barriers than are found in mainland China. And the ASEAN Free Trade Area has more stringent requirements for local content in manufacturing.

Some Taiwan companies are leveraging the advantages of both regions by creating links between investments in the PRC and Southeast Asia. Taiwan's S.T. Group, which had invested in Singapore's electronics industry early on, began to invest in China in 1985. From its Singapore-based holding company, S.T. has established and currently controls 17 subsidiary ventures in China, three in Singapore, two in Malaysia, and one in Hong Kong. Another large Taiwan conglomerate, the Tundex Group, has also been integrating its strategies. In Fuqing, Fujian Province, Tundex has set up a $3 million garment factory. Together with the Salim Group, headed by Soedono Salim (Liem Sioe Liong), the wealthiest overseas Chinese in Indonesia, Tundex built a huge petrochemical facility in Xiamen. Tundex also recently injected $77 million into its factory in Thailand to double its annual output to 600 tons.

While Taiwan companies may continue to invest in Southeast Asia, the Taiwan government is abandoning the "go south" policy, according to P.K. Chiang, chairman of the Council for Economic Planning and Development. The government will no longer encourage investment in Southeast Asia given the region's poor economic state. This official policy change may indirectly deepen Taiwan-China ties.

The China-Taiwan supply connection

Beyond forging intra-regional linkages, Taiwan investment in China has also formed a cross-Strait manufacturing nexus that is quickly becoming a feature of the regional and global supply chains of major US multinationals. The PC industry provides an illustrative example. Taiwan makes 40 percent of IBM Corp.'s and 60 percent of Dell Computer Corp.'s desktop computers. Although Taiwan was the world's third-largest PC maker in 1995 after the United States and Japan, it has always relied heavily on original equipment manufacturing (OEM) and, to a lesser degree, on original design manufacturing production of PC peripherals to supply global computer giants. Since an average of 60 percent of their products are exported to fiercely competitive international markets, Taiwan PC makers face constant pressure to lower production costs, which they have achieved by moving

Bridging the Taiwan Strait

The absence of direct sea and air links across the Taiwan Strait has certainly hindered the ability of Taiwan companies to profit from and expand their mainland investments. Nonetheless, the Taiwan Strait has, since 1997, been bridged by de facto links that come close to direct shipping. Whether these de facto links will evolve into formal direct sea transportation in the near future is open to question.

As with the trade and investment ties between Taiwan and China, transportation links between the two have evolved gradually. Discussions in the late 1970s and early 1980s eventually led to January 1986 regulations by Taiwan's Ministry of Transportation that enabled Hong Kong transshipment and third-port customs clearance for ships carrying bulk cargo across the Strait. In 1988, Taiwan authorities permitted, in principle, both foreign freight and passenger ships traveling between Hong Kong and Okinawa to ply the Strait. More recently, in 1995, Taiwan allowed mainland containers to enter Taiwan on foreign ships, lowering the transportation costs for Taiwan companies operating in China significantly. Taiwan also unveiled a plan at this time to establish an offshore transshipment center in Kaohsiung.

On April 19, 1997, the so-called "point-to-point" cargo transportation link across the Taiwan Strait formally began, with the first ships crossing between Kaohsiung and Xiamen (*see The CBR*, March-April 1997, p. 21). The Taiwan regulations designate only Kaohsiung in Taiwan and Xiamen and Fuzhou on the mainland as points of departure and destination. Thus far, six Taiwan shippers and five mainland carriers have been approved to use this link. The 1997 agreement permits foreign-registered vessels to travel directly between Kaohsiung, Xiamen, and Fuzhou, but their cargoes may not pass through Taiwan customs or enter Taiwan's markets. The cargo must be offloaded at a third port.

Initial and potential benefits

While not yet qualifying as direct shipping, the point-to-point link promises to reduce shipping costs between Taiwan and China. Researchers at the mainland's Chinese Academy of Social Sciences estimate that the annual cargo bound for Taiwan and China through Hong Kong since 1991 has averaged over 10 million tons, with more than 400 ships from Taiwan docking annually at over 30 mainland ports. A round trip via Hong Kong stretches more than 800 nautical miles and takes at least two full days to complete, whereas a straight sail from Taiwan to Xiamen covers only 150 nautical miles in only eight hours. Shipping a twenty-foot equivalent unit (TEU) container through Hong Kong costs roughly $1,400. The same container would cost less than $350 if shipped directly. The president of the Taiwan branch of Jardine, Matheson, & Co.'s shipping agency estimated that carriers must pay $5,000 to $6,000 each time they stop in Hong Kong, even when offloading is not required. According to one Taiwan government official estimate, direct cross-Strait shipping would yield an annual savings of $248 million (based on the 620,000 TEUs that crossed the Strait in 1996 and a savings of $400 per container).

The six Taiwan and five PRC shippers that have been approved have already taken advantage of the point-to-point arrangement. Since April 1997, the Offshore Transshipment Center at Kaohsiung Harbor has handled 300,000 TEUs. Companies and shipping firms have reportedly cut their operating costs considerably, as the per-container cost has dropped from $500 to $300. International carriers expect accelerated cross-Strait investment, higher trade volumes, and continued economic growth as a result this link. According to David Arsenault, general manager of Sea-Land Service Inc.'s Taiwan branch, export-service delivery—in which partially manufactured goods are shipped from China to Taiwan for fi-

a large segment of their production to China.

