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Manufacturing Growth with Social Deficits: Environmental and Labor Issues in the High Tech Industry of Penang, Malaysia

The Nautilus Institute
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Manufacturing Growth with Social Deficits

Environmental and Labor Issues in the High Tech Industry of Penang, Malaysia

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This report was commissioned by the California Global Corporate Accountability Project (CAP), a collaboration between the Nautilus Institute for Security and Sustainable Development, the Natural Heritage Institute and Human Rights Advocates. CAP aims to promote better social and environmental performance of US corporations in their global operations. It documents key environmental and social issues in host countries and explores innovative policy approaches at state, national, and international levels.

The first phase of the project focused on two sectors—oil and high tech--with a high degree of business activity in California. In addition to Malaysia, field investigations of the high tech sector were conducted in India, Thailand and Taiwan. Field investigations of the oil sector were conducted in Ecuador, the Caspian region, and Nigeria. A Public Policy Report and a handbook for educators and activists will be available in September, 2001 (http://www.nautilus.org/cap/).
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About the author

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Arne Wangel has worked with internationalization of production, international technology transfer and industrial relations in relation to industrialization in South East Asia, in particular in the electronic industry in Malaysia.

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Note on methodology

Research for this paper was conducted in Malaysia between August 2000 and May 2001 and was largely interview-based. The collection of data was restricted in two ways. First, consistent economic data about the industry was patchy and inconsistent. Industrial statistics combine electronic and electrical industries, making it difficult to sort out the computer-related statistics. Data specifically covering the State of Penang are not available and have been computed either from Federal figures industrial surveys, which may not be all-inclusive. Some data was simply not available, especially information from companies beyond their published data. In particular, US electronic companies are highly protective when interacting with researchers and journalists. The employees are often contractually bound by non-disclosure clauses.

Second, the quality of published social and labor statistics in Malaysia is questionable. Data are often general, inadequate and incomparable over time. The conclusion of the paper emphasizes the need for more detailed labor market information, including accounting of industrial accidents and illnesses, and a system of environmental monitoring by a set of sustainable development indicators.

1. Introduction

Since the 1970s, the island of Penang off the west coast of Malaysia has developed into a world centre of high tech manufacture. More than 170,000 workers are employed in Penang's 'free trade zones', where foreign-owned factories produce semiconductors and other electronic components for export to the global computer industry.

The economic downturn in 1997 was less severe in Malaysia compared to other countries in Southeast Asia. However, the manufacturing sector, in particular the high tech industry, lacks a strong national technological base and depends on exports. These structural problems are central to the regulatory context in Malaysia, including controls on labor rights and inadequate protection of worker health and safety.

This paper examines the structure and the regulation of the high tech industry in Malaysia, with a special focus on Penang. Part One describes the origin and structure of the high tech sector in Malaysia. It argues that the impressive growth of Malaysia's high tech industry has been achieved only via a deepening dependency on trends in the global computer industry. The absence of local innovative capacity makes it difficult for Malaysia to escape production segments in which labor cost remains a key parameter. Thus, there is pressure to keep labor costs down. Even so, the competitive position of Malaysia is unstable and may erode over time.

Part Two examines the interests of the major stakeholders in the high tech industry: government authorities, corporate managers, workers, trade unions and NGOs. Within an investment climate that facilitates continuous restructuring of the electronic industry, the weaker party, the employees, stand to loose out, especially in times of economic recession.

Part Three examines the legal framework and enforcement practices governing the high tech sector. Not surprisingly, government policy priorities and inadequate monitoring reflect the asymmetrical power relations between company managers and workers. However, major foreign-owned subsidiaries have put in place systems of self-regulation, either on their own initiative or as instructed by corporate headquarters.

Part Four examines the social impacts of the high tech industry on workers, as well as employment conditions, environmental problems and occupational health and safety problems. The high tech sector in Malaysia is plagued by a lack of expertise and information on the risks of chemical exposure to workers. The social impact on production workers also concerns household economies and community resources. The picture is not systematic or complete, given the lack of statistical information. One fact that stands out, however, is the absence of social security leaves workers and their families to fend for themselves in times of unemployment.

Part Five concludes with recommendations to improve working conditions and worker health and safety. Recommended initiatives include workers' education, dialogues between labor

and management to facilitate transparency, and negotiated measures to remove hazards and build corporate responsibility towards the local workforce. It also suggests that there is a need to re-orient development policies to integrate the welfare of local workers with concerns about the globalization of firms, and industrial and regional development objectives. Social actors in civil society need to work together effectively to promote such an agenda in public debate, campaigns and community action to achieve such a change of priorities.

2. The High Tech Industry in Penang

The high tech industry is Malaysia's leading manufacturing industry. In 2000, electronics and electronics components made up 59 per cent of Malaysia's total exports; 35-40 per cent were exports from Penang (FEER, April 12, 2001). Since the early seventies, Malaysia has striven for high economic growth to facilitate ethnic redistribution through an export-oriented industrialization based on foreign direct investments. The main industrial centers are located on the West Coast of Malaysia in the States of Selangor, near Kuala Lumpur, Johore Bahru and Penang.

In September 1997, Malaysia was hit by a currency and financial crisis that had originated in Thailand in July the same year. Throughout Southeast Asia, a massive outflow of capital flows caused local currencies and stock markets to collapse. The Malaysian Ringgit depreciated 40 percent relative to the US dollar in the course of one year; share prices fell by 52 percent. The financial collapse came as a result of increased fragility in the banking system and a debt crisis in certain corporate sectors. Both were the result of exposure to unhedged foreign loans. However, because of Malaysia's relatively low foreign short-term debt burden, the impact on the real economy came slower compared to the worst affected countries--Thailand, Indonesia and Korea.

In 2000, the Malaysian economy seemed to be on the road to recovery. GDP grew by 7.1 per cent. Malaysia's electronics exports grew at an annual rate of 28 per cent during the first half of that year (FEER, October 26, 2000). However, the downward trend of the US economy and other key markets in 2001 has cautioned expectations. A significant oversupply in the construction sector and the stagnating domestic consumption of goods in general may indicate a prolonged period of recession. In July 2001, the sales value of the manufacturing sector dropped by 11.2 per cent; semiconductors and other electronic components and communication equipment dropped by 27.4 per cent. In mid-September 2001, the estimate for GDP growth for the year was revised downwards to 1-2 per cent.

Like the past, the future of the high tech industry seems poised for growth. The history of the high tech industry in Penang started in November 1969, when the Penang Development Corporation (PDC) was formed. An American consulting firm, Robert Nathan and Associates, was commissioned to draw up a Master Plan for Penang. The Nathan report called for the restructuring of Penang's economy and the establishment of Free Trade Zones under attractive conditions, including the operation of subsidiaries wholly owned by foreign firms.

Table 2.1 Factories in Penang Development Corporation

Year	No.	Employment
1970	31	2,784
1980	216	56,012
1990	430	100,953
1996	736	196,774
1998	725	188,591
June 1999	715	191,569

Industrial Areas 1970 – 1999

Source: Surveys

Between September, 1971 and October, 1972, seven companies - five American, one German and one Japanese - began operations at Bayan Lepas. These were: Advanced Micro Devices, Hewlett Packard (now Agilent Technologies), Intel, Litronix (now owned by Siemens), National Semiconductor, Bosch, and Clarion. Also during this period, in January, 1972, Bayan Lepas was established as Penang's first Free Trade Zone. The first phase of Penang's industrialization process (1970-1986) was largely based on the abundant pool of cheap and trainable labor as well as the availability of pioneer status incentives.

The global glut in 1984-86 forced several small, mainly local, electronics firms to close. During the late 1980s, another wave of investment began in Penang, this time including participation from Taiwan. During this period, utilization of robotics and automation increased.

By the early 1990s, Taiwanese investment in Penang was the largest of any country. Computers and peripherals manufacturing emerged in Penang at this time. Also, Kulim High Tech Park was established in the neighbouring State of Perak. Enjoying strong land and tax incentives for high tech and strategic industries, it managed to attract wafer fabrication and other redesigning projects, primarily as government directed spillovers from Penang.

