LABOUR RIGHTS IN HIGH TECH ELECTRONICS

Case Studies of Workers' Struggles in Samsung Electronics and its Asian Suppliers

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The Asia Monitor Resource Centre is an independent non-governmental organization focusing on Asian labour concerns. The Centre provides information, research, publications, training, labour networking and related services to trade unions, labour groups, and other development NGOs in the region. The Centre's main goal is to support democratic and independent labour movements in Asia. In order to achieve this goal, AMRC upholds the principles of workers' empowerment and gender consciousness, and follows a participatory framework.

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This book is dedicated to all those workers who have struggled for a basic livelihood in harsh and hazardous working conditions in the electronics industry in Asia.

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Breaking the Chains: Workers' Struggles in Electronics Supply Chains

By Fahmi Panimbang

Anh, a 20-year-old woman working in Yen Phong Industrial Park in Bac Ninh Province near the capital Hanoi, lives next to pig cages in a small room with a bed and gas cooker that she rents for VND 700,000 (US$33) a month, one-fifth of her basic wages. Her other appliances are on and under the bed or mounted on the walls. With take-home pay of VND 3.5 million ($167) a month, boosted by long overtime hours, she only has enough to live, though she is luckier than many others whose basic wages are equal to the minimum wage of VND1.65-2.35 million ($78.5-$111). Anh's situation is not unique. She is just one of more than 15 million workers, employed in factories across Vietnam who are surviving on these wages. She says that by working 12 hours a day and seven days a week, she can earn a total income of VND5.5 million ($262), well above the basic wage but still barely enough to live on.

We had heard many stories like Anh's even before we visited Vietnam in June 2012. In a meeting one evening during that June visit in the front of workers' rented rooms near that industrial park, dozens of young women workers explained that two hours overtime was in fact compulsory. During peak periods, they even worked four to five hours of overtime every day. Workers must assemble 2,000 mobile phones in eight hours. They were not allowed to take time off, not even when they became sick. The leaders would have their salary deducted if there were not enough workers on the line. Their working life is described in the Case Study on Vietnam in this volume. In that chapter, a young woman worker tells the researcher in a low voice filled with exhaustion: "Working all these extra hours burns up all of our energy. It is exhausting and overloading. My daily routine revolves around working, eating and sleeping. I have no idea of anything else except for the factory and my room. We joke with each other that work makes it impossible to update (our knowledge of) the names of State leaders or events. We just sleep to be healthy enough to work." [1]

This story of workers in Vietnam is a common one across developing countries. We will find the same stories, many times much worst, in the various industrial zones across the globe. Labour exploitation in poor and hazardous working conditions has also spread to the electronics industry. The growth of the industry has been hailed by leaders of national governments in many developing countries as providing opportunities for the development of a skilled workforce and bringing much more value-added production to the economy. In reality, this is not true as the highest added value has been retained by developed economies, to be precise by their transnational corporations.

Transnational Corporations, Global Supply Chains and Uneven Development

Transnational corporations are more than just large companies with a global reach. They now direct a substantial share of the world's economic activity. In 2010, the value added generated by transnational corporations reached US$16 trillion, more than a quarter of global GDP.[2] The number of transnational corporations has grown dramatically over the past four decades. In 1971, there were 1,337 transnational corporations based in the US. In 1983, this number had grown to just 1,339 companies, but in 1998, it had increased to 2,901 companies. Transnational corporations from Japan totalled 13 in 1971, 64 in 1983 and by 1998 had risen to 2,296. There were 80 transnational corporations from Germany in 1971, rising to 241 in 1983, then jumping to 1,764 in 1998.[3] Those corporations do not work alone, but are connected to each other in a complicated web of networks. Today, the multinational corporations that are most influential and control global business networks – all of them providing financial capital and the key players in the financialisation of the world's economy – are primarily from the US (163 corporations), Germany (101 corporations), the UK (59 corporations), France (53 corporations), Canada (38 corporations), Japan (35 corporations), Italy (34 corporations) China (34 corporations) the Netherlands (33 corporations) and Sweden (18 corporations).[4]

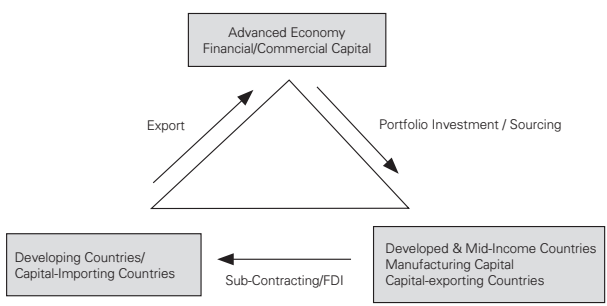
Transnational corporations established the global supply chains that worked to boost their profit. The expansion of global supply chains in Asian economies has been closely linked to the still-dominant paradigm of export-driven development that forces governments to mould labour to meet the needs of global consumption and capital interest. The dynamics of the supply chain system in Asia have been changing rapidly since the 1980s, when Japan and other developed countries started their overseas investment campaigns in developing countries such as Indonesia, Malaysia, Thailand and the Philippines. Globalisation and the expansion of global supply chains have forced the governments of developing countries to abandon the development model oriented towards meeting the needs of domestic industries through import substitution and protectionism. Global capital has been forcing these governments to implement an export-driven development model that relies on foreign investment. Taking the US as an example, this has contributed to a decrease in the share of manufacturing in the US GDP from around 28 percent in the 1950s to 12 percent in 2010,[5] as factories and jobs have been relocated to countries with lower paid labour. Developing and transition economies continued to account for half of global FDI as their inflows reached a new record high of an estimated US$755 billion in 2011.[6]

The dynamics of this development model have resulted in unequal relations, even among Asian countries themselves, i.e. between the capital-sending countries (developed countries in East Asia) and the capital-receiving countries (developing countries, such as South and Southeast Asia), with the former holding greater power over the latter. On the one hand, this is made possible by the increasing ease of moving capital, and on the other hand, it is driven by developments in technology, communication, finance and transportation. The global supply chain system is so pervasive that ultimately it has turned even non-industrial workplaces into part of a 'global factory'. This is part of a transnational corporations' broader effort to coordinate global production in order to accumulate capital. While every step of these overseas campaigns may not have been mapped out in advance, once these gains are realized and capital's authority established, this accumulated wealth and position are nearly impossible to relinquish.

Developing countries then become the unrelinquishable source of labour-intensive production and must suffer the social and environmental consequences. Meanwhile, the production control and benefits remain predominantly in the hands of transnational corporations, especially those based in developed countries. For example, thousands of young labourers in factories in the Pearl River Delta areas in the Guangdong Province in China actually work to manufacture goods for buyer/brand companies, the transnational corporations from the developed countries including Japan, US and Europe. Foreign investors are constantly demanding just-in-time supply, quality guarantees and for the lowest possible production costs, while forking out just the minimum in labour costs.[7] In essence, these transnational corporations have considerable control over how, when, and where manufacturing will take place and how much profit accrues at each stage of the chain.[8]

Chart 1 below illustrates the hierarchy in which the developed countries invest and transfer power to the middle-income countries that then subcontract to the developing countries in order to meet the world's consumption needs, especially from developed countries. In this hierarchy, the main actors are transnational corporations that have complex relations with the state. This is shown in the active intervention of both global capital and national governments which provide a favourable legal and financial space for capital, including tax reductions and land expropriation.

Chart 1: Globalised Circuit of Capital



Source: Chang, Dae-oup, "Globalization and Development: States and Global Market" (lecture notes), Department of Development Studies, SOAS, University of London, 2011.

This hierarchical relationship is also called the 'triangle manufacturing' process. It is the mechanism used by the inner-circle countries in the production structure and global trade i.e. developed countries and newly industrialised economies during the transition period to the higher-value added economic activities. The essence of 'triangle manufacturing' is that the buyer/brand countries from the developed economies give their orders to the manufacturing companies of the newly industrialised economies (Taiwan, South Korea, Singapore, Hong Kong) that have cooperated before – for example the electronics companies in Hong Kong or Taiwan – which in turn move some or all of their production to the countries with lower wages (such as Vietnam, Indonesia, Philippines). The offshore or supplier company could be a branch, joint-venture, or contractor/sub-contractor. Thus, this 'triangle manufacturing' model has changed the status of the manufacturing companies in the newly industrialised countries in East Asia: Those which were previously the main contractors of the production, now fill the role of 'middle-men' in the commodity chain driven by the buyer/brand companies.[9]

The newly industrialised economies in East Asia do have important assets in that the companies in this sub-region have long standing relationships with the buyer/brand companies in the US and Europe that were built based on trust in successful export transactions for years. Since the buyer companies (especially Japan, US and Europe) often do not have experience with production – hence the term 'production without factories' – these companies prefer to rely on manufacturing companies of the newly industrialised countries in East Asia that are well-experienced to ensure that the standards set by the buyer companies on price, quality, and delivery schedules are met by the factories in the developing countries.[10]

Many corporations in East Asia have benefitted from their status as 'middle-men'. Together with the other corporations in developed countries, these corporations have forced the political agenda of economic liberalisation in the region. Developing countries are urged by the developed economies to engage in free trade by deregulating their policies on investment, trade and finance. The result is that developing countries in Southeast Asia have adopted policies that are considered 'market-friendly', and among the most liberal in the world.

The Association of Southeast Asian Nations (ASEAN), for example, is a group of countries in Southeast Asia that developed a free trade agreement in 1992 (ASEAN Free Trade Agreement/AFTA), one of the first regional trade agreements in the world. In the past 20 years there have been dozens of such FTAs agreed, along with the barrier-busting programmes of the World Trade Organization, producing a border-free world, greatly facilitating the growth and ambitions of transnational companies.[11]

In addition, developing countries' reliance on FDI from developed economies, both governments and the private sector, is the result of deliberate efforts by global corporations and national governments. This has evolved in several stages since the 1980s, eventually integrating the developing countries into the global capitalist system. Developed countries promote free trade policies that aim to eliminate all restrictions on trade and finances. These policies are greatly in their favour since they are well positioned to take advantage of these asymmetrical policies as they apply to developing countries.[12] The 'dark side' of this globalization is frequently obscured by the large sums of capital involved. The cash sent to the cash-less countryside of developing Asia and the technology transferred are often too meagre. And industry in Asia's developing countries still provides opportunities for relatively low levels of technology transfer. Most transnational corporations operating in Asia's developing countries produce mostly 'potato chips' or 'wood chips' rather than 'microchips'.

Transnational corporations continue to benefit from this asymmetry. As a result, East Asia has become increasingly the centre for transnational corporations' cross-border activity. While in the 1980s East Asia shared 10 percent of global GDP, in 2010 the region's share increased to 28 percent.[13] As the cross-border production has increased, the region's trade dependency has also increased, and the electronics industry has been one of the vital trade and cross-border production sectors, ultimately exploiting millions of workers across the region.

Electronics Industry and the Rise of Samsung

Electronics is one of the fastest growing industries today. It has been generating a broad range of products and services that are

increasingly used in almost every human activity. It has completely changed the way people live and interact. Deeply entwined in our social fabric, electronics products and systems support critical aspects of communication, education, finance, government among others. Thousands of companies from many countries contribute to the industry on a daily basis. Even a single product can contain components and software manufactured by various companies in many different countries.

Due to relative ease of capital mobility, the industry has many ways to engage in strategies of outsourcing and off-shoring. Global sourcing is therefore very common where factories can be relocated easily and produces a wide variety of end products. Global value chains in the electronics industry are more geographically extensive and dynamic than in any other manufacturing sector. However, behind the glossy sheen of the electronics products and the industrial development is the dark side that often remains invisible due to an aggressive 'disinformation' campaign by the industry. More than a quarter of a trillion chips are manufactured annually, requiring the use of staggering amounts of toxic chemicals, metals and gases. These toxic chemicals are essential raw materials for electronics, and thousands of chemicals are being used in its production processes with devastating effects on the health of workers, communities and the environment as a whole. The 'toxic trouble' from electronics industry emerged in many parts of the world ranging from the US and Scotland to Taiwan and South Korea in Asia, and has alarmingly spread to many other parts of the region.

Industrial development of electronics has attracted many developing countries since it has been perceived as better than the textile and garment sector that absorbs more skilful workforce. In fact, the electronics industry in many of Asia's developing countries predominantly employs a low-skilled workforce in production with low added value to the economy. Meanwhile, the top end of the industry, such as semiconductors, have been primarily designed and produced in developed countries, including South Korea, Taiwan, and Singapore. But, this does not mean that workers in these countries are better off; they are even more prone to the chemical hazards that have killed many workers.

Capital flows from electronics industries have been massive and involve active intervention of both transnational corporations and national governments to impose a range of new legal mechanisms and regulations serving their interests. As a result, anti-labour regime and policies become the order of the day. The electronics industry consequently has two major characteristics: first is highly polluting, and second is extremely repressive towards labour.

Samsung, a South Korean transnational corporation, has become one of key players in the global electronics' value chain.[14] Samsung Electronics, in particular, has a product range that stretches across the consumer and geographic spectrum, including a wide range of consumer electronics, semiconductors, Internet - access network systems, mobile phones, and home appliances. Samsung is better positioned than most in that it is leveraged to developed economies and also has strong exposure to emerging Asia, which it is pursuing for incremental growth.[15] In 2011, sales of Samsung Electronics Corporation Ltd. surpassed US$146 billion, a 7 per cent increase over 2010. The company employed 190,464 employees directly and through subcontractors, an estimated 800,000 globally in 2010.[16] Samsung Electronics has become the leader in the production of dynamic random access memory (DRAM) chips, liquid-crystal display screens and mobile telephones. The production takes place in several Asian countries, including its home country of South Korea, China, and Vietnam, where the world's biggest in Samsung mobile phone assembly is located. Samsung Electronics has 144 consolidated subsidiaries of which 18 were newly consolidated at the end of 2011.[17] Samsung and other transnational corporations would benefit in the future from a robust injection of capital that would allow mega-scale manufacturing and thus lower costs, which means exploiting more labour. Even now, it has been argued that a large part of Samsung's profits comes from short-changing labour. Samsung has become the byword for anti-unionism in the industry

In October 2013, a document was found that disclosed Samsung's strategy to eliminate a new the labour union. The document, which includes the guidelines for Samsung managements on how to commit resources to prevent unions setting up shop, was created six months after companies in South Korea were allowed multiple unions in July

2011.[18] But the most well-publicized evidence of Samsung's anti-union policy has been the disclosure of Samsung Chair Lee Kun-hee, saying that "[…what] Samsung does not recognise is not the trade union itself, but the need to have a trade union. In other words, Samsung has a principle of management that does not need trade unions."[19]

About this Book: Case Studies of Workers' Struggles in Samsung Electronics and its Asian Suppliers

This volume describes the struggles of workers fighting for their basic rights in the electronics industry with a focus on the operations of Samsung Electronics and its Asian suppliers, including those in South Korea, Indonesia, India, Vietnam, Malaysia, Thailand and Taiwan. In the last chapter of the volume, we discuss the overall situation of the electrical appliance and electronics industries in Japan, where the Japan workers have been hit hard by factory relocation.

The first chapter discusses Samsung Electronics' position in the South Korean economy, its corporate structure and systems of supply and production. It centres on an in-depth analysis of the organization of Samsung Electronics' supply chain, assessing the electronics giant's specific relationship to the companies that compose each layer of this complex system. It focuses on the domestic South Korean supply chain, but makes references to overseas production sites and suppliers. Through this analysis, the report demonstrates Samsung Electronics' almost absolute dominance over the South Korean electronics industry and the meaning of this dominance for less powerful companies and workers in particular. The report also discusses the "no union policy" of Samsung Electronics and the entire Samsung Group, and the way this policy combines with the organization of the supply chain to enable production flexibility and maximum profits for Samsung, while putting downward pressure on wages at most points in the supply chain. Finally, the report assesses various current efforts to advocate for the organization/unionization of Samsung workers, and argues that the time is ripe to carry out a full-blown campaign for their health and labour rights.

The Indonesia chapter discusses the workers' struggles in electronics industry in Indonesia by taking the case of Samsung

Electronics Indonesia. In the first part, it describes the history, general situation, trend and development of the electronics industry in the country. It highlights the policies and regulations of the government to attract foreign investment, and the decision to designate the electronics sector among the vital, priority sectors. The second part presents a a profile of Samsung Electronics Indonesia, and discusses its historical establishment and business strategy in its later phases, as well as its supply chains. As in the other countries, Samsung Electronics Indonesia has also been employing student workers (apprentices) that earn lower wages and are often forced to work overtime. Eighty percent of its workforce is women aged between 20 and 25 years-old. Union busting has been the major concern that has arisen recently. Although thousands of workers from different sectors and companies carried out several protests, including one in front of the South Korean Embassy, there has been no follow up to the union busting and other violations that the management of Samsung has done.

The chapter on India analyses the dynamics of the electronics industry and the fate of electronics workers in the broader context of the problems of India's economic development in the new global politico-economic regime. While the electronics industry recorded significant growth after economic liberalization policies were enacted, the value added in this industry in India remains low at merely 5-10 percent. All electronics giants with manufacturing bases in India, such as Samsung, LG, Dell and Hewlett Packard, import 90 percent of component parts from overseas. In the case of Samsung the majority of the components are imported from South Korea, Singapore and China. Current government initiatives in the form of a new electronics policy and the new manufacturing investment zones policy are an attempt to accelerate growth in electronics manufacturing. The task is a large one: The size and scale of operations of the majority of electronics manufacturing units in India remain small, and the huge majority of them are in the informal sector.

In India, there are rarely any trade unions in the electronics sector. However, recent strikes in some electronics manufacturing plants show that awareness has been raised. The working conditions in the industry are some of the worse. There are serious problems around occupational health and safety. The majority of workers receive only minimum wages.

One of the most egregious practices involves Samsung in Noida (Uttar Pradesh) where the company is exploiting apprentice workers in a big way. While there are no agency workers in this factory, apprentices from industrial training institutes (it is) constitute about 50 percent of the workforce. There is a significant difference between the wages of regular workers and apprentices. It seems that this is going to be a general trend in the industry. To organize the electronics industry workers, it is necessary to focus on the cluster of electronics manufacturing plants emerging in various regions. Awareness building campaigns among workers in these clusters and among the students of ITIs that are supplying the apprentices to these clusters can be used as an initial step to create a common strategy of electronics industry workers and ITI students.

The Vietnam report discusses the development of the national electronics industry. It shows the phenomenal, if bumpy, growth in the industry, such that the electronics industry has become the second largest source of the country's exports, and employing 90 percent of women workers, of whom about 70 percent are domestic migrants. Recent reports show that workers in the electronics sector are exposed to toxic chemicals with potential health risks, including risks to a woman's reproductive health. In addition, workers often have to work excessive overtime. Workers are not well protected, because most companies do not support the exercise of the right of workers to act collectively. Workers face risks and violations in several areas, most significantly in their rights to health, decent work, fair wages, and the right to freedom of association. There is low awareness on the part of workers of their rights.

The Malaysia chapter describes the history of the electronics and electrical (E&E) industry which has grown to become a prime industry, accounting for six percent of the country's gross national income and 41 percent of its total exports. Key players in the electronics industry are transnational corporations which exercise great influence over the organization of production, labour practices, and the development trends of the industry. Labour laws and regulations remain biased in favour of employers. Additionally, transnationals operating in the country have kept labour costs low by employing greater percentage migrant workers who are paid much less than Malaysian nationals.

While the industry registers hundreds of billions of ringgit in terms of value of output, the workers are still being denied benefits in spite of the huge profits these companies have been making year after year. This report provides insights into these aspects by taking the Samsung Group in Malaysia as a case study. It discusses the expansion of Samsung Malaysia, investigates the organising of production at one of its subsidiaries, and provides a glimpse into the working conditions of the workers.

The Taiwan chapter discusses the appalling working condition at Young Fast Optoelectronics Co., Ltd. (YFO), one of Samsung suppliers, producing components such as touch screen panels for mobile phones. The working conditions are terrible and hazardous. Workers at YFO work 11 hours every day and received a meagre wage without overtime pay. They do not know the chemical and solvents being used in production, and they are protected only by a disposable, active-carbon mask. Time allocated for dinner and lunch is only 30 minutes each. Other issues raised in this chapter are the increased hiring of student-workers from work-study cooperation programmes as well as under-age (16 years old) workers. Among the more than 1,000 workers at YFO, three to four hundred of them were under-aged students from academy-industry cooperation programmes, and about 180 are foreign workers from mainland China who are paid less than the local workers. In 1994, Samsung Electronics Co., Ltd set up three subsidiary companies in northern, central, and southern Taiwan to handle imports and exports. Samsung sources components from Taiwanese manufacturers and assembles these parts into their products. In 2009, in the face of pressure from global market competition, and with the aim of boosting investment and output in high-tech industries, the government of Taiwan reduced the corporate tax rate to 17 percent and by expropriating private land, provided more land to establish science and industrial parks.

The chapter on Thailand discusses certain features of the Thai labour regime by taking the cases of Samsung, Electrolux and NXP Manufacturing (Thailand) Ltd. The Samsung case reflects the extensive informalisation of labour through outsourcing and sub-contracting, a common practice of corporations. In many cases, including the cases of Samsung and NXP, workers and union members were forced by the

company management to accept new terms and conditions or a new working system without consultation of the union and workers. In the Electrolux case, the management forced the workers to sign a new contract, which put them on the same status as a new worker and forced to pass a new probation period. These are also seen as tactics to limit the capacity of workers to collectively organize to improve their conditions, and where a union exists, it also weakens the position of the union. On the other hand, in companies where a union had not yet been formed, management's practice of hiring more and more low-paid labour through labour recruitment agencies has challenged workers. Workers have responded by forming a union and finding ways to undertake collective bargaining, with some success.

The last chapter analyses the overall situation of the electrical appliance and electronics industries in Japan. The report examines the long-term decline of Japan's electrical appliance industry, the causes of the decline, and its impact on workers and local communities. It reviews the growth and contraction in the industry in domestic facilities and discusses developments in those facilities set up overseas. The report discusses the shrinking of the domestic industry by half in the period 1991 to 2011, due to factory relocations as well as the greater competitiveness of manufacturers from South Korea and China. It also describes the trend in the management policies of Panasonic, Sony and Sharp, which are the main producers of electrical appliances and electronic equipment in the country. Finally, it focuses on one of Japan's electronics giants, Sharp, which took major re-structuring measures to survive, including a capital alliance with Hon Hai (Foxconn Technology Group of Taiwan) and Samsung of South Korea.

Agenda for the Labour Movement

The capital movement, consolidation of global supply chains in the electronics industry, and the increased power of transnational corporations are not a natural, unidentified process arising from finance and technological advancement or more rapid global information flows. Rather, it is a political project involving the active intervention of both global corporations and national governments to impose an immense range of new legal mechanisms and regulations which serve

their interests. This political project, therefore, should be the first and foremost agenda item for unions to dismantle. They should do this by promoting new legal mechanisms and regulations to subordinate capital to people and to the democratic requirements established in international human rights standards.

The rise of the global production and supply chain system has resulted in the shift of world manufacturing from industrialised countries to developing nations. This shift began in the 1970s and has escalated in recent decades. The economic architecture that created a global production and global supply chain system has had a tremendous impact on working people. The system has hurt workers both in the core countries and peripheral ones. In the core, such as the US and Japan[20], economies receive less investment and fewer employment opportunities, and wages are being driven down through globalised competition. In the peripheral countries, the competition between countries for investment capital and export markets is leading to the systematic establishment of anti-labour regimes to lock in developing countries' comparative advantages based on cheaper, more manageable labour.

The supply chain has also divided the working class by scattering assembly lines to different places and by causing the informalisation of labour. Global supply chains present new challenges to labour movements. On the one hand, effective collective bargaining by workers and communities in the global supply chain needs broader working class solidarity, which should come from a unified cross-sectoral alliance of all working people. At the same time, such a supply chain poses logistical and cultural difficulties in organising workers. Organising at the shop floor level itself has become difficult, but even where shop floor unionism is strong, relying only on shop floor unions turns out to be ineffective for collective bargaining with multinational employers and state authorities on workers' issues. Thus, workplace struggles need to be connected to, and reinforced by broader transformative national efforts to challenge the coordinated global production networks aimed at capital accumulation.

The effort to challenge global supply chains needs a comprehensive strategy in addition to local level struggles. Given the deep divisions and competition that easily arises among workers in global supply

chains (of industry, employment status, race/class/gender), it is critical to articulate the commonalities of the working class as a whole, which may formulate the basis for broader solidarity and common strategies and goals for collective bargaining. For example, the process of capital accumulation by dispossession,- not only in terms of land acquisitions and displacements, but also dispossession in terms of denying various rights of the people and their communities and slashing expenditure on public welfare, etc. that is marginalising millions of people -- could become one such common platform for the struggle. However, this also requires perhaps reclaiming the sphere of politics as a legitimate object of the people's struggle and above all, reclaiming people's sovereignty.

This publication is dedicated to all workers who have lost their lives in struggles for their rights, and to those who have suffered due to occupational diseases and industrial accidents in South Korea and many other places in Asia and beyond, and to victims who have died due to cancer from working in electronic factories. This book also salutes the survivors and their families, who struggle every day for justice.

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In the Belly of the Beast: Samsung Electronics' Supply Chain and Workforce in South Korea

By Jiwon Han, Wol-san Liem, Yoomi Lee

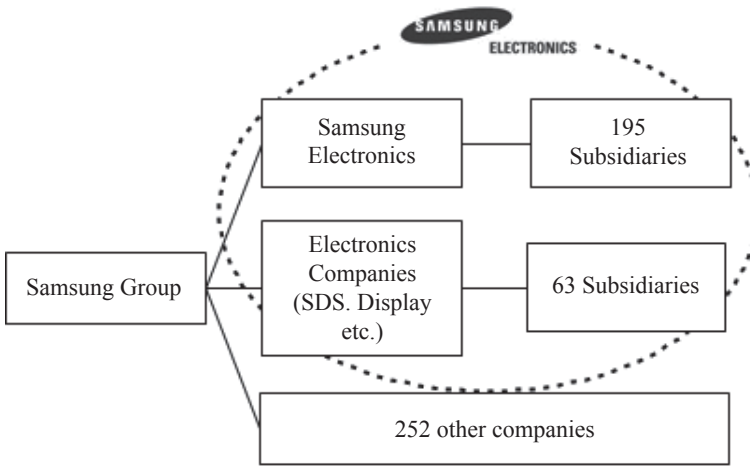
I. Samsung Electronics, a transnational giant

Samsung Electronics, the major profit contributor to the Samsung conglomerate, has grasped the market opportunity handed it with the worldwide popularity of the smart phone to increase its profits nearly 400 percent in just a few years. Contributing to its success are hundreds of factories located all around Asia, employing nearly a quarter of a million workers, only half of whom in 2013 were Korean.

Undoubtedly, the vision, dynamism and risk-taking capabilities of its management team are key factors in this success. At the same time, the entire Samsung group, and Samsung Electronics' in particular, employ repressive labour policies, including an anti-union policy, a preference for short-term labour contracts, limitations on women's tenure on the workforce, and a panoptical working environment complete with multiple 'point persons' or spies in each division. In addition, it may be extremely negligent in its health and safety regimes. Local unions have recently gained a toehold in the conglomerate and more progress will be sought.

What is the nature of Samsung Electronics? Consumers think they know it well, and yearn to purchase its products, which they experience as a single brand. In fact, Samsung Electronics is not that simple, and it is incorrect to see it as a single company or brand.

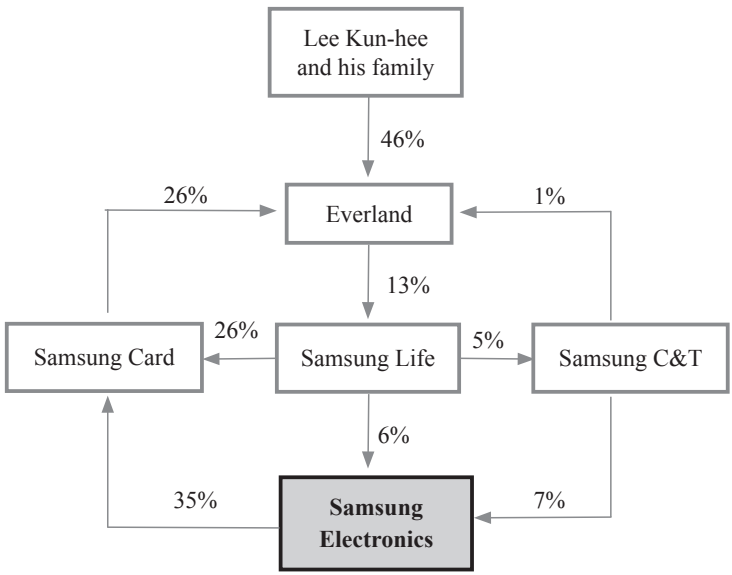
Diagram 1: Samsung Group Structure



Sources: Samsung Electronics, Samsung SDS, and Samsung Display Annual Reports

Samsung Electronics is the flagship company of Samsung Group, which is composed of 516 companies worldwide. Of these companies 195 are full-fledged Samsung Electronics subsidiaries, meaning they are incorporated entities of which Samsung Electronics owns more than a 50 percent share. In addition, Samsung Electronics controls a further 63 companies which make components for the subsidiaries, although it does not own a majority share in them. The mobile phones, televisions and all 264 products under the Samsung Electronics brand are produced and sold through Samsung Group's network.

Diagram 2: Samsung Group Ownership Structure



Sources: Samsung Electronics, Everland, Samsung Card, Samsung C&T, and Samsung Life Annual Reports

1. Ownership Structure

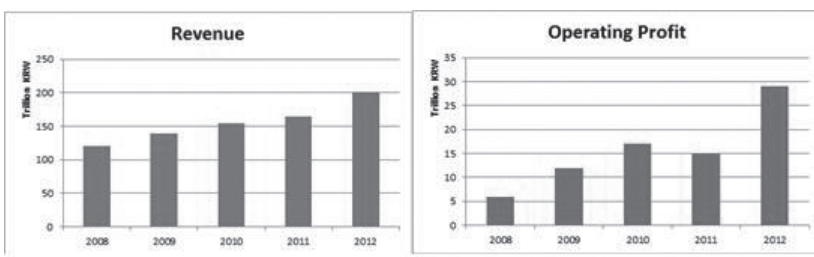
The ownership structure of these 500 plus companies is formed through a complex web of circular investments. This structure, which makes it possible for an investor to control an entire company without directly owning as much as a 10 percent share, characterizes Korean chaebols (conglomerates), including Samsung. The group is in fact a representative case, in which the owner is able to control the entire group, despite not having only a majority share in many of the companies.

Lee Kun-hee, chairman of Samsung Group, and his family own only a 2 percent share in Samsung Electronics directly. They are nonetheless able to control Samsung Electronics because of the circular

equity structure of Samsung Everland, Samsung Life, Samsung C& T and Samsung Card. The total shares in these companies held by Lee and his family are worth roughly 11 trillion Korean won (KRW) (roughly US$11 billion) and as such amounted to only 2 percent of Samsung Group's total market value (KRW 338 trillion) at the end of 2012. Nonetheless, Lee and his family exercise absolute management authority over the Samsung Group. This circular investment structure found in South Korean chaebols, which allows this sort of control, is currently a hotly debated economic issue.

2. Soaring revenue and profits

Diagram 3: Revenue and operating profit of Samsung Electronics and its subsidiaries



Source: Samsung Electronics Annual Reports, 2008-2012

In 2012, Samsung Electronics and its 195 direct subsidiaries recorded revenue of KRW 201 trillion and operating profit of KRW 29 trillion. This represented an increase in revenue of 66 percent and in operating profit of 383 percent over the past five years. Samsung Electronics has been one of the fasting growing companies in the world since the onset of the global financial crisis in 2008-2009. In the midst of the crisis, the group was able to push Japanese companies out of the display market. It also pushed Nokia out of the mobile phone market and now shares market dominance with Apple. The fact that after 2008, more than half of Samsung Electronics' operating profit has been made from smart phone sales demonstrates the sudden growth in this segment.

Samsung Electronics and its subsidiaries account for roughly 85 percent of Samsung Group's total operating profit of roughly KRW 35 trillion. This is because firstly, Samsung Electronics' transactions with other electronics subsidiaries, including Samsung Display, Samsung SDI and Samsung Electric, are conducted in a manner that is favorable to the parent company, and secondly, Samsung Group's finance subsidiaries, such as Samsung Life and Samsung Card, have been unable to considerably increase their profits due to domestic economic stagnation.

Samsung Electronics' four principle divisions use self-supporting accounting systems, meaning that they independently calculate revenue and profit. These four divisions are Consumer Electronics (CE), IT & Mobile Communications (IM), Semiconductors, and Display Panels (DP). Until as late as 2000, semiconductors and LCD panels accounted for more than half of both revenue and profit. After 2008, however, mobile product sales have grown by more than 50 percent each year, such that the mobile telephone division now accounts for almost 60 percent of Samsung Electronics' profit.

Table 1: Revenue and market share by division (%)

Category	CE	IM	Semi-conductor	DP
Of total revenue	23	55	18	14
Global market share	22 (TV)	27	41 (DRAM)	27 (LCD)

Source: Samsung Electronics 2012-4Q Earnings Release

3. Global production sites

Samsung Electronics' headquarters are located in South Korea. Like other transnational electronics corporations, however, most of its factories are located abroad. The vast majority of products produced in South Korea are not consumer products but semiconductors, LCD panels and other central electronic components. Consumer durables (i.e., home appliances), such as refrigerators, air conditioners and washing machines, are produced in South Korea only to the extent necessary to

satisfy domestic demand. Almost all TVs, printers and computers are produced abroad. The majority of mobile phones, which could be said to be Samsung Electronics' driving product, are produced in Vietnam and China.

Until 2012, semiconductors and LCD panels were produced almost entirely in South Korea. However, Samsung Electronics plans to have roughly half of its semiconductor and LCD panel production located in China by 2014~2015.

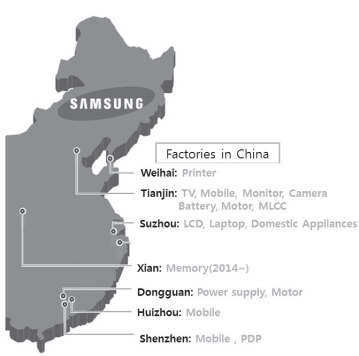
Table 2: Samsung Electronics' main products: Breakdown by production location (%)

	TVs	Mobile Phones	Memory chips	LCDs
Domestic Production	5%	20	95	95
Main Production Locations	China Mexico Hungary	Vietnam China South Korea	South Korea U.S. China (by 2014)	South Korea Slovakia China (by 2014)

Source: Samsung Electronic 2012-3Q Quarterly Report

More Samsung Electronics products are produced in China than any other single country. Last year, China Samsung recorded revenue of US$50 billion for the first time. Having recorded US$27.6 billion in 2007 and US$30.8 billion in 2009, China Samsung has demonstrated considerable rapid growth.

Diagram 4: China Samsung Factories

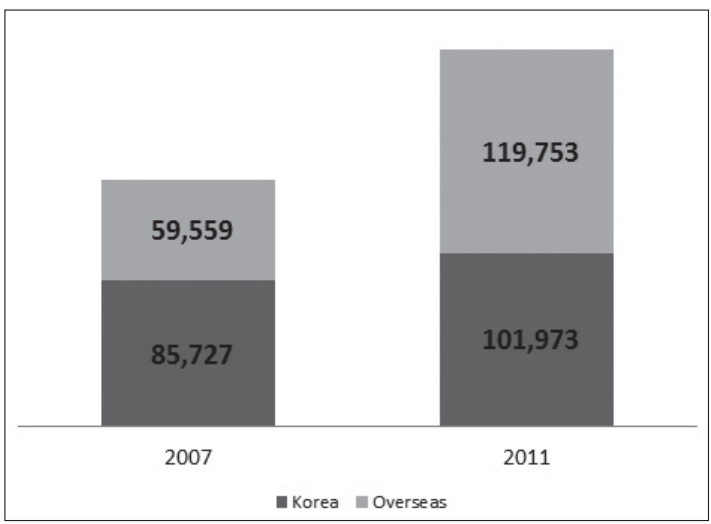


Source: MK Business News, 4 April 2012

4. Workforce

Samsung Electronics' domestic and overseas subsidiaries together employed some 221,000 workers at of the end of 2011. This is a 53 percent increase from five years ago. With roughly 100,000 workers employed in South Korea and 120,000 employed abroad, the number of overseas employees surpassed domestic employees for the first time in 2011.

