

D. Kobe, JAPAN

1. Summary of Conditions

Kobe is a relatively new city, and is now Japan's largest sea port. Scarcely existing on the map in 1800, it was designated a port for foreign ships when Japan was opened to the world after 1853. Opened to foreign trade in 1868, Kobe was incorporated in 1889, when its population had already grown to just over 100,000. Kobe's geographic location and topography give it both distinctive advantages and problems. Open to the Pacific Ocean, it became a new doorway through which Japan came into increasing contact with the rest of the world. Kobe grew to replace the more important ports of the Tokugawa era, which were focused only on domestic trade between the Han.

Kobe's topography provides both opportunities and challenges. Stretching along the sea for over 20 kilometers, Kobe is sandwiched between the sharp rise of the Rokko mountains to the north, and the rapid fall into a deep water harbor on the South. Deep waters made for excellent harboring facilities, but the narrow 4 kilometer wide strip of land meant that the city itself would be highly congested, since there was little room to expand. This became a major problem in the rebuilding after World War II, when the lack of space made the port a bottleneck in trade and a highly congested city for both industry and residence. To meet this challenge, Kobe developed a remarkable "Mountains to the Sea" strategy in the 1960s. Tops of the Rokko mountains were excavated and the fill was used to make two artificial islands that provide extensive land for port terminals, residential areas and business. This miracle of engineering has earned Kobe a high reputation throughout the world, and has made the city a beautiful, comfortable, and very efficient place in which to live and work.

Population Dynamics. When it was incorporated, Kobe contained about 134,000 people in just over 21 square kilometers of land. The city grew rapidly as both a port and a center of heavy industry, Natural increase and in-migration swelled the population to about one million by 1941. In 1940 the city absorbed a number of surrounding towns and villages to reach an area of 115 square kilometers. Just before this area expansion, the city's population density was over 12,000 persons per square kilometer. With the expansion, density fell to 8,720 persons per square kilometer, but the central wards were still very densely settled. War time bombing reduced the population to less than 400,000 and caused the destruction of more than 60 percent of the city's infrastructure.

Kobe began rebuilding immediately after the war. It also expanded its administrative area, once more absorbing surrounding towns and villages to the north and west of the Rokko Mountains. By 1958 it had almost reached its current size of 530 square kilometers. Population flowed back into the city rapidly after the war and natural increase added to the growth, bringing the population up to 800,000 by 1950, and back to its prewar population of one million by 1960: This represented an average annual growth of 3.3 per cent from 1950 to 1960. The 40,000 added between 1949 and 1950 came from 36,000 net in-migrants and 10,000 natural increase. By 1960 the source of growth was reversed as the major migration

now slowed. The 28,000 population increase between 1950 and 1960 was made up of 16,500 net in-migrants and almost 12,000 natural increase. In the next decade, in-migration slowed even further, making up only 3,000 of the near 20,000 population increase. The young population pushed the crude birth rate to 18 per 1,000 population, while the death rate dropped to 5. After 1970 the birth rate fell dramatically as Japan completed its demographic transition. Also since 1970 the city's population growth rate has slowed dramatically and it is now nearly stable at about 1.5 million. In the 1970s the city experienced a net out-migration, but today both natural increase and net migration are positive and very low.

The expansion and dramatic restructuring of the city under its "Mountains to the Sea" program saw considerable internal movement within the city, which will be described later. Central highly congested city wards have been emptied as the population has moved to more pleasant residential areas in the new suburbs created in the excavated Rokko Mountains.

Quality of Life. All major indicators of the quality of life have shown a dramatic increase over the past four decades. Infant and maternal mortality have fallen to the lowest levels seen anywhere in the world. Life expectancy is now, with Sweden, one of the two highest in the world. Literacy is as close to 100 percent as it is possible to get. All children are enrolled through secondary school, and a third go on to colleges and universities as well. All citizens have in-house access to clean water, and almost 100 percent of households are covered by the city's unique three-stream sewage system. Drainage is separated from sewage, so that heavy rains never interfere with the waste treatment. Housing has expanded rapidly, giving most people access to increasing space in pleasant suburbs. Achieving the high materials standards of a wealthy country, Kobe's consumers' lives are filled with materials goods. Almost 100 percent of households own a color television and more than two-thirds have air-conditioners, electric heaters and audio equipment. Excellent internal rail and subway systems move people efficiently and a well designed traffic system moves vehicles faster than in smaller and less congested cities (like Niigata, subject of the 1992 comparative study with Kobe). With increasing vehicle traffic, Kobe has focused on issues of safety. While the number of vehicles has grown rapidly, pedestrian deaths by traffic accident have actually declined. Vehicle traffic deaths rose to a peak of 15 per 100,000 people in 1970, and have declined dramatically to less than 10 since that time. This improvement is attributed to heavy public investment in traffic signals, pedestrian cross-ways and safe sidewalks.

