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U.N. STUDIES

Two studies, recently released by the United Nations' Economic and Social Commission for Asia and the Pacific, raise practical criticisms of the export-oriented development strategy pursued by so many Asian nations. In one study, ESCAP found that the tax and tariff incentives that governments offer foreign corporations turn out to be quite costly. From 1963 to 1971, Malaysia suffered a revenue loss of US\$110 million from pioneer industry tax incentives. This represented 36% of the capital stock of those companies. Invested in public corporations, that much money could have provided 38,000 jobs. In Thailand, tariff duties from which promoted industries were exempted made up 1.9% of total government income in 1973. Philippine tax exemptions resulting from just one piece of legislation equalled 2.1% of total tax revenue in 1975. (Paisal Sricharatchanya, "Hospitality Can Hurt," *Far Eastern Economic Review*, May 12, 1983). Note that all three figures provided above cover years which pre-date the three countries' moves into export-oriented electronics assembly.

A second U.N. study shows that Export Processing Zones in Asia have also been costly. In the Philippines, for instance, the government invested more than US\$4,000 per job over the first eight years of EPZ zone operation. In Sri Lanka the figure reached US1,200 after three

years.

The *Far Eastern Economic Review* (Paisal Sricharatchanya, "A Peek into the Grey Zones," May 12, 1983) cites the second study: "[EPZ industries] seek out cheap labor markets, require low-skill workers, pay relatively low wages, base their production on high import content and generate low domestic value-added. Being mobile, they are able to exert maximum pressure on governments by threatening to pull out unless maximum benefits are provided." The writers of the ESCAP document concluded: "In the final analysis, considerable doubt comes to rest on the proposition that EPZ's provide an exciting new departure in the continuing effort [of developing countries] to generate employment-promoting industrialization."

HELP!

Subscriptions, combined with back-issue sales, pay the production cost for the **Global Electronics Information Newsletter**, but the ongoing research that feeds into the newsletter has been supported by grants. This year, however, no grant money has been received yet in support of the project, and we are seeking alternative sources of funds. Newsletter readers can help in at least two ways: 1) They can urge friends and friendly libraries to subscribe; and 2) They can make tax-deductible (U.S. and California) contributions to PSC.

BRITISH COLUMBIA

Add British Columbia, on Canada's Pacific Coast, to the list of areas hoping to attract the overflow from Silicon Valley. Some electronics firms may set up shop in Vancouver and Victoria, which have reputations for providing a pleasant living environment. Companies hoping to attract research talent from across North America consider this a must.

However, BC is also known for its strong labor movement, which could pose a problem for the anti-union high-tech firms. The Conservative provincial government is considering policies to overcome that obstacle. It is considering exempting high-tech firms from the provincial labor code. In addition, it is reportedly planning to subsidize on-the-job training at electronics plants.

One semiconductor company, Dynatek, has plans to establish a facility near Victoria, but Dynatek is not a research-oriented firm of the type that provincial officials say they wish to attract. Dynatek, an affiliate of Dynetics (Philippines) and Indy Electronics (Manteca, California), plans to develop a C\$45-million chip assembly plant. Like Dynetics and Indy, Dynatek will be an assembly subcontractor, part of the least research-oriented branch of the semiconductor industry. It will bond, package, and test integrated circuits at the end of the production process. It will have no design or wafer fabrication facilities. Though the firm will employ skilled technicians, the operators of automated assembly and testing machines will probably be unskilled, poorly paid women.

Dynatek's decision to locate in British Columbia may be the direct result of government incentives. The Canadian federal government has promised C\$11 million in loans and grants, and any provincial training subsidies would come on top of that. (*Globe and Mail*, March 18, 1983; *Vancouver Sun*, May 9, 1983)

TRILOGY

Trilogy Systems, a Silicon Valley firm founded by Gene and Carlton Amdahl in 1980 to manufacture IBM-compatible mainframe computers, is testing the limits of semiconductor technology with its plans for "wafer scale integration." Instead of combining some 4,000 integrated circuits on printed circuit boards, Trilogy will combine the circuits onto forty 2.5-inch-square wafers. By building interconnections into silicon, the company plans to save on both chip assembly (bonding and packaging) and printed circuit board assembly. In addition, with less wiring, there is less chance of error. The Trilogy machines will be a fraction of the size of comparable conventional computers.

But wafer scale integration demands a way of compensating for imperfections in wafer fabrication, since erratic circuit elements could force the junking of the entire wafer, not just one die out of hundreds. To overcome this reliability problem, Trilogy wafers will contain extra circuit element - two to three times the number necessary. They are designed to diagnose defective circuits and to repair themselves by re-routing the electronic flow.

