



40 TAIWAN'S URBAN SYSTEM IN TRANSITION

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As Taiwan nears the millennium, roughly half a century has passed since Japanese colonial rule ended and Taiwan embarked on a new era of development as a de facto independent state. Properly speaking, Taiwan has moved beyond the "newly industrialized economy" (NIE) label that has been attached to it for some three decades or more. Taiwan's industrialization is no longer new, nor is its urbanization process. Taiwan's urban system and urban development process reflect the island's transition from "developing" to "developed" status (at least as defined by the OECD). Taiwan is now in the latter (or terminal) phase of the urbanization curve, in which the rate of urban population growth decreases, reflecting in part a similar slowing of the island's overall population growth (currently hovering at just under one per cent per year).

Thus, some fifty years into Taiwan's modern transformation from former Japanese agricultural colony to quasi-independent industrial powerhouse, this is an appropriate time to examine Taiwan's urban system from a variety of perspectives, to see where its urban development process stands in terms of both positive and negative characteristics, and to attempt to discern future directions and options. This topic is also timely given the fact that very few Western geographers or others concerned with urban issues outside of Taiwan have studied Taiwan's urban development, especially in an ongoing basis. Although Taiwan admittedly is a relatively small island and discrete geographical region of just 24,000 sq. km., the entire industrialization and urbanization process experienced by much larger Western countries, such as the United States, has been condensed in Taiwan both spatially, in a very small area (about the size of Massachusetts, Connecticut and Rhode Island combined, or slightly larger than China's Hainan Island and about half the area of the island of Sri Lanka), and temporally, in the space of a few decades. Thus, Taiwan's urban development experience is not only interesting in and of itself, but also for what it can tell us in a comparative sense with other Asian countries and with Western countries, which is the focus of this conference.

Taiwan's Urban Development, 1945-1995¹

By 1940, just before the impact of World War II began to be felt in Taiwan, the island's urban population was about 10-12 percent of an islandwide population of just under six million, concentrated in a few modest-sized towns and cities (only four over 100,000, led by the capital of Taipei at about 160,000).² By 1950, after a decade of military and political turmoil, with the Republic of China (ROC) government now in exile on Taiwan, the island's urban population had swelled to about 25 percent, fueled largely by the huge influx of

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mainland refugees and Nationalist government forces that fled to the island in the late 1940s. Taiwan was on the threshold of its modern industrial transformation. By 1995, Taiwan's total population was 21.3 million, of which more than 80 percent lived in urban places. The largely agrarian, rural-based economy and population had been transformed into an overwhelmingly urban/industrial nature. The story of Taiwan's "economic miracle", and the political transformation that came along later in the 1980s and 90s, has been well documented in innumerable studies.³ Because of space and time limitations, let me just briefly summarize the key developments that relate directly to Taiwan's urban and regional development through the five decade period.

In the 1950s the ROC government embarked on a development strategy that focused first on agriculture and food processing, accompanied by textiles and import-substitution manufacturing. Although farmers started to prosper, because of land reform and other measures, urban migration began in response to job creation in the cities, especially in the Taipei region, secondarily the Kaohsiung area. Urban population soared at three times the rate of total population growth. By 1960, Taipei had 1.8 million in its metro region, while Kaohsiung had less than half that.

During the 1960s Taiwan passed the 50% urban population mark as the economy took off under an export-promotion strategy that saw formal U.S. economic assistance end in 1965. Export processing zones in Kaohsiung and Taichung, among the first in the world, heralded a new approach to industrialization in Third World countries. Taiwan's economy moved into more sophisticated products, including electronics, plastics, optical equipment. Taipei was the focal point of industrial development still, with its total population reaching 2.8 million by 1970, a 67% increase over 1960. Number two Kaohsiung reached 1.1 million in 1970, a growth rate equal to that of Taipei. Taipei's growth in this decade was in part a response to an expansion of its municipal boundaries. In 1966, Taipei was elevated to the status of a special municipality and its boundaries were pushed outward in 1968 to annex six townships surrounding the older central city. Taipei's exceptional growth in this period can also be attributed in part to its unusual political status, as the 'provisional national capital' of China. The ROC government maintained large operations in various ministries, employing thousands of people, to fulfill this role. Many of these bodies, and the buildings they occupy, are really larger than would be required to serve just the island of Taiwan. Moreover, the government built a new planned city for the provincial government, headquartered in Chung Hsing New Town just south of Taichung in central Taiwan. This city served the province of Taiwan, while ostensibly Taipei served the larger national interests, even though Taiwan had no effective control of the vast mainland.

In the 1970s Taiwan underwent further industrial transformation, with special emphasis on heavy industry (chemicals, petrochemicals, iron and steel, automobiles, and other basic goods). Kaohsiung received major government (and private) investment, but Taipei outdistanced Kaohsiung's

population growth rate, increasing from 2.8 million to 4.3 million by 1980, while Kaohsiung grew only to 1.67 million. Total population growth for the island had slowed, but was still at a high 2.1%, while urban population grew by 5% or more a year. The urbanization rate reached 66% by 1980.