Figure 2.1 Penang Development Corporation Area

A survey conducted by PDC in June 1999 indicated that the electrical/electronic industry alone in the PDC areas comprised of 152 factories employing about 171,832 workers, which constitutes about 47 per cent of the estimated total labour force of 363,363 in the State of Penang (Sahabat Alam Malaysia 2000, 3).

Within the electronics/electrical sector, the US companies listed in Table 4 own manufacturing plants producing electronic components for the computer industry (except for Knowles Electronics producing microphones for hearing aids, and Dell Asia Pacific assembling finished computers).

Table 2.2 Foreign High Tech Companies In Malaysia

Assembly and Testing	**Manufacture of Silicon Wafers**
Intel **National Semiconductor** **AMD** **Fairchild** **Motorola** **Hitachi** **Agilent** **NEC** **Texas Instruments** **Toshiba** **Harris Advanced Technology** **Fujitsu** **Siemens** **STMicroelectronics**	**MEMC Electronics Material** **S.E.H.** **NSC Electron**
	Wafer Fabrication **Motorola** **MIMOS** **Silterra** **1st Silicon**
	Chip Design **Altera Corporation**

Table 2.3 Major supporting industries in Malaysia

Leadframes	**Bonding wires**	**Burn in/Testing services**
Dynacraft, M-SMM Electronics, Shinko, Kitsuda, Kyushu Matsushita Electric, Mitsui High-Tec, Possehl Besi Electronic, AKN Technology	Tanaka Electronics, Malaysian Electronics Materia ls, Elektrisola	Statsym, KESM Industries, KESP, Trio-Tech

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Table 2.4 Employment by Industry as at 30 June, 1999 (based on survey)

Industry	Employment	No. of factories
Electronics/Electrical	171,832	152
Fabricated Metal	14,496	160
Plastics	8,750	81
Chemical/Fertiliser	4,670	52
Paper/Printing	5,054	63
Textiles/Garments	12,484	26
Others	28,279	181

Source: Penang Development Corporation

As one of the earliest regions in Malaysia involved in the electronics industry, Penang has the critical mass of firms for clusterization. The Penang State Government and the PDC have developed networks that encourage horizontal information sharing and considerable inter-firm employee interactions. Due to its majority of more than 60 per cent Chinese, the Penang State led by the middle class Chinese party, Gerakan, has been able to initiate such government-business co-operation on a large-scale, most significantly the establishment of the Penang Skills Development Centre (PSDC). This has deepened business networks and facilitated the externalization of substantial aspects of production. The result is greater dynamism and development of the electronics firms and in Penang compared to other electronic industry clusters in Malaysia (Rajah Rasiah 1999).

Table 2.5 US electronic companies in Penang, as of June 2001

Advanced Micro Devices	KOMAG USA (Malaysia) Sdn
Agilent Technologies (M)	Linear Semiconductor Sdn Bhd
Dell Asia Pacific Sdn Bhd	M.C.M.S. Sdn Bhd
Fairchild Semiconductor (Malaysia) Sdn Bhd	Motorola Technology Sdn Bhd
Integrated Device Technology (M) Sdn Bhd	Penang Seagate Industries (M) Sdn Bhd
Intel Technology Sdn Bhd	Quantum Peripherals (M) Sdn Bhd
Iomega (M) Sdn Bhd	Solectron Technology Sdn Bhd
Knowles Electronics (M) Sdn Bhd	Xircom Operations Sdn Bhd

Source: PDC and American Malaysian Chamber of Commerce

Narayanan & Lai note that the share of high-tech products in Malaysian manufacturing exceeded that of Japan, Korea or Taiwan in 1992. However, this 'maturity' was acquired without a strong research base (Narayanan & Lai 2000, 435). Cutting edge technologies are brought in through foreign direct investment rather than via an indigenous knowledge base (SERI 2000, 2; Best 1999). The Sixth Malaysia Plan 1991-1995 observed that the ratio of research scientists to overall population of only 400 per million in Malaysia is very small by international standards compared to Japan (6500 per million), UK (3200 per million), Germany (3000 per million) and South Korea (1300 per million).

In 1999, commitments of foreign direct investment in Penang rose nearly 80% from a year earlier to 4.8 billion Ringgit ($1.25 billion). However, the bulk of the money - all but 220 million Ringgit - was reinvestment by existing companies for technological upgrading (FEER, July 6, 2000). Analysts saw the absence of new investment as related to the shortage of highly skilled workers, although the presence of Kulim High Tech Park was identified as a contributing factor. In 2000, the chairman of the Malaysian American Electronics Industry (MAEI), Teh Chin Bin, observed that there were no new investments in the electronics sector from the United States that year. The forecast figure of 7 bil. Ringgit was from companies already in operations in Malaysia with some needing to upgrade their technology or risk being obsolete (Star, Monday 28 August 2000, Business p.28). The Chief Minister of Penang, Dr. Koh Tsu Koon recognized the problem of skills development in this statement:

> *"The ringgit peg (at 3.80 to the U.S. dollar in September 1998) gave us a breathing space and we made use of that to upgrade technology and skills, so hopefully, when we move to a different peg, our competitive position will have improved" (FEER, July 6, 2000).*

Figure 2.2 Training session in German-Malaysia Institute

High-tech firms have initiated their own training to meet their skills needs (UNDP/WB 1995, 11). Some make an effort to improve the training of engineers at local universities as well. One example is Agilent Technologies (Malaysia) Sdn. Bhd., formerly Hewlett Packard, which donated RM 1.1 million worth of equipment to the School of Electrical & Electronic Engineering at University Sains Malaysia in 2000. Its Malaysia and Singapore president, Datuk Tan Bian Ee, announced that Agilent Technologies will hire 100 new engineers within the next six months, and another 100 R&D engineers within two years (Star, Tuesday 29 August 2000, Nation p.18).

However, the electronics industry in Penang is still dominated by assembly, packaging and final testing. Penang is positioned in a 'medium technology trap' being squeezed at one end by Singapore, which remains the first choice for high-end technology investors in South East Asia, and the other end by other low labor cost countries in the region (Fold & Wangel

1997a, 1997b, 1998). The depreciation and stability of the Ringgit has benefited the sector, as the payment of wages and local inputs have become much cheaper for the multinational corporations, thus prolonging the strategy of labor-intensive production. A local research institute recently expressed the dilemma:

> *"Almost all the education, the physical investments, the energy and any other resource that could be mustered were diverted to meeting orders. Sales figures were up and the economy grew, sometimes attaining double digits, while the planned development of science and technology lagged farther and farther behind" (SERI 2001, 2).*

In May 2000, *Malaysian Industrial Development Authority (MIDA)* opened a new office in California in an effort to lure more investments to Malaysia. Among the incentives offered are cheap land and labor. Foreign companies enjoy reduced or no corporate taxes for five to 10 years and pay no import taxes on raw materials, components or plant equipment. Also, there are few restrictions on bringing in foreign workers **(**July 12, 2000, Silicon Valley News).

3. The Major Stakeholders

In the mid-nineties, following two decades of criticism by the ILO for violations of the Convention on Freedom of Association (Wangel 1988), the *Malaysian gover*nment lifted the 'de facto' ban and allowed in-house unions in the electronic industry. The Malaysian government has yet to ratify the Convention for the stated reason it does not allow unionization along clearly defined industry divisions, a pattern that is considered suitable for Malaysia.

US owned companies have significant influence on the government's industrial relations policies. Such companies generally comply with Employment Act and other labor laws but insist that there be no trade unions on the grounds that they are an unnecessary third party and might threaten the family spirit promoted by the company culture. The main lobby group is the Malaysian American Electronics Industry (MAEI). Set up in 1986, the MAEI is a member of the American Malaysian Chamber of Commerce (AMCHAM). It has 18 members, each of which is 100 per cent US-owned, and many have been operating in Malaysia for more than 20 years. In 1999, the MAEI contributed RM 35,7 bil. in sales or 13 per cent of Malaysia's manufactured exports.

The national labor center, *Malaysian Trade Union Congress (MTUC)* decided to accept in-house unions as an avenue to organize electronic workers. However, very few in-house unions exist in the sector. Electronic workers perceive their working environment as more attractive due to cleanliness and air-conditioning. The few initiatives to start in-house unions in the electronic industry in Penang have been short lived.