If all goes well, the delay-plagued company will introduce its first machine in 1985. Meanwhile, it is expanding its capital base, already at about \$230 million. Sperry, an industry pioneer - Sperry owns Univac - just bought \$42 million in Trilogy stock, in a deal which provides for technology sharing between the two companies. CII Honeywell Bull earlier pumped \$13 million into Trilogy under a similar agreement. The Industrial Development Authority of Ireland provided \$18 million in grants and loans to get Trilogy to build a factory there. (*Business Week*, June 6, 1983; *San Jose Mercury*, June 4, 1983)

PUERTO RICO

There are 101 factories producing measuring, analyzing, and controlling instruments in Puerto Rico, with eight more in planning. In late 1981, when there were 93 establishments, the industry employed 13,114 people, including 11,048 production workers. Eighty-one facilities were owned by interests on the U.S. mainland; nine were locally owned; eleven were foreign-owned.

In 1981, exports totalled \$328,591,918, including \$307,332,033 to the U.S. The largest categories were medical and surgical instruments, with a total of \$246 million, followed by measuring, testing, and controlling instruments (\$33 million), photographic equipment and supplies (\$20 million) and watches and clocks (\$20 million).

As of February, 1982, the average hourly pay in the Puerto Rican instruments industry was \$4.74, compared to \$7.95 in the U.S.. Within the industry, typical wages ranged from the minimum wage for semi-skilled workers to more than \$9 per hour in skilled positions. Cutters earned a range from \$3.35 to \$4.36, while operators earned \$3.48 to \$4.75. Electronic technicians, on the other hand, earned \$5.34 to \$9.37 an hour, while machinists earned \$4.16 to \$9.35. (**Puerto Rico Business Review**, January-February, 1983)

TURNOVER

An American Electronics Association survey shows that employee turnover declined slightly from 24 percent in 1981 to 23.1 percent in 1982. Turnover of salaried employees remained essentially the same at 16.6 percent. Regionally, Texas had the highest turnover with 29.8 percent, while the San Francisco Bay Area, including Silicon Valley, had 24 percent. Arizona, the Southeast, Orange County (California), and New England all reported above average turnover. (**Business Journal**, June 6, 1983)

INTERNATIONAL LABOR

Filipro, a Nestle subsidiary in the Philippines, attempted to block a strike threat by lobbying to get the Marcos government to declare the company an "essential industry," making strikes illegal. The Filipino union went to the International Union of Food and Allied Workers' Associations (IUF), a "trade secretariat." The IUF contacted Nestle's Swiss headquarters, asking that the company negotiate in good faith, and threatening an international campaign if the company continued to seek essential industry status. Shortly thereafter, a compromise settlement was reached. ("IUF News," cited in **Labour Communications**, Center for the Progress of Peoples, May, 1983.)

NEPAL

William Miller, a former Intel executive, has formed Data Systems International in Kathmandu, Nepal. Data Systems is the first company established under Nepal's new foreign investment rules, and it is the only privately owned American company in the country. Colorado's "Silicon Mountain" needn't worry, however, that Nepal will compete for that title. (**San Jose Mercury**, May 25, 1983)

ISRAEL

Israel's Minister of Commerce and Industry is asking the Cabinet to approve a proposal by a blue-ribbon commission to turn the Western Galilee region into a high-tech research and production center. The commission has designated the area "Region 2000," with a goal of 10,000 high-tech employees by the year 2000.

The area already includes several electronics firms, including the Lambda Electronics division of America's Veeco Instruments and two subsidiaries of Israeli-owned Elron Electronic Industries. Elron President Uzia Galil served on the commission, which was headed by former Israeli president Ephraim Katzir. (**Electronics**, May 5, 1983)

SINGAPORE DRIVES

A third disk-drive company, this time Japanese, has announced plans to build a factory and laboratory in Singapore. Nidec (Nippon Densan Corporation) will manufacture disk drive motors, about 40 percent of the company's product, in Singapore. To start up its Singapore research and development center, Nidec will bring thirty to fifty engineers from Singapore to Japan for two years of training. (Straits Times, April 28, 1983)

FAIRCHILD INDONESIA

Asian Bureau Australia (February, 1983) reported portions of an interview with an Indonesian worker at Fairchild Semiconductor's assembly plant between Jakarta and Bogor. The worker, Siti Tumiah, said she has worked for Fairchild for two and a half year. "She is still only paid on a daily basis and for work done. Every day the workers are all classified according to efficiency and speed." Siti is paid Rp. 1355 daily, (Rp. 100 = A\$.20). Her friends earn between Rp. 925 and Rp. 1750.

The report continues, "When I asked her what she found hardest about working at the factory she said that she still could not contribute anything to her parents when one of the family got sick . . . She said she was aware that conditions were bad but textile and ceramic workers had far worse working conditions than she did. 'At least I am working,' she said. 'And the new manager, Mr. Clark, comes around sometimes to say hello to us.'"

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