Taiwan's urban system was dominated then by the four major metropolitan regions of Taipei, Kaohsiung, Taichung, and Tainan, in that order (Taichung surpassed Tainan in the 1970s). The Taipei metro region contained 25% of Taiwan's total population, while Kaohsiung had 9%. Taichung had just over 7% and Tainan about 4%. The four metro centers collectively accounted for over 8 million people, or some 45% of the island's population.

By the mid-1990s, the Taipei metro region had a total population of about 5.6 million, of which some 2.6 million were within Taipei Municipality itself, but a majority population of just under 3 million were located in the urban areas of the surrounding Taipei basin.⁴ This meant that Taipei had about 26% of Taiwan's total population in its metro region.⁵

This leads us directly to some needed commentary about the issues of urban primacy, rank-size distribution, and balanced regional development. The few Western authors who have examined Taiwan's urban system over the decades have generally agreed that Taiwan has been able to avoid true urban primacy, at least the extreme situation such as that found in the Philippines with Manila, or in Thailand with Bangkok. Pannell argued that Taiwan has never had an "exaggerated primate condition of urban development" in spite of the fact that it exhibited (at least still so in the early 1970s) the five conditions typically associated with urban primacy in underdeveloped countries: (1) small area and dense population; (2) low per capita income; (3) export- or agriculturally-based economies; (4) high population growth rates; and (5) a history of colonialism.⁶ Speare et al. came to much the same conclusion in their study completed in the mid-1980s.⁷ Nonetheless, it is important to note that these, and other, authors focused primarily upon a statistical determination of primacy, and noted that Taipei was only about two times the size of Kaohsiung, and that Taiwan had a relatively normal rank-size distribution of cities. While that is all true, nonetheless, Taipei does exhibit some characteristics of functional primacy, in part because of its peculiar or artificial role as the so-called "provisional national capital" of the ROC and the distorted pull that role has exerted on migration within Taiwan over the decades. Although the government no longer pedals this line in public (since admitting several years ago that the ROC, in fact, has no governmental control of the mainland), there is no question that Taipei is the political, cultural, educational, and business center of the island, and as such continues to be the prime attractor of migrants, as it has since the 1950s. In some ways, Taipei is the "New York" of Taiwan. Thus, it is incorrect to simply state that Taiwan has no urban primacy.

The statistical data reveal some interesting patterns. Table 1 shows population growth for the four planning regions in

Table 1 Population Growth of the Four Planning Regions in Taiwan, 1956-82.

Region	1956		1971		1982		1995		Growth Rate (%)		
	A	B	A	B	A	B	A	B	1956-71	1971-82	1982-95
Northern	2.84	30.2	5.23	34.9	7.35	39.8	9.04	42.4	84.2	40.5	23.0
Southern	3.20	34.1	4.95	33.0	5.70	30.9	6.24	29.3	54.7	15.2	9.5
Central	2.96	31.5	4.18	27.9	4.76	25.8	5.41	25.4	41.2	13.9	13.7
Eastern	0.39	4.2	0.63	4.2	0.64	3.5	0.61	2.9	61.5	1.6	-4.7

A= Population in millions

B= Percentage share of total population

Source: *Urban and Regional Development Statistics* (CEPD, Urban and Housing Development Department, 1996), various editions.

Table 2 Measures of Regional Inequality

Region	Shares of GDP (%)		Per Capita Increase By Region (Index)	
	1976	1992	1976	1992
Taiwan	100.0	100.0	100.0	100.0
N	49.8	50.4	140.3	118.3
S	27.9	28.0	82.6	94.5
C	19.8	19.4	71.2	78.0
E	2.5	2.2	61.2	76.2

Source: *Urban and Regional Development Statistics* (CEPD, Urban and Housing Development Department, 1996), pp. 168, 169.

Taiwan, for the years 1956, 1971, 1982, and 1995. Although these regions encompass several counties each, because of the small size of Taiwan each region is focused around one of the four metro areas, with the exception of the Eastern region (which has the two modest towns of Hualien and Taitung anchoring the two ends of the elongated region). Thus, the North is centered around the Taipei metro region, the Center is focused on the Taichung metro region, while the South is primarily centered on the Kaohsiung metro region, with Tainan as a nearby secondary urban focal point. As of 1995, the North had 42% of Taiwan's total population, the South had 29%, the Center 25%, and the East less than 3%. Note the contrast with 1956, when there was actually much greater balance between the three major regions and the South was the largest. While population growth rates for all four regions have slowed since 1956, the North has slowed the least, resulting in its increasing dominance in terms of population, although not necessarily in economic importance, as Table 2 reveals. The North's share of Taiwan's GDP barely changed between 1976 and 1992, as was true for all four regions. On a per capita income basis, however, there was a significant improvement between 1976 and 1992 in terms of lessening the inequality, even though the North was still well ahead of the other three regions.