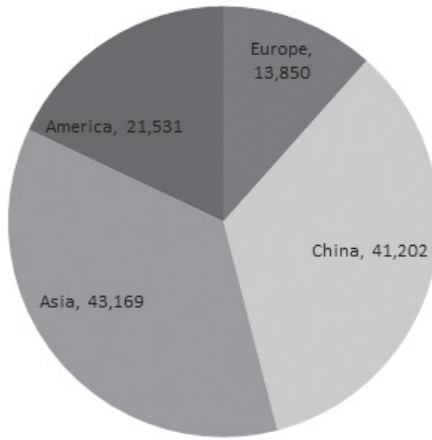
Diagram 5: Samsung Electronics' global employees



Source: Samsung Electronics Sustainability Report, 2012

Roughly 41,000 workers— the largest number of employees working in any single country outside of Korea—are employed in China. In the rest of the Asia region, Samsung Electronics employees number roughly 43,000. Next comes South America with roughly 21,000 employees and Europe with 13,000.

Diagram 6: Samsung Electronics, Employment by Region



Source: Samsung Electronics Sustainability Report 2012

II. Samsung Electronics' Domestic Supply Chain

Samsung Electronics' revenue equals roughly 20 percent of the value of South Korea's GDP. In addition, to say that Samsung Electronics and its subcontractors are South Korea's electronics industry would not be an exaggeration. Only roughly 30 percent of all electronics companies in South Korea are independent of Samsung Electronics. The majority of these are LG Electronics' subcontractors.

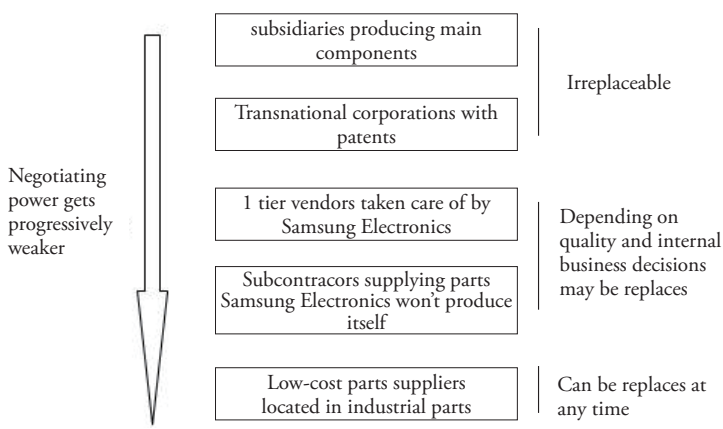
The system of component production and supply for Samsung Electronics is made up of five layers. The first layer is composed of Samsung Group subsidiaries and accounts for roughly 11 percent of the value of components purchased by Samsung Electronics. The second layer is made up of transnational electronics component suppliers who have independent technical capability. The American companies Qualcomm, which has a CDMA patent, and 3Com, which has a wireless patent, are examples of companies in this layer.

The third layer comprises suppliers to which Samsung Electronics outsources parts production that it could produce itself, but chooses not

to for cost or production capacity reasons. These companies principally supply small-scale LCD panels. Samsung Electronics gets these low-price LCD panels from companies such as the Taiwan-owned AU Optronics Corp (AUO) and Chunghwa Picture Tubes Ltd (CPT). The fourth layer is composed of domestic subcontractors that supply parts that Samsung Electronics could not produce itself. The main companies in this layer include Intops LED Company Ltd, which handles both the production of mobile phone cases and the assembly of mobile phones, and Interflex Company Ltd, which produces printed circuit boards (PCBs).

The final layer in the supply chain is composed of small and medium-size parts suppliers located in industrial parks. As these companies supply low-cost parts, Samsung Electronics frequently switches among them, exacerbating price competition. It also imports some parts from China. These are the companies most exploited by Samsung Electronics.

Diagram 7: Layers in Samsung Electronics' supply chain and their importance



Suppliers' relationships and negotiating power with Samsung Electronics vary dramatically depending on to which layer of the supply chain the supplier belong. The Samsung Group subsidiaries that supply the main components and make up the first layer, for instance, receive the protection of the Group. Legally, they are separate companies, but in fact they operate as if they were part of the same company based on Samsung Electronics' business plan. Transnational corporations that possess patents have strategic partnerships with Samsung Electronics due to the scale and importance of their contribution to the production process.

Unlike the companies in the first and second layer, which are irreplaceable from Samsung Electronics' point of view, domestic third and fourth-tier vendors or overseas parts suppliers may lose their contracts with Samsung Electronics at any time if there is a problem with product quality or supply. Samsung Electronics will at times support domestic vendors, but it will also easily cut those that it deems to have lost value from a business perspective.

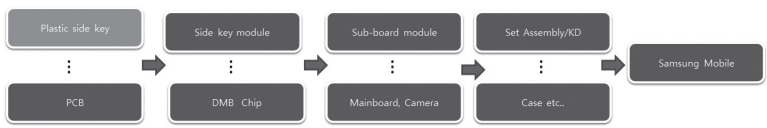
In the case of small and medium-size suppliers located in industrial parks, the relationship can hardly even be seen as contractual. These companies' contracts with Samsung Electronics may be on a monthly or even weekly basis, and they must supply at the prices Samsung Electronics determines. Their owners are treated even more poorly than a low-level Samsung Electronics procurement department employee.

Mobile phone supply chain hierarchy

- The supply chain runs 5 to 7 layers deep, with Samsung Electronics controlling the entire process from development to final assembly.
  - Turnover rates for products are very fast and the volume of production varies greatly depending on the model. These variations are dealt with by contracting final assembly to electronics manufacturing services (EMS), contractors specializing in this area.
  - There are modules for most parts produced by first and second tier subcontractors.

- The main components that go into each module are produced by Samsung Electronics subsidiaries or imported from overseas.
- Simple parts that do not require a high-level of technology are produced by the 3rd through 5th tier subcontractors concentrated in industrial parks.

Diagram 8: Mobile phone assembly



Source: "Basic analysis of the KIET Industry," Hana Institute of Finance, 2009

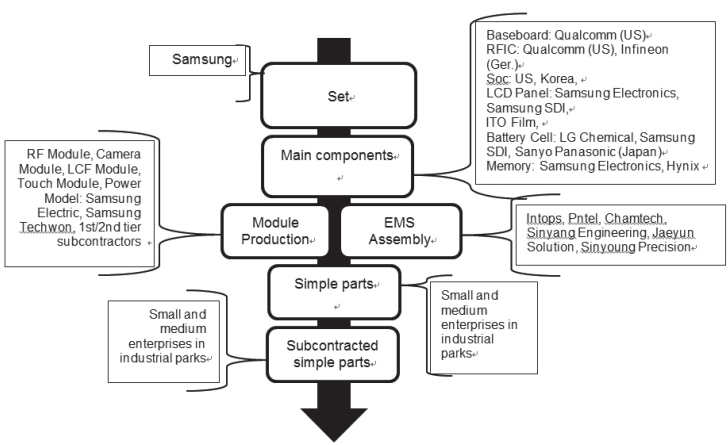
- The diagram above demonstrates the supply chain into which a small supplier of mobile phone side keys located in the Sihwa Industrial Park would be embedded. The component produced by this 4th or 5th tier supplier must be passed on, first, to companies producing lower-level modules, then to an EMS company before finally reaching Samsung Electronics.

- The main components are produced by overseas companies and Samsung subsidiaries.
  - The parts that go into a mobile phone are many and diverse, ranging from the main components such as the system semiconductor, known as the baseband, to the plastic casting, which requires only simple operations to manufacture.
  - Imported from overseas companies are components such as the baseband chip which enables CDMA Communications; the RF receiver/transceiver which processes wireless signals; the wireless communications chip which makes possible wireless connection; and the

indium tin oxide (ITO) film which is the main sensor in touch screens..

- Samsung's subsidiaries produce the LCD panel which enables display functions; the flash memory which makes possible data storage; the camera sensor which enables the main functions of the camera; and the battery cell, the main component of the battery.
- The multimedia chip, which handles the many non-communication functions, and the DMB chip which processes DMB broadcast signals, are produced by Samsung Electronics or designed by professional semiconductor design companies and manufactured by foundry companies.
- The companies that bring together the main components and assembly them as modules include the Samsung subsidiaries that produce main parts, small and medium-size companies that have their own technical capacity and small and medium-sized companies that do simple assembly.

Diagram 9: Hierarchy of Mobile Phone Supply Chain



Sources: Business reports of each listed company; and "Basic analysis of the KIET Industry," Hana Institute of Finance, 2009.

- EMS companies are becoming increasingly more important to Samsung Electronics and in the electronics industry in general.
  - The relationship between these companies, which began as case manufacturers and mobile set manufactures, has become closer as mobile phone design has come to have greater influence on sales and, therefore, changes more rapidly.
  - In the last few years, set assembly, done on consignment as ordered by set companies, as well as case assembly, have become central operations.

Table 3: Samsung Electronics domestic EMS production (unit: 1000)

Samsung Electronics Gumi Factory	**EMS**		
	Intops	Pntel	Chamtech
53,483	29,118	22,913	6,368
	Total: 58,399 (52% of Samsung Electronics' Domestic Production)		

Sources: Business Reports of each listed company

  - Samsung Electronics manages its relationship with these EMS companies systematically and, in some cases, even helps them to get listed on the KOSDAQ. EMS companies are involved in the production of roughly 50 percent of the finished products produced domestically.
  - - EMS firms also follow Samsung Electronics abroad. For example, Intops has opened shop in Vietnam and China where Samsung has mobile phone factories.
  - EMS firms are high up in the supply chain hierarchy, but are particularly labour intensive. They employ women workers through labor agencies disguised as in-house subcontractors.

- At the very bottom of the supply chain are small and medium-sized parts suppliers located in the Banwol/Sihwa, Guro and Gumi industrial complexes in Korea.
  - For example, in the Banwol/Sihwa area alone, there are some 700 companies registered as producing PCBs, mobile phone parts and communication equipment as their main products.
  - The majority of these companies employ less than 20 workers and record sales of around KRW 1 billion annually.

III. Samsung Electronics' workforce

1. No Union Policy

Samsung Electronics is known in South Korea for its faithful adherence to a no union policy. From the time of Samsung's founder, Lee Byung-chull, to the current leadership of Lee Kun-hee, Samsung used any and all means to stop employees from forming unions. This policy has affected not only Samsung Electronics, but the entire electronics industry. This is because Samsung Electronics intervenes actively to prevent the formation of unions at its suppliers.

Table 4: Union presence in the South Korean electronics industry

Category	Number/Content
Total workers in electronics industry	430,000
Union membership	15,000 (KCTU 1,200)
Union presence	3.5% (Total Density 9%)
Union membership at Samsung Electronics' suppliers	300

Source: Jiwon Han, "Production, Supply-chain, and Working Conditions in the Korean Electronics Industry", Research Institute for Alternative Workers' Movements, 2011.

The effectiveness of Samsung Electronics' no union policy is evident in the fact that union participation in the South Korean electronics industry is only 3.5 percent. This figure includes the members of the LG Electronics union, which is affiliated with the Federation of Korean Trade Unions (KFTU) and is a true-blooded company union. Excluding the LG union, less than one percent of all workers in the electronics industry are union members; there are only 300 union members in electronics companies (70 percent of the industry) that make up Samsung Electronics' supply chain.

At the center of Samsung Electronics' no union strategy are careful workplace control and a thorough system of selective inclusion and exclusion. At Samsung Electronics, the labour management department monitors each individual worker closely. For example, when a few Samsung SDI workers started to form a union in 2000, the management issued orders for all of them to be dispatched overseas. Those who refused the order were dismissed for disciplinary reasons. At the same time, Samsung SDI tapped workers' phones, followed them, approached their families with threats and appeasements, and even put location tracking devices in the mobile phones that the workers themselves made. Similar cases have occurred several times over the last ten years, for example, at Samsung Aceone and Samsung Electronics' Suwon factory in 2004, at Samsung SDI in 2005 and at Samsung Everland in 2011.

The strength of Samsung Electronics' labour management system makes it possible to prevent the formation of unions almost from the start. Samsung Electronics uses a point person system to monitor movements towards union formation on a day-to-day basis. Staff in the labour management department communicate appoint and communicate with point people stationed in each company department. Similarly, the labor management department supervisor communicates with a point person in each company division. The head of the department appoints and communicates with one point person for every two divisions. These point people continuously monitor employees' attitudes and actions, taking stock of informal gatherings on a regular basis (Don-mun Jo, "Samsung Group's Labor Control and Panpticon," 2007).

2. Wages

If this form of control is one side of union repression, the other side is the use of appeasement and rewards for loyalty. In exchange for not forming unions, Samsung Electronics provides its workers with the highest wages in the industry. The average monthly wage of workers directly employed by Samsung Electronics was 5.77 million won as of April 2012. This was 68 percent more than the average wage of the entire electronics industry during the same period. Even when compared to the average for all workers at companies with 300 or more workers, the Samsung Electronics average wage was considerably higher. If the yearend bonus, based on the year's results - which is more than 10 million won-- is included, the difference is even greater.

Table 5: Wages in electronics industry (million Korean won)

	Electronics Industry	Small/medium-size companies	Large companies	Samsung Electronics
Average Monthly Wage	3.44	2.67	3.90	5.77

Sources: Samsung Electronics, Quarterly Report, 2012-3Q, Ministry of Employment and Labor, "Industrial Labor Power Survey", April 2012.

Samsung Electronics is able to provide its employees with such high wages because of its ruthless exploitation of its subcontractors, a practice enabled by its no union policy. By applying its no union policy to the entire electronics industry, which it effectively controls, Samsung Electronics is able to keep the wages of the majority of electronics workers down to the legal minimum. At KRW 3.44 million, the industry average appears fairly high. (See Table 5 above.) The average is high, however, because large companies, like Samsung Electronics and LG Electronics, are included in the calculation. At KRW 2.67 million, the average monthly wage at small and medium-sized companies, which make up 90 percent of all Korean electronics companies, does not even equal half of the Samsung Electronics average. It should also be noted that managers' salaries are included in the calculation of the average

wage for these companies. If managers are excluded, it can be seen that the majority of production workers make less than KRW 2 million per month. Samsung production workers, who have roughly the same skill level as other electronics workers, make an average monthly wage of KRW 4.46 million. (The figure of KRW 5.77 million in the table above includes Samsung managers.)

If the electronics industry is compared with the automobile industry, where union membership is high, it is easy to see the effectiveness of Samsung's no union policy in keeping wages down. The majority of workers in 1st tier vendors in the auto industry are organized. The result is that, while there is a small difference in wages as one goes down the supply chain, a relatively high wage level is maintained throughout the industry. In comparison, all workers in the electronics supply chain, except those employed directly by Samsung Electronics (or LG Electronics) receive the minimum wage.

Workers employed at first tier vendors in the automobile industry, who supply Hyundai Motor, make about 80 percent of what Hyundai employees earn. In the case of Samsung Electronics, employees of 1st tier vendors make only about 50 percent as much as Samsung Electronics' employees. The lack of unions among 1st tier vendors keeps wages down in these companies and throughout the industry. As such, Samsung Electronics is able to offer its direct employees wages that are well above the industry average, dissipating inclinations towards union organizing. Of course, while Samsung Electronics employees gain materially from this strategy, the majority of workers in the industry are excluded from these benefits.

Table 6: Comparison of monthly wages in the electronics and auto industries

	Electronics (estimate)	Automobiles (estimate)
Top of Supply Chain (Samsung Electronics/ Hyundai Motor)	KRW 4 million	KRW 6 million
1st Tier Vendors	KRW 2 million	KRW 5 million
2nd Tier Vendors	KRW 1.5 million	KRW 2 million

Source: Ministry of Employment and Labor, "Industrial Labor Power Survey", 2012.4

In addition to controlling wages, Samsung Electronics is also able to maintain a high level of production flexibility due to its no union policy. Samsung Electronics freely increases and decreases the volume of orders placed with suppliers, depending on its business needs. In the case of the auto industries, workers have been able to secure a certain wage level irrespective of production volume through collective bargaining agreements. In the electronics industry, however, where the basic wage is at the legal minimum, if Samsung Electronics does not place orders, workers' very livelihoods are put at risk.

According to the Ministry of Employment and Labour study cited above workers can work anywhere between 150 and 330 hours a month at a 1st tier Samsung Electronics vendor that manufactures mobile phone cases. During months when orders were down ad workers at this company worked only 150 hours they made a minimum wage of KRW 900,000. In months when they worked 330 hours, however, their wages rose to KRW 2.3 million – that is KRW 920,000 in basic wages and KRW 1.4 million in bonuses. With wages fluctuating this greatly, workers at subcontractors must do whatever Samsung Electronics demands to ensure that the orders keep coming in. They cannot even dream of forming a union. This is the result of Samsung Electronics' production strategy, in combination with its no union policy, which makes it possible to maintain low wages and at the same time secure great production flexibility.

3. Employment Structure

The dual wage structure of the electronics industry means that there is also a dual employment structure. In order to prevent union formation, Samsung Electronics makes it a point of employing young female workers in production jobs. Rather than carry out open recruitment, Samsung Electronics does most of its recruiting for new employees through girls' high schools. According to interviews conducted by Support for Health and Rights of People in Semiconductor Industry (SHARPs), a coalition working to improve occupational safety and health in the electronics industry, young women join the company in their late teens and early twenties, work for roughly

seven years and then quit when they get married. While the wages these women earn are relatively high, the fact that they are young and female makes them easy to control, and Samsung Electronics uses this to force long hours and high work intensity. It then pressures them to quit once they are older. Of course this is not a formal rule, but rather a secret company practices.

In contrast to direct Samsung Electronics employees, the majority of workers at subcontracting factories are women in their forties or older. It is believed that the women workers are better suited to electronics component production than men, and subcontractors prefer older women whom they can pay lower wages to, either because they are only supplementing a family income or they live alone. It is common for such workers to work two or three years for one company before trying to move to a larger one. Because there is no wage increase based on work experience, there is no reason to stay in one place for long. In addition, because the skill level required for work in these companies is not high, it is easy for employers to find new hires.

Table 7: Employees at Samsung Electronics and In-house Subcontractors

	Direct employees	Number of In-house subcontractors	Number of In-house subcontracted workers	In-house subcontracted workers (%)
Gumi Factory	9,357	0	0	0
Suwon Factory	28,061	22	1,131	4%
Giheung Factory	2,500	21	3,018	121%
Cheonan Factory	6,246	6	794	13%
Onyang Factory	5,248	4	440	8%
Tangjeong Factory	13,000	9	2,178	17%
Gwangju Factory	3,492	5	671	19%
Total	67,904	67	8,232	12%

Source: Ministry of Employment and Labor, "Statistics on In-House Subcontractors (300 plus employees)," 2010.

In addition, Samsung Electronics uses a large number of in-house subcontracted workers within its own factories in order to maintain labor flexibility. This is despite the fact, that the use of in-house subcontracted workers in the electronics industry can be seen as illegal. Under South Korean law, the use of temporary agency workers in the manufacturing sector is not permitted. Legal cases have found, moreover, that in-house subcontractors are often actually no more than employment agencies, dispatching temp workers who are managed directly by the parent company's supervisors. Despite several court rulings confirming the illegality of these practices, Hyundai Motor and other manufacturing chaebols continue to employ in-house subcontracted workers. The same is true for Samsung Electronics. According to a survey by the Ministry of Employment and Labor conducted in 2010, roughly 12 percent of the workers at Samsung Electronics factories, some 8,000 workers, were employed through in-house subcontractors.

IV. Workers' occupational health and freedom of association

Activism by Samsung Electronics workers has taken two tracks in South Korea: The first is the campaign to protect and compensate workers who are victims of occupational diseases, injuries and deaths is the first track and the second the struggle for the right of freedom of association.

1. Occupational health and safety

In the last few years, dozens of cases of occupational illness have been discovered among workers employed by Samsung Electronics and its subsidiaries. Several civil society organizations have taken up these workers' cases, advocating industrial accident insurance coverage and supporting the families of victims. The work of these groups has made the health rights of Samsung Electronics workers a national issue.

Table 8: Victims of occupational illness at Samsung Electronics and subsidiaries (as of June 2012)

Company	Section	Cases	Deaths
Samsung Electronics	Semiconductor	91	32
Samsung Electronics	LCD	17	8
Samsung Electronics	Mobile Phone/Other	11	7
Samsung Electric		12	7
Samsung SDI		10	2
Samsung Techwin		4	0
Total		145	56

Source: Support for Health and Rights of People in Semi Conductor Industry (SHARPS).

In recent months, 145 cases of serious occupational illness have been reported at Samsung Electronics and its subsidiaries. In 56 cases, the individuals involved (mostly young workers in their 20s and 30s) have died. However, the number of Samsung Electronics workers who have passed away or are currently suffering from such illnesses is thought to be much higher. Because of the system of labour control discussed above, even reporting illness is difficult.

Of all the illnesses reports, cancers involving the lymphatic system (e.g. leukemia, lymphoma) are the most common. There are many cases, as well, of brain tumors and breast, skin and lung cancer. Illnesses related to the nervous and immune systems, such as multiple sclerosis, multiple neuritis and Lou Gehrig's disease, have also been discovered, as have been psychological disorders such as depression, panic disorder and schizophrenia. These and other mental illnesses result from the fast-paced rigidly controlled working environment at Samsung Electronics worksites (SHARPs, "Conditions of Samsung Workers as Demonstrated through a Chain of Deaths and the Struggle against Occupational Illnesses," 2011).

In November 2007, a coalition called 'Support for Health and Rights of People in Semi Conductor Industry' (SHARPs) was formed to advocate on behalf of victims of occupational illness at Samsung

Electronics. SHARPs has now been active for more than five years and has succeeded in bringing the issue into the public arena. In January 2013, Samsung Electronics notified SHARPs of its "intention to meet the leukemia victims and bereaved families and find a solution to the problem through dialogue." The company promised to form an "appropriate delegation" for the meeting and "engage in honest discussion." For the first time in five years, discussions between SHARPs and Samsung Electronics have begun.

2. Efforts at trade union establishment

Recently, efforts to form unions within the Samsung Group have gained public attention. This is due to the fact that the Samsung Labor Union, formed by workers at Samsung Everland in 2011, recently joined the Korean Confederation of Trade Unions-affiliated Korean Metal Workers' Union (KMWU) on 14 January 2013. The Samsung union's affiliation to the KMWU marks the first time in history that workers employed by Samsung Group have joined a Korean Confederation of Trade Unions-affiliated union in significant numbers.

Everland workers first established a union on July 12, 2011. At the time, however, they did not affiliate to a higher level (industrial) union. Recently, however, workers who had been openly active in the Samsung union joined the KMWU. More workers are expected to join in the near future.

Samsung Group has responded to the formation of the Samsung union by meeting out disciplinary measures against its officers. These actions, part of Samsung's no union strategy, have frightened workers, making union activities difficult even for those with complaints against the company. The union's officers chose to associate themselves with the powerful KMWU in order to develop a stronger defense against Samsung.

Now that Samsung Group must deal directly with the KCTU's main industrial union, much interest has turned to the fate of Samsung's no union policy. As an industrial union, the KMWU has bargaining authority overall of its organized worksites. Thus, it is not the enterprise-level union but the KMWU, which is the Samsung Groups' bargaining partner.

Given the many voices within the labour movement and civil society calling for an end to Samsung's union repression, and recent interest in 'economic democratization', a keyword for both the liberal and conservative candidates in the 2012 presidential election, the pressure on Samsung to adopt a more just policy is mounting.

It is now more important than ever that unions and social organizations engage in media and education campaigns to create the environment in which Samsung workers can public demand their labour rights. The KMWU is currently making plans for a national, long-term and direct organizing campaign that will start with registering more Samsung workers. It is also planning to form a network of activists, professionals and scholars who can put public pressure on Samsung to take a more socially responsible position. This is the right time to organize a major effort to obtain occupational health and safety protection and labour rights for Samsung's workers.

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Workers' Struggle in the Electronics Industry in Indonesia: The Case of Samsung Electronics Indonesia[1]

By Abu Mufakhir

What Samsung does not recognise is not the trade union itself, but the need to have a trade union. In other words, Samsung has a principle of management that does not need trade unions."
Samsung Chair, Lee Kun-hee

This chapter discusses the workers' struggle in electronics industry by taking a case of Samsung Electronics Indonesia as its focus. The first part of this report describes the general situation, trend and development of the electronics industry in Indonesia by putting it in the context of the global supply chain, of which the development of the global electronics industry has been promoted by global capital. The latter part looks deeper into a map of the supply chain of PT. Samsung Electronics Indonesia (hereafter referred to as Samsung). This section describes the strategy Samsung applies toward their space and production networks concentrated in one of the most densely populated industrial areas in Indonesia: Cikarang, Bekasi in West Java. This strategy has sought to insulate the company from the local environment, including the labour movement and labour disputes in the area.

I. Context of the electronics industry in Indonesia

The electronics industry in Indonesia is part of the supply chain of the global, interconnected electronics industry. Its existence and development is related to the electronics industry in other countries, with the complex characteristics of the global supply

chain. The production of the i-Phone 4 is a good illustration of this interconnectedness, wherein the design and the technology are produced in the United States, the main components are derived from the supplier companies in five countries, and the finished products are marketed almost worldwide.[2] The company holding the brand is in one country, the makers of components is in several other countries, and the assembly process done in yet other countries, thus a complex supply chain for a single product in the modern electronics industry.

The electronics industry can even be regarded as the most successful in bringing the production base of supply chains across borders, especially to developing countries with an underemployed labour supply, generally with unorganized and low-wage labour markets. The global supply chain "*[is] a system and way of capital accumulation by coordinating more of international trade. The supply chain is the most important dimension of the commodity chain in terms of governance structure, which includes the authority and power connection determining how financial, materials, and other resources including labour can be set, allocated and managed in a chain to produce the commodity.*"[3] In the context of that supply chain, the electronics industry in Indonesia continues to grow and become more integrated into the global electronics industry. In the development strategy of a supply chain, a brand-holding electronics companies will turn over most of the production processes to subcontractors. The goal is to spread the risk, and obtain lower production costs by handing the majority of fixed overhead costs to the subcontractor companies, which simultaneously locating its production bases in low-wage countries.

The global electronics manufacturing industry employed about 18 million people all over the world in 2004, as estimated by the International Labour Organization (ILO,2007). This number will undoubtedly continue to grow. Of those 18 million, 87 percent of the electronics manufacturing industry workers are concentrated in 20 countries, of which China accounts for 35 percent and Indonesia just 1 percent. Yet, looking at the growth of the electronics manufacturing industry in Indonesia since 2005, this figure is expected to rise.

A variety of electronics products, such as semiconductors, mobile phones, flat screen TVs, CD players, memory cards, together with the basic components of these products are manufactured in Asia. For

example, in the Philippines, the electronics sector accounted for 70 percent of exports. In addition, according to the UNCTAD statistics, nearly 50 percent of electronics exports come from developing countries, all of which are in Asia with the exception of Mexico: They are China, Hong Kong (China), Taiwan, Indonesia, South Korea, Malaysia, Mexico, the Philippines, Singapore and Thailand.[4]

Asia continues to be a magnet for the development of the electronics manufacturing industry (mainly) due to the low labour costs. In addition, Asia also has raw materials supply such as the best quality lead, in particular that from Indonesia and China, an essential raw material for electronic components, together with the most widely and rapidly growth rate in the world. In addition to serving as a production base, Asia is also a growing market for these electronic products.

History of Electronics Industry in Indonesia

An important milestone marking the birth of the electronics industry in Indonesia was the sporting event, the Asian Games held in Jakarta in 1962. At that time, the assembly industry of black and white televisions was launched, to support the government's policy of providing people with the capability of watching the Asian Games events on television. Although the Dutch electrical appliance and electronics manufacturer, Phillips, had been producing radios locally, the electronics industry in Indonesia for the most part was confined to small-scale repair services up to the 1960s. This service industry was not greatly developed, since at that time almost all electronics were imported.

During the authoritarian era of Suharto (1966-1998), there were at least two periods when economic policies were drafted that affected the development of the electronics industry in Indonesia. Both periods were preceded by the destruction of the progressive forces of the Old Order, and a change in the orientation of the guided economy paradigm, where the state played a very strong role, leading the state economic liberalization. Various liberalization and deregulation policies were drafted to attract foreign investment, and these were coupled with state policies related to the maintenance of control and restrictions on the freedom of association. Therefore, in the early stages of growth of

the electronics industry in Indonesia, trade unions were under state control through a single trade union policy which became part of the New Order's political development.

Specifically, the two periods of economic policy reform were 1976 to 1981 marked by the implementation of the import substitution industrialisation policy that took place during the period of rising oil prices (i.e., the 'oil bomb'), and 1982-85 in the 'post oil–bomb' period, wherein the import substitution policies were re-examined, and a shift from import substitution to export-oriented industries was launched (1986-to date). In the first period, the government provided some facilities and subsidies to manufacturers, one of them in the form of a two-year corporate tax holiday. And then, as a form of incentive for electronics manufacturers that built their production facilities in Indonesia, and in order to protect the domestic market from imported electronic products, the government issued a policy to ban the imports of finished electronics products, and charged tariffs ranging from 2 percent to 50 percent on the electronic products for consumption (*consumer electronics*), and 5 percent to 50 percent on office electronic devices.[5]

The result of these policies was the entry of foreign electronics companies as *joint-venture partners* with local companies. Many of these joint ventures (JVs) have been carrying out the production of various consumer electronics products under license since the early 1970s. These companies included Sanyo, National and Sharp, all from Japan. A small number are from Europe, such as ITT, Grundig, and Philip.[6] As a result, by the end of 1978, electronics exports increased continually, to account for 15 percent of the total manufacturing exports of Indonesia.[7]

The official purpose of the implementation of import substitution policies during this period was to reduce dependence on imported electronic components and to encourage the use of local components. The plan largely failed, since the structure of the electronics industry in Indonesia until today is still dependent on imported components (up to 70 percent). The plan is also rated as a failure because the electronics industry in Indonesia remains unintegrated, and supporting industries, making components and parts, have stagnated.[8]

The second period of reform started after the fall in international oil prices in the 1980s. In that period, the government gradually began

to steal a glance at the export industries sector and vigorously launched a range of deregulation measures, aiming to increase the scale of exports in non-oil sectors, since the revenues from oil and gas exports were seen as increasingly unreliable. At that moment the import substitution industrialization (ISI) policy shifted to export orientation. Government developed various forms of deregulation to provide facilitate industries that were exporting their products. One such policy change was the application of the May Package in 1990, wherein the tariff on component imports for use in the manufacture of future exports of electronic goods was reduced and set in a range of zero to 5 percent

As a result of those various deregulations, electronics exports began to increase. Investors, mainly from Japan, Korea and Taiwan, relocated their production to Indonesia. The total value of exports in 1987 reached US$59 million then jumped to US$1.2 billion in 1993.[9] According to data of the Ministry of Industry, in 1992 the exports of foreign capital enterprises reached 80 percent of total national exports of the electronics sector. Those policies to attract foreign investment, particularly the May Package of 1990, in addition to successfully attracting the brand-holder companies to build manufacturing plants in Indonesia, they has also attracted many corporate companies and components suppliers of those companies.

Within those two periods, Indonesia as a developing country, made all kinds of efforts to try to get a place in the division of labour and global supply chain as a production base for labour-intensive manufacturing. In the second period, where there is a huge development of export-oriented manufacturing sector controlled by foreign capital, Indonesia attempted to reduce its past dependence on revenues from domestic oil production. As described by Hadiz (2005), in such circumstances, foreign investors (including electronics companies), were in a very strong bargaining position when dealing with the state. Thus, when the bargaining power of capital is strong, the bargaining power of the working class in countries such as Indonesia with surplus labour, is weak. During the New Order, repeatedly the international investors entering Indonesia said that Indonesia's attractiveness as a production base of labour-intensive manufacturing lies in the availability of its, generally abundant, unorganized, and low-wage, labour supply.[10]

II. Electronics industry in Indonesia in the 21st century

Electronic products produced in Indonesia are categorized as consumer electronic products, i.e., household appliances, audio-video equipment, some communications equipment and some office equipment), and these are categorized as the fourth-layer of the electronics industry.[11] The amount of local content in the way of local raw materials and components for the electronics industry in Indonesia is around 40 percent. The remainder is fulfilled from imported components.[12]

In comparison to other countries in Southeast Asia, including the Philippines, Malaysia and Thailand, the electronics industry in Indonesia is still far behind. In 2005, semiconductors accounted for 80 percent of the Philippine electronics exports, while Thailand and Malaysia were strong in the IT industry and office equipment/machines production with percentages of 36 percent and 23 percent. Indonesia's exports are semiconductors. 5 percent, components 24.5 percent and the largest sector electronic finished goods, 53 percent.[13]

In 2005, exports of electronic products in Indonesia reached US$8.89 billion, yet fell to US$7.99 billion in 2006. An increase in electronic products exports occurred in 2008 with a value of US$8.6 billion. The export value of electronic products in January-November 2009 reached US $7.6 billion, a fall of 2.78 percent% from the performance in the same period of 2008 which reached US$7.8 billion. However, the figure has exceeded the medium-term target (2010-2014) of the Indonesia electronic industry roadmap which targeted export values of US$6.6 billion.[14]

The main destination countries of the electronic products exports of Indonesia in 2009 were Singapore with a share of 27.14 percent, followed by Japan with 12.14 percent, the United States 4.29 percent, and Hong Kong 4.26 percent. Beyond that there were new growing markets, including Australia, France, and the Philippines. The Philippine market accounted for a fairly significant market and reached 4 percent of the total value of electronic products exports of Indonesia, while the Australian and French markets each absorbed 3 percent.[15]

In 2012, in Indonesia there were 250 electronics and component manufacturers. During the period of 2010-2014, the average-growth

target was 10 percent per annum with employment as many as 387,000 people.[16] Combined Electronics (*Gabungan Elektronika- Gabel*) Indonesia recorded that electronics products sales reached Rp 6.7 trillion in the first quarter of 2012, an increase of 22 percent from the previous period. Most sales are TV products that reached 1.65 million units, equivalent to Rp 2.88 trillion, followed by 759,309 units of refrigerator sales (Rp 1.3 trillion), 407, 536 units of air conditioners (Rp 915.95 billion), and 499,201 units of washing machines (Rp 768.81 billion).[17]

Of the 250 companies, there are ten big electronics companies vying for the electronics market valued at Rp 83 trillion. Four companies are from Japan: PT Toshiba Visual Media Network Indonesia, PT Panasonic Gobel Indonesia, PT Sanyo Indonesia, and PT Sharp Electronics Indonesia. Two companies from South Korea: PT LG Electronics Indonesia and PT Samsung Electronics Indonesia. Three are from Indonesia namely PT Hartono Istana Teknologi (Polytron), PT Maspion Group, and PT Istana Argo Kencana (Sanken). And one is from China, PT Midea Electronics Indonesia.[18]

PT Sharp Electronics Indonesia, recorded sales in 2010-2011 of Rp 5.5 trillion. PT LG Electronics Indonesia recorded sales of Rp 5.2 trillion in 2010. PT Toshiba Visual Media Network Indonesia reached an average US$280 million or around Rp2.5 trillion per year in Indonesia. Of that amount, US$250 million is from their exports and US$30 million is from the domestic market. PT Sanyo Indonesia targetted to make sales of Rp 2 trillion in 2010 from the Indonesian market. PT Hartono Istana Technology, a manufacturer of 'Polytron' brand electronics, targeted sales of up to Rp 2.5 trillion in 2011. PT Maspion Group recorded sales of household electronic products in the domestic market amounting to Rp 1.51 trillion, and export sales of Rp 435.68 billion. Samsung Electronics Indonesia (SEIN) in Indonesia aimed to make sales of US $1.5 billion in 2012.[19]

Actual investment in the electronics industry, as well as other leading sectors (mining and oil), continues to be dominated by foreign investment. In the first quarter of 2012, the actual value of the investment in the electronics sector, which is incorporated in the industry of Metal, Electronics, and Engineering (GLUE) reached Rp 3.4 trillion. This figure consists of domestic investment of Rp 1.1 trillion

and foreign investment of Rp 2.3 trillion.[20] Then, in the 2nd quarter of 2012, actual FDI in the electronics sector was US$500 million or 8.2 percent of the total realization investment of USS46.7 billion. This figure represents the highest order of all realizable values of FDI in the category of secondary sector. As an investment target it ranked fourth, after the mining, transport and communications, and plantation sectors.[21]

In 2011, there were at least two major Japanese electronics companies that increased their investment by setting up new plants. PT Indonesia Epson Industry built a new factory in Cikarang worth US$150 million or Rp 1.35 trillion in April 2011. With the world total production target of Epson in 2012 amounting to 22 million units, 13 million units were projected to come from Indonesia. Epson has even started to consider moving all its production to Indonesia.[22] Also then, Toshiba Corporation, since November 2011 has started to set up a washing-machine factory in the Industrial Area of East Jakarta, on a large site with an area of 18,000 square meters. Indonesia is the biggest market in Southeast Asia for Toshiba that controls 30 percent of washing machine sales in Indonesia.[23] Meanwhile, in June 2012, PT Sharp Electronics Indonesia increased their investment in the country, investing Rp 1.2 trillion in the construction of their third plant in Karawang, West Java, on an area of 31 hectares. The plant will hire 1,200 workers. Finally, Foxconn planns to build a new factory in Indonesia, with an investment of not less than US$10 billion.[24] In the middle of 2012, it was known that the new investment in the electronics sector would reach at least Rp. 1.2 trillion and expected to employ an additional 3,773 workers.[25]

Government policies to attract foreign investment in electronics

The electronics industry in Indonesia has experienced various policy changes, the latest giving priority to efforts to attract direct foreign investment and allow Indonesia to ente the global supply chain and marketplace. The establishment of a global supply chain - as a strategy to spread and coordinate the production process for capital accumulation- in exploitative relationships, requires the state to be a production base to implement the open-door policy for the entry of

international corporations.

