

# ASIAN SURVEY

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## EXPORT PROCESSING ZONES IN ASIA

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Hooshang Amirahmadi and  
Weiping Wu

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Since the 1960s, many developing countries have implemented export-oriented growth strategies, that is, custom-free manufacturing, to promote industrialization. The Export Processing Zone (EPZ) is perhaps the most common form in which this strategy has been implemented. An EPZ can be defined as an industrial enclave that engages in export manufacturing with the assistance of foreign investment and enjoys preferential treatment that is not generally available in the rest of the country.<sup>1</sup> But it is not the only form of custom-free manufacturing. Based on the experience of other EPZs in Asia, China developed its open-door policy further by creating Special Economic Zones (SEZs) in 1979 and the early 1980s aimed not only at export-oriented industrialization but also the promotion of national development and laboratories for the ongoing economic reform. Another type of custom-free manufacturing that has been introduced is the Export Processing Factory (EPF) or Custom Bonded Factory (CBF), which produces exports and receives preferential treatment irrespective of location.

This study seeks to provide a systematic analysis of why the EPZ became attractive to governments of developing countries, especially in Asia; demonstrate the extent EPZs in Asia have conformed to their claimed objectives; and explore the conceptual pitfalls embedded in this strategy. We propose that the EPZ became attractive because it offers a variety of advantages including a compromise between liberal and protective regimes, a gateway to the international community, lower operational costs, and smaller political risk. But despite high expectations by host governments and international organizations, EPZs in Asia have generated mixed performances, and several

major conceptual pitfalls have often precluded their full effectiveness. The article concludes with some suggestions for enhancing the outcome of EPZs.

EPZs, SEZs, and EPFs have evolved over time and are located throughout Asia and the Pacific, the Middle East, Africa, Latin America, and the Caribbean. The zones in Asia are the most numerous and active,<sup>1</sup> with more than 80 of some 200 EPZs in the world located there (Malaysia alone has 11). Latin America and the Caribbean region rank second with about 80 zones, but only a few countries outside the Asian region—the Dominican Republic, Mauritius, and Mexico—are comparable to Asian countries in terms of the magnitude and performance of EPZs. The most successful zones are also located in Asia, specifically in Taiwan, South Korea, and Malaysia.<sup>2</sup>

A typological analysis of an EPZ, SEZ, and EPF shows that their defining characteristics are similar, with some differences among them regarding their claimed objectives. They are all custom-free and export-oriented manufacturing areas, are provided with preferential incentives and streamlined administration, and equipped with better infrastructure and cheap utilities. Most are spatial enclaves located next to major ports. All of them aim at promoting employment, export, and foreign investment.<sup>3</sup> Several zones have some additional goals, such as the promotion of national or regional development, encouragement of technology transfer, creation of linkage effects, and experimentation with new industrialization strategies.<sup>4</sup> Their goals have evolved in stages and, depending on circumstances, have had more or less significance for different governments. Given the similarity among the three types and the fact that EPZ is the most widely used form, this article uses the term EPZ to refer to all types of custom-free manufacturing.

The literature on the EPZs is quite extensive. Three types may be distinguished: descriptive analysis and case studies, cost-benefit analysis, and theoretical analysis. The majority of the literature belongs to the first type, including studies conducted by international bodies and organizations, and provide comprehensive surveys of issues and problems related to EPZs such as conceptualization, objectives, incentives, performance, and developmental

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1. This article uses the International Monetary Fund's (IMF) system of country classification in which the Middle East is not included in Asia. In addition, Hong Kong and Singapore are excluded because their entire territories are export processing in nature and there are no policy enclaves.

2. United Nations Center on Transnational Corporations (UNCTC) and U.N. Conference on Trade and Development (UNCTAD). This count includes the 36 zones in Singapore and Hong Kong.

3. China is somewhat exceptional in that the government has stressed that SEZs should focus more on promotion of foreign investment and technology transfer than employment generation.

4. Linkage effects mainly refer to backward linkages with the domestic economy through purchase of materials and subcontracting, and forward linkages through sales to domestic markets.

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impact.<sup>5</sup> The second type—cost-benefit analysis—estimates the benefits and costs of an EPZ by comparing its net returns with those of a hypothetical situation without the zone. Components of the analysis include profits and losses; foreign exchange earnings; employment; technology transfer; domestic sales, purchases, and borrowing; electricity usage; taxes; and set-up costs. The third type, theoretical analysis, places EPZs within the standard Heckscher-Ohlin model of trade and production. In the absence of EPZs, foreign direct investment (FDI) is likely to be attracted to the relatively capital-intensive sectors of host economies, particularly in countries where governments impose tariffs on imported goods. This direction of FDI could exacerbate the misallocation of resources against sectors in which host economies have a particular comparative advantage, such as labor-intensive production. Therefore, countries that lack liberal trade regimes often wish to establish EPZs to promote labor-intensive manufacturing export with the assistance of FDI.

There has been relatively little comprehensive research to explore why EPZ has become an attractive policy tool for developing countries, and how the zones' effectiveness compares to their claimed objectives. In particular, descriptive and cost-benefit analyses rarely document the causal factors behind the attractiveness of EPZ strategy, and have indicated mixed results as to the zones' effectiveness. The impact of EPZs is seen as largely economic, most noticeably in employment generation, their positive social impact is viewed as minimal, and in some cases the impact is regarded as negative for local development. Most authors agree that the success of EPZs will be significantly limited without an integrated national industrialization strategy. The often mentioned difficulties faced by EPZs are considered to occur mainly during the implementation phase of development: poor location, insufficient infrastructure, bureaucratic administration, and enormous setup costs. The literature remains largely equivocal on the conceptual pitfalls embedded in the EPZ strategy, an issue on which this study will focus as it builds on the existing literature in an effort to fill in several gaps. In particular, we will provide a systematic analysis of why EPZs have become attractive to governments of developing countries, especially in Asia; demonstrate the extent to which EPZs in Asia have conformed to their avowed objectives; and explore the conceptual pitfalls embedded in this strategy. We propose that EPZs have become attractive to developing countries because of a vari-

5. These organizations include U.N. agencies such as UNCTAD, *Export Processing Free Zones in Developing Countries* (1985) and *Export Processing Zones: Role of FDI and Developmental Impact* (Geneva 1993); UNCTC, *The Challenge of Free Economic Zones* (1991); and U.N. Industrial Development Organization (UNIDO), *Export Processing Zones in Transition: The Case of the Republic of Korea* (1988). Also, the International Labor Organization (ILO) and UNCTC, *Economic and Social Effects of Multinational Enterprises in Export Processing Zones* (Geneva: ILO, 1988); and the World Bank, *Export Processing Zones* (Washington, D.C., 1992).

ety of advantages offered, including a compromise between liberal and protective regimes, a gateway to the international community, lower operational costs, smaller political risk, demonstration effects, and a drive for industrialization.