Comparing just the Taipei metro region and the Kaohsiung metro region for 1995, the data show Kaohsiung slipping further behind Taipei in population. Taipei municipality, as already noted, had 2.64 million people in 1995, while Kaohsiung municipality registered 1.4 million. Kaohsiung has long suffered from an inferiority complex. Even though it is the center of Taiwan's heavy industrial base and the second

city of the island, it remains basically a blue collar, roughhewn town, in contrast to Taipei's cosmopolitanism and sophistication, a Cleveland or Pittsburgh next to New York. People in Taiwan who can do so prefer to live in the Taipei area.⁸ What holds Kaohsiung back? The mayor, Wu Den-yih, can name many: insufficient central government investment, lack of administrative control over the harbor (the Kaohsiung Harbor Bureau is under the provincial government⁹), insufficient cultural resources, serious pollution problems (unlike Taipei, Kaohsiung's problems stem primarily from industry, not automobiles).¹⁰ The Taiwan government's ambitious APROC plan, intended to make the island an Asia-Pacific Regional Operations Center, could have beneficial implications for Kaohsiung, which would have to be one of the principal players in that plan, particularly because of its port, the largest and most important in Taiwan. The opening of the door to direct shipping with the mainland, by allowing third parties to sail directly from Xiamen to Kaohsiung (with certain restrictions), is a step toward that APROC goal.

One might conclude, thus, that urban primacy, in some respects, is increasing in Taiwan, although to be sure the degree of primacy is still relatively small compared to many developing countries. How has Taiwan managed to slow, if not altogether stop, the development of urban primacy, in spite of having the key indicators, as already noted, for primacy? The answer lies, I believe, in the development policies Taiwan followed from the 1950s onward, and the rapid success of the government in promoting industrialization, rural and urban prosperity, and slowed population growth.¹¹ If Taiwan had not successfully done these things, it is quite likely that Taipei would have become a bloated, overbounded but

economically underdeveloped primate city filled with hundreds of thousands of squatter migrants forced out of overcrowded rural areas, in a pattern all too familiar in the Third World today. Actually, the more likely scenario is that the ROC would not have survived militarily and politically and would have been absorbed by the PRC. In that situation, Taipei probably would have remained a relatively secondary provincial city, something like Xiamen in Fujian province, at least until China's opening up under the New Open Door Policy that started in the late 1970s.

More specifically, Taiwan was quite successful in promoting rural industrialization, which brought job opportunities to the farmers rather than waiting for the farmers to move to the cities. This policy was part of the government's efforts at balanced regional development, a planning approach that began to take off in the 1970s. Industrial estates developed by the government for private investors to locate in were built primarily in rural counties, not the major metro regions. The positive effect was to transform the majority of farmers into part-time farmers, thus lowering the gap between rural and urban incomes and keeping excessive migration away from the big cities. Simultaneously, the government embarked on a long series of massive, expensive infrastructure improvement programs aimed particularly at improving the transportation systems of the island, so that urban centers would not have excessively attractive advantages in transportation access and thus pull too much industrial investment toward the cities. These projects included such things as the North-South Freeway, electrification and other improvements of the main West Coast railway, rail and road links to the Eastern part of Taiwan that ended the physical isolation of that area (although this enhanced access did not significantly increase the attractiveness of the East for industrialization), major improvements in secondary and local roads, port improvements, new airports, and so on.

Policy failures occurred, nonetheless. Two significant examples include the new port at Taichung, and the new town movement. The Taichung Harbor project was started in 1973 as a system bringing port and industries together in a regional development center that would not only give Taiwan a third major port (to take some of the pressure off Kaohsiung, especially) but also help promote the growth of the Taichung metro region.¹² Unfortunately, the port has failed to live up to expectations, for a complex mix of reasons, including not paying enough attention to detail in growth-center planning, failure to commit enough resources to bring the project to fruition, and improper coordination among the parties involved in the project.

In the case of new towns, Taiwan first attempted new town planning and development in the late 1970s.¹³ Also as part of the push for more balanced regional development, the government decided to try to introduce the new town concept as originated in Britain and widely used there, especially after World War II in the Greater London area. Taichung Harbor New Town, part of the harbor project discussed above, was one of these new towns, along with Linkou (near Taipei), Chengching (near Kaohsiung), and Nankan (also near Taipei).

The results of these new towns have not been impressive, for many of the same reasons found in the relative failure of new towns elsewhere in the world (including the U.S.), especially the failure to develop true economic self-sufficiency in the new towns and hence their remaining at the level of bedroom suburbs at best (Linkou is the most successful of the lot, but even it falls far short of original goals). In spite of their relative failure, the government had plans to build 19 more new towns during the Sixth Five-Year Plan (1991–96), including Tanshui New Town, which has a target of 200,000 people by 2014.