In implementing these policies, the state has been forced to reduce their intervention and structural barriers to the entry of foreign capital. The ultimate goal is to expedite the exploitation of their comparative advantages, such as abundant and cheap natural resources and the supply of cheap labour. In this context, the first policy issued by Soeharto as soon as he took over the presidency was to provide a new base for the entry of foreign investment, through the Foreign Investment Law No. 1/1967, that was then was being refined to stimulate foreign investment. These included giving the tax-free period for companies that meet several categories, such as large-scale capital investments and the introduction of high-tech production, of which the electronics industry is included.

Later in 1978, in order to strengthen the structure of the electronics industry and address the issue of the high percentage of imported components used locally, government implemented the *Deletion Program* policy. The policy prohibited direct imports of electronic components. Imports can be done only by manufacturers that built factories in Indonesia. Otherwise, the government would not allow them to enter Indonesian market. This encouraged brand-holding companies to attract component-suppliers to Indonesia. The policy was then strengthened by the issue of the May Package of 1990, which reduced the tariff on imports of component inputs for future electronics goods exports to 0 -5 percent.

Furthermore, since 2008, the government has officially designated the electronics industry as one of the six priority industries. This was shown with the issue of Presidential Decree No. 28/2008 on National Industrial Policy which was then levelled down into the Road Map for the development of clusters of those six priority industries. One of the long-term development goals (2020 and 2025) contained in the road map for the electronics industry has made Indonesia the most attractive country for foreign investment, and a production base for components for the global electronics industry.

Within this framework, the government has been attempting to run capital-friendly policies to create a more competitive business climate through the provision of various incentives for foreign investment which are superior to other countries. Additional plans

call for the establishment of other supporting targets, such as the development of job training centres in electronics, and improvement on technology transfer through the assistance of transnational corporations.[26]

These policies give a picture of the dependence of developing countries on transnational capital inflows, and these countries continue to compete with each other to attract investment by offering a variety of facilities for capital, including providing an abundance of cheap and exploitable labour.

Industrial relationship policies

Various government policies within the framework of liberalization to attract direct foreign investment (including in the electronics sector), cannot be separated from government policies on labour issues. In this case, especially government policies aimed at establishing peace and political order, run through the deployment and strengthening strategy of state-apparatus, especially with mobilizing military intervention in labour issues and producing mechanisms and labour regulations in order to run politics of control. This has been going on since the New Order Era, when the central feature of the New Order's political power since the beginning was a very strong control on all mass-based organizations, including trade unions that were politically active in the past.[27] The politics of control were part of the accommodation politics of labour-capital-state in the New Order era which aimed to stabilize the massive industrialization process driven by the inflows of foreign investment

The fall of Soeharto appeared to open the door to freedom of association, but at the same time it brought some rapid industrial relations arrangements in favour of capital. Within the arrangement framework, the government issued a package of three Labour Laws: These were Law No. 21 Year 2000 on Trade Unions / Labour Unions (Law No. 21/2000); Law No. 13 Year 2003 on Manpower (Labour Law No. 13/2003); and Law No. 2 of 2004 on Industrial Relations Dispute Settlement (Law of PPHI No. 21/2004).

These three laws represented the liberalization of labour, while the state increasingly relinquished its responsibility. The state has been positioned as supervisors and advisers only in the process of mediating

labour conflicts, with no authority or responsibility to support labour, who are economically and politically clearly in the weakest position when dealing with employers. At the same time, the mechanism of industrial dispute settlement was left to market mechanisms. This is a bipartite arrangement in which the workers' position is obviously not equal to the employer's. During this period, military intervention was no longer a threat, nor was the state's protection of the workers available.

The absence of the state in the settlement of industrial relations conflicts is clearly visible in the new labour justice system, PHI (Industrial Relations Court), and it has structurally weakened the position of workers in the settlement mechanism of industrial relations conflicts. For workers, the PHI is an adverse court system due to the greater expense as well as its long legal process that can take up to three years for a single court decision.

Since the Labour Law No. 13/2003 legalized the contract-based and outsourcing system, the practice continues to expand. In 2012, there were at least 12,000 outsourcing companies. Of these, only 6,300 companies are registered with the Manpower Ministry with reportedly 338,505 workers, while the rest, 5,700 companies, are not registered. It is known that the profit reached Rp 3.7 trillion.[28] The mushrooming of outsourcing businesses meant a reduction in the number of permanent workers. According to the ILO report (2012), from 2006 to 2011 the number of full-time workers in Indonesia continued to decline, and now represents only 35 percent of all workers in the formal sector.[29] Meanwhile, in the electronics sector, particularly in Bekasi area, the board of FFSP LEM KSPSI Bekasi said that currently at least 65 percent of electronics sector workers in Bekasi are employed on a contract basisd or outsourced worker status.[30]

Along with the robustness of the flexible labour market, there has also been an expansion of union-busting practices, one of which is to set up a puppet union, coupled with intimidation of workers and the criminalization of the union boards. In late 2012, the author has witnessed that the patterns of union busting through intimidation and criminalization of union activist have been strengthened and become more aggressive. Employers have hired local thugs to terrorize and assault trade union boards and union members, running "devide et

impera" politics between trade unions, as well as between labour unions and the local people living near the factories. In addition, employers are also increasingly expanding anti-union doctrines by repeatedly labelling the unions as the culprit of conflicts that caused investors to flee and caused workers to be laid off. These union-busting practices were seen in some cases in Bekasi, including in Samsung Electronics Indonesia and its supplier companies.

III. Case Study: Samsung Electronics Indonesia

Profile of Samsung Electronics Indonesia

Samsung started its operations in Indonesia in 1991 as part of its business expansion into developing countries in Asia, an investment campaign started just a year earlier. Indonesia is the second country which was targeted after Samsung established a plant in Thailand in 1989. Samsung's entry into Indonesia was through a business license from Indonesia's investment body (BKPM), under the name of PT Samsung Metrodata Electronics.

In 1992, Samsung set up its plant in the industrial area of Jababeka, Cikarang (in the Bekasi municipality, West Java province) and in 1993 established its refrigerator factory in Surabaya, East Java. The two factories were set up as 50-50 joint ventures with a domestic electronics company, PT. Maspion. The joint venture arrangement was a necessity as there was a government regulation that every foreign investor should collaborate with a domestic company for a certain period. In 1997, when the requisite period of the joint venture expired, the Samsung factory in Cikarang became wholly owned by Samsung, while the plant in Surabaya became 100 percent owned by PT. Maspion. With this change in the ownership structure, the name of the company was changed from PT. Samsung Metrodata Electronics to PT. Samsung Electronics Indonesia.[31]

PT. Samsung Electronics Indonesia (hereafter referred to as Samsung) produces a variety of finished electronic products, such as TV plasma / LEDs, LCD TVs, DVDs, home theatres, TV satellite

dishes, CRT monitors and Blue Rays. All products of this Samsung factory are finished products, meaning that Samsung does not produce raw materials to be used as electronic components. Almost all the production activities in the Samsung factory involve assembling the finished product. The only Samsung product other than finished products is a type of TV tube frame, made to order for LG Electronic Indonesia (LGEIN). More than 70 percent of the products of Samsung factory are exported to almost 80 countries across Asia, Mediterranean Asia, America, Europe, and Australia (Sydney and Fremantle).[32]

In 2012, Samsung set a sales target in Indonesia of US$1.5 billion, with the biggest sales contribution expected to come from mobile phones and tablet products, as well as household electronics products. The target of Samsung Indonesia was to contribute at least 1 percent of Samsung's global revenue and became the second largest revenue contributor in the Southeast Asia region. In 2011, Samsung's sales in Indonesia were the third largest in Southeast Asia, and accounted for around 0.5 percent of Samsung's total worldwide revenue of US$145.2 billion.[33] This Samsung factory managed to earn a profit of Rp.125 trillion (US$12.6 billion) in 2011.[34]

The Samsung factory is located in a densely populated industrial city in Cikarang, Bekasi, West Java, an industrial city that contributes nearly 70 percent of the nation's export production.[35] In this region, there are more than 4,500 companies, of which 2,500 companies are located in six major industrial estates.[36] One of those large industrial estates is Jababeka, where the Samsung plant is located.[37] Jababeka Industrial Estate with an area of more than 1,570 acres, and housing more than 1,400 local and multinational companies from 29 countries employing 600,000 workers, is the most densely populated industrial area in Indonesia.[38]

During 2009-2012, labour unions held several rallies in this industrial area. The Bekasi region became the centre of the national strike action that took place on 3 October 2012. During that strike, labour unions succeeded in paralyzing several important industrial areas simultaneously.

Samsung Electronics Indonesia (SEIN) Bekasi, West Java				
Number of workers	**Working Condition**	**Occupational Illness Victims**	**Key issues**	**Recent cases**
Around 2,800, of which 70% are migrants, mostly from Central Java and Sumatra; 800 workers are outsourced workers and 800 others are contract; 80% of workers are women aged between 20-25	In the warehouse section, most common accident is fingers caught in the packing machines, requiring several workers to undergo amputations	During 2010-2012, three workers in PCB plaque washing section died from pneumonia due to their extreme exposure to chemicals. In 2011 one worker died, crushed between containers.	Student workers (apprentices) have been working like other workers, eight hours a day and often being forced to work overtime, yet receive apprentice wages of only US$ 30 a month	Union busting: there was an effort to set up an independent trade union in 2012. The union was formally registered with Ministry of Labour in Bekasi district and accepted in early November 2012 after months of struggle. However, a few weeks later several key union leaders were dismissed for this effort. More than a hundred members and workers supporting this union were also terminated.

Source: Interview with workers at Samsung Electronic Indonesia

Samsung's supply chain in Indonesia

There are at least 80 companies supplying Samsung's Indonesia operations. However, we have been able to identify only 28 of them as of this writing. Of the 28 companies, 22 companies are electronics manufacturing service (EMS) companies and six are non-EMS

companies, handling packaging, styrofoam manufacturing, and instruction manual production. Of the 22 EMS companies, 20 of them are direct supplier companies and the remaining two are indirect supplier companies.

The 20 EMS companies directly supply Samsung with various components of the TV (plasma, LCDs), DVDs, and home theatre units. Of the 20 companies, 14 supply various components for DVDs, four companies for TVs, one for home theatres, and four companies for DVDs, TVs and home theatres together. Of the fourteen companies that supply components for DVDs, at least two companies are major suppliers in the supply chain of Samsung, namely PT. Dae Young Indonesia and PT. Starlink Indonesia. Dae Young supplies components such as the main base, disc tray, slider cam and interior gears, while Starlink Indonesia supplies components such as Traves decks (containing DVD optic interiors), PFC (power factor correction) devices, and switch wires.

Of the four supplier companies that supply components for plasma and LCD TV products, two are major suppliers in the supply chain of Samsung TV production, namely PT. Samindo Electronic and PT. Sun Joo Enterprise Indonesia. The two companies are interrelated in their production process. Apart from supplying switch module power supply units (SMPS), which is the main component for LCD and LED screens, Samindo also supplies printed circuit boards (PCB) and Assy, one of the components in the PCB and which is one of the essential components in the SMPS. Sun Joo provides front and power SMPS, of which the main components are supplied by Samindo.

In all, 89 percent or 25 supplier companies of Samsung are located in Bekasi, and 23 of them are inside the six largest industrial estates in Cikarang, Bekasi region. There are 12 companies located in the Jababeka Industrial Estate, six companies in the MM2100 Industrial Estate, three companies in the Bekasi International Industrial Estate (BIIE), and one in Silicon Delta Industrial Estate, one in the Boston Techno Park Industrial Estate and one in the Hyundai Industrial Estate.

At the same time, 75 percent of these supplier companies come from South Korea and are all located in the Cikarang Industrial Area. From this data, it is obvious that Samsung chooses Korean supplier companies located in Cikarang: In addition to being a strategy or means

to efficiently integrate the supply chain, it is also the result of a policy that prohibits direct import of electronic components. From all this, it can be concluded that almost all of the components used by Samsung are made by suppliers who have established their factories in Indonesia. By concentrating their supply chain network in Cikarang area, Samsung is effectively controlling the production process. This integrated supply-chain has also reduced the transport cost from one production site to another.

Samsung has also developed a strategy of diversification of supply chains. There are some similar components being supplied by multiple suppliers simultaneously, such as PT. Samindo Electronic and PT. Shibaura Shearing Indonesia that supply main PCBs for the TV products. Likewise, PT. Wooin Indonesia, PT. Korean Star Industry, and PT. Samooin Indonesia supply the main PCBs for DVD products for Samsung. This strategy is to decrease Samsung dependency on a single supplier, as well as to ensure competitiveness among its suppliers. All these measures can be seen as good business practices, but due to the tremendous support Samsung has received from local governments, it has gained significant leverage over its suppliers and at low cost.Not all the supplier companies have equal bargaining power with Samsung as they have different scales of orders. For example, companies such as Samoin have a smaller dependency level on Samsung as compared to Samindo, since most of Samoin's production is intended for direct export to its parent company in Korea which is not a member of the Samsung Group. This power relationship has a large impact on the manner in which Samsung can dictate and pressurize its supplier companies to bust union activities.

List of Suppliers of Samsung Electronics Indonesia

NO	COMPANY NAME	LOCATION	MAIN PRODUCTION	RECENT CASES
1	PT. Dae Young Indonesia (Korean owned company)	Industrial Estate of Jababeka, Cikarang, Bekasi	Switch lamps, DVD Deck Assy; control panels, main base, tray disc, slider cam, and some gears for DVD Samsung	Contract workers' wages below the minimum wage; intimidation of union leaders and union members.

2	PT. Starlink Indonesia (local) --- Subsidiaries: PT. Gemplast, PT. Subur, PT. Aditex, PT. Bumi Technology	Industrial Estate of Jababeka, Cikarang, Bekasi	DVD components, power factor correction (PFCs), and switch wires	Experienced factory raid, twice; experienced union busting with intimidation and physical violence
3	PT. Wooin Indonesia (Korean owned company)	Industrial Estate of MM2100, Cikarang, Bekasi	Main PCBs and main power supply for DVDs	Experienced factory raid. Occupied outsourced workers illegally
4	PT. Star Korea Industry (Korean owned company)	Industrial Estate of MM2100, Cikarang, Bekasi	Main PCBs for DVDs	
5	PT. Kepsonic (Korean owned company)	Industrial Estate of BIIE (Bekasi International Industrial Estate), Cikarang, Bekasi	Home theater speakers, deck and other components for DVD players	Union busting with intimidation and violence
6	PT. Shin Heung (Korean owned company)	Industrial Estate of BIIE (Bekasi International Industrial Estate), Cikarang, Bekasi	Top covers, cover decks, and bottom chassis for DVDs	Union busting with intimidation and violence
7	PT. Jaehyun Indonesia (Korean owned company)	Industrial Estate Boston Techno Park, Cikarang, Bekasi.	Front panel for DVDs; set top boxes for DVDs	Union busting with intimidation and violence
8	PT. Dongyang (Korean owned company)	Industrial Estate MM2100, Cikarang, Bekasi	Wafer PCBs for DVDs	
9	PT. Sistek (Korean owned company)	Industrial Estate Jababeka, Cikarang, Bekasi	Deck Assy for DVDs	
10	PT. Yong Shin (Korean owned company)	Industrial Estate Jababeka, Cikarang, Bekasi	Top covers, cover decks, and bottom chassis for DVDs	Employing outsourced and contract workers illegally; union busting with intimidation and physical violence

11	PT. Jitech (Korean owned company)	Industrial Estate Jababeka, Cikarang, Bekasi	Transistors for DVDs	Employing outsourced and contract workers illegally; union busting with intimidation and physical violence
12	PT. Sunshine (Korean owned company)	Industrial Estate Hyundai, Cikarang, Bekasi	Front panels for DVDs	Employing outsourced and contract workers illegally; union busting with intimidation and physical violence
13	PT. Samoin (Korean owned company) -- Besides supplying SEIN, most products are exported to parent company in Korea	Industrial Estate Jababeka, Cikarang, Bekasi	Main PCBs for DVDs, and spindle motors or DVD disc players	Union busting with intimidation and violence; workers raid the factory; CBA recently sgned
14	PT. Surya Multindo Industri and Samjin Electronic Indonesia (Korean owned companies) -- Est. Samjin Electronic, Co. Ltd in 1993, changed into the technical operation of Samsung	Industrial Estate Jababeka, Cikarang, Bekasi	DVD remote controls and Samsung's tube TVs	
Suppliers for LCD TV and LED Samsung				
15	PT. Sun Joo Enterprise Indonesia (Korean owned company)	Industrial Estate of Jababeka, Cikarang, Bekasi	SMPS (switch module power supply) for Plasma TV monitors and LCDs	Employing outsourced and contract workers illegally; experienced union busting with intimidation and physical violence

16	PT. Samindo Electronic (Korean owned company) -- Supplying Assy (one component in switch module power supply or SMPS) for Sun Joo, that supplies SMPS to SEIN	Industrial Estate of BIIE (Bekasi International Industrial Estate), Cikarang, Bekasi.	Main PCBs (printed circuit board); Assy, switch module power supply (SMPS) for TVs	Employing outsourced and contract workers illegally; experiencing union busting with intimidation and physical violence
17	PT. M-Sonik	Industrial Estate of MM2100, Cikarang, Bekasi	TV speakers	
18	PT. Shibaura Shearing Indonesia (Korean owned company)	Industrial Estate of MM2100, Cikarang, Bekasi	Main PCBs for TVs	
Suppliers for TV, DVD, and Home Theatre				
19	PT. HIT Electronic Indonesia (Korean owned company) -- Other than those produced by PT. HIT, some power cord components are imported from Thailand and China	Industrial Estate Delta Silicon, Lippo Cikarang, Bekasi.	Power cords for TVs, home theaters and DVDs	Union busting
20	PT. Celebit Circuit Electronic Indonesia -- Supplying Samsung remote controls for PT. SMI and Samjin	Rancaekek, Bandung, West Java	PCBs for TVs and DVD Samsung remote controls	

Suppliers for Home Theatre				
21	PT. Bungjin (Korean owned company)	Industrial Estate Jababeka, Cikarang, Bekasi	Home theater speakers	Employing outsourced and contract workers illegally
Suppliers of non-Electronic Manufacturing Services for all products of Samsung Electronics Indonesia				
22	PT. Taewoon Indonesia (Korean owned company)	Industrial Estate of Jababeka, Cikarang, Bekasi.	Packaging, TV boxes	
23	PT. EPS (Expanded Polystyrene Foam) -- Supplying for LG	Tangerang, Banten	Packaging (Styrofoam)	
24	PT. Dawee Electronic Indonesia (Korean owned company)	Industrial Estate of Jababeka, Cikarang, Bekasi	Packaging	Employing contract and outsourced workers illegally; union busting through intimidation and physical violence; workers raid the factory
25	PT. Shin-woo Global Indonesia (Korean owned company)	Industrial Estate of MM2100, Cikarang, Bekasi	Operating manuals	Employing outsourced and contract workers illegally; workers raid the factory
26	PT. Gramedia Printing	Cikarang, Bekasi. Outside the Industrial Estate. Indonesia	Packaging, TV boxes	Experienced factory raid; Employing outsourced and contract workers illegally
27	PT. Fajar Surya Wisesa/Fajar Paper	Cikarang, Bekasi (outside the Industrial Estate)	Packaging	
Suppliers for Samsung Global (hand phone). Special Case				
28	PT. Longvin (China-owned company) -- Supplying Samsung factories outside Indonesia	Sukabumi, West Java	Ear phones, handsets, mobile phone speakers (for export market)	Union busting; 6,000 outsourced and contract workers - 80% of them women; when refused negotiations for another contract, strike held, after which all of them fired from their jobs

Working conditions at Samsung [39]

Currently, Samsung has 2,800 workers of which nearly 70 percent of them are migrants, mostly from Central Java and Sumatra Island. Out of these 2,800 workers, 800 are outsourced workers and 800 are contract workers.[40] Nearly 80 percent of the workers are women aged between 20 and 25 who have been working two to five years in that factory.

One of the key issues in Samsung is the employment of outsourced and contract workers who experience various forms of discrimination as compared to the permanent/regular workers. These include lower wages, no bonuses or other benefits such as good attendance bonus, meals, and transportation allowances. They also have different work uniforms. Furthermore, most of the outsourced workers in Samsung have never signed a work contract, either with Samsung or with the outsourcing company.

Health and Safety Compromised, Four workers died since 2012

Workers at the PCB plaque washing section, who work every day for at least eight hours, are in contact with liquid alcohol, and are equipped only with rubber gloves and a fabric-mask as protection. They are not provided with the use of special equipment through which exposure to liquid alcohol can be avoided. Many workers in that section complain of dizziness and nausea, and have sore eyes. During the period 2010 - 2012, three workers in this section died from pneumonia. As of this writing, there has been no investigation to determine whether the cause of that lung disease was exposure to 100 percent alcohol. These three workers were outsourced workers who had worked for an average of ten years in the PCB plaque washing.

Workers in the soldering section inhale fumes generated from the solder every day, equipped only with a thin cloth mask which does not stop the fumes. Many workers in this section often have a bad cough, some contracted pneumonia, though again a company investigation has never been done to understand whether it was the result of inhaling soldering fumes. In the in-house warehouse, workers inhale dust from cardboard and Styrofoam every day equipped with only with a mask and gloves. Many workers in this section often get coughs, two workers in this section who went to the doctor were found to have spots on their lungs on being x-rayed.

The most common accidents in the warehouse were fingers being cut off as they slipped in the packing machines. In 2011, in an incident at the warehouse, a worker was crushed between containers and died.

Samsung uses two companies to recruit and employ outsourced and contract workers - PT Pro RSM, owned by staff employed in the department of Human Resources Development (HRD) at Samsung, and PT SPA (Synergy Powerindo Abadi) owned by Samsung's production director, who also has a vocational school in Bekasi. This school has been used to train and send apprentices to the Samsung factory. The students would be recruited as outsourced and contract labour after their graduation. The apprentices recruited from the school are between 17 and19 years of age, and in practice work as much as the regular workers. They work eight hours a day and are often forced to work overtime, but they only receive the apprentice wage of US$30 per month.

This practice of PT SPA has ensured that Samsung has a steady stream of trained outsourced and contract workers from the apprentices' level itself. This even can be seen as a strategy of Samsung of using some employees at the management level to ensure the availability of labour, without being bothered with the recruitment process of outsourced and contract workers.

Samsung has also introduced a 'target' system and increases the target number every year. A division has been established to evaluate the achievement of their annual targets, by using a special machine that can assess the efficiency (productivity) of each worker in the production division in completing one unit of work. In this way the target rate can be increased continually. In 2012, for the blue ray production, a working group consisting of 12 people along with a robot was supposed to produce 4,000 units in each eight hour shift including the packing process. This means that one set must be completed in no more than 7.5 seconds. However, in practice, this target is never fixed and only applies to normal conditions. The target can be raised or lowered depending on the number of the orders received.

Unionisation in Samsung and its suppliers' companies

In the supply chain of Samsung that we were able to trace out, trade unions were successfully formed in 17 out of 28 supplier companies of Samsung. Out of these 17 labour unions, 13 of them or 76 percent are affiliated with the Federation of Indonesian

Metal Workers' Union (FSPMI), two unions are affiliated with the Communication Forum of All-Indonesian Workers Union (FKI-SPSI), one to the Federation of Metal, Electronics and Machinery Workers' Union of KSPSI (FSP LEM KSPSI), and another one in a supplier company of Samsung (PT Longvin, producing for export only) to the Association of Independent Labour Unions (GSBI). Five unions at the supplier companies of Samsung that are located in Cikarang occupied the factories, demanding the abolition of employment of outsourced labour. Three of them are affiliated to the FSPMI, one to the FKI-SPSI, and the other one to the SPSI Bekasi.

From this, it can be seen that labour unions have established a presence in the supply chain of Samsung and of those unions 76 percent are affiliated to the FSPMI. In addition, since Samsung's supply chain is concentrated in Cikarang, it has been the most affected by the widespread rallies of labour unions in the region, which has also affected the production of Samsung. In addition to the establishment of labour unions in Samsung's suppliers, the growing number of labour rallies in the industrial areas of Cikarang has enraged Samsung and driven it to suppress unions in some supplier companies as well as in Samsung's own plant.

One of the methods of companies used to suppress labour unions is allegedly to hire local thugs to intimidate, terrorise and physically attack members and the boards of the labour unions. In addition, Samsung has also practised the strategy of divide and rule among the workers in the communities around the factory. All of these are seen as attempts by Samsung to secure their supply chain in order to operate steadily and at low cost.

Union busting in Samsung and its supply chain

On 21 October 2012, around 200 workers of Samsung Electronics (SEIN), mostly outsourced and contract workers, boldly set up a trade union. The union then formally registered itself under the Union Act in the Labour Ministry in Bekasi district a month later. Despite affiliating itself with the Federation of Indonesian Metal Workers, the union did not last long: all the leaders and members were soon dismissed and many of them were harshly threatened.

Almost all of the eight labour unions of FSPMI that were established in Samsung supplier companies experienced union-busting tactics, including intimidation, work place rotation and lay-offs, in addition to various subtle ways, such as providing a certain 'package' as compensation for the boards of the unions to resign. As of this writing, it has been strongly suspected that Samsung was behind these union-busting efforts, by urging the supplier companies to suppress unions coupled with threats of reduction or even discontinuation of orders. However, the effect of Samsung's pressure on each supplier company has not been the same. This is influenced by the level of dependency of each supplier company on orders from Samsung and at the same time by the strength of the unions.

For example, as reported by a union leader, Samsung's pressure on the management of Samion to suppress the labour union looked ineffective. The management of Samoin was more receptive to the union's pressure than to Samsung's threats. This is signalled by the labour union's demand and the management's willingness to discuss a collective bargaining agreement (CBA).[41] Aside from the union's strength, this is also influenced by the level of dependency of Samoin on only small orders from Samsung, since most of the production of Samoin is being exported directly to their parent company in Korea. Unlike Samoin, the management of Samindo, because of their greater dependency on Samsung's orders, has been pressurised to suppress the labour unions. It can be seen in Samindo's agreement to give a special package to union members to resign. This strategy proved successful.[42]

From the 17 supplier companies of Samsung that have labour unions, there are reports of violations of workers' rights, including the practice of employing outsourced and contract workers illegally and paying these workers below the minimum wage. It can therefore be assumed that in the other supplier companies of Samsung, where there are no labour unions, similar offences have occurred. Further, this shows that in every supply chain system, there are various forms of exploitation of labour. When Samsung demands their supplier companies reduce their prices, the supplier companies will reduce their production costs, including reducing wages and violating workers' basic rights.

Challenging the corporate-state collusion: Workers march to raid Samsung factory

On 19 November 2012, the FSPMI union decided to mobilize workers to raid Samsung's factory in protest of the company's union busting program. That morning, the atmosphere around the industrial area of Jababeka and EJIP was very tense. Hundreds of thugs were deployed on the site and allegedly instructed by the management: They were seen wandering around raiding cars and motorcycles and carrying a variety of sharp weapons. At the same time, 10,000 union members who had intended to go to the factory to raid it, were unable to move and were concentrated in the surrounding areas of the union secretariat called '*Rumah Buruh*' (Workers' Home), the rallying point inside the EJIP area. Most of the workers were also equipped with various objects to be used as weapons, ranging from wood bats, bamboo sticks, and iron pipes. Around the workers, there were hundreds of anti-riot police with trucks, water cannon cars, tear gas launchers and guns. They dispersed the workers away from the Samsung factory. In fact, the police had been on guard in that area around the Samsung plant for a few days before this action.

Chaos broke out in the late afternoon when the workers were finally able to break the police circle that was teargasing them. They chased a group of thugs who were at the closest position and gathered behind the police cordon. But it did not get worse as those groups of thugs fled the scene. By the end of the day, when the thugs started to withdraw, the workers headed for home. However, on their way out, two workers were stopped and abused by a group of thugs. But none of the suspects were arrested by the police. FSPMI union then protested the police.

The factory raid that day did not reach Samsung factory. However, this plan, to raid the Samsung factory, involved and mobilized people, the biggest mobilization in an intended factory raid ever. Thousands of workers got involved, despite the knowledge that they might get injured or even lose their lives dealing with trained thugs. The sense of common cause and a love of the union encouraged them to join and get involved. The factory raid that day, and several incidents of attacks by thugs, has increasingly indicated that Samsung, as a manifestation of transnational

capital, had used local bandits as their shield in dealing with the union's struggle for their rights. In the case of Samsung, it was seen clearly how the state-actors, particularly the national police, got involved in protecting the interests of capital, even after seeing with their own eyes how Samsung had used violent practices in its efforts to display the union. But no action was taken but to guard and build a shield to protect Samsung.

Following this, on 5 December 2012, workers from the same union went on strike in front of the South Korean Embassy along with the alliance unions of the Council of Indonesian Labour (MPBI). They demanded that the Korean Embassy take the necessary action to punish Korean companies that violate national laws. The workers also demanded the embassy urge Samsung to immediately reinstate union members who had been terminated from their employment and to stop hiring thugs. The union also warned that they would call a national strike again if no immediate action was taken against Samsung.

The representatives of the South Korean Embassy promised to take action against the management of Samsung. However, none of the members of the Samsung union were reinstated and the Samsung independent union was completely banned. There has been a long struggle against the brutal attitude, and anti-union principle and history of Samsung in this country, and the state has never sided with the workers. The state seems to be totally helpless when faced with the many forms of exploitation of their own citizens by capital. Until this report is being written, there has not been follow up to the union busting and other violations that the management of Samsung Electronics Indonesia has done.

Endnotes

1. I would like to thank Sherr Rinn (Sarinah), who has helped me in conducting this research. I dedicate this report to all those who have been struggling to form a labour union in Samsung Indonesia. My special thanks and respect to Zul and Za, two union leaders who sacrificed their job for workers' struggle.
2. Available online: http://brianshall.com/content/aapl-about-explode-because-apple-low-price-leader-yes-apple

3. Panimbang, Fahmi, *Rantai Pasokan Global dan Strategi Gerakan Buruh* (Global Supply Chain and the Strategy for the Labour Movement), Indoprogress, Vol. III 2013.
4. *Ibid.*
5. Lesmana, Teddy, *Dinamika Pembangunan Industri Elektronika dalam Era Globalisasi* (The Dynamics of Electronics Industry in the Era of Globalization). LIPI, 2006, p.163.
6. Pangestu and Wie, 1998, in: ibid, 164.
7. *Elektro Indonesia Journal* Number 8, Vol II, December 1995. Available online: http://www.elektroindonesia.com/elektro/no8a.html
8. Lesmana, *op.cit*, , p.165
9. *ibid.*
10. Lesmana , *op.cit*.
11. The first layer includes design and technological invention, second layer is semiconductors, third is componentst, and fourth is final product assembly. See Lesmana, *op.cit*, p.59
12. *Ibid*, p.60
13. *Ibid*, p.61
14. See Book 4: Prioritas Industri Elektronika dan Telematika (Priority of Electronics and Tele-math industry) , Deperindag, 2009
15. See http://www.bsn.go.id/files/1704711/genapsnibuku/BAB_14.pdf
16. See http://rri.co.id/index.php/detailberita/detail/20387#.UE-WFlEbYyE
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19. *Ibid*.
20. BKPM (Investment Coordinating Body), available online: http://www3.bkpm.go.id/file_uploaded/public/PMA-SEKTOR-1.pdf
21. *ibid*.
22. See http://www.duniaindustri.com/berita-industri-elektronik-indonesia/271-epson-buka-lowongan-5000-tenaga-kerja.html
23. See http://www.duniaindustri.com/berita-industri-elektronik-indonesia/702-elektronik-serap-investasi-rp-99-triliun.html
24. See http://www.tempo.co/read/news/2012/08/03/090421158/Foxconn-Siap-Bangun-Tiga-Pabrik-di-Indonesia
25. *ibid*.
26. See Book 4: Prioritas Industri Elektronika dan Telematika (Priority of Electronics and Tele-math industry) , Deperindag, 2009.

27. Hadiz, Vedi R, *Workers and the State in New Order Indonesia*. Routledge: 1997, p.61.
28. Asosiasi Bisnis Alih Daya Indonesia (Outsourcing Business Association), 2012, available online: http://finance.detik.com/read/2012/11/09/155030/2087380/1036/duh-5000-an-perusahaan-outsourcing-beroperasi-secara-ilegal
29. ILO, 2012.
30. Interview with Heri, LEM SPSI, 10 October 2012.
31. In addition to setting up manufacturing plants in Indonesia, Samsung has two other businesses, namely PT Samsung Sales and PT. Asuransi Samsung Tugu (insurance company) which are jointly run with Indonesia's state-owned oil company PT. Pertamina.
32. Based on an interview with an employee of Samsung.
33. See Samsung Annual Report 2011.
34. See http://kbr68h.com/saga/77-saga/41072-serikat-buruh-samsung-dipasung
35. See http://megapolitan.kompas.com/read/2012/10/03/11225226/Kawasan.Industri.Dilumpuhkan
36. See http://disperindag.bekasikab.go.id/data/kawasan
37. Some of them are MM2100 Western Cikarang, Jababeka City, Bekasi International Industrial Estate (BIIE) or the Hyundai Industrial Park, East Jakarta Industrial Park (EJIP) and Delta Silicon Industrial Park. See: http://disperindag.bekasikab.go.id/data/kawasan. Many foreign companies from Singapore, USA, Germany, Korea, Japan, China, Malaysia, Taiwan and the Middle East are located in Cikarang industrial estate.
38. See http://www.jababeka.com/company/1/history
39. Based on interviews with union leaders of Samsung's independent union who were laid-off soon after forming an independent union at the Samsung factory.
40. In Indonesia, an outsourced worker is a production line worker hired through an employment agency. The hiring company, in this case Samsung, does not directly hire the worker. The worker remains the employee of the employment agency and is temporarily contracted to work at a Samsung plant. Thus Samsung is not responsible for the social security payments of the worker or providing the worker with medical insurance, paid holidays, paid sick leave or any other benefits provided to regular workers as required by law. And importantly, in practice the employment agency which contracted out this worker does not provide

him or her with any of those benefits either. Meanwhile, a contract worker, one level 'better' than outsourced one, is a production line worker hired by the company but unlike the permanent/regular workers,does not get any benefits – more or less like outsourced worker, but they just get little more wages and are directly hired by the company. Therefore, an outsourced worker is paid less than worker contracted directly by the company, and the contracted workers are paid less than the regular ones. The practice of using a large number of outsourced workers, contract workers, and recent graduates (e.g. apprentices and trainees) as full time workers who are usually paid less than the minimum wage puts tremendous downward pressure on the wages of all workers.