Despite high expectations of host governments and international organizations for EPZs to help increase capital stock, job opportunities, export and foreign exchange earnings, technology transfer, and overall national economic activities, zones in Asia have produced mixed performances, although their records are not worse than those of zones in other regions. While country-specific conditions, implementation problems, and external forces can partially account for this outcome, several major conceptual pitfalls in the EPZ strategy have precluded the complete effectiveness of the zones. These include EPZ's enclave and reactive (to the industrial relocation of firms from developed countries) nature, external orientation, antinomial effect of fiscal incentives, and limited spatial impact in the absence of a regional policy. These three issues—attractiveness, effectiveness, and conceptual pitfalls—are, of course, related to each other.

### The Attraction of EPZs

The first EPZ, Shannon Industrial Estate, was established in Ireland in 1959 in an attempt to revitalize the old Shannon Airport. The first Asian zone was the Kandla EPZ opened by the Indian government in 1965. The next year Taiwan established its first EPZ (Kaohsiung), and South Korea followed in 1970 (Masan EPZ). Both Taiwan and South Korea embarked on export-led industrialization in the late 1950s and intensified it in the 1960s when other Asian developing countries were still promoting an import-substitution strategy. These two countries established a few EPZs as part of their new industrialization drive to sustain the momentum of exports and foreign investment. But the 1970s witnessed a drastic shift from the inward- to an outward-looking development orientation in many Asian countries, with the result that EPZs flourished in Malaysia, Sri Lanka, Thailand, and the Philippines, among others. Even countries with still largely protected domestic sectors, such as India, Pakistan, and Indonesia, established EPZs to promote export industries. The most interesting case of all was the opening of socialist China in 1979 and its subsequent establishment of five SEZs. By 1990, some 45 zones had been established in 14 Asian developing countries and about ten more zones were being planned.

Thus, it is quite obvious that the EPZ strategy has become attractive to many developing countries in Asia because it offers certain key advantages. First, in a purely economic sense, it is the second best method (after a free trade regime) to attract FDI into export industries. A liberal trade regime can provide an environment that facilitates flows of capital and commodities, en-

courages competition both domestically and internationally, and allocates resources efficiently. Yet, developing countries often have reservations about a completely liberal trade regime. Protection is most often found in sectors producing import substitutes that are capital-intensive and in which developing countries do not have comparative advantage. To overcome tariffs, foreign investment tends to be attracted to these relatively capital-intensive sectors in the form of equity investment (FDI), but the real attraction of many developing countries for FDI, particularly those without large domestic markets and abundant natural resources, is the availability of a low-cost workforce. For those countries that do not adopt a liberal trade regime, EPZs offer the next best and the quickest solution for export promotion through the creation of an enclave to attract FDI into labor-intensive manufacturing industries. However, as these countries develop and move toward overall trade liberalization, the relative importance of EPZ declines, as in Taiwan and South Korea. This implies that EPZ is only a transitional strategy in the shift from import-substitution to export-oriented industrialization, or a means to sustain the promotion of manufacturing exports.

Second, EPZs can provide a gateway to FDI from the international community for a host developing country. But FDI flows are limited and the competition among developing countries has been increasing. Therefore, countries are pushed to create even more favorable investment environments to secure their share of FDI, and this competition has been partially responsible for the establishment of new EPZs with attractive incentives. Even in countries where incentives are already very high and the business environment is competitive, such as South Korea, increasingly attractive incentive packages are being offered.<sup>6</sup> With the introduction of FDI also comes the opportunity for host countries to enter global export markets. EPZs may thus be established at two different stages in the promotion of manufactured exports: as a transitional strategy at an early stage of development to facilitate the opening up of the economy, or to sustain the momentum of export promotion after a country has made considerable headway.

There is also a political aspect to the EPZ in that host developing countries use FDI to facilitate their relations with the West. This may be particularly appealing to those countries that are planning to establish EPZs to attract FDI. The "revolution" in Eastern Europe and the former Soviet Union eliminated East-West tension, replacing it with a "new world order" in which the North has become the most prominent actor in world politics. Meanwhile, the Persian Gulf War increased developing countries' fears of possible intervention by the North through force. Thus, these countries may seek to minimize risk by trying to unify with the developed world through hosting FDI

from the North. With the opening of the gateway to the international community, however, may also come gradual foreign dominance of the EPZ.

Third, EPZs can be operated at much lower costs than some other ways attracting foreign investment, given that most developing countries lack adequate infrastructures and the resources for large-scale development. Still, initial development costs can be substantial, and the ability to control them will significantly affect future benefits of the zone. To reduce risk and minimize such costs, several countries have experimented with privately managed commercial EPZ estates, with private entrepreneurs taking on the tasks of locating, developing, and managing the zones.<sup>7</sup> The administrative costs of operating a few zones are also lower than streamlining an entire antiquated bureaucracy. Many zones have simplified administrative requirements that appeal to foreign investors, and the viability of a zone will depend on getting a sufficient number of investors in a reasonably short period of time. The form of concentrated development is rooted in the concept of the growth center, which is considered an efficient way of generating development less cost to the public. But there is a potential danger in viewing the EPZ as a growth center. Instead of producing a trickle-down effect, an EPZ tends to become an isolated enclave whose development is disjointed from the host economy.