Within the metro regions, a pattern familiar to Western cities has also occurred in Taiwan over the decades, in terms of migration patterns.¹⁴ In the 1950s and 1960s the migratory flow was a net movement from rural areas to the large central cities, especially Taipei. By the 1970s, however, migration had shifted to a net movement from rural areas and large central cities to intermediate cities, particularly those cities adjacent to Taipei and Kaohsiung. That pattern has basically continued to this day, albeit at a slower rate. Thus, in the case of Taipei, satellite cities such as Panchiao, Yungcho, Sanchung, Chungcho, and Hsinchuang, have all experienced explosive growth, increasing their individual populations several times over during the past 20–30 years. For example, Panchiao is the largest satellite city of Taipei today, with a population over 530,000; in 1951 Panchiao had a mere 30,000 people, but by 1983 the figure had jumped to 454,000. Chungcho and Sanchung are vying for second place, each with over 380,000 population; Chungcho had only 24,000 in 1951, but 304,000 in 1983, while Sanchung was at 39,000 in 1951 and 343,000 in 1983.¹⁵ While these growth rates are indeed significant, it should be remembered that the growth almost certainly would have been even larger without the various measures aimed at balanced regional development. This suburban growth was the consequence of cheaper land in the suburbs, congestion in the central city, improved transport (especially highways), mass ownership of motorized transport (initially motorcycles, then later automobiles), and rising incomes encouraging families to seek better quality and larger housing. The only difference from the U.S., at least, was the absence of racial conflict as a push factor encouraging the middle and upper classes to migrate to the suburbs.

Key Urban Issues Facing Taiwan: The Next Half Century

What then are the key urban issues facing Taiwan as it approaches the new century? There are obviously a great many issues, but space limitations require me to focus on just a few key ones.

Urban Planning

The overarching problem is how to institute real urban planning. Taiwan actually has been in the planning business since the 1950s, when development plans were initiated for Taipei and the other three major metro regions. Larger

regional plans began to evolve from the 1960s onward. Those plans have been modified and updated numerous times since then, but the plans themselves have been implemented only partially and often unsuccessfully. One of the root causes of this limited degree of success lies in the high cost of land and the difficulties of land acquisition, which tend to stymie the best of government plans and efforts.¹⁶ This is very observable in the contrast between Taipei and its suburbs. As one editorial put it, "Panchiao today is Taipei of the 1970s."¹⁷ This refers to the fact that Panchiao, and other satellite cities, tend to exhibit the random street patterns, poor architecture, lack of order or planning, dirt, and general ugliness that was once the case for much of Taipei (not to suggest that such defects are close to elimination in the bigger central cities of Taiwan). Urban redevelopment has brought some order, modernity, and even pockets of beauty to parts of Taipei, when it was easier and cheaper to acquire land. An example is New Taipei, the eastern district that has developed largely in the last 20 years, focused around Tunhua Road and Hsinyi Road with the International Trade Center. In any event, the suburbs have yet to catch up with the core city. The task gets harder, but it is not hopeless when there is the political will.

Transportation

Nowhere are the difficulties of planning more evident than in the case of transportation, both interurban and intraurban. Taiwan's dramatic success in economic development over the past decades was due in substantial part to vast improvements in the island's transportation systems, greatly increasing the ease and efficiency of moving people and goods between and within cities.¹⁸ Good transportation is essential for success in any developing country. No wonder thus that Taiwan continues to put great emphasis on further infrastructure improvement. As already noted above, Taiwan has had a series of major infrastructure improvement projects underway since the 1970s. Some of these have succeeded, some have not. In general, however, over the years the projects increasingly have been plagued with management chaos, scandalous delays, and massive cost overruns.¹⁹ For this reason, the government recently has been pushing increasingly for linkups with private participation in these projects. The scope of the current construction roster is staggering—some 634 projects estimated to cost US\$233 billion, even after being sharply pared back from original plans. The list includes as the centerpiece the high-speed rail line linking Taipei and Kaohsiung, a rail line linking Taipei's international and domestic airports, industrial parks to be built on government land, incinerators, recycling plants, private power plants, and a new urban rapid-transit system for Kaohsiung.

Transportation is what concerns us here, however, and one of the troubled major projects currently is the high-speed 345 km. rail link between Taipei and Kaohsiung. This largest-ever public works venture in Taiwan's history is now scheduled to be completed by 2003; private investment (out of an estimated total cost of \$18 billion) has been targeted at

a minimum of 40%, in a collaborative approach known as "build-operate-transfer" (BOT). Based on the experience of both the Taipei and Kaohsiung mass rapid transit systems (MRTS), however, critics are skeptical about the prospects for smooth public/private collaboration on the high-speed railway. For one thing, high-speed railways are notoriously unprofitable in almost all countries where they have been built. That fact, plus the dismal experience in Taipei and Kaohsiung (see below), contribute to the worry that the government will be unable to attract sufficient foreign investors to meet the government's minimum capital needs, and even if they do the relationship will bog down into acrimony and construction delays.²⁰

The Taipei MRTS has become perhaps the most infamous public works project in Taiwan's modern history. The idea for a MRTS goes back at least to 1972, but unfortunately Taiwan did not get serious about the matter until the 1980s. In 1987, the Department of Rapid Transit Systems (DORTS) was established under Taipei's city government to take full charge of planning and building of the MRTS. A multinational consortium of American, French, and German companies got the contract to build the system.²¹ The initial MRTS network is designed to meet the transportation needs of eight major corridors in metro Taipei and strengthen the links between downtown and suburbs in a system covering a total of 88 km. Within that system there are to be eight lines (to Tanshui, Hsintien, Mucha, Nankang, Panchiao, and Chungho, plus a short maintenance line in the center).²² Beyond this initial system, originally supposed to be completed by 1997–98, an expanded system with lines to all the other suburban centers, including CKS International Airport, was to be completed by 2021.

