Technopolis

Japan's tomorrow here today

Tokyo

1984 HAS turned out to be a year of high-technology fever for Japan's local governments as they vie for new status as "technopolises", "teletopias" or "new media communities".

The names, coined from English words but already in common usage, will go to areas chosen in three large-scale government schemes for new communities centred on high-technology research or advanced telecommunications facilities. The technopolis scheme, run by the Ministry of International Trade and Industry (MITI), has already chosen twelve areas and will announce the last two this week.

The image of the technopolis, enshrined in a bill that shot through the Diet last year, is of a set of new cities, each centering on an "oasis of gleaming research institutes" and containing separate areas for non-polluting high-technology industries and for housing which, set among green fields and rivers, will seem like paradise to

Motives for mobility

EXPERIENCE with Tsukuba Science City, which is only a couple of hours from Tokyo, shows how reluctant people are to move to places without major cultural or educational facilities. Critics draw parallels between California's "Silicon Valley" and Japan's "Silicon Island" of Kyushu.

Silicon Valley has San Francisco and Stanford University nearby, and there has never been difficulty in finding bright young people for the new research and development laboratories. In contrast, Japan's microchip production is concentrated in Silicon Island, but there has been little success in moving the research staff there — virtually all design work remains firmly in Tokyo. Industry is likely to be very cautious about breaking up the massive central research laboratories put together in the 1970s.

Even so, MITI can already claim at least one major success. What the technopolis scheme has done is to awaken regions far from Tokyo to the great importance of high technology in Japan's future. It would be hard to find anyone in Japan nowadays who has not already absorbed the official view of the future: "smokestack" industries must inevitably pass to the newly industrializing nations and those already industrialized must forge ahead with knowledge-intensive industries supplying high-value-added goods.

One consequence of the acceptance of this philosophy is the relative ease with which changes in industrial structure can be made. Another is the enthusiasm of even remote regions for high-technology projects. **Alun Anderson**

Tokyo's rabbit-hutch dwellers.

The essential requirements for a candidate technopolis, as laid down by MITI, are plenty of space, a large "mother" city nearby and an easily accessible airport or major rail station that would allow the technopolitans to take day trips to Tokyo. The new cities are intended both as pace-setters for the nation's high-technology development and as magnets to move population away from Tokyo into regions where jobs for educated people have so far been scarce.

The seductiveness of the technopolis image was quickly apparent: only one of Japan's 47 prefectures failed immediately to designate a candidate region when the bill was passed. When the last of fourteen regions is chosen this week, MITI will seek to implement its promise to put the technopolis infrastructure in place by 1990. But is it all just a little bit too good to be true? Many in industry see failure, or very limited success, ahead.

The obvious problem is familiar: where will the money come from? Because the plan envisages something very much more than just a Western-style "science park", huge sums of money are necessary. Tsukuba Science City (see *Nature* 305, 378; 1983), of which the technopolises are really just smaller versions, has already cost the government more than a million million yen (compared with a gross national product of around Y200 million million) since construction began in 1966.

Tsukuba is huge, it has around 50 institutes and 12,000 inhabitants. But although the average technopolis will be only a tenth of its size, it is unlikely that a technopolis could be built today for less than a quarter of that amount. But MITI's budget for the whole scheme in this tax year is only around Y1,500 million — scarcely enough to buy the bulldozers. And with both central and regional governments already hopelessly in debt, there is little chance of sudden access to new funds. Instead, MITI is relying on industry and commerce to foot the bill, and is producing a package of new tax incentives and special low-interest loans which it hopes will attract high-technology companies and their research laboratories.

Industrial critics hold that this will not be enough, and that there are other serious faults in the scheme. First, fourteen technopolises is just far too many — the number chosen represents the lobbying power of prefectural governments rather than any grand plan — two or three might have been more sensible. Second, virtually all of the sites have been chosen in under-developed regions of the country: three on the remote northwestern seaboard, eight on the southern island of Kyushu and the most southerly part of the mainland. How can good scientists and engineers be

attracted to these regions?

In the prefectures and municipalities, enthusiasm for the second of the new schemes, "teletopia" (a brainchild of the Ministry of Posts and Telecommunications), has been even wilder. Some 99 cities are competing for teletopia status even though only ten at most will be chosen this year. Unlike the technopolitans, for whom access to airports and the ability to travel has been considered, the teletopians should not have to leave their video-screens.

The ministry plans that each teletopia should try out the fundamentals of the Information Network System (INS) (see *Nature* 305, 364; 1983). Each city will build its own local system designed to serve its special needs and those of its industries. Each will at first build its own databases, be equipped with digital circuitry to make the data quickly available, have access to the Captain system (videotext broadcast over telephone lines which provides everything from weather forecasts and train time-tables to cookery and Go lessons) and cable television, and be linked to value-added network systems that will allow different kinds of computers to talk to one another.

As the system develops, electronic shopping, banking, home tutoring (including some regular schooling), medical diagnosis and video conferencing will become available, together with advanced office networks that will link word processors, facsimile transmitters and multi-purpose copiers.

At the same time, MITI is choosing seven "new media communities" to be announced at the end of this month. Already, some 135 applications have been received. The scheme is on quite a small scale and is designed to put new media, principally Community Antenna Television (CATV), to work so that information retrieval, collection and market research will be possible.

How far the three schemes will be successful remains to be seen. MITI officials, at least, say they will be pleased if the schemes are a partial success and encourage communities outside Tokyo to take up the high-technology gospel. After all, MITI regularly publishes reports entitled *A vision*. . . (as in *A vision for the 1980s*) and feels that supplying a long-term ideal for industry is an essential first step in steering the nation's industrial development. **Alun Anderson**

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