A recent survey of complaints citizens have about the city's physical capital reflect both the achievements and continuing problems. The highest proportion of complaints concern neighborhood and principal roads. Next come welfare and gymnasium or recreational facilities. The lowest level of complaints concern educational facilities, the subway and local train lines, garbage disposal and disaster prevention facilities.

The Status of Women. This is an area in which Kobe and all of Japan have made much progress, but also on in which much remains to be done. The physical indicators point to the progress. Women's life expectancy is higher than men's, and the gap has actually increased slightly over the past few decades. Girls have full equality with boys in primary and secondary school enrollment. Slightly higher levels of girls than boys go from Junior to senior high school (96% vs 94%); and substantially higher proportions go from high school on to college (42% vs 30%). The city established a "Forum For Women's issues" as early as

1979, and women have come to hold more and more positions in city government and administration. Laws against discrimination were enacted nationally in 1985 and 1988, and Japan ratified the Convention on the Elimination of all Forms of Discrimination Against Women in 1985.

At the same time, much remains to be done in Kobe and in Japan overall. Higher status and power positions are largely reserved for men, and even when women move into the professional world, they are much more likely to be found in areas like education and health than in business, engineering or politics. Forty percent of the female population over 15 is now employed, but the employment trajectory by age shows radical differences between men and women. At ages 20-24 about 70 percent of both males and females are employed. By ages 25-29, however, male employment jumps to over 90 percent, while female employment falls to less than 40 percent. Female employment ratios rise again to about 50 percent for the population 40-50, but then fall off drastically for the higher ages. Kobe City administration has become increasingly open to women, but they lag far beyond men in professional and managerial positions. Overall 8 percent of the managerial posts are filled by women. This is as high as 10 percent for the lowest level of Section Chief, and falls to 5 and 3 percent at Division Director and Department Manager levels. There are no women in the highest levels of the Bureau Director General. Still the numbers in the lower levels indicate a change and a filling of the "pipeline" that can be expected to bring more women into higher positions with time. There is also some change in attitudes, though they remain for the most part supportive of a traditional gender division of labor. Surveys in 1972, '79, and '84 show both the changes and the stability. The numbers of both men and women who respond that "it is not necessary for a woman to get married..." have doubled in this decade, though women's responses are consistently about twice as frequent as men's. The proportion of women who believe marriage is necessary for happiness and because it is natural fell from 60 percent to 48 percent, while male's holding these attitudes dropped only from 61 to 55 percent.

In effect, women in Kobe and Japan generally enjoy a healthy, educated life relatively free from fear and hardship. In this they would be the envy of their sisters throughout much of the world. At the same time, their opportunities for self expression outside of the traditional roles of wife and mother remain severely restrained.

2. Major Problems and Projects.

Like many cities in the high income countries, Kobe has gone through a series of major restructuring. It first grew as a seaport dominated by heavy industry in a densely crowded inner city. Industry was transformed from heavy to high technology and services industries; the crowded inner city wards lost people, factories and jobs to the outlying suburbs and experienced decay. The increasing wealth of the city increased the people's demands for a higher quality of life and more leisure time activities. The task of the city administration was to adjust to these changes and to meet the new needs of both people and industry. Three interrelated projects were designed, with planning on a long term basis, to meet these new challenges.

a. Limited Land and the Municipal Development Entity. Kobe's topography limited the flat land between the sea and the mountains to a mere 54 square kilometers. Moreover, unlike seaports built at river mouths, where dredging sand and soil to keep the port open also provides fill to reclaim land from the sea, Kobe's deep water needed no dredging, but also provided no fill for land reclamation. In the prewar period, sand and gravel were taken from the mountains to extend the land, giving space for both factories and port facilities. In the 1920s and 30s the amount of land reclaimed was small, amounting to only 8 and then 11 hectares.