41. Interview with a union leader at PT Samoin
42. Email interview with FSPMI national leader, 5 January 2013.

Photo by KHIS

Photo by LIPS

Workers in the Supply Chain of the Electronics Industry in India

By Surendra Pratap

I. Political economy of manufacturing and electronics industry in India

The role and overall dynamics of the electronics industry in India can be understood by situating it in the broader context of the problems of India's economic development and the strategies adopted to resolve these problems within the framework of the new international division of labour created by the new global politico-economic regime.

India is the fourth largest economy in the world, accounting for 4.6 percent of the world's GDP. However, its per capita GDP is one of the lowest at US$1,389 and ranked 140th in the world. This is significantly behind China with a per capita GDP of US$ 5,414, and ranked 88th, and Southeast Asian countries, such as Thailand (US$5,394 and ranked 90th), Indonesia (with US$3,509 ranked 110), and the Philippines (with US$2,223 ranked 126th) and also South Asian countries, such as Sri Lanka (with US$2,677 ranked 123th), and Bhutan (with US$2,121 ranked 127th).[1] The value of India's exports remains only at about 1 percent of the world's total exports.

Three major, interrelated problems behind this are India's overcrowded agricultural sector, its lag in the development of the manufacturing sector and technological backwardness. These problems are rooted in the country's colonial past, as seen in case of many other erstwhile colonial countries. As Prabhat Patnaik says, "This is a result of their colonial or semi-colonial past. Both China and India experienced de-industrialization in the sense of the destruction of their craft industries, and the throwing of large numbers of traditional craftsmen into the ranks of labour reserves that typically got located in agriculture,

but also spilt over into low-paid occupations everywhere in the economy in the so-called informal sector….By contrast, today's developed capitalist economies not only never had such labour reserves to contend with, but even succeeded largely in exporting any such reserves they had through emigration to the new world consisting of the temperate regions of white settlement."[12]

The resolution of this problem demanded a path of economic development based on thorough-going land reforms to promote peasant agriculture, on the one hand, and the expansion of labour intensive manufacturing and the development of indigenous technology on the other. This would have broken the vicious cycle hindering overall growth by absorbing the surplus population from agriculture and creating an effective demand for industrial goods in the vast rural areas. But the path of development followed in independent India was never directed towards this. All these factors, along with the factors of the global economic crisis of 1970s, pushed the Indian economy into a long-term crisis in the 1970s which was reflected in large-scale unrest throughout the latter half of 1970s and early 80s.

However, even after entering into the crisis, rather than addressing the root causes as described above, a completely different strategy was adopted, i.e., export-oriented economic development based on foreign direct investment (FDI) and fully opening the economy to the unrestricted entry of metropolitan capital and multinational corporations. This was also a need created by the new global politico-economic. In the phase of globalization and liberalization, particularly after 1990, the whole debate and struggle around alternative strategies of development was pushed to the background, and it became the mantra that only export-oriented development based on FDI could be the growth model for today. This was a phase in India's history, when a consensus on these anti-people, politico-economic policies was gradually and systematically formed among parliamentary parties of all shades, from left to right, and it was systematically and forcefully imposed on the people. It was justified by the TINA Syndrome-There Is No Alternative.

It is true that in this phase of globalization, the overall development of the Indian economy accelerated and it led to a transformation of the economy. But what is the nature of this development and and what is

the nature of this transformation? In what way is it going to resolve the crisis of the Indian economy?

In 1980, India and China had similar GDP and employment compositions. However, the outcomes of the past 30 years have shown not only a quantitative difference but also a qualitative one. The Indian economy has been transformed and it is no longer an agrarian economy: In terms of its GDP contribution, agriculture has been drastically cut from 38.1 percent in 1980 to 19.6 percent in 2005. However, this transformation, rather than making the country an industrial economy, has produced a service economy. The contribution of industry in general and manufacturing in particular to GDP has remained stagnant or recorded a slight decline, while the growth in services is tremendous, rising from 41 percent in 1980 to 61.1 percent in 2005. The GDP contribution of industry decreased from 20.9 percent in 1980 to 19.4 percent in 2005. On the other hand, during the same period the Chinese economy was transformed from an agrarian economy to an industrial economy with the contribution of industry to GDP in general rising from 33.6 percent in 1980 to 48.4 percent in 2005, and the GDP contribution of manufacturing in particular climbing from 25.4 percent in 1980 to 34.1 percent in 2005.[3]

Even after the Indian economy is transformed in terms of GDP contributors, it still remains an agrarian economy as regards employment. Even after the proportion of GDP from services increased dramatically, it absorbed only 24.8 percent of the total workforce and even when the GDP contribution of agriculture drastically declined; it still remained overburdened, supporting 56.5 percent of all workers, a huge majority of which remained marginal farmers and landless labour struggling for survival and dependent on agriculture.[4]

The Special Economic Zones Policy, providing huge incentives to investors, was a boost to overall economic growth attracting foreign investment and exports. However, in general it only aggravated the problems of skewed growth in favour of the services sector. There was no significant boost in the manufacturing sector. It is interesting to note that about 50 percent of the total 588 approved special economic zones were in the services sector and the huge majority of them were in the IT & ITES (Information Technology Enabled Services) sectors. FDI in electronics, including IT software sector, increased from US$9.7 billion

in 2009 to US$11.8 billion in 2011. However, the major share of these funds went to IT software, while electronics manufacturing received only a minor share.[5]

Moreover, the major share of foreign direct investment in Indian manufacturing came in the form of mergers and acquisitions, and therefore there was not much impact in terms of expansion of the manufacturing sector and the creation of additional manufacturing jobs. Particularly from the year 2000 onwards, mergers and acquisitions continued unabated, reached alarming levels. It was equally alarming in the electronics manufacturing sector as well.[6]

Despite the above dynamics of globalisation and liberalisation, the majority of manufacturing enterprises in India are still comparatively small and the huge majority of them are even not regulated by the *Factories Act*. They are referred to as unregistered units, or informal/ unorganised sector manufacturing units. These units are unable to advance technologically due to their small size and poor economies of scale. Additionally, they are generally run as sweatshops with the worst kind of working conditions. Moreover, 72 percent of total factories (units with 10 or more workers) employ less than 50 workers each and contribute only an 8 percent share of the economy's total net value added (NVA). Only 274 factories (0.18 percent) are creating employment in the range 5,000 or more jobs and contribute about 14 percent of the total NVA. However, in general the unorganized sector (units with less than 10 workers) dominates in terms of employment, and about 80 percent of manufacturing workers work in the unorganized sector.[7]

Moreover, due to the low level of technological development, the value added in Indian manufacturing is also very low. In some sectors, for example in electronics, the value added is as low as 5-10 percent. In general, the growth of the manufacturing sector still remains largely resource intensive. Total value added constitutes only 20 percent of the value of output in India's organized manufacturing sector. The ratio of material inputs to total value of output ranges between 58 and 65 percent and the respective range for fuel inputs is between 6 and 7 percent. In comparison with the United States, the proportion of value added in gross output is about 50 percent. Material inputs, which account for about two-thirds of the value of output in India, are

about one-third in the United States. Fuel inputs account for about 5 to 7 percent of the value of output in India as compared to merely 2 percent in the United States.[8] Currently the manufacturing sectors generating the greatest number of jobs are food-beverage-tobacco; textiles and apparel; and chemicals and primary metals. Computer and electronics products generate only 1.6 percent of total employment in manufacturing.[9]

It is against this background that the Indian state is currently focusing all its efforts to attract FDI in manufacturing and to promote the technological development required to upgrade manufacturing and increase the level of value-added in the sector. Supporting this development are an increased focus on the development of infrastructure, the initiation of a large number of technological institutes, increased allocation of the budget for science and technology, and the promotion of clusters of manufacturing industries. In addition, the New Manufacturing Investment Zones (NMIZ) policy has been framed to establish a large number of large-scale NMIZs along with special economic zones that are especially for exporting industries. The NMIZ policy is now in the process of acquiring huge tracts of land from farmers which will lead to the mass destruction of livelihoods in rural areas. At the same time, it is offering huge incentives to investors going beyond the special economic zones. In the first draft of the policy, there was a clause saying that the NMIZs may be exempt from all major labour laws. This clause has been removed from the final draft. However, it has not been made clear whether all labour laws will apply in NMIZs or not.

It is also against this background that the Indian state is focusing all its efforts to attract FDI in the electronics sector to boost electronics manufacturing. In all planning documents and policies it has again and again referred to the fact that electronics currently is the largest and fastest growing manufacturing industry in the world with global revenues of US$1.75 trillion and estimates of US$2.4 trillion by 2020, and that this sector provides the greatest opportunities to grow the country's manufacturing sector. India is still a small player in the global electronics hardware industry. India's output is only US$20 billion (2008-09), which is about 1.31 percent of global output and well below China's share of global electronic equipment production which

increased from 17 percent in 2004 to 33 percent in 2009.

The electronics industry's share of India's GDP is only about two percent. On the other hand, demand in the Indian market was US$45 billion in 2008-09 and is expected to reach US$400 billion by 2020.[10] The domestic market is expected to grow at an annual cumulative growth rate (CAGR) of 22-23 percent a year based on factors such as buoyant annual economic growth of 7-8 percent, a large and aspiring middle class of 350 million and the spread of telecommunications services to rural areas, all growth drivers which have emerged globally as well as in India. Within the next five years the penetration of telephone users (both landline & mobile) is projected to increase from 100 to 500 per thousand, while for personal computers (PCs) it will increase from 10 to 30 plus per thousand. As market penetration levels are low for all electronics products in India, this growth is expected to be sustained for the next 10 years and beyond.[11]

It is also argued in the state plans and policies that due to demographic reasons, India may emerge as one of the biggest future markets and also the biggest future manufacturing hub. It is argued that this demand is largely driven by youth with an average age of 25 to 28 years, and that in 2020, the average age in India will be only 29 years, compared with 37 in China and the United States, 45 in Western Europe, and 48 in Japan, and that 70 percent of Indians will be of working age in 2025, up from 61 percent now. According to the Indian Labour Report, 300 million youth will enter the labour force by 2025, and 25 percent of the world's workers in the next three years will be Indians.[12]

The gross manufacturing value added in the Indian electronics industry has been very low, anecdotally between 5 to 10 percent. This means that out of the demand of US$45 billion, between US$1-2 billion was value added in the country and the remainder was the cost of imported components. In value terms, the sector's imports are second only to the country's oil imports. If this situation continues, by 2020, electronics imports may exceed oil imports. It is to be kept in mind that electronics, as a "meta resource", forms a significant part of all imported machines and equipment, which are generally not classified under electronics, rather in their final sectoral forms, that is automobiles, aviation equipment, health equipment, media and broadcasting, defense

armaments, etc. Therefore, the total share of electronics imports may be far greater that presented in the data. At the current rate of growth, domestic production can cater to a demand of US$104 billion by 2020 and the remainder would have to be met by imports. This aggregates to a demand supply gap of nearly US$1,200 billion by 2020.[13]

Globalization and liberalization in India brought a boost to the IT and ITES sectors rather than to electronics manufacturing. The contribution of IT and ITES sector to national GDP increased from 1.2 percent in 1997-1998 to about 6.4 percent in 2010-2011. Its share of total Indian exports (merchandise plus services) has increased from less than 4 percent in 1997-1998 to 26 percent in 2010-2011.

The state is therefore specifically formulating policies and focusing on infrastructure development to attract FDI in manufacturing in general and electronics manufacturing in particular. The New Manufacturing Policy is promoting the establishment of a large number of huge NMIZs to attract FDI in manufacturing by offering attractive incentives and liberalized labour relations. On the other hand, the New Electronics Policy is being formulated to focus on progressively increasing domestic production to fulfil the requirements of strategic sectors, an appropriate combination of public sector and private sector involvement, setting up semiconductor wafer manufacturing facilities in India, setting up electronics manufacturing clusters with state-of-the-art support infrastructure, carrying out effective negotiations in the World Trade Organization (WTO) for market access for Indian industry in foreign countries and for the removal of trade barriers, etc. In the Indian electronics hardware manufacturing sector 100 percent FDI is allowed under the automatic route, along with duty relaxation and various schemes to provide tax sops.

One more aspect of the electronics industry needs a mention here. With the growth of the electronics industry in India the problem of E-waste is gradually emerging as a serious threat to the environment. According to the Central Pollution Control Board (CPCB) during 2005, 146,800 tonnes of e-waste was generated in the country, which was expected to increase to 800,000 tonnes by 2012.[14]

Growth of the electronics industry in India

The electronics industry was an insignificant segment of manufacturing in India before liberalization. Only after the opening up of the economy with globalization and the liberalization were serious policy initiatives taken by the Indian state to accelerate growth in the electronics industry, particularly with the clear intension of attracting foreign direct investment and boosting exports. The Indian electronics industry is broadly classified into two categories, firstly, IT Hardware & Electronics and secondly, software. Liberalization boosted growth in IT services in general. However, the growth in electronics manufacturing was not that impressive, and it is still lags behind the growth in services.

The production of IT (hardware and software) and electronics was worth about Rs150 million in 1960, and rose to Rs 8,900 million in 1981. The impact of liberalization can be seen partly after 1980 when IT and electronics production increased to Rs 94,344 million in 1991 and fully after 1990 when it increased to Rs 35,01,300 million in 2008. During the period 1991-2008, the electronics industry experienced an overall annual growth of 23.69 percent. However, as it was mentioned earlier, the major contribution to this growth derived from the software and services industry that grew at the annual rate of 40.63 percent during this period. Meanwhile, electronics hardware production experienced growth of only 14.34 percent. In fact, the production of electronics hardware as a proportion of total production in the electronics industry has been continuously declining. It declined from 45 percent in 2000 to 26 percent in 2008.[15]

Looking at the contribution of electronics manufacturing by sector, consumer electronics and communications and broadcast equipment are the major contributors. The share of each of these two top segments was at the level of 27-28 percent of total electronics manufacturing output in 2009-10. The share of computers, industrial electronics, components and strategic electronics was 13.1, 12.4, 12.2 and 6.3 percent, respectively.[16]

As stated in the introductory part of the paper, the size and scale of operation of the majority of electronics manufacturing units in India are small compared to global standards, and therefore it leads to diseconomies of scale in terms of cost advantages in production. This

also limits the scope for technological advancement and also the ability to adhere to supply commitments. However, in the recent decade particularly after 1990, it seems that this picture started changing and even if not very strong, a tendency of concentration of capital appears very clearly. As we have discussed in the introductory chapter that a significant portion of foreign investment in the manufacturing sector, including electronics manufacturing, was in the nature of mergers and acquisitions, this was one of the important factors leading to the concentration of capital. Moreover, losing in the competition after the opening up of the economy were a significant number of small-scale factories which were force to close down, and this also led to the concentration of capital. In line with the above trend, the number of electronics factories in the formal sector decreased from 1,591 in 1990-91 to 1,359 in 2005-06, and in the same period the number of workers engaged in electronics factories in the formal sector increased from 96,770 to 103,129.[17] Therefore, workforce-wise the average size of a factory grew from 60 workers to 76 workers.

In the period between 1995-96 and 2004-05, labour productivity rose from Rs. 188,806 per person engaged to Rs. 324,653 per person, and capital productivity increased from Rs. 0.32 in 1995-96 to Rs.0.71 in 2005-06. These figures also reflect the concentration of capital and growth towards capital intensive production. This is more clearly visible from the productivity index data. Basing all the productivity indexes at 100 in fiscal year 1990-91, the labour productivity index reached at 135.89 in 2005-06; the capital productivity index hit 239.45 and total factor productivity index struck at 115.64.[18]

The production base of global electronics manufacturing is gradually shifting from the developed countries of Europe, Japan and the US. The major share of this shift is landing in China and South Korea. India's share of global electronics production is also increasing. However, it is still an insignificant player in comparison to China and Korea. China has emerged as the world's third largest electronics hardware production centre and its share has grown from 8.3 percent in 2001 to 14.7 percent in 2004. India's share in global electronics production is still only at 0.5 percent. It is a similar situation and dynamic in global electronic component production, where India's share was 0.18 percent in 2004, and China's share was 10.1 percent.[19] India

imports electronic components and equipment worth US$15-16 billion annually compared to local output of US$16 billion. This is barely 1.75 percent of our GDP compared to China where electronics hardware output is valued at more than US$300 billion which is more than 13 percent of its GDP.[20]

During 2009-10, India's electronics exports were valued at US$5.48 billion, for a share of 3.1 percent of India's total exports. This was in fact negative growth of 19 percent compared to the previous year. In the same period, imports of electronic goods were valued at US$20.96 billion and also registering negative growth of 9.2 percent over the previous year. Major export destinations for Indian electronics goods include the U.S. (14.8 percent), Singapore (8.2 percent), UAE (8.2 percent), Germany (6.7 percent), Hong Kong (5.8 percent), and the Netherlands (4.9 percent). In the case of imports Asian countries (74 percent) were the largest import sources for India in the year 2009-10, followed by the European Union (13 percent), the U.S. (8 percent) and Middle East (2 percent).[21] While exports dipped in 2009-10, the sector expanded exports in the following year to about US$7 billion.[22]

II Major investors in India's electronics sector

Key players in the electronics industry in India are as follows: [23]

1. **Bharat Electronics:** A public sector company headquartered in Bangalore, established mainly to meet the needs of India's defence services
2. **Videocon Industries:** Headquartered in Gurgaon, a leading manufacturer in consumer electronics segment- TVs, DVD players, microwave ovens, refrigerators, washing machines, air conditioners and power backup solutions, etc.
3. **LG of South Korea:** A market leader in consumer durables- TVs, audio-visual solutions, computers, mobile phones, refrigerators, washing machines, microwave ovens, vacuum cleaners and air conditioners
4. **Samsung of South Korea:** The second largest player in consumer durables- TVs, home theatre systems, DVD players, mobile phones, digital cameras and camcorders, refrigerators, air

conditioners, washing machines, microwave ovens and computers

5. **HCL Technologies:** Headquartered in Noida, the second largest IT hardware and software provider- including PCs, PC servers, storage solutions, display products and other electronic products.
6. **Moser Baer India:** World's second-largest company in the optical storage media segment. Headquartered in New Delhi and supplying products to a number of branded players such as Sony, Verbatim, TDK, Maxell, Imation and Samsung. It also has a presence in the photovoltaic and home entertainment segments
7. **Flextronics International:** Offers high-value, high-margin design services for mobile phones and telecom/networking software. It manufactures TV tuners, set top boxes, energy meters, and networking cards among others
8. **Centum Electronics, Bangalore:** Offers state-of-the-art solutions for frequency control products (FCP), electronic manufacturing service (EMS) and hybrid micro circuits (HMC)
9. **Jabil Circuit of U.S:** Acquired Celetronix, one of the largest manufacturers of electronic equipment in India in 2006; offers printed circuit boards, enclosure integration, and distribution and repair services with in-region design services support
10. **Samtel Group of Delhi:** Largest Indian integrated manufacturer of a wide range of display devices, such as TV picture tubes, CRT guns, heaters and cathodes, and deflection yokes; operates a facility in Germany to manufacture high-tech, high-resolution CRTs for demanding applications, such as aircraft avionics and medical monitors

The Indian electronics market is dominated by multinationals whereas the Chinese market has large home grown companies.

The Indian state is consistently taking policy initiatives, particularly since 1980, to open the economy and attract foreign investment in the electronics sector. The Components Policy (1981) de-licensed component manufacture except for companies covered under the Monopolies and Restrictive Trade Practices (MRTP) Act and Foreign Exchange Regulation Act (FERA). It provided for 74 percent foreign equity to FERA companies in high tech areas, a general

reduction in duty on components and liberal import of capital goods for component manufacture. The Telecommunication Policy (1984) opened telecommunication equipment manufacture to the private sector. The Computer Policy (1984) permitted entry of all Indian companies, including FERA companies, in all segments of computer industry with no restriction on capacity. The Integrated Policy (1985) de-reserved certain components which were earlier reserved for the small-scale sector. It introduced a liberal approach towards foreign companies, even those with more than 40 percent of the equity held by the foreign party in high technology areas. The Computer Software Policy (1986) reduced the import duty on all imports required for the production of future software exports and zero duty on goods wherein 100 percent of the plant's output was exported. It also permitted foreign companies (with more than 40 percent equity) to set up projects wherein 100 percent of the output was exported.

The National Taskforce on Information and Communication Technology (ICT) (1998) made 104 recommendations on software and 87 on hardware development in the country. The Telecommunication Policy (1994) opened up the telecommunication services for the private Productivity & Competitiveness of Indian Manufacturing – IT Hardware & Electronics Sector. The formation of the Ministry of Information and Technology (MIT) in 1999 brought together different actors involved in IT to form a separate Ministry of Information Technology. The Information Technology Act 2000 was enacted to facilitate e-commerce, e-governance and to take care of computer-related offences. The Semiconductor Manufacturing (Fab Units) Special Incentive Package 2007 offered several special incentive schemes for this segment. The Electronics Hardware Technology Parks (EHTP)/ Export Oriented Units (EOU)/ Special Economic Zones provide attractive investment packages for investors in the electronics industry.[24]

With the increasing importance of electronics in the Indian economy and with the growing realization of future opportunities in the electronics industry, the Indian state has come up with the National Policy on Electronics 2011, targeted at attracting foreign investment in electronics manufacturing. The role and relevance of this policy can be properly understood by keeping in mind another initiative of the Indian state for boosting manufacturing-the New Manufacturing Policy

2011 which proposes to establish a number of huge (5000 ha each) manufacturing investment zones across the country. The set up of seven such zones is already in process. These zones will be established along lines similar to the special economic zones. They are offering similar incentives to investors as in the SEZs. However, for labour they will be even worse than the SEZs. The first draft of the policy went to the extent of saying that most of the important labour laws may not be applicable in NMIZs. In the final draft this clause was removed, but the intention has not changed.

2.1 Samsung Electronics in India

Samsung Electronics started its operations in India in 1995 and very soon emerged as a leading provider of consumer electronics, IT and telecommunications products in the Indian market. Samsung India is established as the regional headquarters for Samsung's Southwestern Asia operations. Samsung Electronics Southwest Asia Headquarters is located in Gurgaon, near Delhi in India.[25]

Samsung began by establishing a manufacturing complex in Noida in Uttar Pradesh (UP). This complex, Samsung India Electronics Ltd Noida, houses facilities for the production of colour televisions (including 3D, LED and LCD screens), mobile phones, refrigerators, washing machines and split unit air conditioners. In 2007, Samsung started its second state–of-the-art manufacturing complex at Sriperumbudur in Tamil Nadu. The Sriperumbudur facility of Samsung India Electronics Ltd Chennai manufactures colour televisions, fully automatic front-loading washing machines, refrigerators and split-unit air conditioners.

Samsung has also established two research and development (R&D) centres in India, Samsung India Software Centre (SISC) at Noida, near Delhi and Samsung India Software operations unit (SISO) in Bangalore. The Noida R&D Centre develops software solutions for hi-end televisions, such as plasma TVs, LCD TVs and digital media products, and the Bangalore R&D Centre works on major projects for Samsung Electronics in the area of telecoms, wireless terminals and infrastructure, networking, SoC (System on Chip) digital printing and other multimedia/digital media as well as application software. Samsung

India Software Centre (SISC) is being established as the global hub for software development for Samsung's worldwide requirements for Digital Media products. Samsung India additionally carries out R&D for product hardware at its Noida R&D Centre. The focus of the centre is to customize both audio visual and home appliance products to better meet the needs of Indian consumers. The Samsung R&D centres in India help the company to continuously innovate and introduce products customized for the Indian consumer. Samsung India currently employs around 6,000 employees in its R&D centres at Noida and Bangalore.[26]

Samsung India has emerged as a market leader in product categories such as LED TVs, LCD TVs, Slim TVs and side-by-side Refrigerators. In 2010, Samsung's market share in India in flat panel TV category was 31.7 percent by value, and it was expected to reach 35 percent in 2011.[27]

Samsung is the second largest selling mobile handset brand in India and leads in the smart phone segment. In 2011, Samsung India strengthened its operations in the country by stepping up its investments in its mobile manufacturing facility at Noida. The company brought in investment of more than US$70 million in 2011 with the aim of tripling the capacity of its mobile phone manufacturing unit at Noida.[28]

Samsung recently acquired two Indian companies, Samsung Medison India (SMIN) and Medison Medical Systems (India) (MI), thus giving it a much stronger presence in the medical equipment sector. In the telecoms sector Samsung India operates through another arm-Samsung Telecommunications India Private Ltd. (STI), New Delhi.

The turnover of Samsung India Electronics Limited (SIEL) in 2011 stood at about US$3.65 billion[29] and it is expected to reach US$10 billion by 2015.[30] SIEL contributed 2.5 percent of Samsung's global turnover and the local group intends to increase that to five percent by 2015.[31]

The mobile phone manufacturing unit at Noida is Samsung's sixth overseas manufacturing unit in the world. At the Noida facility the company manufactures multimedia, dual sim and touch screen model mobile phones. Samsung has installed highly advanced and high-speed SMD machines at the mobile unit. Along with the installation of new,

advanced, high-speed production lines for increasing output, and the company has also recruited another 1,500 employees for the this unit, bringing total employees there to 4,000.[32]

To project a better image of the brand, Samsung has also entered into a corporate social responsibility (CSR) contract. Under this CSR project, called 'Building New Bridges of Hope', it has set up two so-called e-learning centres for underprivileged youth in Noida and Chennai along with the SMILE Foundation, a non-governmental organization focused on children's health and education. Recently Samsung also organized the Samsung International Women's Film Festival in association with the INKO Centre, an India-Korean cultural organization in Chennai. Samsung also presented the Tagore Literature Award in association with the Sahitya Akademi, New Delhi. Sports sponsorship is also one of activity areas of Samsung CSR. The company provided funds for the training and preparation of some athletes for the Asian and Olympic Games. Samsung was also one of the sponsors of Indian Olympic team.

2.2 Supply chain of Samsung Electronics India

As we have already discussed in previous pages the value added in the electronics industry in India is merely 5-10 percent (about US$2 billion in total). The majority of the component parts used in manufacturing and assembly operations are imported from overseas. All electronics giants with manufacturing bases in India, such as Samsung, LG, Dell and Hewlett Packard (HP), import 90 percent of the component parts from overseas. In the case of Samsung, the majority of the imported components are from Korea, Singapore and China.[33]

In the initial phases of the liberalization of imports, electronic component parts were not promoted by the state and therefore the customs' duty on imported components was not reduced. However, in that phase multinational electronics companies used various strategies to secure tariff reductions and benefit from loopholes in the laws.

In 1997, Indian Customs officials alleged that Samsung India Electronics Ltd had underpaid its import duties by at least 50 percent by paying duties on components at the rate of about 15-20 percent, almost half of the 40 percent payable on completely-knocked-down

(CKD) kits. According to Customs' officials, the company resorted to bringing in imports through two separate companies to avoid paying a higher duty: Two separate consignments together added up to a CKD kit. The contract Samsung had with the two companies for imports of audio models, such as Max 670, MM 26, and other newer models, indicated an import value of US$75,000 for a PCB consignment of 500 pieces through a company named P&R Overseas, and of US$85,000 for a non-PCB consignment of an equal number through another company Olympia. The two consignments were executed simultaneously. However, according to the Customs Department, in such case and in spite of importing two separate consignments through two distinct companies; Samsung India Electronics was still liable to pay CKD import duty as it was the common end-user for the two consignments which in the end comprised one CKD kit.

Samsung India Electronics denied that the company had entered into any sales contract with the parent company in Korea for audio imports, stating that it was not importing any audios itself. It also claimed that it was not violating any government policy on CKD imports for audios, since it was purchasing all audio equipment from Olympia Electronics. But Olympia Electronics contested Samsung's claims. According to Olympia, it was importing only certain important components for Samsung's audio products, and Samsung India Electronics (SIEL) imported the rest of the components, including PCBs from Korea that Olympia assembled. Olympia also claimed that all goods imported by Olympia for Samsung's audio products were done at the behest of SIEL.[34]

In 1997, India signed the Information Technology Agreement (ITA) at the World Trade Organization (WTO) and committed to the elimination of all Customs' duties on IT hardware by 2005. Its impact was felt in subsequent years. A significant number of particularly small and medium-sized electronics component manufacturing companies saw their businesses slowly collapse; some closed down and a few companies like Moser Baer, Samtel Color, and Celetronics very soon emerged as global players.[35]

In 2003, the Foreign Investment Promotion Board of the Government of India gave blanket approval to Samsung to expand its Indian operations, and the company begin stocking as well as selling

imported goods on a cash and carry basis, without ever making it clear which products or product categories Samsung would import and sell.[36]

After signing the ITA, import duties in India were reduced and in some cases removed. As a result the markets were flooded with cheap imports, which effectively acted as deterrents to potential investment in electronics component manufacturing. Moreover, due to the lack of any formal regulations on the import of components, sub-standard products and inferior substitutes were dumped in the country. The components that had been generally phased out or were not sold in advanced countries found their way onto the Indian market. In addition, due to an astounding absence of laws required to regulate hazardous substances and quality standards, such as on electrical and mechanical components (EMC) and safety in India, many advanced countries are actually dumping in India those components that are legally prohibited from use in their own countries.[37]

The highest value-added in the electronics value chain occurs at the raw material and component manufacturing stages. Therefore, if the growth in electronics industry is not accompanied by the growth in indigenous manufacturing of components, then it has more of a negative impact than a positive one, because it drastically increases the import bill of the country. Due the factors discussed above, even those companies engaged in electronics component manufacturing in India actually do very little value-added work in India. For example, Continental Devices Pvt. Ltd (CDIL) has a full-fledged component manufacturing unit in India, with all manufacturing processes, from the fabrication checking stage to the finished product stage, but it still imports 90 percent of its components from outside and sells them under its own brand name. It is only conducting the testing and branding activities in India. The major factor behind this is that since countries, such as China, have bulk manufacturing bases and can produce components at a rate of as much as 20 percent lower than India, therefore most Indian players are importing these components.[38]

In general the import duties for the majority of critical components in consumer durables and toys are still higher in India than in China, with the exception of imports of mobile phone components which are free of any duty charges in India. Moreover, Indian tax laws allow the setting off of import duties against CENVAT (value-added

tax) where the final product is sold in India (except for the basic duty).

There is no information on the companies supplying component parts to SIEL on the Samsung website. No systematic information about it is available anywhere else. There are bits and pieces of information here and there, but it is impossible to make a complete picture out of it. We discussed above the two suppliers of Samsung India Electronic (SIEL), namely Olympia Electronics Pvt. Ltd[39] that is based in Noida and another company P&R Overseas Pvt. Ltd.[40] However, there may be many more Indian companies supplying Samsung.

RiPE Component Technologies Pvt. Ltd. based in Noida, claims to be the single source vendor for Samsung Telecommunication India. It has two state of the art manufacturing facilities at Gurgaon and Noida, employing more than 700 workers. The legal status of the company appears as a limited liability/corporation (privately held). However, some reliable sources reported that it is a joint venture of Samsung. RiPE Component Technology Pvt. Ltd is mainly engaged in the manufacturing, supplying and wholesaling of mobile phones for Samsung, and the manufacturing of mobile components for Samsung Telecommunication India. Mainly it produces mobile screens, mobile spare parts, plastic body parts, screen mirrors and steel body parts. The company was established in 2003. The Gurgaon plant mainly deals in switches.[41]

IL-Jin Electronics India Private Ltd is another major supplier to Samsung. It has manufacturing facilities in Noida, Greater Noida, Pune and Sriperumbudur. IL-JIN Electronics India Pvt. Ltd is said to be a subsidiary of LG and Samsung. It supplies mainly circuit boards to Samsung.

III. Working conditions in the electronics industry and manufacturing in general

3.1 Legal protection of workers diminished

Only a small portion of the nation's workforce is protected by the labour laws and has guaranteed space for collective bargaining with well-defined legal boundaries.

Collective bargaining in India has remained limited in its scope and restricted in its coverage by a well-defined legal structure. The labour laws in fact systematically promote and perpetuate a duality of labour, that is formal sector workers with better protection and social security on the one hand and informal sector workers with a minimum or no protection and social security benefits on the other. Similarly, formal sector workers have enjoyed better space for collective bargaining in comparison to informal sector workers who have very little or no scope for collective bargaining.

The applicability of different sections of the labour laws is dictated by the number of workers engaged in an establishment. The Factories Act provides for the health, safety, welfare and other aspects of workers' lives while at work in the factories. Under this act, an establishment with 10 workers (and electricity connection) or 20 workers in the case of no power connection is a factory. However, the following provisions of the act are not applicable to all factories: Provision for crèche—applicable only if 30 or more women are employed; provision of a rest room—applicable only if there are 150 or more workers; provision of canteen—applicable only if there are 250 or more workers; provisions for ambulance, dispensary, and medical and paramedical staff—applicable only if there are 500 or more workers.

The Employees Provident Fund and Miscellaneous Provisions Act, the Maternity Benefit Act and the Payment of Gratuity Act apply to all establishments with 10 or more workers. But the Employees State Insurance Act applies to only those (non-seasonal) establishments with 20 or more workers. The Employees Provident Fund Act is applicable to workers who receive a salary of Rs.6,500 per month or less (raising the limit to Rs 10,000 is under consideration), while the Employees State Insurance Act is applicable to workers getting a salary of Rs 15,000 per month or less (prior to 2010 the limit was Rs 10,000). The Minimum Wages Act applies to all establishments and all workers, but the Payment of Wages Act applies only to those establishments with 10 or more workers, and also only to those workers getting wages of less than Rs 1,600 per month. On the other hand, the Payment of Bonus Act is applicable to only those enterprises employing 20 or more workers and only to those workers getting wages less than Rs 3,500 per month.

The Industrial Disputes Act, 1947 lays down the procedures for the settlement of industrial disputes. Its procedural aspects are applicable to all enterprises for the settlement of industrial disputes. However, the most significant, protective clauses for the workers pertaining to layoffs, retrenchments and closures are contained in Chapter VA and Chapter VB, which have limited applicability. Chapter VB does not apply to any establishment employing less than one hundred workers, and Chapter VA does not apply to any establishment employing less than 50 workers. The Industrial Employment (Standing Orders) Act makes it compulsory to have Standing Orders in each enterprise to define misconduct and other service conditions, and also states that for any misconduct no worker will be punished without due process of law using the principles of natural justice. But this law does not apply to those enterprises employing less than 100 workers. Only in a few states, such as Uttar Pradesh, it is made applicable to all factories, i.e., employing 10 or more workers. The Trade Union Act applies to all establishments with seven or more workers, since a minimum of seven members are necessary in order to register a trade union.

According to the Economic Census of the Government of India, more than 97 percent of enterprises employ less than ten workers, and most of these employ less than five workers.[42] Therefore, protective labour laws apply to less than three percent of the enterprises! The bulk of enterprises, 97 percent, are governed only by the Industrial Disputes Act (minus its protective sections VA, VB), the Minimum Wages Act, the Workmen's Compensation Act, the Equal Remuneration Act, and the Shops and Establishments Act (enacted by each state separately) and some pieces of labour legislation enacted for specific occupations are applicable. Generally, these 97 percent, which are not covered under the Factories Act, are said to represent the informal sector and the remaining three percent the formal sector, i.e, those covered under Factories Act.