From the beginning, however, DORTS suffered a string of problems because of difficulties in acquiring land, shortages of skilled labor, and horrendous troubles with the foreign contractors. Especially troublesome has been the relationship with Matra Transport, the French builder of the Mucha line.²³ Construction began in 1989 and the opening date was supposed to be 1993; the Mucha line did not open until March, 1996. Railcar fires, tire blowouts, and fissures in the elevated platform's support pillars were among the technical problems the government complained about. On the management level, the two sides' relationship completely broke down, and the Taipei city government still owes Matra nearly \$84 million.

The Tanshui line finally opened on March 28, 1997 (and is expected to give a strong boost to development of the Tamsui area, which has a population already over 90,000). The Hsintien and Chungho lines are now scheduled to open in 2000; the Nankang and Panchiao lines in 2001. The Tucheng line will begin in 2004; no target date has been set yet for the Neihu line.²⁴

Not only has the MRTS system taken far longer to complete than originally planned, and cost far more than predicted, but all sorts of other concerns have been raised as well. First, the cost of riding the system is not cheap; the highest charge on the Tamsui line is \$2.91 per ride. Officials claim the fares are

being kept to the lowest possible level, but the fares are even higher than what one pays in some U.S. MRT systems, hardly a way to entice people to give up their motorcycles and cars for the MRTS. Undoubtedly, the huge cost overruns in building the system have been a contributing factor to the high fares. A second problem is public concern about the safety of the system, after the widely publicized technical problems with the Mucha line. A third concern is whether the MRTS will actually do the job it is designed for, that is, reduce reliance on private transportation within Taipei. DORTS claims that the system initially will absorb 36% of the daily commuter load of metro Taipei, and will expand to absorb 51% by 2021; American consulting companies put the figure closer to 20%.²⁵ If the Americans are right, Taipei will be in big trouble in the next century, with a white elephant MRTS not fulfilling its purpose.

Kaohsiung, unfortunately, has not fared any better so far in its efforts to develop a MRTS.²⁶ For the estimated \$7 billion Kaohsiung MRTS, an international consortium known as International Transit Consultants (ITC) won the consultancy contract to design the system. In a repetition of Taipei's experience, however, the two sides got bogged down in mutual mud slinging, acrimony, and complete breakdown of trust. One would think officials there would have learned from Taipei's experience, but Kaohsiung's situation suggests that Taiwan's problems with MRTS (and perhaps other public works projects) is culture-based, rather than scientific or technical in nature.²⁷ The result was cancellation of the contract with ITC in 1995 and a year or more of delays and legal maneuvering by both sides. Planning of the MRTS has yet to be done, let alone the start of construction. Kaohsiung's experience, like that of Taipei, highlights the fact that Taiwan is not yet a truly developed country, in terms of adhering to internationally accepted practices in awarding and implementation of contracts. Taiwan officials and the foreign companies were operating from quite different cultural bases and with very different ideas about regulatory, contractual and procedural practices.

Even if the MRTS works in Taipei, Kaohsiung, and elsewhere eventually, dealing with road traffic problems is likely to continue to be a big headache for Taipei and other cities, and for Taiwan as a whole. To solve the problems of inter-urban road traffic, the government has already begun the second North-South Freeway, paralleling the older freeway, sections of which first opened in 1974.²⁸ That freeway greatly improved north-south movement along the west coast, but as in the experience of the U.S. and other countries, the better the roads the more traffic generated. In other words, the freeway became clogged to capacity within a decade, contributing to the high death rate on Taiwan highways (19.23 traffic-related deaths per 100,000 people each year, compared with just 6.1 in Japan).²⁹ Thus, in 1985 Taiwan decided to build a second northern freeway, starting in Taipei and running south to connect with the existing freeway near the Hsinchu Science-based Industrial Park (108 km.). As with other recent public works projects, because of difficulties in land acquisition and shortages of labor, the second freeway proceeded much more slowly than the first. Because of land

acquisition problems, the highway also had to be routed through mountainous country to the east, extending along the periphery of urban areas. This added to the construction cost, with many tunnels and bridges, not to mention concerns raised about slopeland erosion problems (a long standing issue in Taiwan, particularly associated with agricultural practices³⁰). The remainder of the second freeway, from Keelung all the way to Linpien in Pingtung county at the southern tip of the island, was originally targeted for completion by the end of 1998 (at a total accumulated investment of nearly \$17 billion, about nine times the cost of the first freeway).³¹ That target date has now been pushed back at least to the year 2000 just for the section from Chunan to Nantou in central west Taiwan.³² No mention is made of the extension further southward, which probably will not be built until sometime in the next century. Even with the second freeway, Taiwan is likely to always experience severe congestion on its freeways and lesser highways, simply because of the high population density and nature of the urban/industrial system.

