

1. BACKGROUND

GEOGRAPHY

When Hernan Cortés, the Spanish conquistador of Mexico, was asked to describe the terrain of Mexico, he crumpled up a piece of paper, placed it down and said "this is Mexico."

About 85 percent of the country's 1,958,201 square kilometres is mountainous with numerous valleys and plateaus. The coastal plains of the east and northwest and the Yucatan peninsula make up the remaining 15 percent of the country's topography. The Sierra Madre Occidental and Sierra Madre Oriental mountain ranges run parallel to the Pacific and Gulf coasts, respectively. The central plateau region, with an average altitude of 2,000 metres, lies between the two mountain ranges. The majority of the country's population is found on the central plateau, including the world's largest megalopolis, Mexico City, which has about 20 million inhabitants and is growing by 375,000 people each year.

The unique geography of Mexico, with its rugged terrain and limited water supply, makes for a poor agricultural base. Only 15 percent of the land is cultivatable. Mexico, however, is very rich in minerals and petroleum and is a major producer of silver, fluorite and strontium. In addition, it mines copper, gold, lead, zinc, iron ore, manganese, gypsum, sulphur and phosphorite. Mexico, with 45.25 billion barrels of proven oil reserves, is ranked seventh in world petroleum production; it produces 2.5 million barrels daily (1989 figures). By comparison, Canada is ranked eleventh worldwide with 1.58 million barrels of daily production (1989 figures).

With this combination of enormous natural resources, demanding topography and heavy urbanization, geographic information plays a key role in planning and decision making.

CARTOGRAPHY

Base maps for practically all other map-making functions originate with the National Institute of Statistics, Geography and Informatics (INEGI). INEGI is responsible for integrating the country's geographical data, developing the National Geographic Information System and carrying out map studies. Cartographic divisions of other government departments and private companies rely on INEGI's maps.

There are 31 states and one federal district, in which Mexico City is located. Each state in Mexico is responsible for undertaking and maintaining a land survey of its territory. Industry experts consider about 85 percent of these surveys need to be revised and updated. Most states are underfunded and, as a result, do not spend much on land surveys. More prosperous states (Sonora, Sinaloa, Guanajuato, Queretero, Jalisco, Nuevo Leon and Mexico State) have larger budgets and more advanced systems. Most state and municipal governments are primarily interested in using survey information for property tax collection purposes.

TECHNOLOGY

The country is about three years behind Canada in the commercial benchmark of personal computer equipment. A typical commercially available computer system would be a 286-12mhz processor with a 40mb hard drive and a 5-1/4" floppy drive. Such a system would cost about Cdn\$2,500. PCs with 8088 processors are still commonly marketed. Faster 386s and 486s are available for Cdn\$3,000 and up.

Larger systems, such as micro computers, workstations and mainframes are also in use, but they are not as prevalent given the high costs and limited purchasing power. In general, computer equipment is at least 50 percent more expensive than in the U.S. (usually the point of origin) due to import duties (20 percent), value-added tax (10 percent), and shipping and customs brokers' fees (about 20 percent), and higher dealer markups.

Mexico's entry into the General Agreement on Tariffs and Trade in the 1980s and the North American Free Trade Agreement (NAFTA) have created downward pressure on the prices of imported technology as a result of increased competition from foreign suppliers entering the market and government reductions of tariffs.

TRENDS

Several trends in Mexico are contributing to a heightened demand for new technology. This trend will work favourably for Canadian firms to introduce geographic information systems into Mexico.

Under the presidency of Carlos Salinas de Gortari (1988-1994), there has been a process of streamlining government, pressuring government departments to be more efficient and effective.