The total workforce employed in different sectors in India, including principal plus subsidiary employment, is about 456 million, of which the informal sector accounts for about 393.2 million or 86 percent. Out of the 393.2 million informal sector workers, agriculture accounted for about 251.7 million and the remaining 141.5 million are employed in the non-agriculture sector. The agriculture sector consists almost entirely of informal workers who are mainly the self-employed

(65 percent) and casual workers (35 percent). The percentage of non-agricultural worker in the informal sector rose from 32 percent to 36 percent between 1999-2000 and 2004-05. Non-agriculture workers in the informal sector are mainly the self-employed (63 percent) and the others are more or less equally distributed between the regular salaried/ wage workers (17 percent) and casual workers (20 percent). The share of the informal sector in non-agriculture sector increased to nearly 72 percent in 2004-05, from 68 percent in 1999-2000. Only about 0.4 percent workers in the informal sector are formal workers, meaning they receive social security benefits, such as the Provident Fund.[43]

Informalisation of the workforce which accelerated with the advent of liberalization, has transformed the formal sector also by shifting jobs from formal to informal sector and also by informalisation of jobs within the formal sector units. Now, in the formal sector the number of formal workers is about 33.7 million and informal workers about 28.9 million (2004-05). Total employment in the Indian economy increased from 396 million to 456 million between the two National Sample Survey (NSS) rounds in 1999-00 and 2004-05. In the formal sector employment increased from 54.9 million to 62.6 million. However, there was no significant increase in formal employment (33.6 million to 35.0 million). This means that the entire increase in employment in the formal sector has largely been informal in nature, i.e., employment without any job security or social security benefits[44].

The complex structure of labour legislation in India provides a huge scope and incentives for violation of labour laws, especially as regards putting fewer workers on the rolls than were actually engaged. A large number of factories escape coverage of the Factories Act and other important labour legislation by showing fewer than 10 workers on the payroll, but actually engaging a large number of workers illegally. The incentive for this practice is a huge saving in costs associated with workers' welfare and other benefit payments.

India has ratified neither the ILO convention on Freedom of Association and Protection of the Right to Organize 1948 (C. 87) nor the Right to Organize and Collective Bargaining Convention, 1949 (C. 98). The right to association and collective bargaining is restricted within the framework of the Trade Union Act 1926 and the Industrial Disputes Act 1947.

3.2 Impact of liberalization of the economy

With the advent of liberalization, the state started a major move to decisively change the industrial relations regime in favour of the corporate entity and employers. In addition with the privatization of traditional public sector operations and other liberalization initiatives, there were attempts to amend the labour laws in order to grant full freedom to employers to hire and fire workers and to reduce the power of labour and trade unions to the minimum. Due to protests from trade unions, the state could not succeed in amending the major labour laws. However, by allowing the informalisation of workforce and downsizing, and by providing various relaxations in the labour laws especially with regard to export-oriented industries/units and the special economic zones and making the inspection machinery of the labour department totally defunct, the goals were achieved to a large extent. Many industries were declared Public Utility Services and thus industrial action or strikes were illegal under the law governing those services: The Essential Services Maintenance Act was used to unleash unimaginable repression on striking workers. And even when the laws were not amended, judicial pronouncements in labour cases virtually changed the meaning of labour laws against the workers and in favour of employers. In the last two decades, casual-contract workers' claims for regularization have rarely been entertained by the courts, while permission for closures and retrenchments has been easily granted by governments.

The policies of liberalization have had a drastic impact on collective bargaining in India, both in terms of shrinking the space and coverage of collective bargaining and also in terms of weakening the strength of trade unions and the power of workers at shop floor. Especially from the 1980s onwards, an all-round offensive launched against labour has forced the trade unions to go on the defensive just to maintain the status quo, not to mention pushing forward for more labour rights and extending the scope and coverage of labour legislations and collective bargaining. On the one hand, this situation has created a condition where there is completely no scope of any improvement in working conditions of workers without the formation of trade unions, and on the other hand, it has created a most anti-trade union environment

where neither the employers nor the state is ready to tolerate the trade unions and their attempts at collective bargaining.

3.2.1 Growth booms, wage rates stagnant

All the above factors have resulted in sharply rising corporate profits, drastically declining corporate expenditure on wages and the worst kind of working conditions across the industries, and a resurgence of trade union movement from below. With labour law enforcement machinery basically paralyzed, employers have become so aggressive that the minimum wage has actually become the maximum wage. Whether as a direct result of that trend, approximately 73 million out of 173 million wage earners across India do not even receive the statutory minimum wage.[45]

According to the Annual Survey of Industries 2005–06, there was an increase of five percent in the number of production work¬ers in organized manufacturing sector in India, and this increase was completely driven by an increase in the number of workers sourced from employment agencies and not taken on the company's books as full time staff. These are referred to as agency workers. The proportion of agency workers more than doubled from 1998-99 when they formed 15.6 percent of production workers to 2005-06 when they formed 28.6 percent of production workers. It was one of the major factors that led to a drastic decline in expenditure on wages: Contract workers' wages were almost one third to one fourth of the regular workers, and employers were also able to avoid other costs associated with directly hiring the workers, such as social security benefits, bonus payments and other benefits.

Another dimension in Indian manufacturing is that the wages of other employees, particularly those in senior supervisory ranks, recorded a significant increase, while there was no or only a minimum increase in production workers' wages.[46] It is also to be kept in mind that in the period between 1990 and 2010, the average annual rate of inflation in India was about six percent.[47]

Along with all the conditions and factors discussed above, there are more negative factors specifically applicable to workers in the electronics manufacturing. As in other manufacturing industries, small operating

units comprise the majority of producers in electronics. Moreover, the problem is even more serious in the case of electronics industries, because comparatively higher technology is required than other manufacturing industries and therefore even the larger units in terms of turnover may be smaller in terms of the number of workers employed. This is why a recent initiative of the government in the form of the Labour Laws (Exemption from Furnishing Returns and maintaining Registers by Certain Establishments) Amendments and Miscellaneous Provisions Bill, 2005, actually benefits employers in IT and electronics more than any other sector. This amendment grants exemptions to establishments employing up to 40 workers from furnishing returns and maintaining registers under various labour laws. The exemptions in the earlier version applied only to those establishments employing up to 19 workers. (The original proposal of the government was to apply it to all establishments employing up to 500 workers.)[48]

3.2.2 Exemptions to labour laws multiply

The factories exempted under this law are only required to submit an annual consolidated report under various labour laws and do not need to maintain daily and monthly registers. It is actually impossible to bring out a correct annual consolidated report without maintaining monthly registers. Therefore, the only benefit of these exemptions for the factories is that it will be next to impossible to investigate actually how many workers are engaged by those factories on a daily or monthly basis, how much is actually paid in wages to various categories of workers on a daily and monthly basis, etc. Its practical importance is only to provide more space for violations of the labour laws. The total number of factories in the formal electronics manufacturing sector was 1,359 in 2005 and the total number of workers in these factories was 103,129, which by simple arithmetic calculation gives an average workforce of 75 persons per factory. Since there are a few hundred comparatively larger players with a workforce of more than 500, the majority of the factories may be engaging less than 40 workers.[49]

The SEZs also play an important role in the government's liberalization programme and the framework under which they were established can be seen as anti-labour. The SEZs are out of the

purview of the labour departments of the governments, and all powers of the labour commissioners are transferred to the Development Commissioners of Special Economic Zones who is mainly concerned with attracting investment, helping investors and boosting exports. Moreover, all units in the SEZs and all export oriented units are granted the facility of self-certification under various labour laws. In this way, the labour law enforcement machinery is systematically rendered defunct, giving these units all the space for labour law violations. Moreover, there is also competition between the various state governments to win more foreign investment to their states. Labour being in the concurrent list of the constitution, along with national parliament, the state assemblies are also empowered to amend labour laws and make new labour laws. Therefore, state governments are also extending relaxations and granting exemptions under various labour laws to industries and the SEZs.

For example, the Karnataka state government has granted exemption from the *Industrial Employment (Standing Orders) Act, 1946* (IE Act) to IT and Bio-Technology (BT) industries since 1999. This act is applicable in most of the states of India, in some states to all units employing 100 or more workers and in others to units employing 50 or more workers. This law makes it mandatory for every such establishment to have Standing Orders approved by the workers or the workers' union and labour commissioner and should include a classification of workers, e.g. permanent, temporary, probationers etc; the manner of informing workers about periods-hours of work, holidays, pay-days, wage rates etc, shift working, attendance etc; the conditions, procedures and the authorities for granting leave, termination of employment, and the notice to be given, suspension or dismissal for misconduct, means for workers' protection against unfair treatment, etc.

The original intention of this act was to ensure the enforcement of the labour laws. Granting exemption from the application of this act is nothing less than creating space for violations of labour laws and weakening the labour law enforcement system. Along with Karnataka, many other states, such as Maharashtra, have also granted exemptions from this law. The initial exemption was for two years only, but it was continuously extended for additional two-year periods. Recently, the Karnataka government took a step to discontinue these exemptions (after five two-year extensions, the last of which expired on August 2011) and

IT industry tycoons have started crying out against it as if the sky were going to fall.

3.2.3 Labour law reform in the IT sector

Labour law reform in the IT sector is taken so seriously and seen as urgently needed that the IT Action Plan II prepared by IT Task Force set up by the Prime Minister recommended the following: [50]

1. As the Indian IT product industry will increasingly have to compete with countries such as Taiwan, Singapore, Korea and Philippines, the Indian labour laws in this sector should not be adverse as compared to the labour laws in the competing countries;
2. Women be allowed to work in three shifts, subject to provisions of all the ILO specified conveniences including transportation from and to the doorstep of the employee;
3. The temporary status of an employee be enhanced to 720 days in three years, instead of 240 days out of one year as per the existing labour laws;
4. Manufacturers be allowed to downsize employee rolls by up to 10 percent of total employee strength in any year without permission;
5. The IT sector must be exempted from the *Contract Labour Abolition Act*;
6. Longer hours of operation be allowed so that three-shift/four-shift operations can be run for which the labour law should allow up to 12-hour shifts without overtime as long as the total number of hours worked per week averages the current norms of 48 hours per week;
7. IT software and IT services companies, being constituents of the knowledge industry, shall be exempted from inspection by inspectors like those for Factory, Boiler, Excise, Labour, Pollution / Environment, etc

Even if the labour laws were not yet amended as suggested above, the state governments have been actually implementing most of the above recommendations by way of issuing notifications under relevant labour laws for the past few years and granting repeated extensions. For

example, in most of the states it has been allowed to engage women in night shift work, particularly in the IT and biotechnology industries. The same has been true for the recommendations related to working hours and shifts. Even if some recommendations have not been legally implemented, for example those regarding the contract labour abolition and regulation act; it has been implemented in practice by allowing violations of laws and making the labour law enforcement machinery defunct.

Looking at the working conditions in the electronic industry, we find that trade unions are rare in this industry and very little research has been done detailing the working conditions in this industry. Therefore, there are very limited sources of information and difficulties in presenting an overall picture of working conditions.

According to a study on the mobile manufacturing industry in Tamilnadu, in almost all the factories, including those owned by Salcomp, Foxconn, Nokia and Flextronics, the average age of workers (both male and female) is between 18 and 25 years. Most of them are first generation workers drawn from rural areas of the state. The proportion of women workers in the workforce ranges between 40 and 60 percent. The educational qualification required for the workers is generally higher, with most requiring completion of secondary school (10+2), and in some factories a diploma from an industrial training institute after schooling up to 10th standard is required.

There is a two-tiered system of employment in mobile phone manufacturing, with permanent employees (including 'trainees') who are directly on the companies' payrolls and contract workers who are engaged through agencies and who form the bulk of the workers. For example, 22 percent of Nokia's staff was hired through agencies, while 78 percent are either trainees or permanent workers. In Flextronics 60 percent of its workers are contract workers, and in Foxconn, contract workers constitute more than 40 percent of the workforce. There is a significant difference in the wages of permanent and contract workers. Due to unionization and workers' struggles, the salary of Nokia's workers was increased from Rs. 6,150–7,700 a month to about Rs. 11,666 a month (including allowances). However, the contract workers still get between Rs 3,600 and Rs. 6,000. In Flextronics, the contract workers get Rs. 4,130 per month, and skilled permanent workers get around

Rs. 5,300 per month. Due to worker unrest Foxconn was compelled to sign a three-year wage settlement in 2010, which resulted in an increase of about 75–80 percent in the wages of permanent workers, However, the contract workers did not get this benefit. Foxconn contract workers get Rs. 5,000 per month and permanent workers get about Rs. 8,000 to Rs 9,500 per month. In Salcomp, permanent workers get Rs. 4,600 to Rs. 5,100 per month and contract workers get about Rs 3,400 per month. It was also exposed that a large percentage of contract workers in Flextronics, Salcomp and Foxconn were paid in cash, and therefore there were lots of opportunities for manipulation in terms of payments made to workers and also in terms of the number of contract workers actually engaged.[51]

However, after worker unrest in the Chennai mobile phone industry, particularly after the strikes at the Nokia SEZ in 2009–2010 and at the Foxconn SEZ in 2010, a new phase has been started. These struggles have increased the collective bargaining power of electronics manufacturing workers of this region in comparison to other regions of India. In the above strikes in Nokia and Foxconn the greatest achievement of the workers was that the permanent and contract workers came together. The companies are trying by all means to break this unity to weaken the labour movement. They openly say: "We don't want a contract workers' union." [52]

The working conditions, particularly as regards the conditions of occupational health and safety (OSH) in Indian manufacturing in general and in the electronics industry in particular, are some of the worse. This was reflected in the so called pesticide poisoning incident at Foxconn in 2010 and on a smaller scale in Samsung in 2009.

What actually happened in Foxconn, in Chennai on 23rd July 2010 and in Samsung in Noida on November 27, 2009 still remains a mystery. In Foxconn on that day 120 workers complained of breathlessness, vomiting, giddiness and then fainted. They were taken to hospital but discharged within an hour. During the night shift (12am-8am) between 2-3 am, 107 workers again complained of the same problems and showed similar symptoms. Then, two workers started vomiting blood. They were also taken to hospital. Some workers, who had been discharged from hospital, fell sick again. The Chief Inspector of Factories (CIF) contradicted its own statement by first asserting that

the inhalation of malathion "most probably" caused the sickness and later stating that while on inspection on 27th July, nothing happened to the workers when he ordered a re-spraying of malathion. No action was taken against the company by any government department. In November 2009, a similar incident happened in Samsung Noida and 50 workers were admitted to hospital with complaints of breathing problems, watering of the eyes, and fainting. The hospital sources said that it was probably due to inhaling some poisonous gas. All hospitalized workers were discharged after a few hours, except five to six workers who were reported to be in serious condition, and they were discharged next day. In this case also various statements by doctors and factory management identified the probable reason as pesticide poisoning or an LPG gas leakage. However, no investigation was done by the labour department and no action was taken. [53]

Many incidences related to occupational health and safety happen regularly in India but are not reported. Only large-scale incidents are reported in the media and then only when workers' protests make it impossible to ignore. For example, one night in 2011, while workers were working, there was a fire in Foxconn's warehouse where rejected plastics were kept. Everything went up in flames, but the water hose was not working, and there were no safety equipment in place to control the fire. If the fire brigade had not come on time, the whole factory would have burned down. But nothing was reported in the media. The whole incident was hushed up. Such incidents reflect the attitudes of the companies towards occupational health and safety. [54]

3.3 Working conditions in Samsung Electronics India [55]

Samsung Electronics India has a huge and state-of-the-art manufacturing complex in Noida Phase II. This complex houses the washing machine, television, refrigerator and mobile phone manufacturing facilities.

In terms of the workforce, the mobile manufacturing plant is the largest. About 50 percent of the total workforce in this manufacturing complex is engaged in mobile phone manufacturing. There are a total of about 4,000 employees in the mobile phone plant, including about 2500-3000 production workers working on assembly lines, about 500-

1,000 engaged in packing and other related works, and the rest are other staff and service workers. Samsung does not engage contract workers in its assembly line works. The contract workers are engaged in all activities other than assembly line work, e.g. packing and related works.

According to the workers, about half of the total 2,500 to 3,000 assembly line production workers are apprentice workers. The other half is regular workers and trainees, that is those who have completed the apprenticeship. It is very clear that Samsung's strategy to keep labour costs down is based on exploiting the apprentice workers. Apprentice workers are engaged for one year. According to the workers, the workforce of apprentice workers is maintained in such a way that every second or third month 150-200 workers complete their apprenticeship and leave the factory and a new batch of 150-200 apprentice workers then join the factory. Therefore, the apprentice workforce is always maintained at about fifty percent of total assembly line workers.

Apprentice workers are students of industrial training institutes (ITI). After completing their course program they get a credit for apprenticeship/internship of 1-3 years in the relevant industries. According to the workers, not more than four percent of the apprentice workers are generally absorbed in the regular workforce. Those who are considered for the regular workforce are engaged as trainees for two years. However, not all trainees are absorbed as regular workers, either. A significant number of young women are also engaged as production workers.

Samsung adopted the strategy of exploiting the apprentice workers as source of cheap labour only recently. A study conducted in 2006-07 provides no information on the engagement of apprentice workers in Samsung. During 2006-07, there were only about 1,700 production workers and according to the study's findings there were 1,000 regular workers, 400 contract workers (engaged through an employment agency) and 300 trainees.[56] Contract workers were also engaged as assembly line production workers. Moreover, generally the educational qualification of workers engaged was secondary school (10+2), and there were only a few ITI trained workers. It seems Samsung only recently, particularly after the recent expansion of the mobile phone plant in 2011, started adopting the new strategies and the new workforce that was recruited after expansion was largely in the form of ITI apprentice workers.

The majority of workers in Samsung are migrants from distant districts of Uttar Pradesh, one of the states of India in which Samsung India Electronics is located. However, there are also significant numbers of workers from other states of India.

Production process and occupational health and safety issues

Samsung Electronics India at Noida manufactures mainly the GSM handsets and mid-range and premium level mobile phones, multimedia, dual-sim card and touch screen models. Manufacturing operations in this plant involve mainly product assembly. No mobile phone component parts are manufactured in the plant. Significant numbers of components, particularly the body parts, are sourced domestically. However, a majority of the crucial components are imported from other countries.

The production/assembly process in Samsung is highly automated. The speed of the assembly line compels the workers to work speedily and continuously. Production targets for the assembly lines are set by fixing the tact time, that is, the time taken to complete a specific task, and accordingly the total production target for the day.

According to workers, the tact time in the mobile phone assembly line is only 3.5 to 4 seconds, i.e. the workers have to complete their specific task in 3.5 to 4 seconds. In other words, every four seconds one mobile phone is delivered at the end of assembly line.

The production process is so hectic that the workers have no time or space for anything other than doing their own task. There is no time or space for even going to the toilet or having a drink of water, and if a worker needs time for such things, it is considered a problem. The workers gradually learn how to avoid going to toilet during work time and how to quicken the pace of work to get time to drink water while working. However, all these factors create serious health problems, such as headaches, exhaustion and anxiety.

In electronics manufacturing, the additional problems of occupational health and safety are created by the continuous exposure to ionizing radiations, organic solvents, heavy metals like cadmium and lead, and to chemicals that damage reproductive organs, such as arsine and phosphate. However, workers interviewed in Samsung were not

aware of all the chemicals used and their impact on health, but they were generally aware that they were continuously exposed to ionizing radiations that may have a negative impact on their health.

According to the workers, the company has one dispensary within the company premises and a contract with the Kailash Hospital in Noida, about 10 km from the factory. Workers normally visit the company dispensary and only if they develop a serious condition are they admitted to Kailash Hospital. According to workers, a significant number of workers visit the dispensary daily with complaints of headaches, fever, body pain, etc. One of the apprentice workers interviewed was suffering from intermittent bouts of fever for a period of 16 days and was receiving medicines regularly from the dispensary. According to him, the doctor in the dispensary told him that he was suffering from typhoid. However, he was regularly attending his duties. He said that whenever he visited the dispensary, he found that there were about 100 workers waiting for a check-up and medicine, mainly with complaints of headache, fever, body pains, etc.

During the night shift on November 17, 2009, a mysterious gas leak or pesticide poisoning incident occurred at the Noida manufacturing facility of Samsung India Electronics. It was said to have happened in the washing machine assembly section of the plant. As a result, more than 69 workers were hospitalized in Kailash Hospital. Most of them were in a stable condition by the end of the day and discharged from hospital the next morning. However, around 15 workers were said to be in serious condition. Five of them were placed in the intensive care unit. All of them were discharged from the hospital in the evening of the next day. According to the doctors at the hospital, "The victims may have been exposed to carbon monoxide because of which they reported headaches and nausea while some also fell unconscious."[57]

The city's Superintendent of Police was quoted as saying, "From the initial inspection, it seems that the gas was probably LPG that got leaked from a pipeline in the lift installed in plant." [58]

No follow-up enquiries took place and no action was taken by the Labour Department. It is interesting to note that this incident was very similar to the incident at Foxconn in Sriperumbadur on 23rd July 2010. In both the cases, what actually happened, whether it was pesticide poisoning or gas poisoning or something else, remains a mystery.

Wages and Working Conditions

The basic wages in the company are Rs5,800 for regular (skilled workers) and Rs 5,600 for apprentice workers. This is after deductions for the Employees State Insurance (ESI) and Provident Fund (PF). With increments the wages of senior regular workers have increased to about Rs 6,000-Rs 7,000. However, the take home wages, which includes overtime, is much more. The regular workers in general are earning between Rs10,000 to 12,000 or even more, if all the various incentives and overtime payments are included. It shows the intensity of overtime work in the company. Apprentice workers, on the other hand, earn between Rs7.000-Rs 8,000 a month including overtime payments.

According to the workers, the company runs two eight-hour shifts. However, two to four hours of overtime is the norm, and so in practice both the shifts are of 10 to 12 hours. For example, the day shift starts from 8am in the morning and can be extended to 8pm at night. Workers said that if the targets fixed for the shift are not completed, they cannot leave the factory without completing it. And this happens frequently. Many times due to increased demand, high targets are fixed while the workforce remains the same, and these targets are completed by increased intensity of work and extended overtime.

The rate of overtime payment for regular workers is about Rs 80 to Rs 90 per hour, and for apprentice workers it is about Rs 40-Rs 50 per hour.

The assembly line workers, including regular workers and apprentice workers, are provided with free transport facility and free meals in the canteen. However, these facilities are not provided to contract workers engaged in non-assembly line work. In addition, apprentice workers are provided with free accommodation for one-two months.

Workers reported that when one joins Samsung initially he feels so happy because for a few days he receives very good behaviour and treatment from supervisors and management. However, after only a few days he feel so bad and would never recommend anyone join Samsung. Once one starts working with a specified task and target, he is only treated as a servant, and actually worse than the machines. He is spoken to in harsh and abusive language if any small problem occurs.

The workers state that they are legally eligible to take prescribed leave days. However, in practice it is difficult to get leave. Moreover, since the apprentices are engaged for only one year, they try by all means not to take any leave and to be always in the good books of management, so that they will be absorbed into the regular workforce of Samsung.

There is no trade union and no system of formal representation of workers in Samsung.

3.4 Exploiting apprentices, the most flexible and vulnerable source of cheap labour

Samsung is adopting the strategy of exploiting apprentice workers as a source of vulnerable and cheap labour. ITI students are directly recruited from various institutes in various states of India. They are engaged for one year. The whole system is managed in such a way that every two-three months about 150-200 apprentices leave the factory after completion of the one year period and a new batch of an equal number of apprentices arrive in the factory, and the factory maintains about a 1:1 ratio of apprentices to production workers.

Apprentice workers are offered one-two month's free accommodation. In the National Capital Region (NCR) of Delhi and surrounding areas, with the expansion of cities and industrialization, many villages have been transformed into colonies where the source of earnings of the landlords of the villages has changed from agriculture to the rental of housing. The landlords have built multi-storied housing complexes with a large number of small rooms and with one common toilet for five to 10 rooms. They rent these rooms to low-paid workers. Samsung then contracts with one or two such landlords for 50-60 rooms for one-two months and provides accommodation to 150 to 200 apprentices in these rooms. There is one such workers' hostel in Barola village, two-three km from the factory. These hostels are not permanent locations. The company needs to make new contracts with different landlords and so the location of hostels changes.

The above information suggests that the Samsung has a full-fledged system for exploiting the apprentice workers on a regular, systematic basis. It has also engaged employment agencies for recruiting

and supplying apprentice workers to the company and the terms and conditions for engaging workers is also well defined. One such agency used by Samsung is SGK India Industrial Services Pvt. Ltd. (See Box 1 below.) The terms and conditions of employment are advertised by SGK.

Box 1. An advertisement for apprentice vacancies

Vacancy Details

ITI Apprenticeship (Fresher)
Company: SAMSUNG
Location: Noida
Education: Any ITI

Sub: - Apprenticeship Training under N.C.V.T. Board at "Samsung India Electronics Pvt. Ltd."

"M/s. Samsung India Electronics Pvt. Ltd" Noida Plant is coming for Centralize Campus Recruitment of some ITI Passed out & Current Batch (Fitter, Electrician, Welder, Wireman, R&C & Electronics) candidates. The Passed out will be joined in 1st May 2012 & The current batch will be offered on 1st week of August 2012 after their final exam. The company will give one year Apprenticeship Training to the each selected candidate. During Apprenticeship Trainee, the candidates will be placed in Production Dept. /Assembling Dept.

Total Requirement: - 150nos ITI-Any Branch

Facilities:- During the training period the candidates will get stipend of Rs.4900+/pm stipend for 08hrs working, Canteen & transportation will be free for whole year. If a candidates works more than 8 hours is **eligible @Rs.40/hours O.T Charge**. Apart from above, initial two months free accommodation will be provided by the company.

Total: Rs.4900+/pm stipend +Annual Bonus +Free Canteen +Free Transport + Free 02months Accommodation.

Application Submission:- on or before 31st July 2012.
N.B:- During training ITI candidates will give Apprenticeship Exam under N.C.V.T Board.
Interested ITI Colleges can contact for participate in Campus :- career@sgkindia.com
Last Date of Applying for this job 31-07-2012
Vacancy Details; http://www.sgkindia.com/home.php?page=preview_vacancy&id=NTA=

(SGK India Industrial Services Pvt.Ltd is an ISO 9001:2008 Certified Staffing Company having its Registered & Head office at Bhubaneswar, Odisha. It specializes in core HR Solutions ranging from Recruitment, Staffing, Payroll Management, Statutory Support, Training & Development that includes current booming sectors like Automobile, Steel, Mines, Oil &Gas/Power, Telecoms, Consumer Durables, FMCG, Construction/Infrastructure Accounts, Finance, Healthcare / Medical / R&D, Industrial Products / Heavy Machinery, Manufacturing, Purchase / Logistics / Supply Chain, Hotels Industry, Packaging etc. It claims to provide complete Human Resource requirements, in the form of research, training & HR solutions and constantly evolving research fields into the development of its Outsourcing, Recruitment and training Programmes)

In the last few decades, particularly in the industries where the nature of manufacturing operations demanded maintaining a larger proportion of regular workers and therefore the labour costs were comparatively higher (e.g. the auto, chemical, engineering and electronics sectors), that practice has been reversed and the current trend of engaging contract workers and apprentice workers has taken hold and gradually become the norm. Engaging apprentice workers is considered safer and more rewarding because they are already trained in some

trades. Legally, they are not considered as workers, and so they do not have any right to collective bargaining. They are legally engaged only for one year and so they provide lot of space for a flexible workforce; and they are paid a fixed honorarium and not wages.

The honorarium fixed by the government for apprentices is very low, far less than the minimum wage, and employers, including Samsung, are actually paying more than the fixed honorarium (near about or equal to minimum wages), and also offering free accommodation for one to two months, free transport and free canteen meals. It is clear from the above that the employers are seeking to engage more apprentices as a strategy to use them as a source of vulnerable, low paid, flexible workers. Lastly, this strategy of using apprentices also avoids trade unionism. Apprentices must leave the factory after one year, and therefore generally they have no interest in trade unionism.

This practice of engaging ITI students is not because of their skills in a particular trade. As can be seen in the employment advertisement above, they are offering apprenticeship for ITI students of any trade. ITI students have better skills, but it is their apprenticeship position (short term, low paid worker status) that is attractive to the employers, not their skills and education.

Due to these promising factors, employers are pressurizing the government to liberalize the rules and laws regarding employment of apprentices, and the government is also willing to do so in the name of promoting skill development among the youth. The process has already started. Since the apprentice workers are emerging as an important section of the workforce, it is important for the labour movement to clearly understand the issues of apprentice workers and evolve strategies to organize them and build solidarity between apprentice workers and regular/contract workers. Trade unions should study the current apprentice system of India, changes that the employers and government are bringing to this system, the possible implications of these changes, and finally the nature of the emerging apprentice system and challenges before labour.

India has two types of apprentice system, one run by the Ministry of Labour and Employment and the other run by the Ministry of Human Resources Development (HRD).

Apprentice system run by the Ministry of HRD-Graduate/ Technician/Technician (Vocational) Apprentices

- Graduate Apprentices: Applicable for those having an engineering qualification (10+2+4), applicable in 104 trades
- Technician Apprentices: Applicable for those having a diploma in engineering or technology (10 +3), applicable in 114 trades
- Technician (Vocational) Apprentices: Applicable for those having completed an AICTE recognized vocational course involving two years of study after secondary school (10+2+2), applicable in 102 trades

In this apprentice system, the apprentice period is for one year, and 50 percent of the stipend paid to the apprentices is reimbursed by the government to the employers. The apprentice program involves only on-the-job training. Under this system for engaging apprentices, there is no limit on the employer on the ratio of apprentices to regular workers.

Apprentice system run by Ministry of Labour and Employment - Trade Apprentices

- Craftsman Training Scheme (CTS): Post completion of training and certification at ITI's/ITC's, applicable in 188 trades
- Apprentice Training Scheme (ATS): Immediately after completion of a certain level of basic education-8th, 10th or 12th grade/class pass, applicable in 188 trades

Students in Industrial Training Institutes (ITI) or Industrial Training Centres (ITCs) after completing their course programs receive a credit for training or apprenticeship of six months to one year. On the other hand, the trade apprentices, i.e. those who join the apprenticeship program immediately after completing their basic education, need to undergo an apprenticeship period of one to four years. They are called 'full term' apprentices.

In trade apprentice system, the scheme of reimbursing 50 percent of stipend is not applicable. Moreover, the government sets a limit on the number of apprentices that may be engaged in a particular

establishment in particular sectors. Using a complex formula, it provides a ratio of apprentices to regular employees for particular factories or establishments. This exercise is done to ensure that apprentices are not used as cheap labour. Moreover, this apprentice program requires not only on-the-job training but also an in-house training facility, and therefore the training capacity of a particular establishment must be evaluated.

It is clear from the above that the training program run by the Ministry of Human Resource Development is for highly skilled workers, and they generally are engaged in comparatively better paid jobs in supervisory ranks. The apprentice program run by the Ministry of Labour deals with the rank and file workers.

The government of India is working on the following changes to the apprentice system and considering the suggestions of a committee constituted by the Planning Commission of India in 2009 on re-modeling India's apprenticeship system:

- Establish a single window at the DGET and Ministry of HRD for the clearance of applications seeking appointment of apprentices on a pan-India basis, i.e. where it is sought to appoint apprentices in more than four states in the country.
- The list of trades for the trade apprentices program has to be increased manifold and has to be done with urgency. A committee must be established immediately under the Ministry of Labour and Employment with a pre-defined time limit to recommend the addition of trades to the existing list of 188.
- Records and returns that need to be maintained by the employers under the Act and Rules need simplification and harmonization with existing records maintained by the employer.
- Clarifications should be issued by the central government, such that the state governments do not insist that apprenticeship vacancies identified in the state be necessarily filled by candidates domiciled in the state.
- The stipend levels need to be increased with utmost urgency. Stipend levels must be doubled with immediate effect. Further, the stipend rates must be reviewed on a bi-annual basis.

- The government reimburses the employers 50 percent of the stipend paid by them to the graduate/technician/technician (vocational) apprentices. The benefit of reimbursement is not afforded to the Trade Apprenticeship Program. The government should reimburse 50 percent of the minimum statutory stipend paid for trade apprentices as well.
- Though the Act specifically states that nothing prevents an employer from engaging a higher number of apprentices than the prescribed ratios provided the training facilities are commensurate and approval has been received, the government should issue clarifications to the various authorities under the Act to ensure that the ratios of apprentices to workers as written in the Act be taken only as a guideline and employers must be allowed to use more apprentices, up to a maximum ratio of one apprentice to one worker.
- The labour market has changed quite substantially and a number of skilled jobs can be done by graduates that have undergone some short periods of apprenticeship training. Therefore, the graduate apprenticeship program of the Ministry of HRD must be extended to include all youths with a graduate degree, including degrees in commerce, art or science. The Ministry of Human Resource Development has already decided to include non-engineering graduates into the Board of Apprenticeship Training scheme from 2012.[59]
- The period of training for trade apprentices under the ATS and the CTS programs are very long, extending up to a maximum of 4 years in many cases. The period of apprentice training for all trades should be between a minimum of three months and a maximum of one year.
- Penal provisions for employers, especially those failing to engage the requisite number of apprentices, maintain records and returns and qualification of apprentices should be relaxed and provisions of imprisonment should be removed from the Act. The penal provisions could also be differentiated for cases where the employers pay higher than the recommended stipend.
- Employers should be permitted to outsource basic training for all apprentices.

- Employers should be allowed to take a 150 percent income tax deductions for all apprentices hired under the Apprentice Act, 1961 for all stipends paid to apprenticeships less any reimbursement claimed from any state or central government.
- Currently, apprentices cannot be terminated during their term of training except in certain exceptional circumstances, and the process of termination requires the intimation of intention and receipt of permission from the Apprenticeship Advisor. Now employers are demanding easy hire and fire rules for apprentices on the grounds that every business goes through business cycles during which expansion and contraction may be inevitable. During difficult times, such as the restructuring of a business and other exigencies, costs will have to be controlled.

We can see that if all the above suggestions are implemented by the government, a very effective and sustainable strategy of exploiting apprentice as source of flexible, vulnerable and cheap labour will emerge with following elements:

1. If the ratio of apprentices to regular workers is approved to be one to one, then employers will be permitted to legally engage apprentices as half of their workforce, or even more illegally. The current ratio varies from industry to industry and factory to factory and generally it is around 1:7. Actually many employers are already engaging a higher number of apprentices, and some are already engaging apprentices as half of their workforce, as in case of Samsung.. Moreover, if graduates are included in the apprentice program, a huge educated and low paid workforce will be made available to the employers.
2. Currently employers need to obtain a No Objection certificate (NOC) from a state government to take on an apprentice from any other state, and by virtue of this, the state governments are able to insist that apprenticeship vacancies identified in the state be necessarily filled by candidates domiciled in the same state. It is because of this factor, that in many industrial centres we find a significant proportion of workers from the same states. This factor plays a positive role in the unionization of the workforce and in

building their social and political power. However, if the powers of state governments to insist on accommodating locals are removed, then employers may engage only migrants from other states to put workers in a more vulnerable situation and to make unionization more difficult.

3. If the apprenticeship period is fixed at a minimum of three months and a maximum of one year, then apprentice workers will be even more rapidly converted into a source of flexible workforce. Relaxing the rules and granting an easy hire-and-fire system will further increase the flexibility.
4. If the scheme of reimbursing the 50 percent stipend is also made applicable to those engaging trade apprentices and if the stipend rates are increased, this will directly benefit the employers by further lowering their labour costs. Moreover, if they are granted 150 percent income tax deductions on these stipends paid by them to apprentices, this will add further to their profits. It is akin to primitive accumulation or the open looting of public funds to increase corporate profits.

IV. Challenges and prospects of organizing workers in the electronics industry

The expansion of the electronics industry in India is relatively new and the majority of workforce is represented by first generation workers. Therefore the unionization of electronics workers in private sector is almost completely a new beginning. One of the major difficulties of organizing private sector electronics workers has been the small size of enterprises and scattered presence of electronics manufacturing units. With the opening of the Indian economy and with a declared focus on promoting electronics manufacturing, now many larger electronics manufacturing units with comparatively larger workforces are being established by major global players in electronics industry.

In addition, to provide better infrastructure facilities to investors, a strategy of clustered development of the electronics industries is being promoted, and therefore a number of electronics manufacturing clusters are emerging, like NCR Delhi, Mumbai (Maharashtra), Bangalore

(Karnataka), Sriperumbudur (Tamilnadu). In near future, Hyderabad and Visakhapatnam in Andhra Pradesh, Rohatak in Haryana and Bhiwadi in Rajasthan are also going to emerge as important electronics manufacturing centers, as huge electronics manufacturing clusters are proposed in these centers. All these developments promise immense opportunities for initiating a major effort for organizing the electronics workers in India.