Within the major cities, especially Taipei, the intraurban traffic problems are the stuff of legend. Traffic chaos is virtually endemic to most modern Asian cities today; hence, there is no need to go into great detail about this. Taipei simply exhibits the problems to an extraordinary degree. Taipei also demonstrates a remarkable inability to resolve the problems.³³ As of 1994, Taipei had over 638,000 automobiles, over one million motorcycles, not to mention some 3500 buses and at least 36,000 taxis; each month an additional 10,000 vehicles join the fleets.³⁴ To make matters worse, the number of parking spaces available in the city is far below the number of vehicles.³⁵ The MRTS construction makes the already congested streets even worse. One result has been rampant disregard for traffic laws and courtesy. Cars and motorcycles are parked anywhere a space can be found. Every conceivable violation of traffic rules can be observed just standing on a street corner for a short time (assuming one can find space to stand, since many sidewalks are nearly completely used up as motorcycle parking lots, with itinerant vendors occupying what little space might remain).

The MRTS, even if underutilized, certainly will take some of the strain off the surface roads. But the MRTS is not a panacea for traffic woes. Among the widely discussed cures for the mess: better coordination among the government bodies involved with transportation planning and traffic regulation; much stricter enforcement of traffic laws (the Singapore model is much admired); improved bus service simultaneously with measures to discourage automobile and motorcycle ownership (or at least usage within the central city), i.e., making such ownership and usage punitively expensive.³⁶ Experts seem to share the opinion that building more and better roads, or more parking spaces, is not the answer; rather, planners should seek to keep as many cars and motorcycles out of the city as possible.³⁷ It sounds fine in theory, but in Taiwan's case the highly liberalized and contentious political atmosphere today does not bode well for such authoritarian methods.

Environmental Protection

Environmental protection is one of the most pressing problems for Taiwan's urban areas, and a topic I have addressed in detail in other publications.³⁸ Although Taiwan appears to be on the comeback in terms of certain types of pollution or environmental degradation a decade after creating the Environmental Protection Administration, the process of restoring a quality environment has just begun. Air pollution is one of the most serious problems, especially in the cities, because of heavy traffic and high concentration of industrial plants. In Taipei, 95% of the air pollution is from vehicular exhaust. As of December, 1994, there were 16.5 million vehicles registered in Taiwan, and between 1983 and 1993 the number of passenger cars increased 2.75 times, while the number of motorcycles rose 50%.³⁹ Equally serious problems exist with water pollution, land subsidence, solid waste disposal, and hazardous waste disposal. Space does not permit going into detail on these. The government has adopted a large-scale program of studying and measuring these problems, developing programs and policies for dealing with them, and begun to institute specific measures to clean up problems and prevent future occurrences. All things considered, I am cautiously optimistic about Taiwan's long-term prospects for resolving its environmental problems. I base this optimism on a number of factors: (1) the high educational and technological levels of the people of Taiwan; (2) the rapid slowing of Taiwan's population growth; (3) the relatively small size of Taiwan and hence manageable dimensions of the problems; (4) the relatively moderate size of Taiwan's cities, and absence of a huge mega city (with all the problems implied) on the scale of a Manila, Bangkok or Jakarta; (5) the large amounts of surplus capital that Taiwan has, plus a high, and rapidly rising, standard of living; (6) the growing environmental consciousness of the Taiwanese people; (7) the profitability of environmental cleanup, and hence opportunities for natural Taiwanese entrepreneurship.⁴⁰

Historical Preservation

Unfortunately, in the rush to develop countries tend to pay little attention to the record of the past. As a result, historical preservation is seldom seen as one of the major issues facing urban planners. It should be, however. After all, cities are the repositories of culture. People live in cities not just to work but to enjoy life. Reminders of one's cultural heritage are essential to a whole life. Taiwan's experience in this regard is no different from most other countries, of course. Only after development was well underway, and much of the past already obliterated, has historical preservation finally begun to find an audience in Taiwan.

Historical preservation started in the 1970s with an effort in academic and cultural circles to preserve the Lin An-tai homestead, dating back to 1783, in Taipei. Since then, the movement has been slowly gaining supporters and projects. Currently, the ROC Ministry of the Interior has designated 280 sites in Taiwan as national relics, of which 24 are in the

"first class", 48 in the second, and 208 in the third class. Among the more important structures, besides a large number of temples, are several major buildings in downtown Taipei built by the Japanese; the landmark structure is the former Governor-General's Headquarters, and still used by the ROC government as its headquarters. Fortunately, it is still possible to see remnants of the Japanese era in Taipei and other places on the island, but the sites are diminishing. One of the more controversial sites has been Minchuan Street, in Sanhsia, a suburb of Taipei. The 200-meter long street is considered historically valuable for its 102 family houses built in 1916 during the Japanese colonial era and classified as a third class site. Government policy is to exempt owners of designated historic sites from paying taxes on them and the land they occupy, as a compensation for maintaining the cultural heritage, but this tax exemption is not always enough to satisfy the people who occupy such sites. Local residents of Minchuan Street ended up pitted against each other, some arguing for preservation, others for modernization.