In comparison to the labor mobilization among electronic workers following the economic downturn in the mid 1980s, current efforts to organize are hampered by the impact of the

long-term promotion of company cultures fostering loyalty towards goals of productivity and non-antagonistic attitudes towards management. When asked, workers often do not know if there is a union in their company and they may not even know what a union is. Some have become grandmothers and are much less open to union activities. Many are migrant workers, who are focused on making money for a certain period of time. Other NGOs such as the Women's Crisis Center have similar difficulties engaging workers. Instrumental attitudes towards work and a focus on accident compensation dominate perceptions of work hazards.

The *Ministry of Science, Technology and the Environment (MOSTE)* is a key agency in terms of environmental management and protection. MOSTE's mandate is to develop and expand science and technology activities for national development, while preserving the quality of life and the country's natural resources. The implementation of this mandate is tasked to several departments within MOSTE; one is the *Department of Environment (DOE).* The DOE is the implementing agency for the Environmental Quality Act 1974, and the Environmental Impact Assessment (EIA) process.

The *Ministry of Human Resources* refers all matters concerning occupational safety and health to the *Department of Occupational Safety and Health (DOSH).* However, the Ministry decides on policies concerning union formation and activities.

Under the Occupational Health and Safety Act 1994, DOSH was established and the *National Council for Occupational Health and Safety* was legislated with some authority to carry out investigations and improve the situation of occupational health and safety including changes to legislation. DOSH is the regulatory and monitoring authority. Besides conducting regular factory inspection, as stipulated by law, DOSH aims at developing its advisory role in line with the concept of self-regulation. However, DOSH has to cope with the problem of insufficient manpower, part of which is caused by the demand from the private sector for qualified safety managers. DOSH considers trade unions a very important partner in the improvement of occupational safety and health in Malaysia. DOSH officers regularly contribute lectures in union organized safety training courses.

Following the Act, the *National Institute of Occupational Health and Safety Malaysia (NIOSH)* was also established. The MTUC has established strong relations with this institute and signed a Memorandum of Understanding in 1998 to promote awareness, training and skills in the same field of concern. NIOSH is conducting training courses on occupational safety and health, which currently aim to help the private sector to develop its capacity to comply with legal OHS regulations. Their courses are eligible for funding from the Human Resource Development Fund. On a longer term, NIOSH is developing its research capacity, and plans to offer training courses aimed to initiate and enhance preventive efforts at enterprise level.

The *Social Security Organization (SOCSO)* was set up in 1971 to implement, administer and enforce The Employees' Social Security Act, 1969 and the Employees' Social Security (General Regulations), 1971. The protection given by SOCSO covers medical care, cash benefits, provision of artificial aids and rehabilitation. SOCSO, to facilitate the provision of

information and claims by employees, has 44 local offices spread over the country. There are four workers' representatives on the SOCSO Board. SOCSO also provides funds for training and information materials on occupational safety and health. Thus, SOCSO has been funding safety-training courses organized by unions for a number of years as part of its preventive efforts; MTUC has been a main recipient. SOCSO expects to further expand its role in the raising of awareness and the communication of safety issues. The SOCSO Board decides on cases about recognition of industrial diseases for compensation.

The *Standards and Industrial Research Institute of Malaysia (SIRIM)* is promoting the certification of companies in accordance with OHSAS 18001. There is a growing interest from companies to adopt this standard. However, DOSH has expressed reservations, as OHSAS 18001 is seen as overlapping the monitoring efforts of DOSH.

Relevant professional associations include Malaysian Society of Occupational Safety and Health, Society of Occupational and Environmental Medicine, Malaysian Occupational Health Nurses' Association, and Malaysian Safety Practitioners' Association.

Employers' associations include *Malaysian Employers' Federation (MEF)*, which is more concerned about industrial relations issues, while the *Federation of Malaysian Manufacturers (FMM)* deals with investment climate, infrastructure, and production-related issues such as occupational health and safety. In this field, FMM has been quite active in organizing seminars and campaigns.

Since the early 1980s, *MTUC* has drawn attention to the issue of industrial accidents and the suffering they brought to the workers. Through its membership of the tripartite National Labour Advisory Council, MTUC has since 1986 argued for a revised and comprehensive legislation on occupational health and safety. Only in 1994, the Occupational Health and Safety Act was passed by Parliament.

MTUC is an appointed member in the tripartite National Advisory Council for Occupational Health and Safety established by the Ministry for Human Resource under the purview of the Factories and Machinery's Department in 1985. The Council's membership also included experts from the private sector.

During the previous economic downturn in the electronic sector in the mid-1980s, several *NGOs* worked along with the union movement to mobilize and service unemployed and unorganized electronic workers. While MTUC and national unions maintain an advisory relationship with some of the in-house unions, social and community work among electronic workers has diminished.

4. The Regulatory Framework and Practices

4.1 Social security

The Employees Provident Fund Act 1951 currently requires the employer and employee to contribute 12% and 11% respectively of the employee's salary to the Employees Provident Fund (EPF). All deductions and employer contributions are noted in the employee's salary slip. Thus, the EPF is a form of compulsory savings for workers. 30 percent of this saving can be used for house purchases, 30 percent can be used to meet medical expenses, and the balance can be fully withdrawn on retirement or when a person permanently leaves the country. During the last decade, EPF has progressively reduced the annual dividend to contributors from 8.5% to 6.7% (1997 and 1998), the lowest in 22 years. Other investment funds paid over 10 percent. EPF's poor performance will seriously affect the contributors living conditions upon retirement. Also, critics note that EPF funds are being used by the government to bail out business tycoons, who are associated with the ruling government coalition.

- There is no unemployment benefit available for workers who are laid off other than a severance payment.
- The modest welfare schemes target only the hard-core poor, i.e. old and jobless people, broken families and children without parents.
- The Training Scheme for Unemployed Workers has only benefited a small number of workers (572 in 1998 and 426 in 1999) (Jomo & Aun 2001, 253).
- Malaysia's savings rate, which has been among the highest in the world, did not decline much in 1998, remaining above 40 per cent (Jomo & Aun 2001, 231). However, the distribution of financial savings among the various segments of the working population is not known.

4.2 Disposal of toxic industrial waste

Since the establishment of the first free production zones in the early 1970s, the most serious environmental problem has been the disposal of toxic industrial waste. The Environmental Quality Act and related Regulations defines a schedule of industrial waste. Before the establishment in the mid 1990s of the private toxic waste disposal facility, Kualiti Alam, which is supposed to cover Peninsular Malaysia, some companies, mostly foreign owned, major manufacturers, stocked the waste in drums on their compound. Others submitted it to private contractors, whose methods of disposal are unknown.

However, it took several years for the Kualiti Alam facility in Bukit Nanas to become fully functional. It was formed as a fully privatized enterprise. Based on surveys which concluded that only waste from major companies would be available due to absent enforcement and the resistance to any added cost in small and medium scale industries (SMIs), a price structure was proposed which caused a lengthy dispute with industry. At one point, Kualiti Alam even suggested to import waste to make it commercially viable. Recently, a compromise was achieved and the facility is reported to be fully operational after several technical set backs, the latest concerning the establishment of secure landfills. However, a problem of capacity

remains. The incinerator capacity is 100 tons per day while as much as 300 tons per day has been arriving on-site. For a period, Kualiti Alam did not accept waste for incineration. Also, the planned transfer stations throughout Peninsular Malaysia, including the one in Penang, have been scrapped.

In Penang, the amount of waste is counted in each company, as the amount of scheduled waste has to be reported to DOE, which according to one source will check whether the figures of the company tally with those reported by the contractors who are disposing the waste. ISO certified companies monitor according to the defined standards and procedures. Dell has a special Compliance Department, the staff of which cannot be members of the EHS or Safety Committee, in order to conduct independent checks.

4.3 Prevention and compensation of work hazards

The introduction of a comprehensive Occupational Health and Safety Act in 1994 had two major positive effects. First, the emphasis was shifted from regulation by central control to self-regulation at enterprise level. Second, a fragmented and overlapping framework of regulations to be monitored by various authorities was replaced by a comprehensive Act to be implemented by the Department of Occupational Safety and Health (DOSH) of the Ministry of Human Resources, formerly the Factories and Machinery of the Ministry of Labour.

