

Imports of services, on the other hand, appear to have been limited except in highly technical areas. The main exceptions are a few large geographical information systems (GIS) installations such as those at the *Instituto Nacional de Estadística, Geografía e Informática (INEGI)*, National Institute for Statistics, Geography and Informatics, and the *Secretaría de Desarrollo Social (SEDESOL)*, Secretariat of Social Development. Both of these projects were undertaken by Canadian companies with support from the Government of Canada.

Many experts believe that Mexico needs more foreign services, especially in the areas of project design, systems integration, production techniques and spatial data conversion.

Canadian companies have enjoyed some significant successes in the Mexican GIS market. But according to many Mexican experts interviewed for this profile, they have failed to fully capitalize on these opportunities. The majority of cadastral systems are still based on American or Spanish software. Interestingly, few of the Mexican firms interviewed for this study were aware that the *INEGI* system is Canadian.

## CUSTOMERS

The major buyers of geomatics services are municipal and state governments. They use this geographic information for property taxation and municipal administration. The *Instituto Nacional de Estadística, Geografía e Informática (INEGI)*, National Institute for Statistics, Geography and Informatics, is the main provider of geographical, demographic and economic information for the nation as a whole. These organizations supply information to the *Secretaría de Desarrollo Social (SEDESOL)*, Secretariat of Social Development, which uses it to manage the nation's system of

intergovernmental financial assistance. The public sector accounts for about 80 percent of the geographical information systems (GIS) market, and cadastral update programs make up half of the public sector market.

Purchasing decisions are not left entirely in municipal and state hands. *SEDESOL* and *Banco Nacional de Obras y Servicios Públicos (BANOBRAS)*, the National Bank of Construction and Public Works, both impose their own conditions for financial assistance and *INEGI* plays a role in setting technical standards. For example:

- *INEGI* is responsible for producing all of Mexico's maps. It is presently developing an integrated, national GIS based on Canadian cartographic standards.
- *SEDESOL* is responsible for the administration of financial assistance plans for state and municipal governments. It provides half of the funding for cadastral updates under the *Programa de las 100 Ciudades*, the 100 Medium Cities Plan. It maintains a large database incorporating geographic, demographic and economic information. *SEDESOL* is using Canadian SPANS software.
- *BANOBRAS* finances half of municipal cadastral projects that fall under the 100 Medium Cities Program, and up to 100 percent under its own cadastral program.

In early 1995, the government created a new secretariat called *Secretaría de Medio Ambiente, Recursos Naturales, y Pesca (SEMARNYP)*, Secretariat of Environment, Natural Resources and Fisheries. It has taken over responsibility for the environment from *SEDESOL*, and it will manage the nation's water, forest, mineral and fishery resources. *SEMARNYP* may become a significant user of GIS technologies, but it is still in the process of re-organization,

and the amount of influence it will have is uncertain.

The agencies accountable to *SEMARNYP* include *Petróleos Mexicanos (PEMEX)*, the national oil company, the *Comisión Federal de Electricidad (CFE)*, Federal Electricity Commission, and the *Comisión Nacional del Agua (CNA)*, National Water Commission.

Several other government agencies and *paraestatales*, state-owned companies, are also users of GIS products and services. They include, *Puertos Mexicanos*, Mexican Port Authority, the *Secretaría de Agricultura, Ganadería y Desarrollo Rural (SAGDR)*, Secretariat of Agriculture, Livestock and Rural Development, the *Secretaría de Comunicaciones y Transportes (SCT)*, Secretariat of Communications and Transportation, and *Departamento del Distrito Federal (DDF)*, Department of the Federal District.

The private sector market is small and scattered. *Teléfonos de México (Telmex)*, the national telephone company, is the major private sector buyer of GIS. So far, its purchases have been limited. In 1996, telephone competition will be permitted for the first time, which may help to expand this market. Tourism development is another source of potential demand. Banks and retail franchisers are not yet using GIS technologies as they do in Canada, but they are prospects for future business.

In contrast to the experience in Canada, government programs are not normally internally initiated in Mexico. Typically, a private sector company develops a proposal and then presents it to public sector buyers. In some cases the private sector role may soon extend to financing and operating the project under a build-operate-transfer (BOT) scheme.