One is reminded of the experience of Beijing, a far larger and grander city, which has seen so much of its cultural heritage destroyed in the past, and now increasing numbers of people there lament the irreplaceable losses, most notably, of course, the great city wall of Beijing that was dismantled under Mao's orders starting in the late 1950s. Can Taiwan learn from the mainland's mistakes? Is it really too late anyway?

Many problems stand in the way of historical preservation: (1) Money is always in short supply. Government appropriations are insufficient to cover all the sites, and there is not much private sector support. (2) Second- and third-class relics are the responsibility of the cities or counties where they are located, but local governments would rather spend money on more practical public works. (3) Public indifference is still pervasive, even though the number of enthusiasts for preservation has increased. (4) Skilled craftsmen capable of restoring old structures are in short supply, and few young people want to learn such trades nowadays. (5) Irresponsible domestic tourists obstruct the work of preservation, by looting, littering, or defacing historic sites; it is ironic that foreign visitors are often more interested in protecting and enjoying local historic sites than the residents, who tend to be preoccupied with making money and the stresses of daily life.

Taiwan's experience in this regard seems to repeat a pattern one can note in many other developing countries. In the typical development model, it appears that a country has to give full attention to development and significant raising of material living standards before there is time and interest by government and public in the nonmaterial quality of life, including environmental protection, historical preservation, and other qualitative aspects of contemporary life. When interest is finally aroused, however, it typically is grassroots, that is, from the bottom up, not the top down. Hard-core activists publicize a cause or issue, arouse larger public opinion, often followed by demonstrations and petitions to the government, which then responds with policies and action to correct the problems and meet public demands. This is exactly what happened in Taiwan with environmental cleanup

and historical preservation, and, to some extent, with transportation and other aspects of urban and regional development.

Conclusion

The issues for Taiwan's future urban development might be summarized by making reference to a provocative, and subjective, recent article in *Asiaweek* that supposedly measured and compared Asia's "Best Cities", using 22 statistical indicators that carried different weightings.⁴¹ Several Japanese cities made the list, including Tokyo which was named the best Asian city of all. Two cities in Taiwan were picked, with Taipei ranked 11th, and Kaohsiung 14th among the 40 cities in the list, which included every Asian capital east of Kabul, with minor exceptions (e.g. Pyongyang was not measured). In larger nations, the ranking included another major metro area besides the capital. While one can argue about the criteria used to measure a city's "livability", and how to quantify some of those measures for purposes of comparability, nonetheless, Taiwan's two key cities probably ended up with higher rankings than some people who have lived in Taipei or Kaohsiung would be willing to grant them.

An editorial published in Taiwan, by the Taiwan government itself, may have described the reality best by referring to Taiwan's cities as "cities with rough edges".⁴² The comparison was with U.S. cities, such as Chicago and St. Louis just after the completion of the railways, and the excitement, disregard for official restraints, and frenetic entrepreneurship that characterized those cities long ago, similar to what one sees in Taiwan's cities today. This is an apt description of Taiwan's urban places in the 1990s, as the island hovers on the brink of "developed" status and major structural changes are occurring or planned for the economy, at the same time that the political system continues to evolve at a dramatic pace. In a manner of speaking, the Republic of China on Taiwan is having to reinvent itself, to reflect changing political and economic realities, and thus it is hardly surprising that the cities have rough edges indeed. The challenge facing Taiwan now—its government, planners, and citizenry—is how to take the rough edges off the cities and truly bring Taiwan up to international standards. Look at the dramatic improvements in Japan's cities today, compared with the 1960s and even 1970s; Taiwan should be able to do at least as well in the years ahead.

Notes

¹ For an earlier study by the author, see: Jack F. Williams, "Urban and Regional Planning in Taiwan: The Quest for Balanced Regional Development," *Tijdschrift voor Economische en Sociale Geografie* (Vol. 79, No. 3, 1988), pp. 175-187.

² Alden Speare, Jr., Paul K. C. Liu, and Ching-lung Tsay, *Urbanization and Development: The Rural-Urban*

Transition in Taiwan (Westview Press, 1988), p. 18.

³ Those wishing to investigate this literature could start with: J. Bruce Jacobs, Jean Hagger, and Ann Sedgley, *Taiwan: A Comprehensive Bibliography of English-Language Publications* (LaTrobe University, Australia, and Columbia University, 1984).

⁴ Calculated from data in Urban and Regional Development Statistics, Republic of China, 1996 (Executive Yuan: Council for Economic Planning and Development, Urban and Housing Development Department).

⁵ This is admittedly a broad interpretation of the metro region for Taipei, in that it includes Tanshui, the coastal port town that has now become effectively a bedroom suburb and recreation site for Greater Taipei, with the completion of the MRT to Tanshui, and Keelung, the northern port that has served the Taipei region since the Japanese era.

⁶ Clifton W. Pannell, "Development and the Middle City in Taiwan," *Growth and Change* (Vol. 5, 1974), pp. 21-29.