However, the government has not increased resources for enforcement. The Department of Occupational Safety and Health (DOSH) is ever more understaffed than before when compared to the number of factories that they are responsible for inspecting. The task of inspecting certified machinery remains, and manpower is drained from the Department by the private sector, which needs safety managers to comply with the new Act and can offer much more attractive salaries.

DOSH headquarters in Kuala Lumpur states its ambition to focus on advice, training and other ways of encouraging self-regulation rather than traditional factory inspection. Besides the OSH campaigns, road shows and talks to educate both employers and employees, DOSH also provides grants to organizations to conduct OSH training.

At the state level, the situation is somewhat different. According to trade unionists, DOSH officers here tend to develop a common understanding with state authorities and employers on the balancing of OSH standards and investors' interests, in some cases to the extent of corruption by receiving free products from the companies that they inspect.

Industrial accidents are reported to DOSH and SOCSO. Safety Committees are compulsory in companies with more than 40 employees. The feedback from the major companies indicates that these committees do exist with the required representation from both management and employees and that they meet regularly once a month. The required certified safety officer is said to conduct a daily walk-through of the plant and initiate awareness campaigns and safety training.

However, a survey of 136 companies conducted by National Institute for Occupational Safety and Health (NIOSH) showed that 16 per cent of the companies had not established any safety committee. Amongst existing company committees, only 48 per cent were active, while 39 per cent were barely active, 4 per cent not active, and 10 per cent gave no response (Arunasalam 2000, 8).

In many enterprises, occupational safety and health is regarded as unproductive and its implementation is merely to comply with the requirements of the law. In fact, the tradition and long history of government supervision and enforcement for safety and health of workers have resulted in a certain degree of indifference to the issue.

The Social Security Organisation (SOCSO) manages a work injury scheme, which covers all workers who earn less than RM 2000 per month. It provides for benefits and pension if a worker is injured or disabled during working hours or while travelling to and from work. The protection given by SOCSO covers medical care, cash benefits, provision of artificial aids and rehabilitation. SOCSO has accumulated a surplus fund of about RM 1.4 billion.

4.4 Performance of US owned electronic companies

Komag USA (Malaysia) Sdn., a wholly owned subsidiary of Komag, Incorporated of the United States, was established in 1993. The first factory, now known as "Campus 1", was 34,000 square meters and located in the Bayan Lepas Industrial Park on Penang Island. It became the world's first and largest supplier of advanced thin-film media for computer hard disk drives located outside the U.S. or Japan. Komag's products address the high-capacity, high-performance segments of the disk drive market and are used in products such as disk arrays, network file servers, engineering workstations, and high-end personal computers. In 1996, Komag Malaysia constructed another 27,500 square meter factory on its "Campus 3" in the Bayan Lepas Industrial Park. This plant was designed to double the maximum output of finished disk products from Komag's Malaysian operations. More recently, the company has established operations in Sarawak.

T.H. Tan, who is the CEO of KOMAG, is also an investor by himself. Recently, Tan inaugurated Malaysia's first fibre-optic plant, the $24 million joint venture Chahaya Optronics. He considers fibre optics to be a key sector in the future development of Penang's manufacturing base (FEER April 12, 2001).

The Komag plants are not unionized. A safety committee has been established. However it functions only at the initiative of the company's Safety and Health Manager, who conducts safety audits. In his opinion, the mindset and culture of the workers are the main health and safety problems. The effect of safety campaigns lasts for only two to three weeks. The remedy to correct non-compliance to safety regulations remains one of issuing warning letters.

Despite losses for the past three years, Komag spent US$ 2 million in 2000 to improve the waste treatment plant in "Campus 3". As waste is produced in "Campus 1" as well, this

implies that every day four lorries move waste from "Campus 1" to "Campus 3" by special permission from the authorities. The Komag Safety and Health Manager finds that DOSH Penang is very responsible and co-operative; 'they are not using the stick', and Komag feels comfortable to discuss major incidents in the company with DOSH.

However, the Safety and Health Manager in Komag is dissatisfied with the lack of notice provide by DOSH about new regulations. In April 2000, the companies were given six months to comply with regulations concerning the exposure to chemical hazards. More than 100 companies participated in the open dialogue sessions organized by DOSH.

The Intel Corporation operates two plants in Malaysia: one in Penang with 5,500 employees manufacturing components and designing, one in Kulim with 2,500 employees manufacturing motherboards, networking and communication boards. Each year, Intel Headquarters publishes an Environmental, Health and Safety Performance Report; one of its key statements concerns a commitment to a long-term effort and a departure from a compliance-driven approach. Intel has pioneered one initiative of self-regulation, i.e. a compulsory safety certification of subcontractors in Malaysia. Through the 'contractor passport certification", which is practiced by Intel in Penang and also adopted by the petrochemical industry in Terengganu, the subcontractors for the TNCs will have to obtain OSH certification before they can be contracted to do work.

Environmental performance of the US companies is audited internally. In one case, Intel, auditing and reporting is done at the corporate level, which has defined uniform standards for all sites. In another case, Dell Asia Pacific, there is a separate Compliance Department, whose members do not participate in the EHS committee in order to provide 'independent' auditing.

For those companies who have decided to achieve formal ISO certification, it is compulsory to impose EHS standards on suppliers. However, there are significant differences between ISO driven standards and company specific arrangements like Intel's Safety Passes for suppliers. Malaysian authorities have encouraged this strategy to compensate for their insufficient monitoring and enforcement capacity. There is still a wide range of strategies that companies employ. For example, Dell does not have such an arrangement, while IOMEGA, which manufactures storage media, has left it to its Quality Assurance Department to provide workers and senior managers of subcontractors a two-hour training program.

US companies generally comply with the Occupational Safety and Health Act of 1994, the Environment Quality Act of 1974 and subsequent directives stemming from both acts. Every company has an environmental management system, whether it is certification to an international standard or a set of company-specific policies. The general ambition among larger companies in Penang is to comply with existing standards rather than be pro-active. External auditors visit some TNCs in Penang on a yearly basis as a requirement of the companies' insurance policies. Whether this will develop into a trend of corporate governance, as described by Slater (2000), whereby external auditors, internal inspectors or

industry groups, such as Fair Labour Association, checks on environmental and health and safety standards, remains to be seen

While the Safety and Health Officer in KOMAG has initiated the establishment of a Certified Occupational Safety & Health Practitioners Association, INTEL is chairing the Environmental Health and Safety Committee within the Free Trade Zone Penang Companies Association (FREPENCA). This committee organizes expert lectures, launches campaigns on safety issues, e.g. in December 2000 about motorbike accidents, and contributes to local charities.

FREPENCA does not think that companies by themselves will seek certification according to international standards such as the ISO 9000 series, or nationally defined standards such as OHSAS 18000 in Malaysia. This will happen only as a response to customer requests. Currently only the Japanese firm Hitachi has achieved such certification in Penang.

One dilemma for some companies, e.g. Knowles Electronics, is the added cost in seeking ISO certification, as suppliers are reported to increase prices when required to apply EHS standards.

Clearly, the major foreign owned companies are considered the leaders, and Intel is singled out as the top with a reference to its 12-staff EHS department (other companies will have a maximum of 3-4 staff). Whether these companies, particularly from the U.S., have an impact on the industry at large, is difficult to assess. One indicator is that only five companies attend the FREPENCA EHS committee meetings. Three of these companies include: Intel, Agilent, and Dell. Among other things, this small core group share information on the performance of suppliers, except for Intel who considers this proprietary information. Another indicator is be the second EHS Conference in Penang sponsored by Texchem in January 2001, which attracted more than 230 participants from various industries.