There is no trade union and no system of formal representation of workers in Samsung Electronics in India in any of its manufacturing facilities. The major problems in organizing the workers in Samsung and electronics industry in general are: a) Majority of workers are first generation workers, not aware of their rights and very skeptical about trade union activities; b) majority of workers are informal and the sword of unemployment is always hanging over their heads; c) a significant proportion of workers are ITI apprentices who are not considered as workers under the law, so they have no interest in union activities and also have fear of being dismissed without completing the apprentice period; d) since expansion of electronics industry is comparatively new, there are no large trade unions in this sector to initiate large-scale unionization drive or at least support such initiatives.

However, with all limitations, the unionization process in electronics industry has already started. The organizing dynamics is difference in various regions of India. In north India the electronics manufacturing workforce is dominated by males (mostly migrants), while in South and west India women workers (mostly from the surrounding rural areas) constitute 50-60 percent of the workforce. Moreover, in south and west, particularly around Chennai, Bangalore and Mumbai there are special economic zones or electronics parks where large number of electronics manufacturing units are located, like Nokia and Flextronics SEZ in Sriperumbudur, Electronic City in Bangalore and Santakruz Electronics Export Processing Zone-SEEPZ (also hosts Jems-Jewellary units) in Andheri, Mumbai. In north there are some IT parks in Noida and Gurgaon, but most of the electronics manufacturing units are scattered in NCR region and not located in any parks or Zones. Also, there are differences in politics of labour and labour law enforcement machineries in SEZs in various states.

These factors suggest that there are some crucial differences in the dynamics of organizing in the north versus the south. In south India, particularly in Sriperumbudur, there are more dynamic and successful efforts of organizing electronics industry workers. In Foxconn and Nokia the workers have already won the right to collective bargaining and they have recognized trade unions. Now the struggle is to expose the yellow trade unions (state or company founded unions) and transform or replace them with a democratic trade union. Strikes in Nokia and Foxconn can actually be said to have started a new phase of electronic workers struggle in India. In many more companies in the region, unionization efforts are so forceful that managements are trying hard to avoid union by forming workers committees.

In north, particularly in the national capital region of Delhi, there is very little success if any in organizing electronics industry workers. Recently, HMS tried to organize the workers in IL-JIN Electronics India Pvt. Ltd in its plant at Noida phase II. Il-Jin mainly manufactures circuit boards and supplies to many global electronics brands including Samsung electronics. In July-August, 2012, HMS Union raised the demand with IL-Jin management to convert the contract for workers to regular status. But the management responded with victimizing the workers, dismissed 22 workers, including all HMS union officials, and stopped the bus services for workers.[60] In Maharashtra, the birth place of the electronics industry in India, attempts to organize electronics workers started many years ago, and in 1994, there was a strike in a computer unit of Tandon Group of companies located in SEEPZ, during which 1500 workers were arrested and 150 were dismissed. Organizing attempts continued later also however without any great success. Recently there were renewed attempts to organize workers in SEEPZ but more focused on the gems and jewellery industry rather than electronics. However, it will certainly act as an impetus for organizing efforts in electronics units in SEEPZ.

In almost all recent struggles and organizing attempts discussed above, the degree of success depends on the degree of unity between informal (contract) workers and formal (regular) workers. Therefore, integrating the issues of formal and informal workers and the ways and means to protect informal workers emerges as the main concern for unionization strategies and struggles of electronics workers. Moreover,

this study brings out one more dimension in these concerns. Recent labour strikes (in both electronics and auto industries) forcefully challenged the strategy of using contract workers as source of cheap and vulnerable labour, by successfully uniting informal and formal workers together and putting forward the demands of equal pay for equal work and regularization of informal workers.

As a result, employers are now seeking other alternatives for cheap and vulnerable labour, i.e. exploiting the ITI apprentices in a big way, as is very clearly coming out in case of Samsung. In other electronics factories apprentice workers are emerging as significant section of workforce. Therefore, the issue of organizing apprentice workers may emerge as an important factor determining the success or failure of action in the electronics industry. The most important issue in this regard is the issue of recognizing the apprentices as workers under the law. This issue cannot be ignored in future in strategies of organizing electronics industry workers.

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Photo by SHARPS

Mapping the Supply Chain of the Electronics Industry in Vietnam

By Ngo Huong

A. Overview of Vietnam's electronics industry

1. Rapid development, foreign domination

The electronics industry in Vietnam has grown rapidly in recent years to become the second largest source of exports and a center of global integration process as regards Vietnam. The industry has also identified as one of six "social hot spots' in the global electronics sector, a designation indicating that workers in this industry are at risk of human rights violations and related social problems.[1]

Recent research shows that workers in this sector are exposed to toxic industrial chemicals which carry potential health risks especially as regards reproductive health. In addition, employees often have to work excessive overtime and many are employed on precarious short-term contracts.[2] Workers are not well protected, because most companies do not support the exercise of the right of workers to act collectively. Workers face risks and violations in several areas, most significantly in their rights to health, decent work, fair wages, and the right to freedom of association. The industry is dominated by foreign companies: In 2008, two thirds of the country's 436 electronics companies were foreign-owned, and accounted for 95 percent of all exports from the sector.[3]

a. Geographical locations

Foreign capital often chooses locations such as industrial zones or export processing zones with good infrastructure and convenient transportation. In terms of geographical location, 90 percent of

enterprises are located in the big cities such as Hanoi and Ho Chi Minh City and their neighboring provinces. In fact, just two regional hubs in the big cities produce the majority of electronics products in Vietnam and account for more than 90 percent of all exported goods. Recently with the expansion of Samsung from its first factory in BacNinh province in 2006 to the second factory in Thai Nguyen province in 2013, the electronics manufacturing industry has been spreading out in the north.

b. Market orientation

The industry supplies both the domestic market and export markets. The export- orientated production is done mainly by foreign-invested companies, such as Fujitsu, Canon, Intel and Foxconn (known as Hon Hai in Chinese). The domestic-market is supplied by local companies as well as Japanese and Korea companies, such as Panasonic, JVC, Toshiba, of Japan, Samsung and LG of South Korea, and TCL of China among others. As seen in other ASEAN countries, foreign-owned companies in Vietnam dominate both the domestic market with an 80 percent market share and the export market, accounting for 90 percent of all exports.. Local companies play an inconsiderable role, and there exists a big gap in technology between local and foreign firms.

c. Product structure

There is a big imbalance between the output of consumer electronics products and specialized electronics, a ratio of 80:20. Industrial production of spare parts and accessories (except those currently producing components solely for export)and supporting industries are developing slowly. Therefore the rates of localization and local value added in products are still low.

d. Labour force

In all, 250,000 workers are employed in about 500 companies.[4] About 90 percent of the workers are female and about 70 percent are workers who have migrated from rural areas to the cities.

e. Key players

Key players in the electronics industry in Vietnam are Samsung Electronics, Pentax, Canon, Intel, Panasonics, Nokia, and Jabil Circuit (JBL). Of those, the following big names have been considering expanding their business in Vietnam:

- Samsung:The South Korean electronics manufacturinggiant is considering pouring US$700 million into a new mobile phone factory in the north of Vietnam. It has been reported that the investment plan would be the second investment stage of the company in Vietnam.[5] Samsung's first factory, also located in the north, has an operating capacity of 150 million units a year. The second factory, which is being constructed in Thai Nguyen province with a total planned investment of US$1.2 billion as of 2013 and is likely to be expanded in coming years.[6]
- Intel:Semiconductor giant Intelopened an assembly and testing plant in Ho Chi Minh City in 2010,the largest such facility for the company worldwide, and is looking to increase the complexity of work that is being done in Vietnam and invest in more high-tech facilities in Binh Duong province.
- Jabil Circuit: This electronics parts manufacturer headquartered in Florida plans to increase the investment capital of its factory in Ho Chi Minh City to US$100 million from the initial investment of US$30 million in 2007. It sees Vietnam as a 'new China', because it can get a 30-40 percent cost reduction in Vietnam.[7] According to Mike Matthes, senior vice president of Jabil Circuit, the company would employ an additional 5,000 workers in Vietnam in the five years. As at the end of 2012, the company employed 1,400. Apple and Cisco of the US and Research in Motion (RIM) of Canada have been the biggest clients of Jabil Circuit.
- Nokia of Sweden in late April officially launched its cell phone plant project in the theVietnam-Singapore Industrial Park (VSIP) in BacNinh Province. The project, worth 200 million euros, or US$256 million, is expected to start operation in 2013, turning out 180,000 products per year and creating jobs for 10,000 people. This decision was made a few months after Nokia shut up and scaled down several factories in Europe to cut costs. This

marks a new step in Nokia's strategy to turn Vietnam into a link in its global supply chain.

2. Labour's legal framework and protection mechanisms

2.1 Legal framework:

The Labour Code of Vietnam, approved by the ninth term of the National Assembly on 23 June 1994, came into effect on 1st January 1995. The code institutionalized the Vietnamese Communist Party's new direction regarding labour relations and management after 1986. It covers issues such as employment, apprenticeship, labour contracts, collective bargaining agreements (CBA), wages, working hours, rest time, labour discipline and material responsibility, occupational health and safety (OHS), specific provisions on women labour, child/adolescent and other types of labour, social insurance, labourunions (LU), the settlement of labour disputes, state management of labour and inspections, and the handling of violations of labour legislation.

The code regulates labour relations between workers and employers and directly related social relations. It applies to all workers, organizations and individuals using contracted labour in all economic sectors and all forms of ownership, as well as to apprentices, domestic workers, and a number of other jobs, with the exception of workers doing 'outwork' or piece work at home (Articles 1-2 and 137). The code is considered to be one of the most comprehensive and progressive labour laws in Asia, creating a more suitable legal framework for labour relations during the transitional stage from a centralized economy to a market economy.

The Labour Code 2006 comprehensively amended Chapter 14 on labour dispute resolution, reflecting the fact that, with the yearly increase of foreign investment and flourishing domestic private enterprises, there have been more violations of the labour laws which have resulted in an increasing the number of strikes, especially in 2005 and 2006, and the law regulating labour disputes had proved inadequate.

The Labour Code 2007 focused on two aspects: arrangements for social security and mechanisms for enforcement. The first included how

to ensure good working conditions, a decent income and effective social protection. This revision aimed to ensure this with detailed regulations on occupational health and safety (OHS), working hours, minimum wage rates and social insurance. The second aspect refers to institutions dealing with Labour Code violations and labour disputes, the legal framework for collective action and labour union work.

The 2006 amendments to the Labour Code required businesses to take responsibility in providing safeguards for workers' rights and working conditions as well as non-discrimination, collective bargaining and the like. The code is well articulated in national legislation but still does not provide for freedom of association and the formation of unions. The same applies to the Trade Union Law which recognizes only one government-mandated trade union, the Vietnam General Confederation of Labour (VGCL).

The Law on Environmental Protection in 2005 was mandated but lacks enforcement at the local level, especially in relation to enterprises. This law appears on paper to be comprehensive and thus poses challenges for enforcement and adherence, especially for local businesses. Thus, environmental protection remains a challenge, since local authorities provide incentives and preferential treatment to investors, such as corporate tax reductions or tax holidays, land clearance permission and natural resources exploitation to attract this investment which they hope will generate local revenue and give little concern to the cost to the environment of resulting pollution and other social compensation costs. In addition, the Enterprise Law adopted in 2000 and other related laws detail enterprises' responsibilities as regards tax but do not contain any provisions on social responsibility, ethical investment and other business standards.

Vietnam is an active participant and follower of the framework of the International Labour Organization (ILO). From 1980 to 1985 and since 1992 Vietnam has ratified 17 ILO conventions, including Convention No. 188 and five of the eight fundamental conventions. However, Vietnam has not ratified the ILO convention on freedom of association and collective bargaining, as well as those conventions related human rights. In domestic law, collective bargaining, a key labour right, has been limited and handled by thestate trade union. This is the only trade union permitted to legally organize strikes or undertake any bargaining on workers' behalf.

The government of Vietnamencourages the implementation of the UN Global Compact, but it is used as a tool for business and in their public relations. The Vietnam Global Compact Network Project was supported by the UN and was managed by the Vietnam Chamber of Commerce from 2007-2011.

Table 1: Key legal framework on labour

- Labour codes (1994, amendment in 2002, 2006 and 2007 and 2012); Revised Labor Law on labour dispute approved by the National Assembly on 29/11/2005 (effective 1/6/2006)
- Decree 63/2005/ND-CP in medical insurance (2005);
- Law on Gender Equity approved by the National Assembly on 29/11/2006 (effective 1/7/2007)
- Law on Social Insurance, approved by the National Assembly on 29/6/2006 (effective 1/1/2007),
- Decree 135/2007/ND-CP dated 16-8-2007 on administrative punishment in social insurance, 2/10/2007
- Health insurance law (2008);
- Enterprise Law approved by the National Assembly on 29/11/2005 (effective1/7/2006)
- Environmental protection law approved by the National Assembly on 29/11/2005 (effective 1/7/2006)
- Labour union and labour union organization law, amended 1990, 2012 (effective from 1 Jan 2013)
- ILO basic conventions that Vietnam ratified: C100, C111, C182, C138, C29, C81, C138, C122

2.2 Compliance and Inspection mechanism

According to the regulations, all companies in Vietnam are subject to inspections by government labour inspectors, but this does not work in practice. There are insufficient inspectors under Ministry of Labour, Invalids and Social Affairs (MoLisa), so their inspections are legalistic and record-based. The inspectors have limited time to do on-site inspections or interviews directly with workers. Based on a study done by the Centre for Development and Integration (CDI 2010), none of the workers interviewed for that study reported that they

had been interviewed previously by any auditor – neither an auditor from the company nor from the government. Other shortcomings of labour inspectors have been identified by the government, and training programs have been set up with support from the ILO and US Agency for International Development (USAID) aimed at achieving more efficient labour inspections.

With regard to the electronics sector, there is little or no external auditing in electronics factories in Vietnam, according to local experts and resident representatives of the ILO, Global Standards, and the EU programme SWITCH-Asia. SWITCH-Asia is a project that aims to improve domestic auditing services in Vietnam by increasing the number of auditing consultants and improving their skills. One of the participants in SWITCH-Asia is the Vietnam Electronics Industries Association (VEIA). Participating actively in SWITCH-Asia in recent years, VEIA sees the main challenge of the project as helping Vietnamese electronics companies understand the various codes of conduct, since many of them misunderstand how to deal with these codes.

3. Industrial relations and dispute resolution mechanisms

Vietnam's booming private sector has become a breeding ground for disputes. Wildcat strikes have occurred at foreign-invested enterprises and private enterprises in Vietnam since 2005. The strike statistics vary but whether they are from the Vietnam General Confederation of Labour (VGCL) or government sources, a dramatic increase of strikes from 2003 onwards is clear. Then, another dramatic increase in the number of strikes from 2005 to 2007 was clearly seen, even with due consideration for the gaps in public statistics in Vietnam.

The most recent statistics from VGCL show that the strikes rose to a high level in 2010. With more than 400 work stoppages and strikes in the private sector during 2010, companies, factories, the government and the VGCL have identified labour disputes and a poor industrial relations system as a major problem. The electronics industry accounted for just 34 cases or 8 percent of strikes in 2010. Industrial relations are seen as less tense in the electronics industry since the average salary for workers is higher than the national average salary and the jobs have a higher status than those in other industries, such as textiles and food

processing. Still, industrial relations are a problem in the electronics industry.

There are numbers of critical reasons for such high numbers of disputes and emerging labour-based strikes. Firstly, there are greater numbers of workers employed in industry: The labour force in industrial sectors is augmented by the rising trend of rural people joining the formal workforce in factories and also the informal sector. Secondly, employment opportunities in export-oriented factories are mainly concentrated in the lower levels of these global supply chains, in casual, temporary, sub-contracted work. The work is taken up despite the common opinion of workers that the work in this formal industrial and manufacturing sector is insecure, wages are low, working conditions poor, and workers less likely to be protected by conventional social insurance systems.

In response to the strikes, which centred on the level of wages, the Ministry of Labourlifted the minimum wage.[8] However, there remained unsolved problems regarding low wages and other labour rights issues, and strikes have continued. Vietnamese workers choose to turn their backs on the formal system and instead try to be heard through informal means, such as illegal wildcat strikes. Also, many workers choose to walk away from bad and/or low-paid jobs. This has led to a high turnover rate, creating labour shortages, lower productivity and low salary levels.

The lack of a functioning industrial relations system and the lack of freedom of association for workers seem to be the major obstacles to solving conflicts which in turn has created a nervous and unstable system.

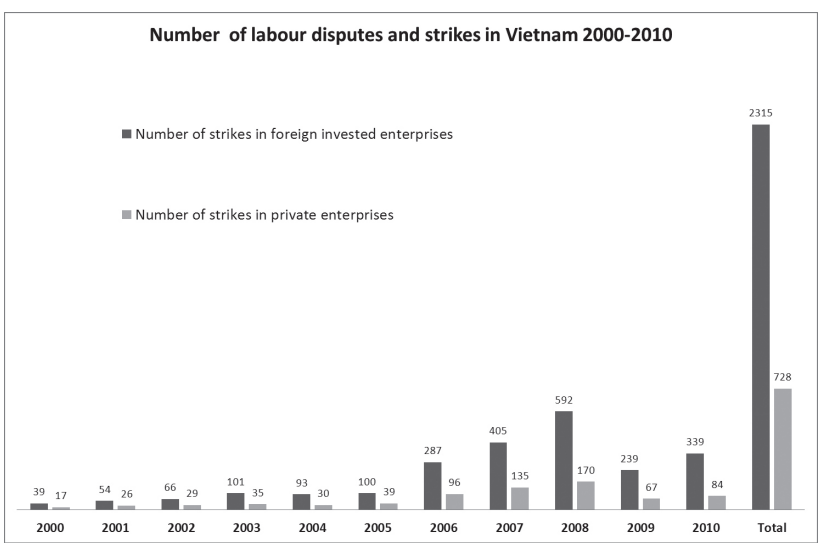
Although freedom of association is laid down in ILO Conventions 87 and 98,. Vietnam has not yet ratified these conventions and does not allow freedom of association, or trade unionism. Under Vietnamese law, there is only one legal trade union, the Vietnam General Confederation of Labour (VGCL) and its branches, and it is state-controlled. This means that workers can only join one trade union legally, i.e, accepted under Vietnamese law and cannot form and/or join trade unions of their own choice or freely associate.

According to Vietnamese Trade Union Law, a branch of the state union at a newly established enterprise with more than ten employees must be formed within six months of the establishment of that new

enterprise. The VGCL has the right to bargain collectively on behalf of all the workers in a private company. At the enterprise-level, trade union elections are held as units of a superior union and are then to be registered under the VGCL. Thus where workers can choose their representative democratically to protect and bargain on their rights, they cannot initiatecollective bargaining, seek workplace improvements on their own or negotiate directly with management on the improvement of working conditions.

When it comes to handling industrial relations and strikes, it is not only the local branch of the trade union that has a role in the negotiations, but the local government as well.With little or no dialogue between enterprise management and workers or if trade union fails, the local government could play an important role. In some cases, the local government can create a platform where workers and employees can discuss the issues with a mediator in the form of the local official.

Graph 1: Labour disputes and strikes in Vietnam (2000-2010)



Sources: VGCL/MOLISA/ILO

The rising number of strikes and the lack of industrial relations mechanisms in Vietnam have forced all stakeholders to address the issue. It is no longer only international labour and human rights organizations that see industrial relations in Vietnam as a problem.

4. National policies on electronics development

4.1.1 The overall development

It has been the goal of the government of Vietnam to develop the country into an industrialized nation and the electronics industry has been a key industry needed to promote the country's industrialization and modernization. The Department of Electronics Research was set up under the Ministry of Industry in October 1970 with this goal in mind. But it has taken a long timeto realize the government's wish and achieve the growth of this industry. At the end of 1975, Vietnam had only two electronics enterprises in operation. Both of them were assembly plants. Not until 10 years later in 1985, and following the establishment of Vietnamese Electronics and Informatics Corporation in 1980 and the effect of "doimoi" (renewal) process, were there 715 enterprises in the electronics industry operating in the country. Of these, 95 percent assembled television sets, radio cassette recorders, video disk players (VCDs) and DVDs from parts imported either in complete knockdown (CKD), semi-knocked down (SKD), and IKD kit forms. Most of theseenterprises were state-owned companies.

Since 1996, influenced by the process of attaining membership in the World Trade Organization (WTO), the number of joint venture enterprises operating in the country has increased. However, under the pressure of competition from joint venture enterprises, domestic enterprises with backward technology could not satisfy market demand as regards price and product quality. Thus, the number of domestic enterprises fell sharply. At the end 1997, the Vietnamese electronics industry had only 133 enterprises with 12,105 employees.

From 2002, to prepare for joining the WTO, Vietnam opened its economy further to foreign companies (i.eallowing 100 percent foreign ownership) and implemented the route of reducing trade barriers.

Due to the open economy and the more favourable conditions for foreign investment environment, ten joint venture enterprises became whollyforeign-owned, contributing to the increasing number of foreign enterprises in Vietnam's electronics industry.

After Vietnam became a WTO member, many large electronics projects with investment capital ranging from several hundred million US dollars to several billion dollars have been deployed in Vietnam: For example, there is Intel with its US$1 billion project in Binh Duong to produce reader optical products for DVDs, VCDs and micro motors for cameras and printers; Foxconn invested a total of US$5 billion, including US$1 billion in the electronics sector; Samsung invested more than US$ 3 billion in two of its factories in the North (namely BacNinh in 2007-8 and Thai Nguyen province in 2013).

According to statistics from the Ministry of Industry and Trade, the growth rate of the electronics industry in the country has been between 20 and 30 percent annually. It is expected that the electronics industry of Vietnam can record considerable growth in export earnings and hopes to reach $ 10 billion per year.

Vietnam's exports of electrical and electronic components are estimated to reach US$5.65 billion in 2011, an increase of 58.2 percent compared to 2010. This growth has placed electronic devices and electronic components as the 6th ranked export category of Vietnam.

In addition, the industry has developed electronic products and technologies to satisfy the needs of the domestic market and export development: Domestic market sales reached US$1.6 billion in 2005, then rose to more than US$2 billion in 2006, an increase of 37.5 percent compared to the same period in the previous year. By 2010, domestic sales had risen to nearly US$5 billion.

Just as the other industries facing to exporting, electronics industry is affected by the integration process and the changing of the world economy. This process gives the industry more opportunities, but also creates pressure to compete on price and equipment innovation, the application of new technologies, especially in protecting and improving the health and working conditions of employees with good CSR standards and performance.

4. 2 Government's orientation and policies

As the government wants to develop Vietnam's electronics industry in the service of national industrialization and modernization as well as for defense and security purposes, it embraced the hope of making Vietnam competitive in regional and world markets. The objectives for the sector are:

a. the electronics industryto become a driving force for development, making great contributions to exports;
b. the creation of 500,000 jobs and to build a contingent of engineers and technicians with international qualifications;
c. domestic manufacture will be capable of satisfying most of the domestic market demand and reduce dependence on imported products;
d. subsidiary industries to be developed to meet domestic manufacture and export demands;
e. manufacturing establishments to be located rationally according to regional development orientations.

In 2007, the Prime Minister approved the master plan on the development of Vietnam's electronics industry up to 2010, with the vision looking toward to 2012, including:

- To develop the electronics industry into an important industry of the economy in the direction of satisfying export and domestic consumption demands and contributing to accelerating the process of national industrialization and modernization.
- To encourage various economic sectors to invest in the electronics industry in different scopes and forms, from assembly of finished products to the manufacture of accessories, spare parts and subsidiary products, attaching special importance to attracting foreign investment from transnational conglomerates.
- In the future, domestic enterprises will develop through restructuring their production towards the development of specialized electronics, including the manufacture of products, accessories, spare parts and subsidiary products

for informatics, telecommunications, medical electronics, industrial electronics, mechanical electronics, measurement and automation.

- Development of human resources to meet qualitative and quantitative requirements constitutes an important factor in the development of the electronics industry in Vietnam.

4.3 Investment incentives

Investment policies are making incentives for the industries in terms of enabling the business environment. The Investment Law and Enterprise Law, promulgated in 2005, created the framework for unified policy management and encouraged investment in the region and abroad.[9] The Investment Law in 2005 has incorporated the Law on Foreign Investment and Law on Domestic Investment Promotion. The Enterprise Law 2005 regulates the organization and operation of enterprises, including foreign companies.

The investment policies are made to ensuring the implementation of investment within the framework of the Enterprise Law and Investment Law 2005:

- *Ensuring the capital and assets:* The legitimate investment capital and assets of investors shall neither be nationalized nor confiscated by administrative measures (except in absolutely necessary cases for reasons of national defense, security and interests when there would be specific regulations)
- *Protection of Intellectual Property:* The State shall protect the intellectual property rights in the activities of investment, ensuring the legitimate interests of investors in technology transfer in Vietnam in accordance with the laws on intellectual property and other legal provisions involved.
- *Opening markets and trade-related investment:* in line with the provisions in international treaties to which Vietnam is a member.
- *Transfer of capital and assets abroad:* Foreign investors are able to remit abroad the profits, capital, funds and assets lawfully owned by investors after they have made full financial obligations to the State of Vietnam.

- *Applying consistent prices, fees and charges:* In the course of investment activities in Vietnam, investors are subject to uniformly applied rates, fees and charges for goods and services controlled by the State.

5. Incentives for investment

Three-fourths of the nation's industry is open to foreign direct investment (FDI)as part of Government's industrialization and modernization and economic liberalization policies. In order to attract investment into the sectors and regions with development priority in each period, the government of Vietnam has created a series of incentives for investors and investment projects.

Tax incentives:

- Investors with projects entitled to investment preferences under the Law shall enjoy the preferential tax rates, the duration of preferential tax rates, the duration of tax reduction or exemption in accordance with the tax laws.
- For corporate income tax, preferential tax rates of 10 percent and 20 percent (the normal rate is 25 percent) shall be applied from 15 to 30 years (some fields can enjoy preferences for the entire life of the project); In addition, investors may be exempt from corporate income tax for up to four years and be entitled to a 50 percent reduction of corporate income tax for up to 9 years after the expiration of corporate income tax exemption.
- The investors shall enjoy tax preferences for income earned from capital contribution, purchase of shares in economic organizations in accordance with the tax laws after the economic organizations have paid enough corporate income tax.
- Investors are exempt from import duties on equipment, materials, transport vehicles and other goods used in the investment projects in Vietnam in accordance with the Law on import and export tax.
- Income from activities related to technology transfer for projects subject to investment incentives is exempt from income tax under the provisions of the tax law.

Loss carry forward:

- Investors who after finalizing their tax payment with the tax authorities suffer losses, such losses may be carried forward to the following year and shall be deducted from taxable corporate income in accordance with the law on corporate income tax. The duration of loss carry forward (loss shifting) must not exceed five years.

Depreciation of fixed assets:

- Investment projects in the field or (designated) geographical areas with investment incentives and business projects are subject to accelerated depreciation of their fixed assets; the maximum depreciation rates can be twice the normal rate for the depreciation of fixed assets.

Preferences on land use:

- Investors in the fields and areas of investment incentives are subject to exemption or reduction of land rent, land use fees, land use tax in accordance with the Land law and the Tax law.

Incentives for investors in industrial parks, export processing zones, hi-tech parks, and economic zones:

- Based on the socio-economic development conditions in each period and the principles stipulated in this law, the government shall give preferential treatment to investors in industrial parks, export processing zones, hi-tech parks and economic zones.

B. The case of Samsung in Vietnam

1. Overview of Samsung'soperations in Vietnam

As of the end of 2012, Samsung Electronics Co Ltd of South Korea had two factories operating in Vietnam, Samsung Vina and Samsung Electronics Vietnam Co. Ltd. A third new factory is being set up in Thai Nguyen province in 2013.

Company	Factories & products	Investment capital
Samsung Vina and Samsung Elecronics Vietnam (SEV) in Yen Phong industrial park, BacNinh province	2 factories to assemble mobile phones incl. factories for injection; plastic assessor vacuum cleaner; LCD and phone camera	About US$1.5 billion invested in Samsung Complex Việt Nam; exported 100 million product units by end of 2012 for turnover of US$12.7 billion. 30 ha of land site
Samsung Electronics Vietnam Thai Nguyen (SEVT) and its sub-factory (incl. Samsung Electro - Mechanics Vietnam (SEM), HansolViệt Namlocated YenBinh Industrial Park, Thai Nguyen province.	Assembling mobile phones and producing accessories, Produce circuits; Assembling and spare parts for electronics such as digital camera, laptops, mobile phones	US$2 billion investment employing 2,000 workers by 2013. 10 ha of land site

Samsung Electronics Vietnam Co. Ltd. (SEV) is located in Ap Don Village in the Yen Trung District in Bach Ninh province. The company established its production sites in 2008 and officially went into operation in May 2009. It is a wholly-owned subsidiary of Samsung Electronics of Korea. The key businesses are the production of high-tech electronics, manufacturing servicesand assembly of electronic products such as cameras, mobile phones, tablets etc.

SEV specializes in the manufacturing mobile handsets and other electronics and employs about 12,000 people.[10] With an area of 100 hectares, and production of 11 million units / month, the plant has become the second largest producer of mobile phones in the world, second only to the Kumi plant in Korea.

By the end of 2012, Samsung Electronics Vietnam (SEV) was expected to reach a capacity milestone of 100 million units / year after officially launching the second mobile phone production line in September 2012. SEV has contributed significantly to Vietnam's exports: Less than a year after going into production, SEV has achieved

exports valued at US$1 billion. This event marked a new development in investment projects in Vietnam SEV. It is expected that in 2012, the total export turnover of the SEV will reach more than US$4 billion. Thus, the total accumulated exports from its inception through 2011, the SEV will be more than US$6 billion. More than 95 percent of SEV's mobile phones have been exported to Europe and some Asian countries. In addition to the two mobile phone production lines, SEV plans to produce cameras and laptops.

SEV purchases raw materials, components and manufactured products from about 60 subcontractors in Vietnam, of which 31 are satellite Samsung companies operating in BacNinh, making the localization rate (locally produced content for the mobile phones) just 16 percent.

2. Labour issues at Samsung

a. Labour conditions

By the end of 2011, a total of 29,000 workers were employed in Samsung factories in BacNinh province, and by mid-2013, the total had risen to 40,000 workers, more than 80 percent of whom were women. Samsung is preparing to employ as many as 40,000 workers and provide dormitories to accommodate around 3,000 workers and will build more for up to 6,000 workers by the end of 2013. It is reported by the company that all workers have social and health care insurance.

b. Working hours

Samsung announced that theywould operate a 44-hour week system which is less than Vietnam's legal (maximum) 48-hour work week. There are two main shifts: the day shift is from 8am-5pm, and the night shift is from 8pm-5am with every other Saturday off. When manufacturing output requirements necessitate overtime, each manager announces this in advance to minimize the negative impact on employees' schedules. Employees are asked to volunteer when overtime is required on Sundays, and there is no penalty for employees who do not volunteer for overtime.

According to a small research project done by CDI in 2010, in which 20 workers at SEV were interviewed, 15 workers reported that "overtime was frequent all year." Overtime work depended on the workload and production targets. Workers were sometimes requested to work overtime for a few hours each day or all day on Saturday or Sunday. Minimum overtime is usually two hours. Some months they must work every day without any rest.

About 80 percent of the workers interviewed said they choose to work overtime, because they can earn more and save more money to send to their families. On average they work two hours overtime each day, but during peak times the workers have to work four to five hours overtime every day, Monday to Sunday. Workers also reported that in peak production period, it is difficult to refuse to work overtime, even if they have other plans or do not want to work. On those days, the manager often stands in front of the door to monitor the workers leaving the factory. If the workers cannot give a reasonable reason for refusing to work overtime, they are told to continue working so that their production line can continue operating. All sections are asked to work overtime in full shifts. There is no fixed number of overtime hours per month.

c. Wages, costs and living conditions

Although wages, benefits and living costs vary among the workers and between factories, most workers interviewed said that they earn enough to cover the cost of basic needs. But due to recent inflation, they find it harder to save money, and expressed concern that their salary cannot keep pace with the rapid rise in living expenses.

However, the basic wage at all companies is well above the legal minimum. Average basic income is US$175 a month. However, due to inflation and high market prices, their wages just cover the minimum living costs. Therefore,

> "*The cost of living now increases, while wages do not change, so our wage is not enough to live on, I want to look for a new job with a higher salary*"
>
> —Female worker at SEV

most workers must work overtime to raise their income. If they work 12-15 hours/days, they could get the income up to US$250to 350 a month, substantially higher than the basic wage.

d. Health and safety issues

Before officially starting work in the factory, new workers receive five days of training and indoctrination on the policies and regulations of factory (including environment policy) and some physical strengthening exercises. They are instructed how to greet the Korean managers, and how to use health and safety equipment at work and the requirements and obligations of the production line. However, the interviewees reported they were not aware of any other code of conduct in the workplace. Some workers said they see regulations posted on the wall, but some said they did not remember these or did not see them in their unit. While workers were not aware of specific chemicals in use, they reported that they did receive safety training and received personal protective equipment (PPE), including chemical masks that they must use while working there.

Interviews with workers working in the Coating & Mixing Section revealed their complaints about air quality and paint smell in this area which was said to be strong and "terrible."

> "*Inside the workshop, the air is so polluted, and paint smell is so terrible, but the manager said that it is not harmful. The factory took its time resolvingissues raised in a workers' petition on pollution in the work environment.*"
>
> —Workers from Coating & Mixing

In addition to working conditions, workers' health is adversely affected by working so much overtime.

> "*Working extra hours burns all of our energy. It is exhausting and overloading. My daily routine revolves around working, eating and sleeping. I have no idea of anything else except for the factory and my room. We joke with each other that work makes it impossible to update (our knowledge of) the names of State leaders or events. We just sleep to be healthy enough to work*" – an SEV female worker

Since 2012, information about the high level of hazardsin Samsung factories has emerged, including, for example, miscarriages by women workers. Around 5,000 workers gave up their jobs and chose to go back to their hometowns. At the same time, the company has organized many events to counteract this publicity, such as inviting labour union officers from the provincial level, journalists and a number of village heads to visit the factory.

Samsung tried to impress them by showing them the good, healthy food provided for the workers and that the director was also having the same meal as the workers. They tried to present the factory as a clean, chemical-free environment, and tried to convince the visitors that there were no problems with factory and no industrial hazards. With chemicals and occupational hazards largely out of sight and beyond their understanding, Samsung managed to convince them. However, the current workers are still very worried about their working environment

e. Freedom of association and a trade union establishment

Samsung is clearly not in favour of trade unions. Instead of unions, Samsung prefers bodies, such as labour councils, its 'Great Work Place Committees' or safety councils that serve as a forum for dialogue between management and workers. In the company's Human Rights and Labour policy, it includeda statement about trade union: "Samsung Electronics strives to provide superior working conditions relative to its peers, so that employees do not feel the need for a labour union".[11]

By the end of May 2011, there was no trade union established at SEV, although by law, the company is required to set up a trade union. The workers interviewed during this field research in 2010-2011 revealed that they wanted to set up a trade union to protect their rights and contribute to improving conditions for all workers, and they believed that a trade union would be able to protect them from unfair conduct by the company. But the workers did not know why a trade union was not formed in the factory. They were not aware that the establishment of the trade union was required by [law]. However, the VGCL Labor Union of BacNinh province has reportedly been working on this issue for a long time, and the factory finally agreed to establish a trade union in the spring of 2011.

f. CSR programme

According to Samsung's website, the company is a member of the Electronic Industry Citizenship Coalition (EICC). Thus, it adopts the EICC Code. The EICC Code, however, has serious shortcomings related to freedom of information and lacks any mention of collective bargaining. However, according to the website, in addition to adoption of the EICC Code, Samsung has formulated a Labor and Human Rights Policy.

For the implementation of the CSR requirements for suppliers, Samsung asked 542 business partners to complete the CSR agreement; 356 partners returned the EICC self-assessment questionnaire, 367 partners had an onsite audit carried out by Samsung on the CSR implementation, and companies with a high score on the assessment were given incentives as a way of promoting CSR.

C. Conclusions and the way forward

From the overview of the electronics sector in Vietnam, it is quite clear that Vietnam has become a global hot spot,following China, in terms of the expansion of its electronics industry and its attendant risks.