Finally, because of its enclave nature the EPZ presents a smaller domestic political risk than opening up the entire country to foreign participation. Many developing countries in Asia had been invaded or colonized in the past and allowing foreign investment into the entire territory of a country could stir up widespread resentment and political resistance. By creating a spatial enclave, the host government hopes to have greater control over the extent to which foreign investment can penetrate the economy. Although foreign investors are allowed to operate under less strict rules in the zone, they are subject to certain rules set by the host government. Furthermore, in the case of China, creating spatial enclaves helps slow the spread of capitalist ideology into socialist territory. The Chinese SEZs, because of their proximity to Hong Kong and Taiwan, act as intermediate zones for future reunification. They are used to experiment with market systems in the hope that the rest of the country would benefit from their experience if they succeed or that the impact could be limited if they fail.

In sum, for many developing countries, the advantages of an EPZ far outweigh its possible drawbacks if the zone is planned and implemented with care. EPZs appear to be a feasible and attractive strategy and is expected to provide the host country with major economic benefits. In addition, get

6. UNIDO, *Export Processing Zones in Transition*.

7. Such private and commercial EPZs are found in Costa Rica, Dominican Republic, and Mexico.

graphic separation facilitates customs procedures and can confer a sense of security for firms within the zone. The EPZ allows for the creation of administrative facilities and development of relatively high-quality personnel. The earlier success of the EPZ as an effective export-led industrialization strategy in several pioneering countries such as South Korea and Taiwan promoted its attractiveness to other developing countries. However, as we shall show, there are certain conceptual pitfalls embedded in the EPZ strategy that seriously limit its contribution.

### Claimed Objectives and Effectiveness

The development of an EPZ generally goes through several stages over time and many zones share a common life cycle. At the beginning, significant amounts of foreign investment flow in and one industry begins to gain dominance—either electronics or textile and clothing in most zones. When the zone takes off, the volume of production and exports rises significantly, but as it matures, foreign investment inflows tend to taper off, exports grow at a slower rate, costs and labor skill levels rise, and high-value added industries start to replace processing activities. Toward the end of the life cycle, the importance of the zone in export promotion declines and the zone goes through structural change with its roles reappraised.<sup>8</sup> Afterwards, it may evolve into a more high-tech industrial estate producing higher-value added manufactured exports (as in South Korea and Taiwan), a broad-based export processing regime (as in Malaysia and Mauritius), or into a development zone embracing other economic activities such as services and agribusiness (SEZs in China).

Since EPZs were established in developing countries in the 1960s, host governments and international organizations have expected relatively high performance. In the early 1970s, the United Nations Industrial Development Organization (UNIDO) and the U.N. Conference on Trade and Development (UNCTAD) outlined a list of benefits that developing countries could expect from EPZs: an increase in capital stock, creation of employment opportunities, promotion of technology transfer, growth of exports and foreign exchange earnings, and general stimulation of national economic activities.<sup>9</sup> Despite a variation in specific objectives, most governments in Asia have used EPZs for economic purposes, but other goals that are sometimes made explicit include technology transfer, linkage effects, and regional develop-

8. Zones in South Korea and Taiwan have apparently gone through such a cycle. This life-cycle theory was first used in ILO and UNCTAD, *Economic and Social Effects*. Also see UNCTAD, *Export Processing Zones*, and Won Sun Oh, *Export Processing Zones in the Republic of Korea: Economic Impact and Social Issues* (Geneva: ILO, 1993).

9. George T. Crane, *The Political Economy of China's Special Economic Zones* (Armonk: M. E. Sharpe, Inc., 1990).

ment. Indeed, these latter goals were particularly important in China's SEZs, India's Kandla EPZ, the Philippines's Bataan EPZ, and Taiwan's Kaohsiung EPZ. Countries promoting zones have also hoped to stimulate national economic growth either directly or indirectly through the zones' trickle-down effects.

EPZs in South Korea and Taiwan, as well as Malaysia to some extent, are widely considered to be performing quite satisfactorily compared to other EPZs in Asia.<sup>10</sup> Their contributions to host country development, however, are limited by conceptual pitfalls. The major gains have been in areas of employment and foreign exchange earnings. The zones in South Korea and Taiwan realized their full planned capacity shortly after they were established. The share of foreign investment remained high and most products were exported. Some domestic linkages have also been established, and domestic value-added in exports has been increasing over the years. In Taiwan's three EPZs, local supplies of materials and equipment meet almost half of the needs of the industries in the three EPZs, and technology transfer occurred largely through training of workers. In addition, the Kaohsiung EPZ has aided in the modernization and development of its surrounding region.<sup>11</sup> These zones, therefore, have largely fulfilled the expectations of host governments.

Three factors, which do not exist in most other zones in Asia, lie behind the relatively satisfactory performance of these zones. First is a successful overall national industrialization strategy in the host country. For instance, South Korea's EPZs were established at the time when the country had just formulated its national industrialization strategy and made considerable headway in its export-oriented policy, with a realistic exchange rate, a partially liberalized trade regime, and a low inflation rate. The second factor relates to the nature of governments in South Korea and Taiwan, which have successfully played the role of a developmentalist state through strong interventions. They have been able to discipline the private sector and labor force by setting performance standards, providing subsidies, and prohibiting trade union activities, particularly in the early stage of development. But they also allowed the growth of the private sector, which is the pillar of rapid economic growth.<sup>12</sup> The last factor is a conducive international economic environment. Taiwan and South Korea were the first developing countries to build EPZs to

10. Asian Productivity Organization (APO), *Economic and Social Impact of Export Processing Zones* (Tokyo: APO, 1980); UNCTAD, *Export Processing Free Zones*; and Peter G. Warr, "EPZs: The Economics of Enclave Manufacturing."

11. Jingdong Yuan and Lorraine Eden, "Export Processing Zones in Asia: A Comparative Study," *Asian Survey*, 32:11 (1992), pp. 1,027-45; and APO, *Economic and Social Impacts*.

12. Based on ongoing research by Hooshang Amirahmadi and David Fineberg on a dynamic theory of the state and civil society in the development process.

take advantage of the industrial relocation of firms from developed countries in the late 1960s and early 1970s. At the time, world trade was growing rapidly, and the markets of industrialized countries had just opened to the developing world for manufactured products. The EPZs in the second wave are now competing for limited flows of foreign investment,<sup>13</sup> and the industrialized countries have tightened their markets.