According to Chin Chung, an economist at Taipei's Chung-hua Institution, by 1993 China had already accounted for 34.6 percent of Taiwan's offshore production of PC hardware, surpassing Malaysia's 29.4 percent and Thailand's 27.3 percent. The number of Taiwan PC subsidiaries in China grew from 35 in 1993 to 41 in 1995. In 1993, China accounted for almost half of Taiwan's offshore production of motherboards, and produced some 2 million monitors—more than 50 percent of Taiwan's entire offshore monitor production.

Major monitor makers Kuo Feng and Shamrock Technology plan to move at least two-thirds of their monthly production of 60,000 and 50,000 monitors, respectively, to China in 1999. Chin Chung estimates that monitor production in China could save these companies roughly 3 percent on direct labor costs and another 5 percent on indirect costs, compared with a 5 percent cost savings by producing in an ASEAN country. Considering the continued, worldwide price declines and thin profit margins for computer monitors, motherboards, and mice, even limited cost savings could mean the difference between keeping or losing orders for Taiwan PC makers and components suppliers.

In 1997, IBM increased its purchase of OEM products from Taiwan by 50 percent. In 1998, it opened a $3 million logistics center in Taiwan to serve the domestic market and other Asian markets. IBM and other major US computer companies may benefit from moves by their Taiwan suppliers to move production to China. Suppliers may be able to deliver components faster, and buyers may benefit from lower manufacturing costs. Indeed, Taiwan computer manufacturers have clustered in Dongguan, Guangdong Province, solidifying the city's role as a favored location for computer parts and components sourcing.

Besides building supplier chains across the Taiwan Strait, many US multinationals have taken advantage of Taiwan's strong manufacturing experience by transferring their Taiwan-based managers to their mainland operations. With their advanced knowledge of international manufacturing practices and extensive business experience, coupled with a common language, Taiwan managers have become highly valued by US-invested enterprises in China. And some US multinationals have begun to send their local PRC executives to their well-established Tai-

nal assembly, then exported from Taiwan—may experience a boom.

Direct shipping is also critical to Taiwan's Asia-Pacific Regional Operational Centers (APROC) plan, which aims to make the island a logistics and distribution base from which Western multinationals may enter and serve mainland and regional markets. McKinsey & Co. estimates that over 80 percent of Taiwan's APROC distribution market will involve China. Thus, APROC's full potential will not be realized without direct cross-Strait shipping.

Problems and Prospects

Despite potential economic benefits, cross-Strait shipping continues to be plagued by both political and logistical problems. The key political constraint on true direct shipping is that China considers cross-Strait transit a domestic issue, while Taiwan views it as an international one. The location of the mainland ports also discourages shippers, as access to other parts of China from Xiamen and Fuzhou is limited. Many shippers prefer to ship their goods to other, more centrally located mainland ports. Researchers at the Chinese Academy of Social Sciences estimate that these difficulties force up to 15 million tons of cross-Strait trade cargo to be transshipped via third ports each year.

Recently, however, prospects for expanded shipping contacts have improved. In August 1998, the Keelung Harbor Bureau, in Taiwan, approved China Ocean Shipping Co., the mainland's largest cargo carrier, to use its foreign-registered vessels to operate a route from the mainland to Keelung, and on to Hong Kong, Manila, and Wellington, New Zealand. In September 1998, China reciprocated by allowing three Taiwan carriers to transport cross-Strait cargo via a third port. Evergreen Marine Corp (Taiwan) Ltd., for example, will operate a route from Shenzhen's Yantian port to Hong Kong, Kaohsiung, Los Angeles, Oakland, Tacoma, Tokyo, Osaka, and back to Yantian. This new agreement enables carriers to transport cargo from both sides of the Taiwan Strait to the United States via a third port, without reloading cargo onto a different vessel at an intermediate stop.

Senior Taiwan government officials are also considering upgrading the Offshore Transshipment Center at Kaohsiung Harbor to a special economic and trade zone and expanding its warehousing and processing facilities. Under this plan, China could be regarded as a third area, like Hong Kong, and all ships (not just the foreign-registered vessels owned by the designated Taiwan and China carriers) could sail between Kaohsiung and mainland ports. If this plan is implemented, and low service rates remain in effect, cargo volume at Kaohsiung Harbor could double. According to one forecast, the PRC, Hong Kong, and Taiwan together could handle approximately 86 million TEUs by the year 2010, with China's share exceeding those of both Hong Kong and Taiwan. The combined total, much of which will come from increased cross-Strait cargo, would account for over 40 percent of Asia's total container cargo and about 20 percent of the world's total container cargo.

Cross-Strait politics may remain a hurdle to direct shipping, however. Plans to upgrade Kaohsiung Harbor, for example, depend on improved Taiwan-mainland relations. But pressure from companies involved in massive cross-Strait trade and investment will bring about true direct shipping sooner rather than later. High projected demand will require the opening of additional ports on both shores. It may not be long before the point-to-point shipping between Kaohsiung, Xiamen, and Fuzhou will become an extensive network of shipping nodes and nexuses involving Keelung, Taichung, and Hualian in Taiwan, and Shanghai, Tianjin, and Qingdao in China.

—Xiangming Chen