In the post war period, rapid economic expansion caused Kobe port to be highly congested. In city planning processes the idea began to take shape of a two part-"Mountains to the Sea" project. This would take earth from the tops of some of the Rokko hills to make flat land for building new suburbs that could relieve central urban congestion. The land taken from the mountains would then be dumped into the sea to extend the city itself and in part to create artificial islands that would provide port facilities and also space for residential, business and recreational facilities. Armed with these developing plans, Kobe leaders negotiated with the national government and received a great deal of authority and responsibility for developing the port facilities. The national government would construct the break-water, and the city itself undertook the massive new projects needed to extend the port. Thus Kobe became a "Municipal Development Entity."

The problems were massive, but the projects were designed to meet the need. Whereas prewar reclamation had involved less than 20 hectares, the new plans called for 540 hectares along the sea side, over 800 hectares for Port Island, and 580 hectares for a second, Rokko Island, for a grand total of just under 2,000 hectares. This would require moving 35 million cubic meters of earth, and would cost 1,330 billion yen. There were basic engineering problems, and problems of capital.

The engineering problem was to take land from the tops of some of the Rokko hills and move it southward to the sea. But this had to be done without disrupting the city's main east-west transportation system. The problem was solved in two ways. An underground conveyor belt took earth from the west side of the city to the sea, to be loaded onto barges for dumping at the island sites. To the east, a river bed was widened and one way truck roads were built on each side of the bed. Thus dump trucks could rumble back and forth all day, carrying tons and tons of fill, without disturbing the east-west traffic now.

There were also capital problems, since Japan's rapid growth was straining local capital markets. Moreover, municipal bonds were limited to two year repayment periods, which would not be sufficient for the one to two decades required to complete the construction. Municipal bonds could provide some of the capital, but were not long enough in duration to cover all needs, and in any event, they would have swamped the domestic bond market. Thus Kobe was given permission to go to the overseas bond markets, and here they found sufficient capital and ready lenders. Construction was also planned so that early stage completions could be sold to private companies for port facilities, thus financing later stages. In this way the capital used turned over many times. Kobe was also extremely fortunate in the timing of the decisions. Bonds were sold in the late 1960s, when world trade had been growing while prices remained relatively stable. Then came the oil shocks, which threw the Japanese economy into recession. Coming out of the recession was

not difficult, and then the bonds would be redeemed with currency that had been greatly inflated, thus lowering significantly the real cost of the capital.

b. Restructuring Industry. The oil shocks of the 1970 hastened a process of industrial transformation that was already coming with maturing industrial development. Heavy industries of steel, chemicals and shipbuilding would be moved away, and would gradually give way to high technology and services industries. The creation of long term city master plans since the 1950s had placed Kobe's government in a position both to foresee and to react quickly to some of the changes. The government launched a series of campaigns and projects to make Port Island a world wide fashion center. An office was opened in Milan, Italy to be near the heart of European design, and fairs were held to advertise Kobe's new found industry. In addition, the suburbs planned for the north side of the Rokko Mountains could be turned into high technology industrial parks, as well as academic towns, and high quality recreational areas. With the city taking the lead in this activities, both local land development, and an efficient subway system for moving people and goods could be constructed. Such infrastructure development would have been beyond the means of private developers. By linking with private companies, Kobe could have the best of both worlds. Now Kobe is city of fashion, pearl and jewelry industries, on Port Island, and high technology electronics and biotechnology industries in the northern suburbs.

c. Reviving the Inner City. By 1990 the major exodus of factories and people from the central wards had run its course, and these once vibrant centers were dead and dying. Their populations were most old people, with relatively lower incomes. These could not support a good retail business, which then also began to move. Or it would have done so, had not the Kobe government engaged in a series of central city developments, like covered shopping areas, and the striking underground shopping center, Santika Town.

In 1990 it tackled an inner port area that had become especially deserted and decaying. Harborland had been centered around Kobe station, with both harbor facilities and a vast JR Railway freight depot at Minatogawa station. Much of this had become vacant as restructuring moved industries and people out of these central wards. The Kobe City government cooperated with the Housing and Urban Development Corporation and private industry to revive 23 hectares of this barren urban land.

In all of these projects, Kobe has shown a high degree of visionary leadership; it has been assisted by the national and prefectural governments; it has built effective relations with the private sector; and it has been supported by an intelligent and cooperative, but by no means uncritical, citizenry.