With respect to claimed objectives then, Asian EPZs show mixed performances. They have proven most successful in employment generation, particularly short-term employment, as labor-intensive manufacturing industries were attracted to these countries by the availability of a large supply of cheap labor. In 1975 total employment in Asian EPZs was 0.13 million; it reached over 0.3 million in 1986 and close to 0.4 million in 1990 (see Table 1). Before 1986, zones in Malaysia, the Philippines, South Korea, and Taiwan were the largest employment generators, but by 1990 India, Indonesia, and Sri Lanka experienced the fastest growth. The level of employment in many zones fluctuated over the years. For instance, employment in South Korea's zones grew rapidly between 1971 and 1987—from formation to maturity—and declined thereafter because of rising labor costs, labor disputes, and exchange rates.<sup>14</sup> Similar trends emerged in Taiwan and the Philippines, which also experienced negative employment growth between 1986 and 1990, contrasting with rapid increase before 1986.

The employment effect of EPZs on the host economy varies with the size of the local labor force. In small countries such as Malaysia, Sri Lanka, South Korea, and Taiwan EPZ employment can account for a substantial proportion of the manufacturing labor force. The effect, however, is more important at the regional level and as part of overall employment growth. In Malaysia, for instance, more than 20% of manufacturing jobs in Selangor and 70% of those in Penang are in EPZs.<sup>15</sup> One noteworthy feature of the EPZs is that between 70% to 80% of the total work force consists of women aged between 16 and 25. This can be attributed to the fact that the industries in most zones are electronics and textile and clothing manufacturing, fields in which production is dominated by female workers regardless of their location. These women are usually unskilled or semi-skilled production workers

13. Hooshang Amirahmadi and Weiping Wu, "Foreign Direct Investment in Developing Countries," *Journal of Developing Areas*, 28:2 (January 1994), pp. 167-90.

14. The militancy of labor often turned foreign investors away from the zones for the same reason they chose to relocate offshore in the first place. South Korea had no significant labor disputes and unrest in the zones before 1987 as trade unions and labor actions were prohibited by law in order to attract foreign investment. (Won Sun Oh, *Export Processing Zones in the Republic of Korea*).

15. Jean Currie, *Export Processing Zones in the 1980s: Custom Free Manufacturing*, Special Report no. 190 (London: The Economist Intelligence Unit, 1985).

TABLE EPZ Employment in Asia, 1975-1990

Country or Territory	Employment			Share in Asia Total (Percent)		
	1975	1986	1990	1975	1986	1990
<i>Asia (1)</i>		4,515	7,000			
Bangladesh	—	—	—	—	—	—
Brunei	—	—	—	—	—	—
Fiji	—	—	—	—	—	—
India	1,249	17,000	30,000	0.9	5.4	7.8
Indonesia	—	13,000	50,000	—	4.1	13.0
Malaysia	40,465	81,688	98,900	80.0	25.7	25.6
Pakistan	—	1,500	2,000	—	0.5	0.5
Philippines	8,177	39,000	35,400	6.1	12.3	9.2
South Korea	22,919	39,516	24,700	17.0	12.4	6.4
Sri Lanka	—	35,000	55,000	—	11.0	14.3
Taiwan	62,143	80,469	70,700	46.0	25.3	18.3
Thailand	—	4,746	12,000	—	1.5	3.1
Tonga	—	1,000	—	—	0.3	—
<i>Asia total (2)</i>	134,953	317,434	385,700	100.0	100.0	100.0
Dominican Republic	6,500	36,000	150,000			
Mauritius	9,952	61,690	90,000			
Mexico	74,676	250,000	600,000			

Sources: Compiled from Otto Kreye et al. (Stamberg Institute), "Export Processing Zones in Developing Countries: Results of a New Survey," Working Paper no. 43 (Geneva: ILO, 1987); UNCTAD, "Export Processing Zones: Role of Foreign Direct Investment and Developmental Impact" (Geneva: UNCTAD Secretariat, 1993), employment statistics based on Stamberg Institute's estimates; and Won Sun Oh, "Export Processing Zones in the Republic of Korea: Economic Impact and Social Issues" (Geneva: ILO, 1993).

Notes: (1) Excludes employment in other offshore manufacturing facilities outside EPZs. (2) Because of a much larger scale of development, the level of employment in China's SEZs is not comparable to other EPZs in Asia. According to official sources, total employment in four SEZs was between 1 and 1.5 million in 1990.

who, in the absence of EPZs, would have stayed outside the regular labor force. There is certainly an element of exploitation in that these women tend to be paid less than their male counterparts, but the participation of women in the work force and the industrialization process could have significant long-term positive implications, such as new opportunities, values, and social responsibility for women.<sup>16</sup>

16. Some critics view this aspect negatively and assert that EPZs have purposefully exploited female workers. There is some validity to this argument. Most women in many developing

The performance of Asian EPZs in promoting exports has not been impressive, especially net exports. Zones in China, Malaysia, South Korea, and Taiwan have been generating large amounts of gross exports, whereas those in Sri Lanka and the Philippines have produced relatively small amounts in the early period but much more later on (see Table 2). Zones in China, Malaysia, and Sri Lanka experienced rapid growth of gross exports. South Korea's Masan EPZ, however, exported less in 1986 than in 1982, and its share in the country's total exports also declined. Net exports, which can be used as an indicator of economic benefits to the zones, are drastically reduced in many zones because a large proportion of the production inputs for EPZs is imported. The share of net exports is approximately 30% of gross exports in most countries and rarely exceeds 60%. The ratio was fairly high for Indonesia, South Korea, and Taiwan, but much lower in Malaysia, the Philippines, and Sri Lanka despite substantial gross exports from the zones. In fact, the Chinese SEZs served more as import-processing centers than export bases, as indicated by the very low net exports ratio (Table 2). In addition, since a large proportion of inputs are imported and the manufacturing activities tend to be low-end, the share of domestic value added in EPZ exports is very low, generally below 20%. The share of EPZ exports in many host countries' total exports is below 10% in most cases, but tend to be higher as a proportion of manufacturing exports in several countries, including Malaysia, the Philippines, and Sri Lanka. At the sectoral level, although no general pattern can be detected, EPZ exports have made a substantial contribution to total exports in individual countries. Such is the case with the Philippines' Bataan EPZ in transport equipment and electronics and South Korea's Masan EPZ in electronics and metal products.