5. The Social Deficits for Workers

5.1 The social impact of the economic recession

When sales slowed down during 1997-98, the employment and income impacts on workers were immediate. The full scope of how living conditions changed for workers and their families is difficult to assess, in particular in the longer term. The following section presents indicators on loss of employment, reduction of income and rising cost of living. Most of these indicators are incomplete and inaccurate, underscoring the need for systematic data gathering and continuous monitoring of social impacts.

a. Loss of employment

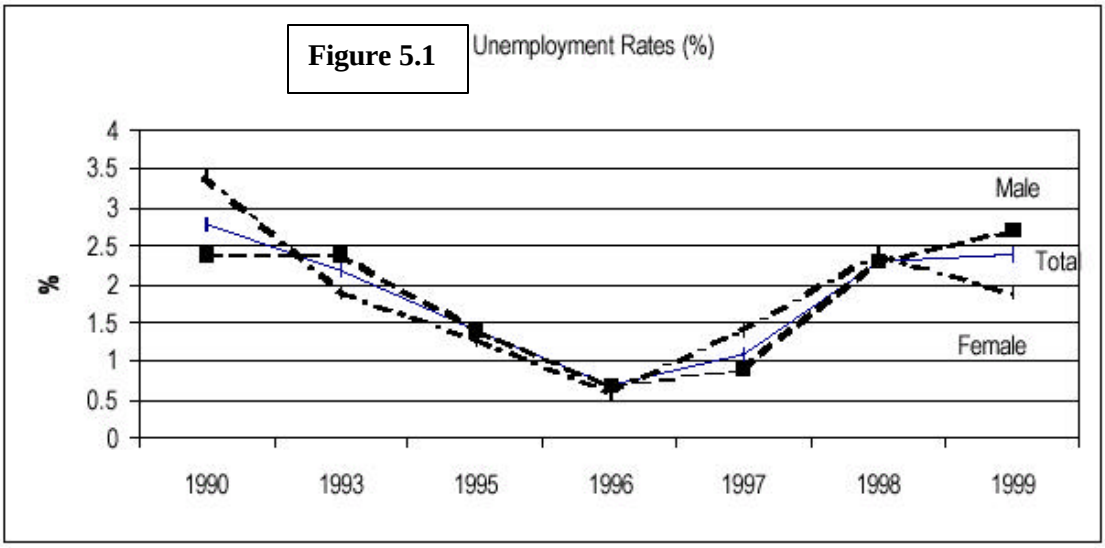
In February 1998, a statute was passed requiring employers to report cases of lay-offs. Also, a Tripartite Workers' Retrenchment Monitoring Committee was formed. One official figure for the period July 1997-July 1999 states that 126,000 workers were laid off. According to

the government, 82 percent of these workers found new employment (Bernama, 4 July 1999). The figure released for 1998 gives a total of 83,865 retrenched workers (Ministry of Human Resources). The gender breakdown shows that women, who constitute a third of the workforce, carry almost half of the lay offs. For the same year, Malaysian Trade Union Congress (MTUC), the national labor center, forecasted that 559,600 workers would lose their jobs. In fact, this figure was a quote from the Minister of Finance during a meeting with the MTUC. However, subsequently, the government denied any such statement.

The discrepancy between the two figures points to significant under-reporting. One source of under-reporting concerns the fact that only permanent employees are covered, while temporary, contract and casual workers are not accounted for. Another reason is undocumented foreign workers. There were 1.14 million registered and another one half to 1 million undocumented foreign workers in Malaysia in 1997. Foreign workers who return home upon the completion of their typical two-year contract are not covered. In the construction sector, only professionals and clerical staff are counted; like the high tech sector, foreign contract workers are left out. This applies to casual workers in wholesale and retail trade, and the restaurant and hotel sector as well.

An alternative indicator of employment loss and creation could be the number of net additional contributors to the Employees Provident Fund (EPF). It dropped by 17.5 per cent from January-September 1997 to January-September 1998 (Jomo & Aun 2001, 218).

In Penang, the labor participation rate has risen from 60 to 69 per cent over the past ten years. For males, the figure has been stable at about 83 per cent while the rate for females has increased from 49.2 per cent in 1990 to 55 per cent in 1999. Unemployment (Figure 3) was at its lowest in 1996, when only 0.7 per cent were out of job according to official figures, in 1997, it was 1.1 per cent, while it climbed to 2.3 per cent in 1998 and 2.4 per cent in 1999 (SERI, December 2000, 16).

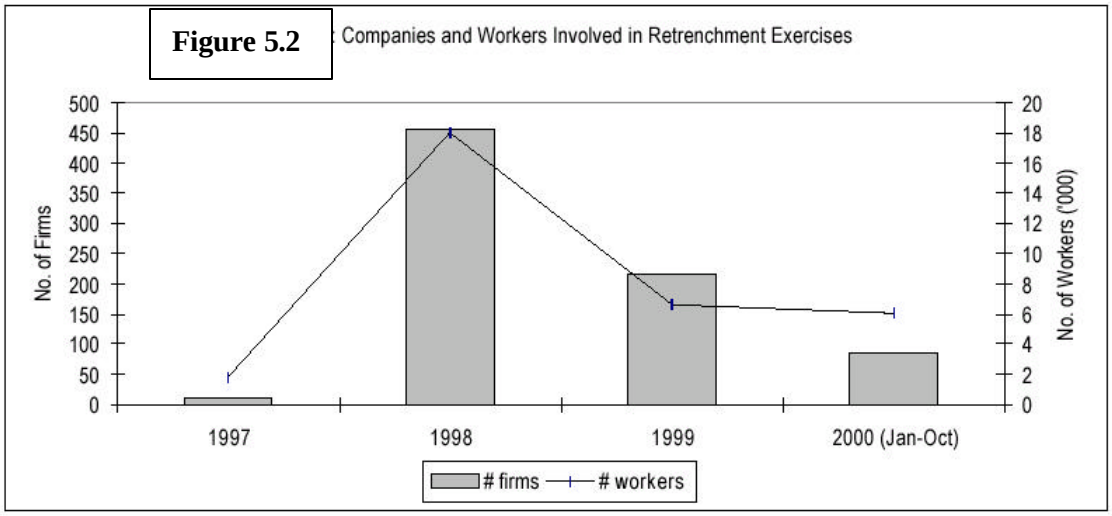


Source: Derived from DOS Penang, unpublished

(SERI January 2001, 1)

Figure 4 shows the loss of employment during the period of recession. In January 2000, about 2,000 workers lost their job in Applied Magnetics Sdn. Bhd. (Star, (April 2001). In 2001, 305 people were laid off from January to March due to plant closures. In May, Selectron Technology Sdn. Bhd. shed 745 foreign workers (Star, 26 May 2001) and 4.515 workers who were given a voluntary severance package when Seagate closed its plant in March 2001. Also, another 941 workers, who were given a similar package in other companies, are excluded (SERI April 2001, 2).

Figure 5.2 Companies and Workers Involved in Retrenchment Exercises



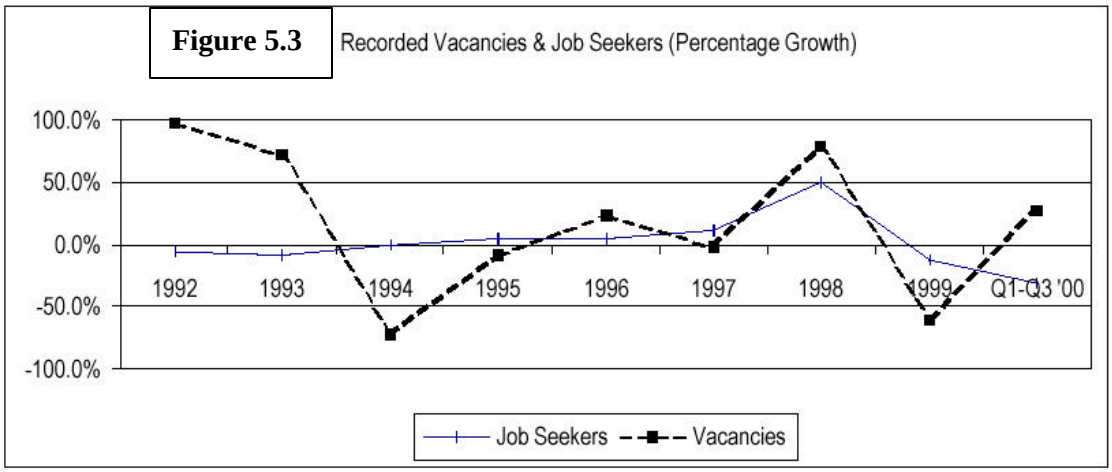
Source: Derived from State Labour Department, unpublished

(SERI January 2001, 7)

Although reemployment is the norm among the general workforce, older workers find it difficult to find a new job due to the mismatch between their skills and new job requirements. So far, no studies have managed to locate these retrenched workers and reveal their current living conditions. The continued presence of foreign workers in the manufacturing sector represents a barrier to the low-skilled labor market.

