (CNA), the national water commission, has designated 104 municipalities as priority areas for upgrading existing water and sewage facilities or building new plants. The CNA's first objective will be primary sewage treatment. Secondary and tertiary treatment will follow in later phases.

The larger state enterprises are also potential customers. Both PEMEX and the CFE are investing in water treatment plants. In July 1994, PEMEX awarded BOT contracts, worth up to US\$50 million each, to four private companies.

Canadian companies that have participated in BOT water projects in Mexico say that competition is stiff, especially from Mexican companies. Municipal BOT projects often attract 20 to 25 proposals. The Monterrey conglomerate Cydsa is one of the top companies in the industry. According to a company spokesperson, the firm is designing, constructing and operating two municipal BOT water treatment plants in Chihuahua, as well as two more located at refineries owned by PEMEX. The predominance of local companies stems from the fact that the civil-engineering component of most water projects is much larger than the advanced-technology element. Several Canadian companies with innovative environmental technologies have found Mexican partners that can handle the lower-technology elements.