⁷ Speare, Liu, and Tsay, op. cit.

⁸ Jim Hwang, "Boomtown or Bust: Kaohsiung City Profile," *Free China Review* (September, 1996), pp. 5-13.

⁹ The recent decision by Taiwan's government to gradually phase out the provincial government has not only created a storm of controversy in Taiwan but could have major implications for the two "national" level municipalities, Taipei and Kaohsiung.

¹⁰ "Heart Trouble: Kaohsiung City Profile," *Free China Review* (September, 1996), pp. 14-17.

¹¹ This view is reinforced in: Daniel Todd and Hsueh Yi-chung, "Taiwan: Some Spatial Implications of Rapid Economic Growth," *Geoforum* (Vol. 19, No. 2, 1988), pp. 133-145.

¹² Daniel Todd and Yi-chung Hsueh, "New Port Developments and Balanced Regional Growth: A Taiwan Example," *Geoforum* (Vol. 21, No. 4, 1990), pp. 421-433.

¹³ Philip Liu, "New Towns, Old Problems, Bigger Plans," *Free China Review* (August, 1991), pp. 26-31.

¹⁴ Probably the definitive study to date on migration in Taiwan is that by Speare, et al., op cit.

¹⁵ Jack F. Williams and Christopher F. Sutherland, "Taipei Basin, Taiwan: Land Use, 1983," map supplement to the *Annals, Association of American Geographers* (Vol. , No. , 19), pp. .

¹⁶ See, for example: "Growth Outruns Policies," *Free China Review* (August, 1991), pp. 12-18; and "City Life," *Free China Review* (June, 1996), pp. 30-33.

- ¹⁷ "Edge Cities," *Free China Review* (February, 1992).
- ¹⁸ Shih-lung Shaw and Jack F. Williams, "Role of Transportation in Taiwan's Regional Development," *Transportation Quarterly* (Vol. 45, No. 2, April, 1991), pp. 271-296.
- ¹⁹ Julian Baum, "Private Property," *Far Eastern Economic Review* (March 27, 1987), pp. 42-44.
- ²⁰ Peter Harmsen, "Railway Slowdown," *Far Eastern Economic Review* (July 25, 1996), pp. 50-52.
- ²¹ Irene Yeung, "A Slow Start to Rapid Transit," *Free China Review* (March, 1991), pp. 20-25.
- ²² An Introduction to the Rapid Transit Systems of the Taipei Metropolitan Area (Taipei: Department of Rapid Transit Systems TMG, n.d.)
- ²³ Ken Chiu, "Matra Withdraws Officials Amid Rail Closure Dispute," *Free China Journal* (June 7, 1996), p.4.
- ²⁴ Weiling Liu, "Tamsui Mass-Rapid-Transit Line Opens," *Free China Journal* (April 3, 1997), p. 4.
- ²⁵ Yeung (March, 1991), op. cit.
- ²⁶ Julian Baum, "Off the Rails: Disputes Stall Taiwan's Second Mass-Transit System," *Far Eastern Economic Review* (July 18, 1996), p. 73.
- ²⁷ Janis Connolly, "Double Trouble: Taiwan's Second Mass Rapid Transit Project Is On The Rails," Topics (Taipei American Chamber of Commerce) (September, 1996), pp. 27-31.
- ²⁸ Philip Liu, "Stuck On The Freeway," *Free China Review* (March, 1991), pp. 30-35.
- ²⁹ Osman Tseng, "Auto Insurers in a Crunch," *Free China Review* (August, 1991), pp. 49-53.
- ³⁰ Jack F. Williams, C.Y. Chang, and C.Y. Wang, "Land Settlement and Development: A Case Study From Taiwan," *Journal of Developing Areas* (Vol. 18, No. 1, October, 1983), pp. 35-52.
- ³¹ Philip Liu (March, 1991), op. cit.
- ³² *Republic of China Yearbook 1996* (Government Information Office), p. 230.
- ³³ Jim Hwang, "Sliding toward Gridlock," *Free China Review* (March, 1991), pp. 4-13.
- ³⁴ ROC Yearbook 1996, op. cit., p. 231.
- ³⁵ Winne Chang, "Taipei Parking Blues," *Free China Review* (March, 1991), pp. 26-28.
- ³⁶ "Transportation Tensions," *Free China Review* (March, 1991), pp. 14-18.
- ³⁷ "City Life," *Free China Review* (June, 1996), pp. 30-33.
- ³⁸ Most recently: Jack F. Williams, "The Quality of Life in Taiwan: An Environmental Assessment," *The American Asian Review* (Vol. 14, No. 3, Fall, 1996), pp. 79-105.
- ³⁹ "Environmental Protection," (...cchome.com/info/yearbook/nf_html/chl3_1.html)
- ⁴⁰ Jack F. Williams, "Quality of Life," 1996, op. cit.
- ⁴¹ "Asia's Best Cities," *Asiaweek* (October 25, 1996).
- ⁴² "Cities with Rough Edges," *Free China Review* (August, 1991).