Shortly after the downturn in 1997, the demand for labor picked up (Figure 5). A survey by PDC (PDC Industrial Survey 1999) estimated that an additional 17,833 production workers were required in 2000 and another 8,311 production workers will be required in 2001 (SERI 2000, 4).

Figure 5.3 Recorded Vacancies & Job Seekers (Percentage Growth)



Source: Derived from State Manpower Department, unpublished

(SERI January 2001, 2)

The current recession is part of a 4- or 5-year cycle of employment and organizational restructuring, which has characterized the electronic industry since its establishment in Malaysia during the early 1970s. During this cycle, workers are laid off, factories or parts of it are shut down for renovations to make way for the manufacture/assembly of new products, and factory operations or sections of it may be relocated to another part of the country or to another country altogether. When the companies resume full operations, new young workers are recruited and senior workers that were retrenched may be recruited but as new workers with a lower salary than before.

b. Reduced income

Loss of job may causes a more immediate drop in income than stipulated by law, as employers fail to pay the compulsory unemployment benefits. As an example, on October 5, 1998, the Minister Human Resources announced that a total of 43,889 workers who had lost their jobs during the first seven months of 1998 had not been paid RM56.7 million compensation by their 2,094 employers (Jomo & Aun 2001, 229).

Trade unionists state that many workers have lost bonuses and non-monetary benefits such as free bus transport to and from work. Also, overtime work has been limited. MTUC estimates that over 60 percent of families experienced a reduction in income in 1998 due to loss of employment, loss of over overtime, loss of bonuses and allowances, compulsory wage cuts, and re-employment at lower wage levels

A study of wage scales by MTUC in 1998 in 165 companies showed that even in major towns such as Penang, Ipoh, Shah Alam and Johore Bahru, unskilled general workers were paid as low as RM 300 to RM 350 per month. The union representing Felda Trading employees in Kuala Lumpur reported that their minimum wage was RM 273. The study revealed that 46.2% of the companies involved are paying a minimum wage below RM 400 per month, and only 15.4% of the companies pay more than RM 500.

In unionized companies, the renewal of collective agreements in most sectors was concluded with smaller wage increases in 1998 compared to 1997 (Jomo & Aun 2001, 222). Furthermore, the management of unionized companies in a number of cases violates the collective agreement with the union. They refuse to pay the agreed annual increments and bonuses. In the Industrial Court, these companies refer to the economic downturn and to trade barriers in justifying their violation. Unfortunately, the Court tends to rule in favor of such argument.

In Penang, data reported by companies up till March 2001 show that a total of 18,101 workers are affected by a reduction in take home pay (SERI April 2001, 2).

c. Rising cost of living

Inflation rates rose markedly from 2.7 per cent in 1997 to 5.3 per cent in 1998 (Jomo & Aun 2001, 235). Prices have gone up on a range of basic goods and services such as food, fuel, water, and bus fares. The price of food increased more than any other consumer item. Medical care and health expenses, as well as fuel and power expenditures increased significantly.

Workers' households are also affected by decline of public service. Earlier, privatization of public utilities has increased cost. Although cuts in the government budget have been compensated by additional allocations for the social sector and World Bank loans, regional disparities remain. Most importantly, health standards are threatened due to budget cuts and a rise in the cost of medical care and imported drugs, which particularly affects elderly people.

The supporting network of the extended family has weakened, as businesses have failed, especially among small retailers. More than 2,000 businesses have gone bankrupt since 1997. The assets and transfer income of retired households has been reduced, as share values, property values and rental income from property has fallen. Thus, workers who loose their jobs find fewer options for assistance from family members.

The foreign workers constitute another vulnerable group. They are subjected to intimidation against unionization and often forced to sign an unlawful 'no-union' clause as part of their employment contract of typically two years duration. The registered contraction due to the economic crisis caused the total of 1,120,172 in 1997 foreign workers to drop to 66,607 in 1999.

5.2 Environmental issues

In Penang, US-owned electronic companies and other major companies have established recycling arrangements with their suppliers of packaging materials. For example, Dell Asia Pacific initiated the return of processor trays to INTEL, saving the company US$ 20,000 per month. The production processes of the electronic companies, which include substantial use of chemicals, pose major environmental problems. At the corporate level, several companies publish annual EHS reports. However, only INTEL provides specific figures of the amount of various types of waste at each plant. Some indication of company performance may be reflected in the concerns put forward by the industry itself. In 2000, AMCHAM made the following statements in a Memorandum for YB Dato' Seri Rafidah Aziz, Minister of International Trade and Industry:

> *"The current Environmental Quality Regulations '89 (Scheduled Wastes) are not clear and classify most wastes as scheduled. Tax incentives should be considered to encourage the private sector to invest in waste treatment equipment particularly for the treatment of waste heavy metal water. The proposed rule governing in-house storage of scheduled waste prohibits onsite storage of more than 1 ton of scheduled waste and requires disposal of scheduled waste within 6 months. This will increase*

> *the operating costs for small and large manufacturers. The small companies may not generate 1 ton of waste in the 6 months period; while a large manufacturer can generate more than 1 ton in a week.*"

As mentioned earlier, in Penang, Kualiti Alam, has abandoned its plan to set up transfer stations due to high cost. Also, the disposal of wastewater is in a mess, as the local authority has discontinued investments in the infrastructure when the service was privatized and taken over by Indah Water. The company is being re-nationalized in 2001 due to heavy losses. There is no central sewage facility in Penang, and the dumpsites are full. Thus, direct discharge to the sea continues.

5.3 Occupational safety and health issues

The main work hazards in electronic companies originate from extensive shift work, permanent overtime, chemical exposure, and poor ergonomics along the assembly lines. These issues need to be considered in the context of recent changes in work organization in the electronics industry. In May 1995, a survey conducted by Maznah Mohamad and Cecilia Ng of workers in an American and a Japanese electronics company led to the following conclusion:

> *'Our study generally confirms that workers we spoke to have experienced change along the lines of the discussion above, especially their appreciation of change associated with technology. However, what is not so clear is whether production operators are now able to perform tasks that require high levels of cognitive skills, such as, reasoning and statistical calculations, to such an extent that the knowledge base can be said to have become decentralized. What the study shows is that workers have certainly become more confident, have a high sense of pride in their company and a positive perception of themselves as part of the company they work for. It is the aura of "high-tech" in the workplace and more "labor-sensitive" human resource management strategies that have contributed to their morale and becoming a socially stable workforce for the company. All these have been crucial in productivity improvement, which will, in turn, make innovation and change more easily attainable for management' (Mohamad & Ng 1997).*

In mapping the physical hazards, there are several major processes involved in the semiconductor manufacturing process. These include semiconductor wafer fabrication, semiconductor assembly, printed circuit board fabrication, electrical parts manufacture, printed circuit board assembly and the final product assembly. The methods used in the manufacturing process are cleaning, bonding, encapsulation and marking, etching and plating and soldering. Listed below are some hazards arising out of these processes:

i. Cleaning – chemicals used are solvents, acids and alkalis. The risks associated with these chemicals are burns, blindness, dermatitis, conjunctivitis, headaches, dizziness or drowsiness.

ii. Bonding – types are die and wire bonding. Machines do the bonding, and the chemicals used are epoxies or other resins. The associated risks include eyestrain, headaches, dizziness and overall weakness because of the use of scopes and TV monitors.

iii. Encapsulation and marking – These are ceramic capping, plastic and epoxy capping, testing, painting and labelling. Hazards associated are damaged eyesight, skin irritation and harm to liver, skin and lungs.

Figure 5.4 Social activities as depicted in a company pamphlet

iv. Etching and plating – Metallizing, laminating and electroplating risks include burns, eye damage, dermatitis, breathing problems and gassings.