Similarly, EPZ's efficacy in the promotion of foreign investment is at best mixed. China has proved to be the most outstanding performer. The opening up of the long-closed economy and large potential domestic market are the two great incentives for investors. For example, in 1988 China's SEZs together attracted \$370.3 million in FDI and outperformed any other zones in Asia (see Table 3). EPZs in Taiwan, Malaysia, and South Korea have also been relatively successful in promoting FDI. But as developing countries move toward a more liberal trade regime, the importance of EPZs in attracting FDI tends to decline. In South Korea the EPZ share in total FDI at the national level went down from 23.2% in 1974, to 9.4% in 1980, and to 4% in 1985. The share of domestic investment in these EPZs is also rising over time, largely because of government policies that encourage local firms

countries are less educated and unionized, and they are a more disciplined work force, less likely to make demands on the management of firms in the zones. But we believe that the opportunities created for women through employment in the zones outweighed this negative aspect.

TABLE 2. EPZ Exports in Selected Developing Countries in Asia

Country or Territory	Gross Exports (\$ million) [1]	Net Exports (\$ million) [2]	[2] as Percent of [1]	[1] as Percent of National Gross Exports [3]	[2] as Percent of National Gross Exports [3]
China (Shenzhen, Zhuhai, and Shantou SEZ)	572.9	-306.6	-53.4	2.1	5.7
Indonesia (Jakarta EPZ)	37.5	23.4	62.4	—	—
Malaysia	576.0	190.0	33.0	—	—
Philippines	1,679.0	—	—	14.0	49.0
1982	250.9	65.8	26.2	5.0	6.8 [1979](1)
1990	580.0	—	—	7.0	16.0
Sri Lanka	29.4	8.2	27.9	—	—
1980	437.0	—	—	23.0	44.0
1990	601.3	319.6	53.2	3.0	3.9 [1980]
Taiwan	460.0	—	—	1.0	1.0
1986	2,403.0	1,171.0	48.7	4.0	5.0 [1987]
1988					

Sources: Compiled from Eddy Lee, ed., "Export Processing Zones and Industrial Employment in Asia: Papers and Proceedings of a Technical Workshop" (Bangkok: Asian Employment Program, ILO, 1984); Antoine Basile and Dimitri Germidis, "Investing in Free Export Processing Zones" (Paris: OECD, 1984); UNCTAD, "Export Processing Zones in Developing Countries: Implications for Trade and Industrialization Policies" (New York: United Nations, 1985); Rajiv Kumar, "India's Export Processing Zones" (Delhi: Oxford University Press, 1989); State Statistical Bureau, *China Statistical Yearbook 1992 and Guangdong Statistical Yearbook 1992* (Beijing: State Statistical Bureau, 1992); and UNCTAD, "Export Processing Zones: Role of Foreign Direct Investment and Developmental Impact" (Geneva: UNCTAD Secretariat, 1993).

NOTE: (1) For Bataan EPZ only.

TABLE 3 EPZ FDI in Selected Asian Countries

Country or Territory	FDI in EPZs (\$ million)	[1] as Percent of Total EPZ Investment	[1] as Percent of National Total FDI
China 1988	370.3		11.6
India 1983	6.0	16.7	9.5
Indonesia 1983	16.	70.0	5.5
Malaysia 1983	197.	90.0	13.4
Philippines 1983	56.4	49.0	22.6
Sri Lanka 1982	46.9	70.0	73.8
South Korea 1986	110.8	73.9	4.0 [1985]
Taiwan 1985	331.5	85.0	10.0 [1966-83]
Thailand 1983	3.2	20.0	0.9

Sources: Compiled from Jean Currie, "Export Processing Zones in the 1980s: Custom Free Manufacturing," Special Report no. 190 (London: Economist Intelligence Unit, 1985); Asia Partnership for Human Development, "Export Processing Zones in Five Countries: The Economic and Human Consequences" (Hong Kong: APHD, 1986); UNIDO, "Export Processing Zones in Transition: The Case of Republic of Korea" (New York: United Nations, 1988); *China Statistical Yearbook 1989* (Beijing: State Statistical Bureau, 1989); Jingdong Yuan and Lorraine Eden, "Export Processing Zones in Asia: A Comprehensive Study," *Asian Survey* 32:11 (1992); World Bank, "World Tables"; and UNCTC, *World Investment Directory 1992: Asia and the Pacific* (New York: United Nations, 1992).

to operate in the zones. EPZs in other Asian developing countries attracted limited amounts of FDI. For example, in 1983 only 16.7% of the total investment in India's EPZs came from foreign sources. The performance of Asian EPZs in attracting FDI is closely related to the overall flows of FDI to developing countries. In the 1980s, a limited number of developing countries were able to take in relatively large amounts of FDI; in Asia, these countries were Singapore, China, Hong Kong, Malaysia, Thailand, Taiwan, South Korea, and Indonesia, which together shared over 90% of total FDI inflows to

Asia.<sup>17</sup> A peculiarity of EPZ investment is that very few large multinational corporations (MNCs) have invested. Most Asian zones, although offering very competitive incentives, attracted mostly small firms from industrialized countries, and increasingly, smaller firms from other developing countries such as the NICs.

