

Taming Shanghai

Shanghai is bursting at the seams. Population growth and unruly property development in recent years have made urban planning in the city a nightmarish task. Now with foreign help, city officials are trying to get a handle on the problem with computer technology.

An Ottawa-based urban-planning company, Chreod Development Planning Consultants, is helping the Shanghai Construction Commission draw up a geographic information system (GIS). Such systems, which link databases on infrastructure with computerised maps, are a relatively new idea. North American cities have only recently begun to use them, according to Edward Leman, managing director of Chreod's office in Hongkong. They allow more efficient operation and better planning of water and gas lines, sewage systems, transport networks and electrical grids.

At the same time, the World Bank is designing the Shanghai Environment Project. The project could eventually entail the expenditure of up to US\$300 million on developing an environmental master plan for the city, as well as modernising the city's solid-waste management and sewage- and water-treatment facilities.

Shanghai's most urgent task is to grasp the dimensions of its problem, and this is where the GIS comes in. It will plot the location of water lines along with their carrying capacity and other technical features, making it possible to spot weak points.

The GIS will enable planners to call up the infrastructure of a whole city or a district on to a computer screen. A particular system, for example, can be called up for more detailed analysis to find an explanation for an unplanned loss of pressure in gas lines. In the case of a break in a power line in a certain district, a GIS can quickly locate the most convenient route on which to bring in back-up power.

The system will also be used in forecasting. Because of the huge amount of stored data, it will be relatively easy for planners to alter assumptions upon which development is based and to predict the consequences for other aspects of infrastructure.

For Shanghai, help cannot come too soon. The city was crowded in the 1930s when its population stood at 3 million. Today, the city proper has 8 million, with another 7 million in its municipality.

It is not simply a matter of numbers, either. Some problems result from an uneasy relationship with the central government in Peking. In 1979, Shanghai set out to devise a master plan to guide development in such areas as population, land use and transport. By the time Peking approved the blueprint in 1986, Shanghai's population had overshot the plan's target by 1.5 million, rendering most recommendations obsolete.

Chreod began work in October on the initial design of the GIS, and the work is to be completed in 10 months. But it will then take up to five years to get the system fully operational. "It takes time to digitise a city," Leman says.

The first phase of the Chreod project is being funded by a C\$530,000 (US\$420,000) grant from the Canadian International De-

tary principle that land use should be linked to property values was deemed "inappropriate for Chinese conditions." But Leman says city officials have become receptive to the notion that land can be used to generate revenue to finance Shanghai's development objectives.

Indeed, local governments throughout China are eager to use the sale of land-use rights to foreigners as a means of bringing in foreign capital. In Shanghai alone, there have been 180 major property transactions involving foreign or Hongkong investors in the past two years.

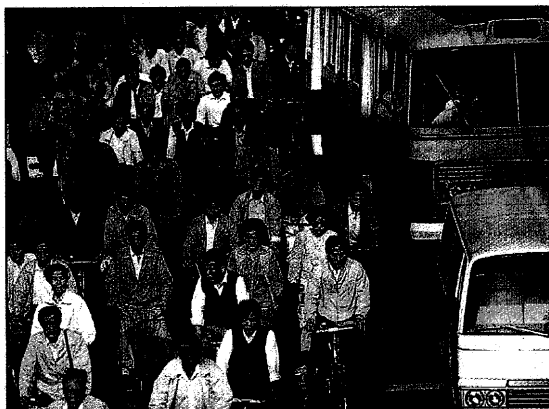
Such activity makes it more urgent to implement zoning regulations that can guide development in a way that will not choke Shanghai's lifelines. The city needs to use foreign capital efficiently, but without allowing itself to be overrun by foreign developers who may not have a proper regard for the city's broader interests. Shanghai's history as a foreign-dominated enclave makes this a sensitive issue.

In Shanghai's pre-1949 glory days, the city boasted the most highly developed urban amenities in Asia outside Tokyo. The foreign officials who managed the city's International Settlement and the French Concession built electricity networks, sewerage lines and tramways that were the equal of most European cities.

But just as political affairs in the city's foreign sectors were administered separately, so were their municipal services. Buses and sewage lines stopped at concession boundaries. Even today, these disparate systems are not fully linked. Residents often complain about the numerous places along the city's former boundary lines where raw sewage oozes to the surface, according to Shanghai native Lynn Pan, author of several books about the city.

Leaky pipes are not the only problem. Much of Shanghai does not have basic services, especially in the so-called Chinese city abutting the old French Concession. Most of Shanghai's 700,000 dwellings without flush toilets are in this area.

But officials realise now that there is no excuse for not improving Shanghai's basic services. And with the help of such international lending agencies as the World Bank and the Asian Development Bank as well as foreign companies such as Chreod, they are making a start at putting their city into better shape. ■ Carl Goldstein



Population growth strains Shanghai's seams.

velopment Agency. The later implementation of the GIS will be financed through part of the larger environmental-planning loan that Shanghai is negotiating with the World Bank. Chreod, which has a staff of nine based in Shanghai, has also completed a study of the Pudong New Development area for the Asian Development Bank.

The city's construction commission had originally asked Chreod to focus more narrowly on water, sewerage and gas lines. But the effort has been broadened to include such urban-planning issues as land use and density, property values and transport.

Shanghai's willingness to take a broader tack reflects the changes that have taken place throughout China in the past few years. When Chreod emissaries began talking to Shanghai officials about urban-development issues in 1987, they shared little common ground. At the time, the elemen-