With the government's promotion policies and the fact of increasing investment in electronics industry in Vietnam, there will be more concerns on how the workers are protected and what kinds of

working conditions they must endure. Specific concerns include the lack of OHS measurestaken by the companies to ensure the prevention of hazards; inspection mechanisms to ensure all workers received fair pay, insurance and decent work conditions;and lastly an effective collective bargaining mechanism to ensure workers' participation and protection of workers' rights at work.

Other challenges are the lack of a supportive legal framework to exercise the rights of workers vis-à-visthe compliance of companies on protection of workers and decent working conditions. Of particular concern are the rise in wildcat strikes and other labour disputes that are happening in and around the sector.

Given the above concerns and challenges, some strategic recommendations on electronics sectors are:

a. Legal framework:

The laws on labour and trade unions can be amended torestrict working hours, especially overtime, and require more inspections and involvement by the labour union to protect workers. The labour union at the enterprise level should be empowered to act on behalf of workers, and thus be protected and supported by the higher union levels.

b. Prevention of hazards:

Both government and companies should pay more attention to:

- Promotingtransparency and the dissemination of information about toxic elements in the workplace for everyone,including employers (OHS officers) and employees;
- Strengthening the inspections and OSH checks at enterprises;the enforcement of the labour laws regarding overtime issues, environmental tests, examination of occupational diseases;
- Other concerned departments, such as the Department of Health, should monitorthe health of the sector's workers', including medical examinations before and after working in

an electronics factory. The health care provided to workers should be periodic to ensure early detection of occupational diseases, particularly those related to work in electronics factories;

- Enhancing inspections by labour departments at all levels to prevent and detectwork-related hazards and to prevent conflicts.

c. Improving working conditions

While most companies implement a specific corporate social responsibility (CSR) agenda which seeks to monitor working conditions, it is particularly necessary to increase the awareness and commitment of electronics companies to workers' OHS.

d. Protection and respect for workers' rights

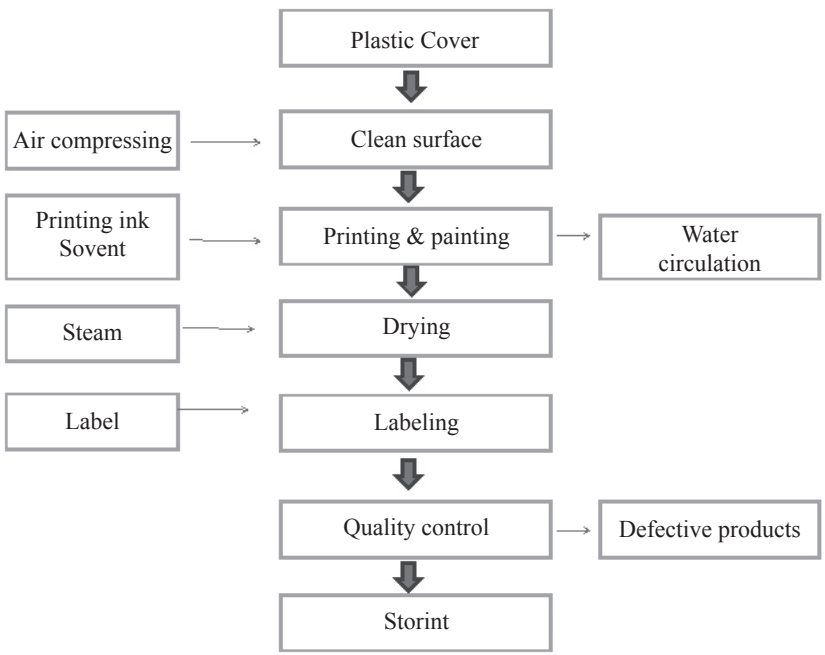
An effective bargaining mechanism shouldbe created, and workers should be allowed to freely to elect their representatives, so that they can be protected by their trade union.

The protection of workers' rights, including decent work and a safe working environment, should be enhanced by the participation of all stakeholders, including government and civil society.

ANNEX

Production processes in Samsung factories:

1. Plastic covers for mobile phones



2. Window screen production

#	Stages	Description
1	Material storing	Storing the transparent synthetic resin materials (mica)
2	Cutting	Cutting the mica in pre-set sizes in preparation for covered and steamed printing
3	Printing	Printing the top of the window. After printing, the screen will be washed with detergent

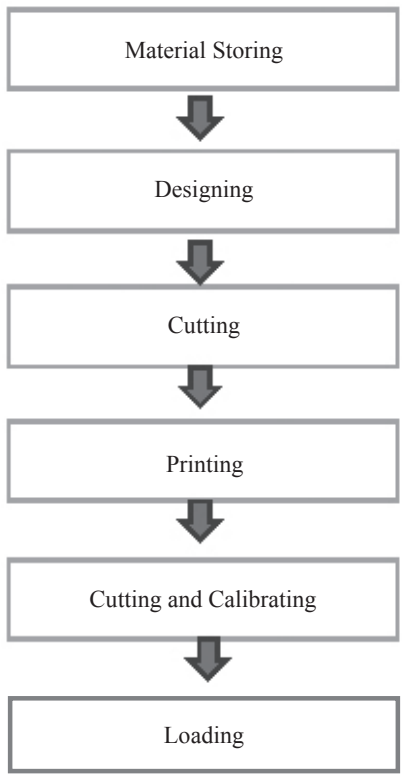
4	Gassing	Enhancing the effectiveness of the transparency and iridescent colors of the screen with metallic coating type (by Micro Technology) on Mica panels
5	Printing	- Printing in the outermost part of the window - Printing after processing to prevent rusting in the goods arising slightly. After washing the surface will be cleaned.
6	Hot Stamping	Using the heated rubber sheet to stamp the products
7	CNC processing	Process of cutting products on CNC machine by entering data into the computer
8	Checking after cutting process	As of the last checking completed products in stages of CNC
9	Final quality control	Final stages of product testingbefore release

3. Keypad processing

#	**Stage**	**Description**
1	Storing materials	Store keypad shell. Here is the raw plastic keyboard which were made available, from this plate to other processesto create the print button and symbols above the surface.
2	SUB working	Preparatory work painted by real property of products. Each phone keypad together with the paint as well as characteristics of different paints, so at this process will select suitable paints based on the sample of corresponding keypad
3	Painting	Insert molding shell corresponding to each strain products on line and perform auto paint. Here the key surface press will be sprayed with a primer, with the background colors selected from the side above.

4	Laser carving	After completion of the painting, this key should be printed on the content (number, effect); the first step is done by carving laser beam. Use a laser beam on the surface (the button) to print the contents with purpose of creating print surfaces with adhesion andincrease the sharpness of the printed product. Then use printing technology with UV (ultraviolet); the ink will stick to the graffiti created by laser earlier.
5	Cutting	Attach the keyboard to the device casing jigs, using pressure cutting machine which is programmed to cut separately from the plate 15 keys keyboard.
6	Assembling	Test failure on the Navi key (key 5 ways) and 4 key Softkey (because the keys are on the same rubber pads). Then mount the 15 keys have been cut off at the top with the rubber pads.
7	Mounting manual	After assembly fixtures and equipment, conduct a visual inspection of the condition is often key, if the key is dropped or not mounted correctly, perform the process of re-editing (the curve is done manually).
8	Final quality control	Perform inspection and testing features outside of the machine and to the naked eye in order to product classification. The product does not achieve standard for standards for color printing and painting; technical features will be removed during this process.
9	Shipping	Packaging standard products and shipping

4. Box covers production process



Endnotes

1. The Social Hot Spots Database (http://socialhotspot.org) monitors countries that are most at risk of human rights violations and the presence of related social issues in different industries. Vietnam is listed in the area of Electronics and Computing Machinery Manufacturing as the second most critical 'social hot spot', after Indonesia, and followed by the Philippines, Thailand, India and China as reported at the Roundtable on Social Impacts of the Electronic Sector hosted by the Center for Responsible Business (University of California Berkeley, January 31st – February 1st, 2012, full access at http://responsiblebusiness.haas.berkeley.edu/documents/presentations/roundtableelectronics2012/Roundtable_Summary_Final%5B1%5D.pdf
2. Based on a number of surveys and studies on the electronics industry including: Better Work. 08/2010. The Electronics Feasibility Study.Full access at http://www.betterwork.org/EN/Publications/Documents/Better%20Work%20Electronics%20Feasibility%20Study%20Executive%20Summary.pdf; MakeITFair. 11/2011. Out of Focus.Labour Rights in the Vietnam's digital camera factories. Full access at http://makeitfair.org/en/the-facts/news/reports/out-of-focus; and CDI's observations through working with workers in six industrial zones in Vietnam during 2010 – 2012.
3. ILO.The Electronics industry in Vietnam.unpublishedILO report. Commissioned for Economic Vietnam in 2010
4. Vietnam Electronics Industry Association (VEIA) report at http://www.veia.org.vn/default.asp?page=newsdetail&newsid=8588
5. See http://english.yonhapnews.co.kr/news/2012/10/13/0200000000AEN20121013003100320.HTML
6. http://kinhdoanh.vnexpress.net/tin-tuc/doanh-nghiep/samsung-rot-tiep-1-2-ty-usd-vao-thai-nguyen-2889256.html
7. Tampa Bay Times. See http://www.tampabay.com/news/for-jabil-circuit-vietnam-is-the-new-china/609847,
8. The decision in 2013 to raise the minimum wages (effective 2014) lifted the minimum wage range from US$85 to US$110 per month. There were also several upward adjustments in the general minimum wage ranges in 2012 from US$74 to US$105 per month (Decree 103/2012/ND-CP), 2011 (decree70/2011/ND-CP) and from US$65 to US$95 per month depending on the regions. There were other adjustments in minimum wages in 2006, 2008 and 2010.
9. Previously, investment activities were regulated by four main legal instruments, the Enterprise Law (1999), Law on State Enterprises, the Law on Domestic Investment Promotion and the Law on Foreign Investment.
10. Source: http://www.samsung.com/vn/news/newsRead.do?news_seq=15403&page=1
11. http://www.samsung.com/us/aboutsamsung/sustainability/talentmanagement/download/Labor_and_Human_rights.pdf
12. http://laodong.vn/Tin-tuc/Can-xay-dung-moi-quan-he-lao-dong-hai-hoa/44007
13. http://www.eicc.info

Photo by AMRC

Photo by SHARPS

The Rise of Samsung Group Malaysia

By Nganyin Lai

I. Evolution of the electronics industry in Malaysia

Since its inception in the 1970s, the electronics and electrical industry (E&E) has grown by leaps and bounds. In 2009, the industry accounted for six per cent of Malaysia's gross national income, 522,000 jobs and 41 per cent of Malaysia's total exports. It has been designated as one of the prime industries to drive Malaysia into a high-income economy by 2020 under the Economic Transformation Program. While the industry registers hundreds of billions of ringgit in terms of value of output, the workers are still being denied benefits in spite of the huge profits these companies have been making year after year.

Key players in the electronics industry are multinational corporations (MNCs) which exercise great influence over the organization of production, labour practices, and development trends of the industry globally. Much of the activity of these MNCs is in relatively low value-added product assembly. Even within the dominant semiconductor cluster, most of the activities are in assembly and testing rather than higher tech, high value-added wafer fabrication. The position of Malaysia as a low value-added assembly and testing site in the global supply chain of the electronics industry shapes the ways of production organising and indirectly the working conditions of workers.

This report attempts to provide insights on these aspects of the E&E industry by taking the Samsung Group in Malaysia as a case study. It discusses the expansion of Samsung Malaysia, investigates the organising of production at one of its subsidiaries, and provides a glimpse into the working conditions of the workers.

The formative years of the electronics industry in Malaysia can be traced back to the early 1970s, when the government shifted from an Import Substitution Industrialisation (ISI) to Export-Oriented Industrialisation (EOI). When the country achieved independence

in 1957, it was mainly an agricultural economy with very little manufacturing activity due to the policies of the United Kingdom, the colonial power. Malaya, as one of the colonies of Britain, was used to supply raw materials and provided a market for manufactured goods from Britain.

The industrialization effort began with the introduction of ISI in the late 1950s. The key strategy was to attract foreign investors (mainly British capital) to set up production, assembly and packaging plants in the country to supply finished goods previously imported from abroad. The government introduced import duties and quotas to protect ISI from open market competition. Tax holidays were introduced to make the ISI more attractive to foreign companies (Jomo& Edward 1993).

However, the ISI failed to deepen the industrialization process and to create sufficient employment for the population, at the expense of local consumers paying higher prices for consumer goods. The need for a new strategy to promote industrial growth became clear in the late 1960s. The government introduced EOI which aimed to accelerate industrial growth. Various new measures were introduced to facilitate and encourage manufacturing production for export, notably the establishment of free trade zones (FTZs), various investment incentives, and a cheap labour force (Jomo 1993).

The EOI strategy had successfully attracted foreign firms to relocate to Malaysia's FTZs. Most of these firms were involved in the manufacture of electronics products, electrical goods, textiles and apparel.

In the early stage, the electrical goods and electronics (E&E) industry was dominated by the assembly (and later testing) of semiconductor devices. This sub-sector of electronic components contributed 85.6 per cent of the total output of the electronics industry, while industrial electronics and consumer electronics jointly contributed 14.4 per cent of the total output. Most of the firms were wholly foreign owned and were export-oriented (O'Connor 1993). Many of them were US-based electronics firms, such as Intel, Advanced Micro Devices Inc (AMD), Hewlett Packard (HP) and Texas Instruments (Rasiah 2009).

In the 1980s, the upward revaluation of the currencies of Japan, South Korea and Taiwan against the US dollar contributed to the growth of the consumer electronics sector in Malaysia. A number of

Japanese firms had significantly expanded their consumer electronics investments in Malaysia, followed by Taiwanese and Korean firms. The withdrawal of the Generalised System of Preferences (GSP) from the Asian newly industrialized countries in 1988 further drove a large expansion of electronics manufacturing into Indonesia, Malaysia, the Philippines and Thailand (Rasiah 2009).

After decades of development, the E&E industry has evolved from a total of just four companies with 577 employees and total output value of RM25 million (about US$ 8.1 million) in 1970 to more than 1,695 companies with total investments of RM108 billion (about US$ 35 billion) and a workforce of more than 600,000 people (Malaysian Investment Development Authority, MIDA 2007). It consists of four major sub-sectors, i.e. consumer electronics, electronic components, industrial electronics, and electrical goods.

The E&E industry continued to be the leading industry in the manufacturing sector. Output of the industry accounted for 33.9 per cent of the total output of the manufacturing sector for the period January-November 2009. Over the same period, employment in this sector accounted for 32.5 per cent, making the E&E industry the largest employer in manufacturing (MIDA 2010).

In 2011, exports of E&E accounted for 34.1 per cent of Malaysia's total exports. The top five destinations for exports of E&E products were China, Singapore, the United States, Hong Kong and Japan (See Table 1). In the recent years, China has emerged as the top principal export market for electronics, while the significance of the US has declined drastically (See Table 2).

As for electrical products, while the US is still the principal market, its market share has declined sharply in recent years, from 21.3 per cent in 2007 to only 14.9 per cent in 2011. The market shares of the EU and Singapore are also declining, while the market shares of the Middle East and Japan are on the rise (See Table 3).

The E&E industry has been dominated by trans-national corporations (TNC) since its early stage. This feature is still witnessed in the present stage. In the period from 2007 – 2011, foreign investment has exceeded domestic investment in new investment projects as well as in expansion projects and diversification programmes. In terms of total capital investment, foreign investment accounts for a dominant share

of at least 80 per cent during this period, and in some years, the foreign investors contributed almost all of the total capital investment in the E&E industry (See Table 4).

Table 1: Top 5 destinations of E&E exports, 2010-2011

		2011p			2010	2009
	Country	RM million	Share (%)	RM million	Share (%)	Share (%)
Total		694,585.5	100.0	638,822.5	100.0	100.0
Manufactured goods		470,299.0	67.7	461,045.9	72.2	74.7
Electrical & electronics products	Total	236,537.1	34.1	249,907.3	39.1	41.6
	China	41,534.9	6.0	40,994.1	6.4	6.6
	Singapore	32,177.7	4.6	36,196.1	5.7	5.8
	USA	30,406.4	4.4	35,568.9	5.6	7.2
	Hong Kong	23,775.9	3.4	25,171.9	3.9	4.2
	Japan	17,631.1	2.5	18,279.9	2.9	2.9

Source: Ministry of International Trade and Industry (MITI) Report 2011

Table 2: Principal export markets for electronics (%)

Country	2007	2008	2009	2010	2011p
China	10.6	13.9	19.3	19.7	21.2
Singapore	16.1	17.3	15.5	16.5	15.5
Hong Kong	8.2	8.9	11.2	11.6	11.8
USA	26.4	22.1	15.6	12.7	11.2
Japan	5.3	5.2	5.3	5.1	5.2
Thailand	4.7	4.8	5.2	4.8	4.8
Germany	3.1	3.4	4.2	4.3	4.4
Netherlands	6.3	5.7	5.3	5.3	3.3
Taiwan	2.5	2.3	3.2	3.2	3.1
Korea	1.9	1.8	2.0	2.2	2.9
Others	15.0	14.6	13.2	14.6	16.5
Total	100.0	100.0	100.0	100.0	100.0

Source: Bank Negara Malaysia Annual Report 2011

Table 3: Principal export markets for electrical goods (%)

Country	2007	2008	2009	2010	2011p
USA	21.3	18.3	19.0	16.3	14.9
EU	16.5	16.5	13.8	12.1	13.7
Japan	8.0	9.0	10.2	12.1	12.0
Singapore	14.8	13.4	12.0	11.0	10.8
Middle East	5.9	7.0	7.5	8.4	8.4
China	4.8	4.7	4.7	5.2	5.4
Thailand	3.8	3.3	3.8	4.5	4.5
Australia	3.4	4.5	6.0	5.6	4.2
Hong Kong	4.4	4.2	4.6	4.3	3.7
Others	17.0	19.1	18.4	20.6	22.4
Total	100.0	100.0	100.0	100.0	100.0

Source: Bank Negara Malaysia Annual Report 2011

Table 4: Approved manufacturing projects in electrical and electronic products by sub-sector, 2006-2011

Subsector	2007								
	New			Expansion/Diversification			Total		
	Domestic Investment (%)	Foreign Investment (%)	Total Capital Investment (RM million)	Domestic Investment (%)	Foreign Investment (%)	Total Capital Investment (RM million)	Domestic Investment (%)	Foreign Investment (%)	Total Capital Investment (RM million)
Consumer electronics	0	100	386.5	0.1	99.9	1,561.3	0.04	99.96	1,947.7
Electronic components	1.8	98.2	5,340.6	5.6	94.4	5,334.6	3.7	96.3	10,675.2
Industrial electronics	31.7	68.3	287.6	2.9	97.1	477.6	13.7	86.3	765.3
Electrical products	48.9	51.1	1,599.1	74.7	25.3	124.3	50.8	49.2	1,723.4
Total	**12.7**	**87.3**	**7,613.8**	**5.4**	**94.6**	**7,497.8**	**9.1**	**90.9**	**15,111.6**

Subsector	2008								
	New			Expansion/Diversification			Total		
	Domestic Investment (%)	Foreign Investment (%)	Total Capital Investment (RM million)	Domestic Investment (%)	Foreign Investment (%)	Total Capital Investment (RM million)	Domestic Investment (%)	Foreign Investment (%)	Total Capital Investment (RM million)
Consumer electronics	5.2	94.8	141.8	92.5	7.5	15.5	13.8	86.2	157.3
Electronic components	1.0	99.0	3,348.8	4.5	95.5	1,787.8	2.2	97.8	5,136.6
Industrial electronics	18.3	81.7	246.2	2.5	97.5	3.204.3	3.6	96.4	3,450.4
Electrical products	1.2	98.8	6,708.7	4.4	95.6	2,320.0	2.0	98.0	9,028.6
Total	**1.6**	**98.4**	**10,445.4**	**3.8**	**96.2**	**7,327.5**	**2.5**	**97.5**	**17,773.0**

Subsector	2009								
	New			Expansion/Diversification			Total		
	Domestic Investment (%)	Foreign Investment (%)	Total Capital Investment (RM million)	Domestic Investment (%)	Foreign Investment (%)	Total Capital Investment (RM million)	Domestic Investment (%)	Foreign Investment (%)	Total Capital Investment (RM million)
Consumer electronics	100.0	0.0	41.0	1.5	98.5	376.5	11.2	88.8	417.4
Electronic components	16.7	83.3	717.1	3.9	96.1	2,287.5	6.9	93.1	3,004.6
Industrial electronics	42.8	57.2	326.3	57.7	42.3	85.9	45.9	54.1	412.2
Electrical products	52.3	47.7	544.9	10.8	89.2	366.8	35.6	64.4	911.6
Total	**35.9**	**64.1**	**1,629.3**	**5.9**	**94.1**	**3,116.6**	**16.2**	**83.8**	**4,745.9**

Subsector	2011								
	New			Expansion/Diversification			Total		
	Domestic Investment (%)	Foreign Investment (%)	Total Capital Investment (RM million)	Domestic Investment (%)	Foreign Investment (%)	Total Capital Investment (RM million)	Domestic Investment (%)	Foreign Investment (%)	Total Capital Investment (RM million)
Consumer electronics	0.0	100.0	328.2	0.0	100.0	1,519.0	0.0	100.0	1,847.3
Electronic components	14.6	85.4	2,462.4	2.4	97.6	4,733.5	6.6	93.4	7,195.9
Industrial electronics	6.4	93.6	227.3	2.4	97.6	1,066.6	3.1	96.9	1,293.9
Electrical products	8.9	91.1	8,215.7	7.0	93.0	1,508.5	8.6	91.4	9,724.2
Total	**9.9**	**90.1**	**11,233.7**	**2.8**	**97.2**	**8,827.7**	**6.8**	**93.2**	**20,061.4**

Source: MIDA Report, various issues.

II. Government promotion of E&E Industry

The participation of foreign investors has been critical to the success of the EOI strategy for economic growth and industrial development. Various measures have been introduced by the government to attract foreign investment, which include generous financial incentives, the set up of FTZs, and a docile, cheap labour force.

The major tax incentives for firms investing in the manufacturing sector are the Pioneer Status and the Investment Tax Allowance. Eligibility for Pioneer Status and the Investment Tax Allowance is based on certain priorities, including the level of value-added, technology used and industrial linkages. Firms manufacturing electrical and electronic products and components and parts are eligible for Pioneer Status and Investment Tax Allowance.

A company granted Pioneer Status enjoys a five-year partial exemption from the payment of income tax. It will pay tax only on 30 per cent of its statutory income, with the exemption period commencing from its 'Production Day', which is defined as the day its production level reaches 30 per cent of its capacity.

To encourage investment in certain promoted areas, i.e. the states of Sabah, Sarawak, Perlis and the designated "Eastern Corridor" of Kelantan, Terengganu, Pahang, and the district of Mersing in Johoron Peninsular Malaysia, applications received from companies located in these areas will enjoy a 100 per cent tax exemption on their statutory income during their five-year exemption period.

As an alternative to Pioneer Status, a company may apply for the Investment Tax Allowance (ITA). A company granted ITA is entitled to an allowance of 60 per cent on its qualifying capital expenditure (factory, plant, machinery or other equipment used for the approved project) incurred within five years from the date the first qualifying capital expenditure is incurred.

2.1 Repressive laws on unionisation

To attract foreign investors which were mainly labour intensive, a cheap and docile labour force was deemed necessary (Jomo& Todd

1994:129). The early stage of EOI attracted mostly labour intensive electronics assembly and textile manufacturing. In order to facilitate the growth of EOI, the government had adopted policies on labour organizing that have, in general, put workers at a disadvantaged position in fighting for the improvement of welfare.

It was part and parcel of the government policies aimed at attracting foreign electronics firms to invest in Malaysia in the formation stage of the electronics industry that no national unions would be allowed. Nevertheless, several attempts to unionize electronics workers were initiated in the 1970s and 1980s. The struggle to form a trade union in the electronics industry began in 1973, with the Electrical Industry Workers Union (EIWU) attempting to recruit workers from the industry. The move was denied by the government on the basis that the trade union law limits a union to organising workers only within a single industry or closely related industries.

According to the Director General of Trade Unions (DGTU), EIWU could not organise workers in the electronics sector, as the electronics industry was a separate sector from the electrical industry. Under increasing pressure from the International Labour organisation (ILO) and the imminent General System of Preferences review, the Malaysian government dropped its ban on unions in the electronics industry in 1988, but allowed only in-house unions (Labour Resource Centre 2006:174-5).

2.2 Electronics industry trade union

Over the decades, there were some 365 electronic companies in Malaysia which hired close to 290,000 workers but there have been only 12 registered in-house unions with about 12,000 members, all classified as internal union members.

Then, after almost four decades of repression and struggle, the government finally approved the formation of a regional trade union for the electronics industry.At the same time, the Trade Union (TU) Act and Industrial Relations (IR) Act have limited the power of trade unions in organizing workers and promoting collective bargaining. The TU Act has given overwhelming power to the DGTU in supervision, direction, and control of matters relating to trade unions. The DGTU

has the power to refuse registration of a trade union if he is of the opinion that the union is likely to be used for unlawful purposes, or any of the objectives of the union are unlawful, or the constitution of the union conflicts with the provision of the Act. He can also reject the registration of the trade union if there is in existence another union catering for similar workers (Labour Resource Centre 2006:175).

The TU Act also empowers the DGTU to suspend a branch of a union if he is satisfied that the branch has contravened the provisions of the Act or the rules of the union. It is also within the power of the DGTU to disqualify an elected executive of a trade union or a federation of trade unions by specifying the grounds for such disqualification (Labour Resource Centre 2006:175).

The power of DGTU even extends to matters of staff hiring, investments, union funds, finance, and accounting procedures. Trade unions must obtain approval from the DGTU to employ staff and for investing in business. The DGTU can enter a trade union office and inspect all its books and records. He can also freeze the funds of a trade union (Labour Resource Centre 2006:176).

Under the provision of the Trade Union Act, the DGTU can seek information on any of the activities of a trade union by summoning any person to his office. Even for international affiliation, a trade union must obtain the prior approval of the DGTU.He must also be furnished with the constitution and the details of the officers of the international organization concerned. He is also empowered to order the trade union to withdraw from an international organization (Labour Resource Centre 2006:176).

The TU and IR Acts put trade unions at disadvantage in gaining recognition from firms. While the Acts allow the formation of trade unions and to conduct collective bargaining, compliance with the provisions of the Acts, to large extent, depends on the goodwill of firms. According to the procedures, a trade union must issue a letter to notify the firm of the formation of the union and seeks its recognition. Upon receiving the letter, the firm must respond to the request within 21 days from the date of receipt of letter. It is common that firm does not respond to the trade union's request. In this case, the trade union may request intervention from the Industrial Relations Department and the Trade Union Department. They will request the firm to submit

a list of workers and to allow the conducting of a competency test. It is not uncommon for a firm to prevent the recognition process by not responding to both departments and that would delay the process of recognitions for months, if not years (Interview with Periera 2012).

The secret ballot procedure is another 'hassle' for trade union in that the union could lose in the recognition process because of not being able to meet the requirement of the secret ballot. In order for a trade union to be recognized, it must obtain a minimum '50 per cent plus one' votes from the total number of workers at the time of submission of recognition. Because of the high turnover of workers and the employment of contract workers, the number of eligible workers working in the firm could be drastically less than the total number of workers at the time of submission. In other words, the trade union is almost certain to lose in recognition process (Interview with Periera 2012).

III. Samsung Group in Malaysia [1]

Samsung made its first investment in Malaysia in 1989, during the wave of relocations of Japanese and Korean manufacturing companies after the Plaza Accord 1985 which brought about the dramatic appreciation in their currencies. According to Samsung, Malaysia is a strategic location as a manufacturing export base as well as a market for high-value technological products (Labour Resource Centre, 2006:163).

Samsung has invested mainly in consumer electronics in Malaysia. These investments are made mainly by three of its global subsidiaries: Samsung Electronics Co. Ltd., Samsung SDI Co. Ltd., and Samsung Corning Precision Materials Co. Ltd. Samsung Electronics is a leading global manufacturer of digital TVs, memory chips, mobile phones and TFT-LCDs. The core business of Samsung SDI is in display and lithium ion batteries, while Samsung Corning specialises in the production of parts and materials for flat panel displays.

Samsung invested RM1.5 billion when it first came to Malaysia about 30 years ago. With its latest investment of RM2.2 billion for undertaking the design, development and manufacture of lithium ion cells and battery packs, Samsung has become one of the largest foreign investors in the country (Bernama 2012).

The first manufacturing plant of Samsung Electronics was Samsung Electronics Malaysia (SEMA), which manufactures microwave ovens and magnetrons. Located at Port Klang, one of the busiest ports in Malaysia, SEMA is said to be one of the global headquarters for Samsung's microwave oven operations. Based on the data available from Samsung's website, SEMA produces about four million microwave ovens and six million magnetrons annually. It has about 1,350 employees at this plant.

In 1995, Samsung Electronics expanded its operations into the manufacture and sale of colour monitors, printed circuit boards (PCB), TFT-LCD monitors, and colour television receivers. It established the second manufacturing plant, Samsung Electronics Display (M) Sdn. Bhd. (SDMA), in TengkuJaafar Industrial Park, Seremban.

In September 2003, Samsung Electronics upgraded its representative office in Kuala Lumpur into a full-fledged subsidiary office by establishing Samsung Malaysia Electronics Sdn. Bhd. (SME). The company deals with marketing, customer service and sales operations.

Samsung SDI Co. Ltd. owns two manufacturing plants in TengkuJaafar Industrial Park. It set up the first manufacturing plant, Samsung SDI (M) Sdn. Bhd. (SDIM), in October 1990. The plant was the first overseas operation for Samsung SDI Co. Ltd. SDIM manufactures cathode ray tubes (CRT) and electron guns which are widely used for display tubes for televisions and monitors.

In September 2011, Samsung SDI established a new subsidiary, Samsung SDI Energy Sdn. Bhd., to manufacture lithium ion cells and battery packs. Samsung SDI has invested RM1.5 billion in this plant. In the next five years, the company said it will invest an additional RM2.2 billion. It is reported that Samsung SDI Energy has the capacity to produce eight million lithium ion cells and batteries per month and they are solely for the export market (Bernama 2012).

Samsung Corning Precision Materials Co. Ltd has invested in the manufacturing and sale of polished television and monitor panels and funnels by setting up Samsung Corning (M) Sdn. Bhd. (SCM) in 1991. SCM has four panel and two funnel lines, supplying glass panels and funnels to its sister company, SDI Malaysia and export markets in Korea, India, Indonesia, Mexico, China and Brazil.

Samsung Electronics Co. Ltd plays an important role within the Samsung group in Malaysia. It owns three of the six subsidiaries of the group, i.e. SEMA, SME, and SDMA. In 2011, these three subsidiaries contributed 91.4 per cent of the total revenue and 83.4 per cent of total profit after tax of the Samsung group in Malaysia (See Table 5).

3.1 Supply chain of SDMA [2]

For the purpose of the study, the discussion on supply chain will focus on the subsidiaries of Samsung Electronics in Malaysia. OfSamsung's three subsidiaries in Malaysia, SEMA and SDMA are involved in manufacturing, while SME is the marketing and distribution office. Due to limited access to information, our discussion will be solely on SDMA.

SDMA recorded the highest profit after tax among the subsidiaries which accounted for 74.5 per cent of the total profit after tax of Samsung Malaysia in 2011.

The major products of SDMA are Smart TVs, LCDs, LEDs, plasma sets and PCBs. It is said that the Smart TV is the most profitable of all these products. SDMA does not manufacture these products but assembles them. SDMA used to export TVs and monitors to Europe but stopped after Samsung established plants in Hungary and Yugoslavia. Now the products are exported to Australia and sold on the local market as well.

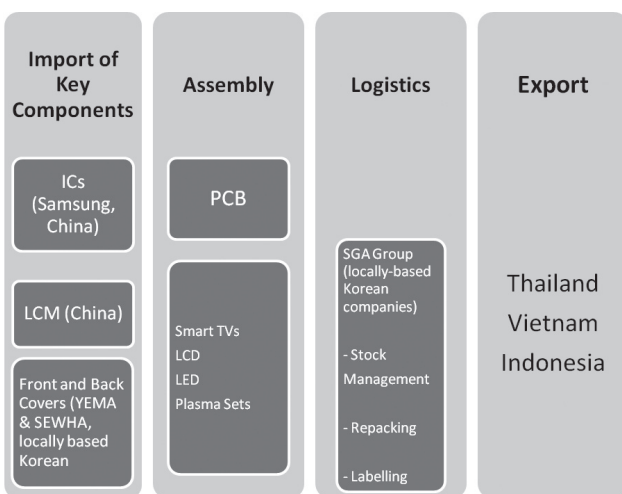
The production volume of various sizes of TVs and monitors is high. With ten production lines in total, the average daily output of assembled TVs and monitor is 12,000 units. During peak periods, the daily output can go up to 14,000 to 15,000 units.

The two key components of TVs and monitors are the liquid crystal monitor (LCM) panel and PCB. LCM panel is imported from China in semi-assembled form, and it is then assembled fully at SDMA. The fully assembled LCM panels are used for local assembly of Smart TVs, LCDs, LEDs, and plasma sets and for export to subsidiaries of Samsung in Thailand, Vietnam and Indonesia. Importing semi-assembled LCM panels from China is costly and time consuming and thus, SDMA is planning to manufacture LCM panels in the local plant in the near future.

For other components, such as front covers and back covers, they are sourced from two Korean companies that are based in Malaysia – YEMA and SEWHA. The metal stamping is provided by Sun Plus, a Malaysian company. Another key product of SDMA is PCBs. The two ICs, which are the key components of PCB, are imported from subsidiaries of Samsung in China. The assembled PCBs are used for the in-plant production of Smart TVs, LCDs, LEDs, and plasma sets. The average daily output of PCBs is 12,000 units. The costs of these PCBs range from RM50 to RM500. The expensive PCBs are used for the production of Smart TVs while the cheaper ones are for the production of LCDs, LEDs, and plasma sets.

In order to save costs in production and to enhance efficiency, SDMA outsources the logistics to the SGA Group, a Korean company based in Malaysia. Two of its subsidiaries, SGA Techcordia and SGA Services are in partnership with SDMA. SGA Techcordia handles stock management for SDMA vendors, and SGA Services provides re-packing and unpacking, and labelling services for SDMA's TV monitors and accessories. The activities are handled under one roof at SDMA. Workers at SGA are dispatched to work at SDMA, and the assistant manager of SGA is assigned to oversee the operation (SGA website).

Figure 1: Rudimentary Map of Supply Chain for Key Products of SDMA



3.2 Composition and working conditions of Samsung workers[3]

In the early years, most of the workers at SDMA were locals. Gradually, local workers were replaced with foreign migrant workers. At present, there are about 1,200 workers, including the working employed directly by SDMA as well as the agency workers. While all the managerial, administrative and key production positions are taken up by locals, about 70 per cent of the operations staff are migrant workers.

These migrant workers can be grouped into two categories, those employed directly by SDMA and those recruited by labour agencies. The majority (about 70 per cent) of these migrant workers are Burmese who have been working with SDMA for many years, the longest of any group of migrant workers. Half of the Burmese workers are recruited through labour agencies and the rest are hired directly by SDMA. Workers originally from Nepal and Sri Lanka, who are relatively new to the company, are said to have been hired directly by SDMA.

There seems to be a trend in SDMA to hire migrant workers directly instead of sourcing them from a labour agency. One of the reasons given is that SDMA can have direct control over the migrant workers. Also, the costs of getting workers through a labour agency are rising, as more regulations have been imposed by the Malaysian government.

The trend of introducing contract employment for managerial staff is observed in SDMA as well. Technicians, engineers and managers are recruited on a six-month or one-year basis. If their performance is not up to expectations, their employment is terminated. Such practice has allowed the company to retrench employees with ease.

The pay at SDMA is said to be slightly lower than that at other MNCs in Malaysia. The migrant worker earns a basic salary of RM400 and an allowance of RM200 per month. The additional income comes from the overtime pay The migrant workers could earn an average monthly income of RM1,500, if they work 150 hours of overtime each month.

A bonus is paid based on performance. SDMA practices a MBO system, in which a worker's performance is graded in regards to the job scope and achievements. An operator is entitled to a bonus only if she or he achieves a grade D or above in her or his performance evaluation.