The EPZ strategy seems to fail when used for promoting technology transfer, linkage effects, and regional development. These goals are not generally made explicit, and as a result do not receive adequate policy support. The sectoral orientation of EPZs can have a great influence on the transfer of technology and skills. For instance, in South Korea's Masan EPZ, where electronics and chemical industries predominate, close to 4,000 workers have received technical training. In contrast, skills have remained less developed in the country's Iri EPZ where the main industries are textiles and clothing. The industries most likely to involve technology transfer are those producing capital and intermediate goods, such as electrical equipment, industrial chemicals, metallurgy, and rubber, industries that normally require a high level of investment. In Asian EPZs, however, the most frequent industrial activities are in electronics, textiles, and clothing. EPZs are characterized by a high degree of industrial monoculture in which the largest industry employs the majority of workers. Electronics dominates zones in South Korea, Taiwan, and Malaysia, while textiles and clothing predominate in most zones in Bangladesh, Indonesia, the Philippines, and Sri Lanka.<sup>18</sup> Research and development (R&D) activities are rarely located in EPZs. As a corporate strategy, R&D is generally kept in MNC headquarters in home countries. On the positive side, however, some development of managerial skills has taken place in a number of zones. Skill transfer to non-EPZ areas occurs mainly through the movement of workers who have received training in the zones and through subcontracting work that firms conduct outside the zones. Spillover is another means by which knowledge learned in the zones is transferred to other parts of the country. For example, in Taiwan some former EPZ employees went on to establish their own electronics firms elsewhere.

Most EPZs in Asia have generated very limited linkage effects on domestic economies, except for zones in rather advanced developing countries, such as South Korea and Taiwan, which have succeeded in their export-oriented strategies. The high import content of EPZ products is one major indication that only limited backward linkages have been established. By far the most

17. Based on UNCTC, *World Investment Directory 1992: Asia and the Pacific* (New York: United Nations, 1992).

18. The concentration rate is especially high, accounting for over 80% of total zone employment in Sri Lanka (textiles and clothing) and in Malaysia (electronics). The tendency toward industrial monoculture is probably related to the somewhat artificial nature of EPZs and the type of activities of first foreign investors in the zones.

important component of domestic value-added in EPZ exports is the wage paid to local production workers.<sup>19</sup> Even in South Korea, where the local economy is relatively developed, the domestic share in total raw materials used in Masan EPZ was only around 30% in 1985. This was largely accounted for by intra-EPZ purchases, with outside firms providing merely 12.9% of all raw materials that year. But this share increased to around 45% in 1991, which indicates that zones in South Korea have created increasing backward linkages. In Taiwan's EPZs, between a quarter and a half of total raw materials was sourced domestically, but the domestic share was much lower for zones in other countries, around 15% in Indonesia and the Philippines and only 3% in Malaysia.<sup>20</sup> Backward linkages in the form of subcontracting are also limited. Studies show that only in South Korea, Taiwan, Malaysia, and China have EPZs established substantial amounts of subcontracting.<sup>21</sup> In addition, forward linkages with domestic economies are basically precluded by the dependence of EPZs on export markets and the very limited access to domestic markets allowed by host governments.

Regional development has rarely taken root with the mere establishment of EPZs, even when a few of them were in fact planned for this purpose. The most obvious impact EPZs have on surrounding regions is the creation of a new labor force, particularly encouraging the participation of women. However, although EPZs have provided employment, these jobs are oriented toward export markets, not the local economy. And some large EPZs may restructure the local economy in ways adverse to the poor, especially in the agricultural sector. As studies of EPZs in the Philippines and Sri Lanka show, unemployment can actually rise outside the zones as unemployed rural workers, mostly men, are drawn to the zones in search of jobs but are often unable to obtain any. Life patterns of local communities also have been dis-

rupted as families in communities near the zones were forced to relocate and their traditional livelihood lost.

The establishment of EPZs accelerates urbanization of surrounding regions. Often infrastructural facilities have not kept pace with rising urban populations and social tensions have increased in such areas. Furthermore, noticeable environmental degradation has occurred in some EPZs, aggravated by a lack of regulation in host countries. Such industries as electronics and plastics use chemicals that pose environmental hazards if not disposed of properly. There is no evidence that EPZs systematically exempt firms from environmental regulations; where environmental problems exist, they largely stem from countrywide policies. In recent years, several zones have started to target environmental protection, for instance those in Taiwan.<sup>22</sup> In fact, the control of pollution and disposal of hazardous wastes are generally easier and less expensive in a well-managed industrial estate so long as the government takes the initiative in formulating and enforcing needed environmental regulations.

### Conceptual Pitfalls

The effectiveness of most EPZs in Asian developing countries as measured against their claimed objectives is limited by certain implementation problems, such as poor location choices, insufficient infrastructure investment, and bureaucratic administrative procedures. It is also influenced by other domestic conditions, including labor costs and productivity, the level of economic development, the strength of the state, and the size of the domestic market. The fluctuation in the performance of many EPZs, in fact, is a direct reflection of the changing national economy and related development policy. Therefore, a necessary condition for the success of an EPZ lies in an economic and policy environment that promotes private sector development and a local business community, and in many cases this requires active intervention of the state to facilitate the provision of incentives, streamlined administration and management, appropriate site selection, infrastructure building, and adequate investment promotion. In addition, external forces have a role to play, including the growth of world trade and the availability of FDI.

More importantly, however, the performance of EPZs has been significantly handicapped by an inadequate conceptualization of the strategy. The EPZ must be viewed at the intersection of three sectoral/spatial policies: free trade zone, industrial policy, and growth center strategy. But many host governments emphasize only the free-trade or export-promotion aspect and ignore the other two functions. Consequently, the establishment of EPZs in many developing countries becomes an isolated effort to promote manufac-

19. Jean Currie, *Export Processing Zones in the 1980s*; and UNCTAD, *Export Processing Free Zones*.

20. UNIDO, *Export Processing Zones in Transition*; and Won Sun Oh, *Export Processing Zones in the Republic of Korea*; Howard Elias, "Vanguards of Economic Success," *Travel in Taiwan*, 7:9 (April 1993), pp. 11-12; Voxi Heinrich S. Amavilah, "The Political Economy of Export Processing Zones (EPZs) in Developing Countries: Implications for the Arandis EPZ Initiative in Namibia," *Natural Resources Forum*, 17:4 (November 1993), pp. 273-87.

21. Asia Partnership for Human Development (APHD), *Export Processing Zones in Five Countries: The Economic and Human Consequences* (Hong Kong: APHD, 1986); and Chung Tong Wu, "Policy Aspects of Export Processing Zones: Lessons from an International Study," *Southeast Asian Journal of Social Science*, 19:1 and 2 (1991), pp. 44-63. The government has played an important role in encouraging subcontracting in South Korea's zones through an authorization in 1974 that allowed 60% of the total production process, as opposed to the previous 30% limit, to be taken by subcontractors outside the zones. (See Won Sun Oh, *Export Processing Zones in the Republic of Korea*.)