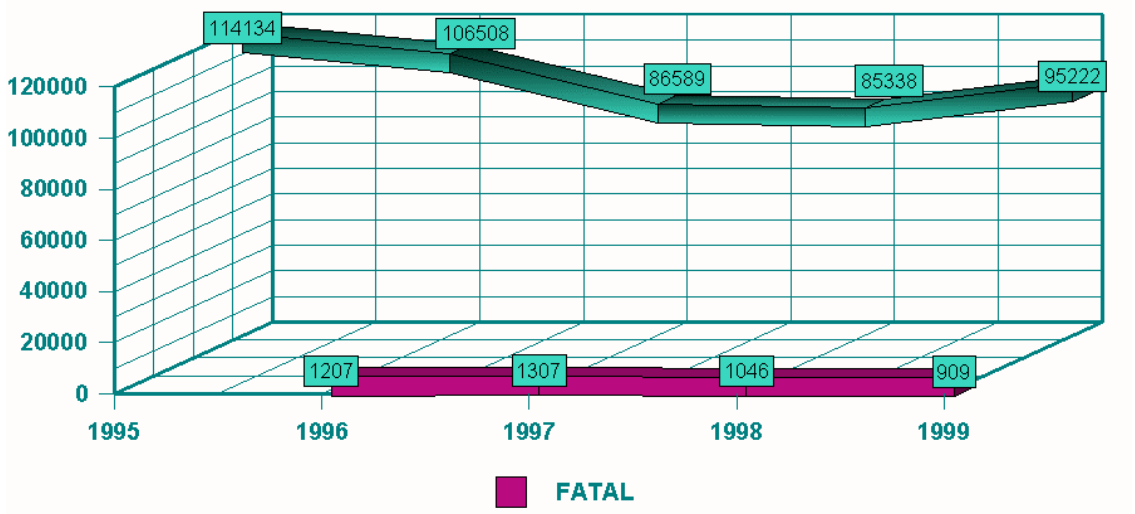
v. Soldering includes hand soldering, dip, wave and roll soldering. Inhaling fumes and solvent vapours can cause metal fume fever, asthma, rhintis, and lead poisoning.

The total number of industrial accidents reported to SOCSO for the period 1995-99 is given in Table 4. The number of accidents for the manufacturing sector alone in 1999 was 42,258. From January – May 2000, a total of 36,854 accidents were reported to SOCSO; this represents an increase when compared to the 33,950 cases during the same period in 1999. But how valid are the figures?

Table 5.1 Industrial Accidents

It is mandatory for employers to register workers with SOCSO, with the employer and worker making financial contributions to the arrangement. Although employers are required to report accidents and deaths that occur at their workplace, the actual reported industrial accidents only include those accidents that required the worker to be away from work for a minimum of four days on medical leave. The actual reported number of accidents does not include foreign workers because they are not covered under the Employees' Social Security Act of 1969.

The workers are also faced with occupational diseases due to radiation from handling radioactive material or subjecting materials to radioactivity, long hours of sedentary work affecting their health and eyesight, and conveyer-belt assembly work processes resulting in stress. Also, most workers in the electronic industry are women, whose work in shifts often leads to serious health implications.



Source: Social Security Organization

In light of the situation, competency and expertise in detecting industrial illnesses by industry and government authorities is urgently needed. At a workshop held to launch a OHS pilot project, even a forward-looking qualified medical doctor with some experience in the field of occupational illness could only offer a monitoring health program (Danced - MTUC Pilot Project OHS Program in the Malaysian Electronics and Construction Industries, 1999).

A number of studies show that health problems are pervasive throughout the electronics industry, although medical proof has not yet been established. The study by Mohamad and Ng recorded:

> *"For instance, when there were complaints that the rubber shoes were 'uncomfortable, warm, itchy and caused allergies,' management carried out a survey, following which, workers were given new types of shoes. At the same time, serious allegations were made by workers, but have been difficult to verify. In the words of one of the workers, "This is the acid area which is the most smelly area. Workers working here suffer from skin rashes, anaemia, difficulty in breathing, accidents, skin burns, coughing, giddiness, etc." She further alleged that, "workers have died of leukaemia in this department." Another one said, " shift work for 12 years had caused sleeping problems" (Mohamad & Ng 1997).*

In another survey of 655 women workers in 12 semiconductor factories in the Bayan Lepas Free Trade Zone in Penang, skin itchiness seemed to be highly correlated with the use of chemicals in the workplace (Seminar Kebangsaan 2000, 14; Faezah Ismail 2000; full report to be published in 2001).

Sahabat Alam Malaysia conducted a survey of 200 workers from 20 electronic and semiconductor industries in Penang between September-October 2000. Almost 70% of the respondents were women workers, with 59% between the ages of 20 and 30. Sixty percent of workers said that they have to do overtime; 33% said that, on the average, they have to work at least 5 hours of overtime per day, depending on the needs of the company. About 58% confirmed that they work in shifts; and about 33% said that they work during public holidays. These findings correspond to a general picture of long and increasing working hours in Asia: "According to ILO data from 1996, East Asians in Hong Kong, Singapore, Malaysia and Thailand, among others, clocked up between 2,200 and 2,300 working hours a year. On average, that's 10%-15% more than workers in America, and almost a third more than workers in Europe. Taking into account annual leave, the Asian working man spends about 45 hours a week at work" (FEER, December 28, 2000).

Table 5.2 Substances identified by workers in SAM Survey 2000

Thinner (solvent)	Cyanide	Cadmium	MEK - Methyl Ethyl Ketone
Nitrogen	Ethanol	Nitrogen	Hydroflouride
Lead	Epoxy	Arsenic	Nitric Acid
Radioactive material (referred by workers as 'x-ray')	Isopropyl Alcohol	Mercury	Hydrochloric acid
	TCE - Trichloroethlyne	Freon	
Nickel		Hydrogen	
		Chlorine	

Over the years, news on high cancer rates among electronic workers has been reported by NGOs. The most publicized case concerned Texas Instruments in Kuala Lumpur (Stockton 1991). However, from a medical science point of view, it is difficult to confirm that these deaths were work-related since data on the victims are not available for independent review and the history of exposure to toxic chemicals in a particular factory is undocumented. Since the mid-1990s, the University of Kebangsaan in Malaysia has conducted training programs for medical practitioners in occupational health. This will expand the scope of expertise on work-related diseases, which previously was limited to certain skin conditions, on which Malaysian researchers had conducted studies. Then, it will be possible to consider a wider range of claims for compensation according to the schedule of occupational diseases.

During a pilot OHS project, workers from some electronics companies conducted two short surveys. From these surveys, it was discovered that most employers appoint workers to safety committees, instead of workers electing their representatives. In some instances, workers did not know how their representatives were appointed or selected, and nearly half the respondents did not know who their representative was on the Safety Committee. Although many electronics companies have established in-house safety committees, it is often the employers who run the committees, rather than facilitate the participation of workers. It was also learned that the workers generally lack awareness on occupational health and safety and regard their situation as 'normal'. (Danced - MTUC Pilot Project OHS Program in the Malaysian Electronics and Construction Industries, 1999).

6. Options for intervention

6.1. Unemployment and minimum wage

The MTUC has proposed that the government establish an unemployment fund for those who have been unemployed for more than three months. In addition, workers who have been laid off due to redundancy or company bankruptcy should be guaranteed unemployment benefits. The government has rejected the proposal.