22. World Bank, *Export Processing Zones*.

tured exports as a reaction to the industrial relocation of firms from developed countries. The relationship between EPZs and the rest of the country appears to be incidental and its enclave nature is exacerbated. In rare cases are EPZs connected with an overall industrial policy and used as an integral part of a larger effort for national and regional development.

Starting from the aforementioned conceptual confusion, five major derivative conceptual pitfalls follow. First, the very enclave nature of many zones has impeded the establishment of linkages and integration with domestic economic sectors. The extent to which an EPZ resembles an enclave depends on the trade regime in the host economy. Zones in Taiwan and South Korea may not be considered as enclaves, while EPZs in most developing countries are certainly still enclaves. Because of their outward processing nature, EPZ products respond more to the demands and technical specifications of outside markets and have little affinity with local development. Domestically produced inputs in many cases cannot meet the quality requirements and are not priced competitively. Firms in the zones thus tend to rely on imported materials and components from their own global networks, which are usually of higher quality, a tendency that largely precludes the creation of backward linkages with the local economy. A survey in South Korea's EPZs showed that foreign firms there were willing to buy locally only if local inputs were competitive against overseas sources of supply and of sufficiently high quality.<sup>23</sup>

The possibility of forward linkages with domestic economies has also been blocked by the export orientation of the zones. EPZ firms are generally required to export their products and generate foreign exchange for the host economy. Many developing countries actually set up export quotas for these firms. Moreover, because governments are still protecting domestic sectors from foreign competition, access to local markets is very limited. When these firms do sell locally, they have to pay import duties, except when their products serve as import substitutes.

Second, the system of EPZ incentives has encouraged the import dependency of the zones, undermining net exports. EPZ firms, if producing for export, can import all materials, parts, and equipment duty-free. These firms thus tend to rely on imported production inputs, usually of a higher quality and more price-competitive than those made domestically, and do not want to go through the various "red tape" to look for local suppliers. On the other hand, many industrialized countries do not levy duties on the proportion of re-imported raw and intermediate materials which are incorporated in final goods produced overseas. For instance, the existing U.S. tariff codes 806/807, allows U.S. components in products assembled abroad to be reimported

duty-free. These incentives have made EPZ firms very dependent on imported materials and parts, and also enable MNCs to utilize their global network of suppliers and, in many cases, exercise transfer pricing to maximize overall profits. Foreign firms tend to have a higher import propensity than domestic firms, as demonstrated in the higher ratio of imports by foreign firms in many zones.<sup>24</sup> Therefore, although many zones have achieved a high level of gross exports, their net exports performance is generally poor.

Third, creation of these zones as a reaction to the relocation of firms for cost reduction implies that most manufacturing activities are low-end and labor-intensive. As a result, little complex technology transfer takes place. One major factor underlying the rapid growth of EPZs in Asia is the convergence between the shift to export-oriented industrialization in many developing countries and the process of industrial relocation. Most manufacturing activities in EPZs are characterized by assembly operations and simple processing, with MNCs in developed countries sending raw materials or components to the zones and exporting products back home or to a third country for further processing into final goods. For example, in the semi-conductor industry, mask-making and wafer fabrication—the two high-technology processes—remain located in developed countries. In addition, R&D activities are usually kept in the home countries of MNCs to protect their competitive edge. Therefore, EPZs have not been able to access advanced technology.

Industries located in these zones tend to be labor-intensive. These industries are large by world standards but can be easily relocated, as related production technologies are standard and do not require highly skilled workers. They have also undergone structural changes in the past two decades, and were greatly affected by such multilateral arrangements as the Multifiber Agreement, or such tariff codes as U.S. 806/807, which in fact encourage offshore assembly and processing. As a result, they are attracted to EPZs for the cheap but disciplined work force. Production workers can be easily trained in a short period of time and the turnover rate is very high because of the tedious and exhausting nature of the work. Firms thus tend to spend the least possible amount in training them. These industries are also low in value-added and tend not to have strong multiplier effects on other industrial sectors.

Fourth, the zones cater to foreign investors who in many cases have little interest in assisting host economies. Only a few large MNCs have moved into the zones and this indicates that these firms are probably less motivated by competitive incentives offered by these zones and far more by their global investment strategy. If the overall investment climate in a developing coun-

24. Evidence from an ongoing research by Weiping Wu on China's Special Economic Zones.

23. UNIDO, *Export Processing Zones in Transition*.

## Conclusions

One way to improve EPZ performance is to develop a better understanding of the EPZ strategy. The EPZ as a policy, according to our conceptualization, should be located at the intersection of three sectoral/spatial policies, namely free trade zone, industrial policy, and growth center strategy. This understanding is absent among many policy makers, who focus only on the free trade aspect of the EPZ, neglecting the concepts of industrial policy and growth center. The fact that industrial policy is embedded in the EPZ is indicated by its use to promote export industries. This industrial promotion function is implemented through the provision of preferential fiscal incentives. The spatial aspect of the EPZ relates to the concept of growth center, by means of which governments channel development resources and efforts to a few favored places. The rationale behind the growth center concept is that it is impossible to develop everywhere at once and that growth may be spurred and then spread, using certain enclaves such as an EPZ. This idea became attractive to many developing countries where resources are scarce or limited.

The usefulness of EPZs should also be defined against several considerations. First, EPZs can play an important role in the economic growth of a developing country if established at an appropriate stage of the country's economic evolution. Their impact will likely be the most significant at the beginning of the transition from an inward to an outward looking regime. An EPZ can not only promote export growth but can also serve as an "export station" for a new policy instrument, and it can facilitate the transition from a closed economy to a more open one. But its importance tends to decline when developing countries move toward a more liberal trade and investment regime. Second, EPZs should be an integral part of a national industrialization policy and their role is supplementary rather than substitutional. An EPZ strategy is very likely to fail if there is no broad-based outward looking policy. Third, the benefits from these zones are limited largely to short-term employment generation and foreign exchange earnings. The positive social impact of EPZs tends to be minimal and deliberate government initiatives are needed to diffuse development. Last, the structure of the zones can be diverse and their form may evolve over time. Two new developments in recent years include the granting of EPZ privileges to firms producing manufactured exports regardless of their location—an EPZ regime or EPF; and the extension of the EPZ's territory as well as economic activities, similar to China's SEZs. Such diverse structures of EPZs imply that they can be built to the specific needs, conditions, and objectives of host developing countries.

The EPZ needs to be seen as a strategy embracing export promotion, industrial policy, and growth center. Host governments should thus plan the

is unfavorable, the inducement offered by EPZs is unlikely to encourage a large MNC to invest.<sup>25</sup> When an MNC does invest in a zone, it is more concerned with maintaining linkages within its own international production network, than establishing links with the host economy to stimulate growth. On the other hand, small foreign investors invest in EPZs mainly to take advantage of the availability of a cheap but disciplined labor force. Because of the very short-term nature of employment in EPZ industries and low skill level required for processing operations, these firms lack incentives to make substantial investment in training production workers, whose later turnover can, in fact, stimulate the establishment of local businesses. Training of management staff is also very limited since many EPZ firms rely on expatriate personnel in management posts as a means of maintaining control.

Last, the regional impact of EPZs is minimal partially due to the lack of a regional policy in many developing countries. One important issue in the establishment of such enclaves is whether they lead to diffusion of industrial development. This issue was first brought up in the 1960s with the concept of the growth center/pole. There seems to be a consensus that a regional policy is needed for the spread effect of a growth center to take place. In most developing countries, however, the implementation of EPZ strategy is usually not accompanied by any plan for regional development, which is hence limited to the outflow of wage earnings and some growth of local suppliers.

Among the developing countries that have established EPZs, China is one of the exceptional cases in terms of achieving regional development. It has seriously attempted to diversify the economies of the surrounding regions of SEZs by investing in a wide array of sectors, including agriculture, services, tourism, and natural resource extraction. China has also implemented a policy to encourage economic cooperation between SEZ firms and firms from inland areas in an attempt to diffuse technology introduced to SEZs. Even more importantly, China has a regional policy which aims at the development of the entire Pearl River Delta, where three SEZs are located. Zones in South Korea and Taiwan, particularly Masan EPZ and Kaohsiung EPZ, have also facilitated the development of the surrounding regions. Through the development of support industries, subcontracting to local firms, and raising workers' income and expenditure levels, South Korea's Masan EPZ stimulated the growth of the immediate surrounding area; Taiwan's Kaohsiung EPZ became the foundation of a modern city and helped in the formation of a regional transportation network.

25. ILO and UNCTC, *Economic and Social Effects*; and UNCTC, *The Challenge of Free Economic Zones*.

development of EPZs under an overall national industrialization policy. These zones can first be used to bring in labor-intensive manufacturing activities to absorb surplus labor. But as a country develops and moves up along the technological learning curve, the zones should shift to more technology-intensive industries. To do so, there should be government involvement in the training of the work force and in the establishment of better support and diffusion systems for technology transfer. Specific policies and incentives can also be designed to attract scientists, researchers and technical staff to the zones to develop the country's domestic R&D facilities, as in South Korea and Taiwan. On the other hand, manufacturing-oriented zones can be re-oriented toward other industries over time. For instance, as more and more FDI in the world is now flowing to services, EPZs can become service-oriented zones. They can accommodate such activities as banking, insurance, data processing, and other business services. In fact, service industries are already beginning to appear in a number of EPZs throughout the world.

Setting clear yet achievable goals, such as providing employment and promoting exports, is very important. In countries where the domestic market is large and import demands are high, these zones can be used for import processing with the assistance of foreign investment and technology. At a time when FDI is limited, domestic investment in the zones should be encouraged and given the same privileges that foreign investors enjoy. With clear goals set, host governments also need to realize that most zones never develop according to plans. Goals should be evaluated and adjusted in time for changes; related regulations and incentives should be adjusted accordingly. At times, this means redefining the package of policy initiatives directed specifically at the zones, as has been pursued in Mauritius's EPZs in order to increase specialization in textile industry and diversify into new industries and export services.

To reduce the costs of building and managing EPZs, governments can seek the cooperation of private entrepreneurs. Private investors or companies would be responsible for the investment in infrastructure, site development, and factory building, reducing the burden on the host government's budget. This will make EPZ strategy even more attractive and feasible. Moreover, host countries need to find a proper balance in offering the package of fiscal incentives to foreign firms in the zones. Too generous a package can be very costly in terms of the revenue foregone, and it may not actually entice large MNCs as they often invest according to their global strategy. Host countries should bear in mind that the provision of a favorable investment environment is more important than incentive packages. On the other hand, too stringent a package may prove to be inadequate in attracting and sustaining foreign investment inflows since the competition among developing countries is getting acute. Moreover, access to domestic markets, particularly those with large

potentials, seems to be a more effective incentive to many foreign investors than the usual fiscal incentive package offered in the zones. Therefore, as a developing country moves toward a liberal trade and investment regime, the usefulness of fiscal incentives may decline. In fact, the government in South Korea amended its legislation in 1991 and abolished tax exemptions for foreign enterprises except for high-tech industries.<sup>26</sup>

Finally, the establishment of EPZs should be combined with a larger policy for rural industrialization and regional development. As in the case of China's SEZs, there needs to be efforts to diversify the economies of the surrounding regions. Government initiatives are needed to encourage economic cooperation between firms inside and outside the zones and deliberate redistribution policies are needed in order to diffuse transferred technology and cultivate indigenous industries. EPZs should also encourage joint ventures through which local enterprises and foreign investors can come together in production as well as subcontracting. The latter can be promoted through governmental assistance (as many subcontractors are small firms), simplified regulations, and training of the local work force. In addition, if possible, EPZ privileges should be extended to firms producing exports irrespective of their locations. This can lead to the growth and development of local production capability and later to the reduction of imported inputs. Eventually such privileges will be available in the entire country when an overall liberal trade regime is adopted.

26. Won Sun Oh, *Export Processing Zones in the Republic of Korea*.