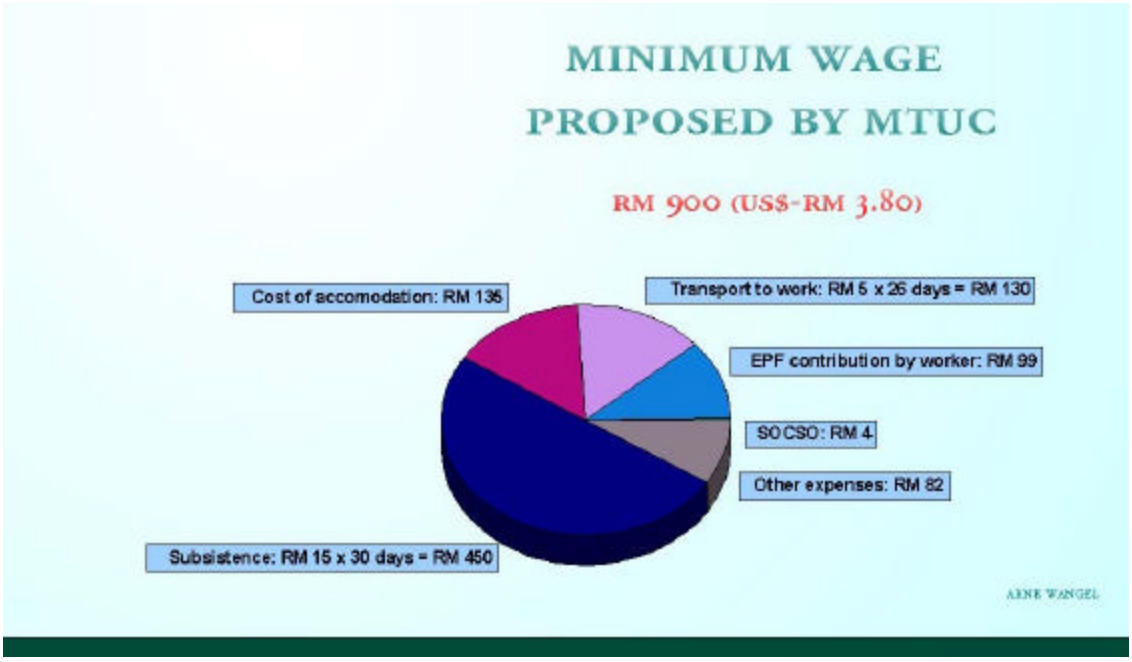
At the center of controversy between state and labor is the proposal by MTUC to introduce a minimum wage of RM 900 per month (to cover the budget items indicated in Figure 7). This proposal has also been rejected as the actual minimum wage amount is being disputed. The differences in average wage levels between urban centers and rural areas, and between the States of Malaysia, are being used to argue the non-feasibility of a minimum wage law.

6.2 NGO initiatives

Sahabat Alam Malaysia (SAM, Friends of the Earth) has been conducting a Workers' Education Program for a number of years targeting unorganized electronic workers. N. Balakrishan, a key labor activist and also Industrial Relations Officer of the Electrical Industry Workers' Union (EIWU), tells about the Program:

> *"SAM was started as an independent non-profit organization in 1977. Its activities included educating the general public on the need for an ecologically sound development; assisting communities that have been adversely affected by so-called development; and advocating for a development model that is ecologically sustainable, socially just and fulfils the human needs of the majority*

Figure 6.1 Minimum Wage Proposed By MTUC



In 1985, SAM expanded its scope to cover the working environment. Together with the Transport Equipment and Allied Industries Union (TEIU), Penang textile unions and other labor activists, a project was designed to be implemented with the aid from a funding agency so as to generate a new breed of union leaders.
Course contents were the following: Basic needs, consumer education, environmental education, labor laws, grievance handling, domestic inquiry, OHS laws, accident prevention, occupational diseases, the Social Security Act, the Industrial Court, wage analysis, labor economics etc.

The course titles were selected to suit the needs of the selected workers not only for them to become well trained but also to become honest and dedicated leaders of the future. Consumers' Association of Penang (CAP) provided the infrastructure and unionists became the resource persons themselves without calling any external persons. Resource materials to be used in the workers education program were also produced. They were occupational safety and health kit pamphlets on how to organize the unorganized, retrenchment and workers rights, noise pollution and hazards, a pamphlet on the Occupational Safety and Health Act, dust pollution in the textile and garment industries (a result of the survey done in collaboration with students from the Technical University of Denmark) etc. The methodology used was unlike the conventional lecture method. The approach taken was of the participatory method using group discussions and study circles.

This went on until August 1987. In October the same year, there was a police operation on NGO activists and opposition. All programmes came to a stand still with most NGO's. SAM too stopped its programs due to poor support and also due to some policy decisions. Since there were no reports given by SAM to funders, funding too began to dwindle and since funding stopped there were no activities. Thus, the

> *program, which started with good vision, ended abruptly without being able to achieve the aim due to factors stated above and lack of funding. Although various attempts were made, this programme could not be revived"(Personal communication, March 2001).*

One option for support could be to revive the workers' education program. Previous OHS training provided by the MTUC has been criticized for educating the same participants time and again. An alternative approach, whereby selected participants develop their own capacity (e.g. put up a proposal in their safety committee), and who undergo an examination, would not only build new capacities among workers in Penang, but could influence the format of other course offerings.

Such an effort could enhance the capacity of actors - unions and workers - to make use of existing legal provisions, first of all the safety committee, which is compulsory in companies with more than 40 employees. This would include training to develop diagnostic skills, to prioritize hazards, and to plan strategies for various types of interventions.

6.3 Corporate-NGO dialogues for transparency of EHS performance

US-owned electronic companies have maintained close relations with PDC, the Penang State Government, and trade associations for over thirty years. They have been successful in fostering these relationships, but have denied workers and citizens a role in the monitoring of the environmental, health and safety performance of these companies.

One option to enhance the role of workers and citizens is to engage politicians, industry leaders, and workers' representatives on a dialogue on priorities in industrial, regional development and welfare policies. The Penang State government is working hard to retain an attractive investment climate. In terms of human resource development, this means labor supply and skills development. Corporate leaders in Penang could make a difference if they took the initiative, whereas local CEOs of subsidiaries might not be very responsive. A request would likely have to come from the corporate headquarters to the subsidiaries, as a result of NGO-industry dialogues in the US.

An example that would help strengthen corporate governance and responsibility in the community, beyond charitable giving, would be to have external inspectors, from labor and NGOs, audit working conditions. As a start, these external members could comment on a draft report and eventually be invited to join the auditing team.

7. Conclusion

The economic recession in Malaysia is less severe compared to other countries in the region. In general, workers in the high tech industry earn higher wages and benefits than the average throughout the manufacturing sector. However, they remain vulnerable because their job security is tightly interwoven with trends in the global computer markets. In addition, competition with emerging countries with lower labor costs and Malaysia's own structural barriers for technological innovation are squeezing its 'window' within the international division of labor.

The segment of the IT sector located in Penang concerns assembly, testing, packaging and custom design of end products; basic R&D is missing and so is software development. OEM suppliers have been created, as well as a few manufacturers of finished products. Also,

despite the government's ambition to create a Penang version of the Multimedia Super Corridor (MSC), litttle has taken place. Given the high proportion of IT manufacturing for export in Penang, the economy is highly dependent on the business cycles of the global computer industry. As Penang is lacking in technological infrastructure, manufacturing sites seem hesitant to move to higher-end automated production; the influx of foreign labor help to continue labor-intensive operations and contribute to dampen wage pressures.

During an economic recession, companies often resort to restructuring through lowering wage costs. Little attention is paid to the welfare of the workers and social problems that affect the community, such as fewer resources available in the extended family network.

A minimum wage should be introduced to safeguard workers' welfare and to stimulate technological innovation and improvements in the work environment. Currently, large numbers of unskilled foreign workers are brought to Malaysia. Meanwhile many male Malaysian workers are being employed and trained in Singapore at a monthly wage of S$600 per month, which is more than double of what is offered as basic salary in Malaysia. Fewer numbers of Malaysian workers are being trained in Japan, Korea, and Taiwan.

The Human Resource Development Fund and other measures of vocational training should be reviewed to develop comprehensive policies for retraining and developing skills of workers.

The Penang State government is vigorously guarding the parameters of an attractive investment climate; in terms of human resource development, this means labor supply and skills development. However, there is a need to change the equation between concerns for globalization versus those regarding working and living conditions.

Thus, dialogues between politicians, industry leaders and workers' representatives on priorities in industrial, regional development and welfare policies should be initiated. More detailed labor market information needs to be reported, including industrial accidents and diseases. Furthermore, authorities must provide a system of environmental monitoring by a set of sustainable development indicators.

The growth of 'fabless' firms (that focus only on design and subcontract fabrication) has made tracking and evaluating the environmental impact of semiconductor manufacture more complicated. Strategic partnerships and 'freestanding' production plants built and operated by companies far from Silicon Valley research and design facilitates large-scale and continuous shifts in how and where U.S. firms produce or 'fabricate' chips. Therefore, environmental problems have become harder to identify, to understand, and to manage (Mazurek 1999, 1). More accurate and updated data on environmental and occupational hazards, and on worker conditions, are essential to create sound policy interventions.

Another important constraint is the current overall limited scope for civil society intervention in Malaysia. Social actors need to join in public debate, campaigns and community action, despite the fact that the short-term outlook for such initiatives is quite dim.

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