For managerial staff, they are entitled to medical care provided by specialists. For engineers and technicians, they are entitled to RM200 per year for medical care by specialists. On top of that, they are given a medical card which covers 20 outpatient clinic visits per year for their spouse and three children.

Safety at the workplace appears to be an issue at SDMA. Workplace accidents seem to take place from time to time. While safety measures have been introduced, they are not being well observed. One serious incident involved a forklift knocking over a security guard. Other incidents involving trolleys and cranes hitting workers on the production lines have been reported as well. Often safety measures are not observed properly at the expense of workers when the supervisors have to meet production targets.

IV. Conclusions

The growth of Malaysia's E&E industry into a major contributor to exports and a major source of employment throughout the decades have been greatly facilitated by the movement of international capital seeking higher returns on its investment and government policies promoting export-oriented industrialisation. Some of these government policies aimed to implement an anti-labour regime in order to assure a docile and cheap labour force.

The continued presence of MNCs in the industry and the pro-business approach of the government may suggest little change in policies toward workers. While the formation of regional trade unions for the electronic industry may enhance unionisation of workers, it will still be difficult to improve workers' welfare as the TU Act and IR Act continues to place trade unions at a disadvantage. Furthermore, the growing number of migrant labourers may bring more challenges to the organising of workers.

Table 5: Samsung Group in Malaysia 2012

Name of company	Samsung SDI (M) Bhd	Samsung Electronics Malaysia SdnBhd(SEMA)	Samsung Malaysia Electronics (SME)Sdn. Bhd.	Samsung Electronics Display (M) Sdn. Bhd. (SDMA)	Samsung Corning (M) SdnBhd	Samsung SDI Energy (M) SdnBhd
Date of establishment	Oct 1990	Sept 1989	Sept 2003	March 1995	March 1991	Sept 2011
Nature of business	Manufacture and sale of Cathode-Ray Tubes which comprise of colour picture tubes, colour display tubes and electron guns	Manufacture and sale of microwave ovens, PCB, and Magnetrons	Trading and distribution of merchandise goods, provision of marketing and after sales services	Manufacture and sale of colour monitors, PCB, TFT-LCD monitors, colour television receivers	Manufacture and sale of polished television and monitor panels and funnels	Manufacturing of rechargeable batteries, research and analysis all kinds of facilitating development of new products
Location	TuankuJaafar Industrial Park, Negeri Sembilan	Industrial Park, Port Klang, Selangor.	JalanTunRazak Kuala Lumpur	TuankuJaafar Industrial Park, Negeri Sembilan	TuankuJaafar Industrial Park, Negeri Sembilan	TuankuJaafar Industrial Park, Negeri Sembilan
Total Issued Capital	RM 154,380,160	RM 16,247,452	RM 17,100,000	RM 95,200,000	RM 99,545,182	RM 31,000,000
Shareholders (%)	Samsung SDI Co. Ltd. (68.59%)	Samsung Electronics Co. Ltd. (100%)	Samsung Electronics Co. Ltd. (100%)	Samsung Electronics Co. Ltd. (75%) Samsung Electronics Asia Holding Pte Ltd (25%)	Samsung Corning Precision Materials Co. Ltd. (100%)	Samsung SDI Co. Ltd. (100%)
Revenue (2011)	RM 756,090,068	RM 1,215,717,943	RM 4,772,155,000	RM 4,673,882,813	RM 242,334,892	N.A
Profit/(loss) after tax (2011)	RM 78,217,899	RM 25,642,530	RM 24,565,000	RM 351,145,239	(RM 8,579,321)	N.A

Sources: Companies Commission of Malaysia, Corporate Information

Endnotes

1. The information in this section is derived from Samsung's website, except where stated otherwise.
2. The information in this section is obtained from an interview with an engineer of SDMA, except where stated otherwise.
3. The information in this section is obtained from an interview with an engineer at SDMA.

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Interview with an engineer (name withheld) at SDMA, Seremban; interviewed on 7 August 2012.

Photo by SHARPS

Taiwan, the Upstream Manufacturer of the Global Electronics Production Chain

By Taiwan Association for Victims of Occupational Injuries

I. Development of the electronics industry

Beginning in the 1970s, the government of Taiwan attracted foreign companies to establish factories on the island by offering preferential treatment. From that time, workers in Taiwan became those of the world, and Taiwan became an outsourcing manufacturer for many electronics industries.

The development of technology specifically exclusive to Taiwan did not commence until the 1980s. By the time the production chain of the electronics industry had matured in the 1990s, Taiwan had already established its position in this global production chain as a subcontracting manufacturer, and its position was enhanced when net prices were slashed and gross margins faced substantial decreases.

Thus, despite the fact that the technology of Taiwan's high-tech industry was recognized worldwide, it remained a high volume, low margin manufacturer. With the rise of China's manufacturing, Taiwanese manufacturers had no choice but to integrate into the supply chain, seeking low-cost manpower and land in coastal Chinese cities, in order to meet the requests of international companies.

To boost investment and output in high-tech industry in Taiwan, the government reduced the corporate tax rate of related industries to 17 percent in 2009. The land for establishment of science parks was acquired through land expropriation by the government. More and more land expropriations provoke disagreements and protests from local residents and land workers. Downstream brand owners were left with problems such as land pollution, water pollution, and the responsibility to maintain a healthy work force in their upstream suppliers. Taiwan has never managed to break free from this nightmare.

II. Samsung in Taiwan

Samsung Electronics Co., Ltd set up in Taiwan in 1994 with three subsidiary companies in charge of the import/export business and were located in northern, central, and southern Taiwan. Samsung sources components from Taiwanese manufacturers and assembles these parts into their products. In this respect, the company regards Taiwan simply as a supplier, rather than an asset and manufacturing centre.

Samsung's suppliers in Taiwan are:

No	Name of Company/ Supplier	Process of Production	Type of Products/ Materials/Components
1	Longwell	components	LED TV power cords
2	CviLux Group	components	LED TV Inverter connector
3	Epistar	components	LED TVs, LED
4	Forepi	components	LED TVs, LED
5	Unity Opto, Ltd.	components	LED TVs, LED
6	Coretronic Corp.	components	LED TV Backlight Module
7	I-Chiun Precision Industry Co., Ltd.	components	LED TVs, SMD LED Type
8	AU Optronics Corp. (AUO)	components	LED TVs TFT-LCD
9	Global Unichip Corp.	Components	Mobile phones, LTE chips
10	VPECo.(TW)	Components	Mobile phones, GaAs PA
11	Novatek Microelectronics Corp.	Components	Mobile phone Panel Control ICs
12	Young Fast Optoelectronics Co.	Components	Mobile phone touch panels
13	ASE Group	Components	Mobile phone IC packing
14	China Picture Tubes, LTD	Components	Mobile phone touch panels

15	HannsTouch Solution Inc.	Components	Mobile phone touch panels
16	JTOUCH Co.	Components	Mobile phone touch panels

2.1 Samsung's supplier in Taiwan

Among the suppliers listed above, Young Fast Optoelectronics Co., Ltd. (YFO) is recognized as one of the world's top manufacturers, and supplies brands such as Samsung and HTC. It also was engaged in several labour disputes throughout 2010, which reflected the influence of Samsung on the company's operating strategy and disregard for the welfare of local Taiwanese workers.

Young Fast Optoelectronics Co., Ltd. (YFO), founded in 2000, is one of the world's leading producers of touch screen panels and is an important supplier of Samsung. YFO is located in Kuan Yin village in Taoyuan County in Taiwan, currently employing eight hundred workers in Taiwan and in overseas plants in Huizhou and PingHu in China and Hanoi in Vietnam.. According to Displaybank, 97 million touch panels were produced and sold by YFO around the world, suggesting a 58.4 percent increase year-on-year. Such records once made YFO the number one listed company on the Taiwan stock market.

YFO's main product is a film-type touch screen, commonly applied to cell phones, tablet computers, digital cameras, mp3 players and other electronic devices.. Samsung, HTC, and Chinese cell phone producers Vivo and OPPO are key customers of YFO. The company also supplies Research in Motion (RIM) of Canada, Motorola of the United States, Nokia of Finland, and Sony of Japan, although these orders are comparatively smaller than the first group.. The supply chain behind Microsoft's Surface is YFO's biggest customer in the tablet computer sector . (For more detailed information, see the official website of Young Fast Optoelectronics at http://www.yfo.com.tw/.)

When Samsung phones became a global sensation, HTC, another major customer of YFO, joined the global competition for smart phones. Taiwanese government officials were highly supportive, determined to turn HTC into the best cell phone brand of Taiwan. With the success of Samsung and HTC, YFO, as their major supplier, was delighted.

2.1.2 Union members dismissed at YFO

Meanwhile YFO' workers have been working extremely long days, only to receive a meager wage and no overtime pay. The factories have hired a host of foreign workers and students from work-study cooperation programs; even workers under the age of 16 were recruited.

The long hours and strict and hazardous working conditions at the company's plant made the local news.

"Other than thirty minutes for lunch and dinner each, I stand working for eleven hours every day, performing the same action without any rest. Even the time spent using the restroom is recorded. We do not know whether the organic solvents we use in large quantities everyday are toxic or not. The only protection we have is the disposable active carbon mask," said a member of YFOTU (Young Fast Optoelectronics Trade Union,) who was later laid off for striving for overtime pay (Apple Daily April 22nd, 2010).

Young Fast Optoelectronics Trade Union (YFOTU) was founded in Dec. 2009 to defend the rights of workers. In a bid to undermine the union, YFO decided to move one production line to Huizhou, China, claiming the decision was due to "business recession." Furthermore, five union officers and more than 10 other members were illegally dismissed on 12 March 2010.

2.2 Exceptional overtime hours, dubious overtime pay calculations

Taoyuan County, where YFO is located, is the biggest county in Taiwan in terms of annual industrial output, with numerous manufacturing plants established there over the past thirty years. The production lines of the global high-tech industry run all through Taoyuan and determine the destiny of many local families. During the social movements of YFOTU, activists interviewed a few union members who were not laid off under the correct legal process. These workers relied on the factories of world-famous brands, working overtime for the pay against extra hours, in order to solve their financial problems. When the fierce competition between brands such as Samsung and HTC heats up, the production chain around the world

fluctuates with it. In order to reduce costs, workers are very often requested to work overtime through the high season. Lower-paid part-time workers are recruited to meet these peak season orders.. The drastic difference in demand for manpower between the high and low seasons leads to an unfair recruitment pattern and ultimately, it is the workers that suffer the most

A fifty-three-year-old male operator said during an interview:

"With the increase in company profits, the value of YFO on the stock market has rocketed. But the seemingly prosperous factories of these high-tech products become our hell on earth. Because of the sudden increase in orders, YFO has expanded in no time at all, whilst the managers have not abandoned their traditional style of almost military management. Whenever our managers receive a call from the top level, demanding a certain amount of output this month, they force us to extend our working hours and cancel our weekends and national holidays, ordering us to go to the factory. Last year when a typhoon struck, our shift manager called me back to the factory from home despite the heavy rainfall. But if any accident happens to me on the way, who would take care of my children? I refused and actually stayed home without following his orders. The next morning, the shift manager summoned me, correcting my inappropriate attitude towards overtime work. 'There is no such thing as day-off for a typhoon in YFO,' he shouted angrily."

At the age of fifty-three, this man had had a few other jobs before joining YFO. When he interviewed with YFO, the company told him that in order to keep up with the shipment schedule, employees would have to work additional hours fairly often. He said, as a single parent with his daughter just starting senior high school and two younger sons in elementary school, he felt that there was no better option for an unemployed middle-aged man.

Illegally laid-off YFOTU members stage a protest at the commencement ceremony of construction of the new HTC headquarters on 2nd April, 2010. (Source: http://www.coolloud.org.tw)

Due to the exceptionally long working hours, many union members stated that they had no choice but to take their children to the factory when working overtime. However, YFO provides no daycare facilities.

A young, single mother pointed out "I did not realize until the discussion with the union was held, that based on YFO's (inaccurate) calculation of overtime pay, they actually owe us a lot of money! We, including the foreign workers, male and female alike, part-time or permanent employees, work at the risk of our health. Their children are still young. I saw the child of a Vietnamese worker in the company cafeteria. The child's mother was at work, and the child stood in front

of a vending machine for so long, hoping a drink would eventually drop out. I spent twenty Taiwanese dollars to get him a drink, feeling tears gather around my eyes at the sight of the heartbreaking scene. He must be kindergarten age. To be honest, YFO is an eight-story building. What if these kids run around and fall?"

According to one union leader, the minimum wage of workers in YFO is NT$18,000 a month, which is just above the legal minimum. Overtime pay is less than NT$100 an hour and is reduced to around NT$75 through 'dubious' accounting. During the peak production seasons, each worker may be forced to work more than 100 hours a month. However, the total salary of the worker will only be NT$30,000. For local adult workers, it is nearly impossible to live on such a meagre salary, and these grassroots families are suffering from overwork.

To ease the pressure that comes with major o rders from customers like Samsung, YFO turns to more flexible and lower-paid foreign, under-age, or part-time workers to save costs.

Based on an official document released by YFOTU in April 2010, the Inspection Office of the Council of Labor Affairs clearly pointed out that YFO did not pay its workers for additional working hours according to law ; in addition, the number of extra working hours per month of YFO employees exceeded the maximum allowed. The company also failed to provide one day off after every seven consecutive working days and they recruit juvenile workers under the age of 16.

2.3 Underage labour behind the miracle of Taiwan's touch screen industry

Among the more than one thousand workers in YFO, three to four hundred of them were under-aged students of academy-industry cooperation program, and about 180 were foreign laborers. The company was also planning to use outsourced workers at the same time. Through various similar policies, Samsung is allowed to access the abundant, cheap, and "disposable" labourers in Taiwan.

Vocational schools in Taiwan send their students to companies through an internship system, expecting them to acquire practical skills in a professional environment, and this is one of the requirements for

graduation. These schools make efforts to build amicable relationships with enterprises, because the more capable they are of cooperating with well-known corporations, the more it helps the school recruit students. This cooperation pattern urges the academies to meet the demand of large enterprises by any means. In particular, in the optoelectronics industry, young Taiwanese are introduced to the factories through internships, fulfilling the requests of downstream brands, and strengthening the role of Taiwan as an outsourcing manufacturer in Asia. Although the students are abused by the enterprises with meager wages and unreasonable working hours, their schools and the Ministry of Education have ignored the situation.

According to Taiwan's regulations, these "work-study cooperation programmes" students are not allowed to work overtime. However in order to keep up with the production schedule, YFO includes them when planning overtime for workforce. After the union reported this practice on 8 April 2010, YFO dismissed more than four hundred students early one morning, depriving them of their jobs and the overtime pay they had earned. But the company has not discontinued these practices. A year later in March 2011, YFO was once again found to have contracted with a university of technology under the cover of the internship program, to recruit 35 freshmen, giving them base pay and employed to work as operators in the printing and relocating panels sections.

2.3.2 Mainland Chinese workers brought to Taiwan

In October 2010, an even more controversial practice was unveiled and became a scandal. Young Fast Optoelectronics applied to the government to invite Chinese experts to Taiwan for professional seminars, whilst in fact about 20 employees from their factories in China were chosen and sent to Taiwan to do low-skilled and non-professional work such as bonding, laminating, and cosmetic inspection. These Chinese workers worked twelve hours a day, received no day off on Sunday, and received wages that were less than local workers. They had clearly been brought in only to handle the excessive orders YFO had on hand. The importing of these workers was strictly against

Chinese labour-related policies in Taiwan and caused the government to undertake further investigation of YFO.

As indicated above, Samsung had seriously broken the Electronic Industry Citizenship Coalition (EICC) with this abhorrent conduct. However, the downstream brand never has to pay the price for problems occurring in their supply chain, and the sanctioning powers of the EICC do not seem to be functioning. It is difficult enough for the victims to rescue themselves from the horror, but what is more problematic is that the unstable employment exhausts the power of unions, and prevents them from making progress on eliminating occupational hazards.

III. Hazards in the workplace - Concern over organic solvents

When producing touch screens, Young Fast Optoelectronics employs a technique known as "wet etching". In this technique a strong acid is applied to erode unnecessary patterns on the ITO, a transparent conductive film. Volatile materials are created through the production; the etching and cleaning processes often leave waste solutions behind. In every case whether it is the chemicals used during production or the new materials generated in the process, the workers are not informed of the names of the chemicals or the risks and dangers involved in their use.

Although it is clearly stated in the current Labour Safety and Health Act of Taiwan that all chemicals used in the working environment should be inspected, and all site employees should be provided with relevant material safety data sheets and sufficient protection equipment, the government authorities and investigation units turn a blind eye to the use of these materials and hazardous working environments until a lawsuit is brought forward.

A discussion about labour safety in the YFO factory was held between members of the Taiwan Association for Victims of Occupational Injuries (TAVOI) and YFO trade union officers in April, 2010. During that meeting, members of YFO union informed those present that in the day-to-day screen production, they need to use adhesives such as peel-able masks and silver paste to protect the screen; to wash the printed circuit boards (PCBs), bottles of "detergent" with

unclarified numbers are given to the line operators, but no content or ingredient list is indicated on the bottles and no Material Safety Data Sheets are provided, thus it is unclear what effects these chemicals could have on the human body. The pungent odor of the adhesives is so unbearable that the day-shift workers often have a headache by midday. To blanket the stench of these chemicals, workers douse their masks in Green Oil, a popular local mint extract commonly used for repelling insects.

3.1 Toxins at work at RCA

However, this kind of workplace horror is far from new. We clearly remember that 30 years ago, employees at RCA used tea leaves or milk powder in their water to make the poor quality drinking water more palatable. This would hide the inexplicable smell in the water in their dormitory and the factory.

RCA was at one time the number one producer of home appliances in the U.S. The company, which established factories in Taiwan between the 1970s and 1990s, used to be the manufacturing role-model. However, during the production of items, such as PC panels, organic solvents, trichloroethylene (C2HC13) and tetrachloroethylene (C2C14,) were used in inadequately ventilated environments and with insufficient protection facilities provided. Furthermore, the organic solvents were poured into wells in the factory, causing direct pollution to underground water.

The two aforementioned organic solvents were proven in recent years to be toxic and ranked as 1A carcinogens, meaning they are agents that are directly involved in causing cancer to the human bodyies. Thus, the RCA employees were exposed to toxic chemicals through the water drinking and the air in workplace, including everything they touched at work and in their dormitories.

There were roughly 100,000 people employed at RCA. Since the pollution was revealed, the survey, though limited, indicated that more than 1,000 of them contracted cancer and other immune system diseases. The victims are now scattered around Taiwan and out of reach. Not only the victims are tortured by their condition, their families also suffer mental and financial pressure. The RCA factory in Taiwan was

shut down in 1992, whilst the association of injured employees brought their cases to court only in 2001. Over the past 10 years or more, about 500 former employees of RCA have been struggling with the lawsuit with little progress to date.. The main reason for their insistence on finishing this case was to show that RCA did not take the responsibility to educate its employees and inform them what kind of materials they were using. During the litigation, RCA refused to render any related information, claiming all documents were destroyed in a fire.

Samsung, on the other hand, is still producing its products in the battlefield of touch screen companies, and can clarify from the top to the bottom of its supply chain around the world, what kind of materials it is using in its production processes. It should also clarify what sort of new materials are being generated during the processes and what materials are being discarded in or outside of the factories and threatening the health of workers and residents of the local communities.

Although unions can be formed in supplier companies such as YFO and act to safeguard workers' health, considering the lack of information about adapted materials, it is never straightforward for the unions to intervene in terms of occupational health protection. In order to maintain the cleanliness of the touch screen panels, operators should wear anti-static garments in the clean room and are distributed into different working spaces. Without a well-structured labour union and transparency regarding the chemicals used, it is impossible for employees of this generation to remember details of each and every production line, who worked in which section, and to be able to recall the whole picture of the factory operation as RCA employees do. If any occupational diseases are found in the future, the organization and request for indemnity will be even more challenging.

IV. Unveiling the facts through solidarity

Lots of different types of chemicals currently exist around the world. Among the roughly 79,000 different kinds registered in Taiwan, there are more than 6,000 kinds of chemicals proven to be toxic. However, only 302 of them are listed under the control of

Environmental Protection Administration. TAVOI has been requesting further imposition of restrictions on the use of poisonous substances, refusing accept that these can be concealed under the banner of "commercial confidentiality."

It is clearly indicated in the Labor Safety and Health Act that all chemicals should be labeled with their operator usage history and usage method. The professional history of each worker should also be stated in his or her personal profile. Both records should be kept and copies should be held by three parties, the government, the labour union and the worker. However, the government never brings forward any practical responses to requests for compliance with the articles of the Act. However, in the latest version of Labor Safety and Health Act (revised and renamed as "Occupational Safety and Health Act" in 2013) employers are required to provide a list of materials used at work to the hospital when their employees receive a medical examination. In the future, however, usage history and changes in the health condition of each employee might be kept confidential to protect the individual's personal privacy.

Through the survey on the RCA case and reports on the occupational diseases found in Samsung factories in Korea, workers in Taiwan now have a better understanding or foresee what the potential risks to their health might be. TAVOI's victims of occupational hazards believe that commercial confidentiality is an obstacle to the solidarity of workers in various sectors, factories, and different countries. However, TAVOI continues to work to make changes in the law and government and commercial policies, as well as educating existing unions. Unless workers join forces and exchange information with each other, the risk Samsung puts on its labour force around the world will never be unveiled.

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Photo by SHARPS

Workers in Electrical and Electronic Industry in Thailand: The Cases of Samsung, Electrolux and NXP Manufacturing (Thailand) Ltd

By Woradul Tularak

I. Manufacturing, the economic leader in Thailand

The first phrase of industrialization in Thailand was the implementation of the import substitution policy which began in 1960 as part of the first National Economic and Social Development Plan (1960-1964). This policy provided some forms of incentives to local firms in the industry such as tax exemptions. It has been seen as a protectionist policy.

During this period the textile, automobile assembly and electronics appliance industries benefitted the most from the export substitution policy, thereby becoming the country's leading industries.[1]

The industries attracted large numbers of workers who migrated from the agricultural sector in rural areas, mainly to be employed in the factories. It has been estimated that these workers accounted for around three percent of the total work force employed in the industries in 1960s. In the 1960s and 1970s, the working conditions of workers were poor and wages were low.

Then during the years from 1972 to 1985, Thailand moved to an export- oriented policy. In the period from 1986 to 1992, there was high growth in exports as a result of the significant foreign direct investment that flowed into Thailand. Since 1993, with the development of supporting industries, the electronics and electrical goods sectors have grown rapidly and have become the second largest industry as a result of these government incentives, its realization policy and foreign direct investment inflows.

In 2011, the manufacturing sector in Thailand had the highest contribution to the economy as measured by the gross domestic product (GDP). Its share was 39.0 percent of GDP, followed by wholesale and retail trade sector which accounted for 13.5 percent of GDP, transport and storage and communications sector, accounting for 9.6 percent of GDP, agricultural sectors accounting for 8.6 percent of GDP, and the construction and mining sectors, together accounting for 4.3 percent of GDP.

The agricultural sector had the largest workforce, with 38.2 percent of the total number of persons employed, and followed by the manufacturing sector which accounted for 13.6 percent of the total labour force. (NSO, 2012)

In term of contributions to GDP, Thailand has been moving toward industrialization, particularly to manufacturing. This sector has continued generating the highest value to GDP with the increase in the number of workers. At the same time, the value of the agricultural sector has declined in terms of its share of GDP but continues to employ the greatest number of workers. Thus, the manufacturing sector is the leading sector in the Thai economy. Currently, the two major manufacturing industries in the country are the automotive sector and electric appliance and electronics sector.

1.1 Overview of the electronics industry in Thailand

Thailand is the largest ASEAN (Association of Southeast Asian Nations) production base of electrical and electronics for multi-national corporations (MNCs) from countries such as Japanese, Korea, American and Europe. Most of the output is exported to other countries. The top electrical appliances produced in Thailand include air conditioners, air conditioner compressors, washing machines, refrigerators and microwave ovens. (See Table 1). The top electronics products include electric tubes and equipment for computers, semiconductors and integrated circuits (IC). (See Table 2).

Table 1: Top electrical appliances produced in Thailand, 2012

	Units produced	Units sold on domestic market
Air conditioners	18,139,303	2,722,621 (15%)
Air conditioner compressors	12,365,394	6,931,315 (56%)
Washing machines	6,804,678	1,966,413 (28%)
Microwave ovens	4,353,330	449,547 (10%)
Refrigerators	7,169,961	2,121,403 (29%)

Source: Electrical and Electronics Institute 2013

Table 2: Top electronics products produced in Thailand in 2012

	Units produced ('000)
Electrical tubes, ray tubes for computers and related equipment	246,668
Semiconductor devices, transistors	9,667,135
Integrated circuits(IC)	19,177,209

Source: Electrical and Electronics Institute 2013

In 2011, the export share of electronic products constituted the largest share of total exports at 13.3 percent, followed by agro-manufacturing products (12.6 percent) and automotive products (10.2 percent), computer parts & accessories (6.4 percent).

Major imports classified by sector are parts of electronics and electrical appliances (11.8 percent), crude oil (14.4 percent), and automotive products (4.3 percent) and materials of base metal (9.4 percent). This reflects that Thailand is a hub for assembly in the electronics industry.

From 2007 to 2011, Thailand's exports of electrical appliance products increased from US$16,332.11 million in 2007 to US$22,110.41 million in 2011. The major products are air conditioners and refrigerators. Exports of electronics products rose from

US$29,609.62 million in 2007 to US$30,959.51 million in 2011. In the five years to 2011, the total value of electrical products and electronic products exports had increased from US$45,941.74 million to US$53,069.92 million. The rapid growth was achieved despite the fact that the value of exports in 2011 declined compared to 2010 because of the widespread and prolonged flooding in large parts of the country.

The major products produced for exports are HDDs, ICs, and electronic subcomponents such as printed circuit boards. Most of the factories are assemblers of electronics products, having imported semiconductor materials for use in production. The major export destinations of electronics and electrical products are ASEAN countries, the European Union (EU), the US, China, Japan and the Middle East.

As for imports in 2007, the value of imports of electrical products was US$12, 618.80 million, which increased to US$18,044.95 million in 2011. Imports of electronics products increased as well in 2007. Imports of electronics products were US$21,783.51 million in that year and in 2011, the imports of these products has climbed to US$25,368.19 million. In total, electronics and electrical products amounted to US$43,413.15 million in 2011, a sizeable increase over US$34,402.31 million achieved in 2007.[2]

1.1.1. Foreign direct investment (FDI)

In 2007, the FDI invested in computer, electronics and optical products manufacturing amounted to US$7,621.18 million, and it rose to US$13,008.04 million in 2011. According to the Board of Investment (BOI), from January to July 2012, the total FDI inflow was 332 billion baht (US$11,066.67 million), a 62 percent increase compared to the same period of the previous year.

The top investor was Japan with 474 projects worth 210.8 billion Bath, a rise of around 120 percent compared to 2011. Japanese MNCs have been the top investor in the electronics sector, led by major firms such as Panasonic Manufacturing (Thailand) Co., Funai (Thailand) Co., Ltd., NEC Tokin Electronics (Thailand) Co., Ltd. and Toshiba Semiconductor (Thailand) Co., Ltd.

Among ASEAN countries, the top investors have come from Singapore which invested in 78 projects worth around 19.1 billion baht (US$636.67 million) ; Hong Kong with 27 projects worth 12.8 billion baht (US$426.67 million); and Malaysia with 18 projects worth 11.8 billion baht (US$393.33 million). In addition, China invested in 21 projects worth 11.5 billion baht (US$383.33 million) and Australia in17 projects worth 10.3 billion baht (US$343.33 million).

The top investor from Europe has been the Netherlands with 21 projects worth 17.2 billion baht (US$533.33 million). The US invested in 27 projects worth 13.3 billion baht (US$443.33 million).

1.2 Major players in electronics industry

In 2012, there were 2,304 factories in the electrical and electronics industry. This is almost double the2002 number when there were 1,256 factories. In 2012, 1,354 factories were classified as small sized firm. A further 387 factories were listed as medium-sized firms and 293 were large firms. A large percentage of the factories were parts supplier and 23 percent were assemblers. Of the part suppliers, 57 percent were foreign-owned and joint venture firms and 43 percent of them were wholly Thai-owned firms. Of the assemblers, 40 percent were foreign-owned and joint venture firms. [3]

There are approximately 800 factories in the electrical appliance industry. The major players are MNCs and joint venture companies. Japanese companies have dominated this industry and accounted for 43 percent of the total number of companies. Japanese subsidiaries of Sony, Hitachi, Mitsubishi and Panasonic are operating in Thailand. Other large electrical appliance producers from around the world, such as Schneider Electric and Emerson Electric from the US, Electrolux from Sweden, LG and Samsung from South Korea, and Fisher & Paykel from New Zealand, also have a presence. [4]

The major export products are air conditioners, refrigerators, digital cameras, microwave ovens and washing machines. The major destinations of these exports are ASEAN countries, the EU, Japan, the Middle East and China.

In the electronics industry, MNCs are dominant and include companies such as Fujitsu from Japan, Western Digital and Seagate from the US, Phillips Electronics from Netherlands and LG electronics from Korea. [5]

The major export products are hard disk drives (HDD) and integrated circuits (IC) which accounted more than 60 percent of total exports. Thailand has become the top exporter of hard disk drives in the world.

1.3 Government policy on electronics industry

In 2012, the Thailand Board of Investment (BOI) offered incentives for investment projects producing electrical appliances and electronics as follows:

- Maximum tax incentives for high technology investment projects with a value exceeding 30 million Baht and producing products which have not been made in Thailand
- 8-year tax exemption on projects involved in the production of wafer and electronics designs
- Exemption of corporate income tax for a period of eight years in Zone 3, seven years for projects in Zone 2 in the industrial estate and promoted industrial zone, six years in Zone 2, and five years in Zone 1
- Exemption of import duties on machinery and raw materials and components used for producing electronic goods in all zones during the certain period of promotion.
- Land ownership rights for foreign investors and permission for foreign technicians, experts and so on.

In addition, the BOI also set up a special department, Unit for Industrial Linkage Development, to assist investors in sourcing parts and components from suppliers in Thailand.[6]

1.3.1 Free trade agreements

At present, the six ASEAN countries, namely Thailand, Malaysia, Indonesia, Philippines, Singapore and Brunei have a zero import tariffs system covering 99.65 percent of import items, while the other

four ASEAN countries, namely Cambodia, Myanmar, Lao PDR and Vietnam have import tariff rates from zero to five percent covering 98.86 of all import items.[7]

The Mutual Recognition Arrangements (MRAs) of the ASEAN countries aim to apply product standards for imports and exports items and to facilitate trade flows within the ASEAN countries. Currently MRAs conclude to apply the agreement to two groups of products: First electronics products under the name ASEAN Electrical and Electronic Agreement-MRA; and second, cosmetics products.

In 2011, under free trade agreements Thailand's exports of electronics products to ASEAN countries amounted to 153, 631.37 million Baht, to Australia 11,510.43 million baht, China 179,466.91 baht, India 11,613.25 baht, Japan 92,671 million baht, South Korea, 18,334 baht. At the same time, in 2011, Thailand imported electronics products worth 81,974.56 million baht from ASEAN countries; from Australia 220.55 million baht, from China 164,032.62 million baht, India 1,201.38 million baht, Japan 48,346.89 million baht and South Korea 17,585 baht.

Under the FTAs with Thailand's trade partners, exported and imported electronics products totalled 467,227.82 and 313,361.59 million Baht, respectively. In addition, a study by the Thailand Research Development Institute also found that the utilization rate of the FTAs for export and import of electronics products by firms in Thailand was still low at 16.76 percent on average although the tariffs has been reduced.[8]

II. Terms of employment in the electronics and electrical goods sector

These two sectors employed more than 400,000 workers in companies which are classified as large MNCs and joint venture companies. (The terms of employment of the workers is presented below in Table 3.) In 2011, the average of basic starting salary of workers in the industry was approximately 5,700-6,000 baht (US$200) per month with other benefits on a monthly basis, including living allowances of 500-1,000 baht, diligence pay of 300 to 2,000 baht, transportation allowances of 600 baht, meal support of 1,000 baht or 25-38 baht per

day, and the night shift work allowance of 55-90 baht per day. Thus, the estimated income of a worker in the sector is approximately 10,000-12,000 baht per month, if all benefits are included. (See Table 3 below.)

The low level of the basic salary has pressured workers to depend on overtime work to generate sufficient income for their living expenditures, therefore working hours are long.. Because of the low basic salary, the other benefits such as shift allowances, transportation allowances, living allowances and annual bonus have become very important issues for workers and are often included in the union's demands submitted to employers.

Apparently, due to the low level of the basic salary, the annual bonus has become more important for workers who use it to help pay off their debts. On the employer's side, under this low basic salary system, the cost of laying-off workers is low, since according to the Labour Protection Act, the employer is only required to pay a maximum of six months' salary to those who have worked for the company for more than five years.

Table 3: Employment terms in electrical goods and electronics sectors (selected companies), 2011

Wages and benefits	Electrolux	Fisher & Paykel	Daidong Electronics
Monthly (starting) wage	5,730 baht	5,800 baht	5,800 baht
Living expenses support	500 baht/month	1,000 baht/month	
Diligence pay	300-2,000 baht/ month	800-1400 baht/ month	300-500 baht/month
Night shift bonus	90 baht/shift	90 baht/shift	55 baht/shift
Meal allowance	1,000/month	38 baht/ meal (lunch)	25 baht,/ lunch, 20 baht/ over-time meal
Insurance	Accident, 5,000 baht/year	Health insurance - Hospital Room 1,000 baht/night - Medical treatment 20,000 baht/visit - Surgery 30,000 baht - Accident 3,000 baht	Yes

		- Visit doctor for minor illness, 30/year and 500 baht/visit	
Uniform	Yes	yes	
Wedding allowance	2,000 baht	n.a.	1,000 baht
Birth of first child	500 baht	n.a.	n.a.
Death of parent, spouse, child	2,000 baht	n.a.	5,000 baht
Leave			
- Death of parent, spouse, child	yes	yes	Yes
- Holiday leave	yes	yes	Yes
- Personal days	yes	yes	Yes
- Maternity leave	yes	For husband 10 days without pay	Yes
- Leave to join Buddhist monk-hood	Yes	yes	Yes
Years of service paid	n.a.	300 baht/month for 1-3 years of service, 500 baht/ month for 3 or more years' service	n.a.
Annual Diligence bonus	yes	n.a.	n.a.
Working at risk spot allowance	yes	none	Yes. 30 baht per day
Transportation allowance	yes	yes	Yes 600 baht per month
Annual bonus	yes	Yes. 1.5 months' salary plus 6,700 baht)	Yes. 2 months plus 10% of monthly salary
Company bus (free pick up)	yes	yes	Yes
Free product sampling	yes	n.a.	n.a.
Education scholarships for employee and child	yes	n.a.	n.a.
Skill allowance	yes	yes	Yes. 4,000 baht per month

Annual medical check up	yes	yes	Yes
Retirement	age of 55	n.a.	age of 55
Provident fund	5% (0-5 year and 7 % after 5th yr) of worker's salary, same contributed by employer)	3% and 5%	Yes

Source: Group interviews with unionists in three MNCs, 24 December 2011

The numerous allowances and bonuses make the employer appear generous. These allowances bolster take home pay but serve to severely reduce the level of basic salary or wages. They also reduce the esteem of the workers receiving such low pay; reduce the level of the employer's contribution to the pension or retirement fund, and importantly. cap the rate of overtime pay at a low rate (even if it is a multiple of the basic rate) as well as reduce the employer's severance pay liability.

2.1 Informalisation of jobs in electronics sector

Recently workers recruited from employment agencies (commonly referred to as 'outsourced workers') and other workers employed on short-term contracts are widely used in this sector and by MNCs. According to information gathered from group interviews of electronics workers and their union representatives in 2011, a new hire (i.e., a worker hired directly by the company and not through an agency) after the probation period of three months would receive Bt5,700-Bt6,000 a month in basic pay.[9] This basic salary would soon rise to Bt8,500 a month when they become permanent worker. However, those workers hired through an employment agency (referred to as 'outsourced workers') and those hired on short-term contracts would be paid on average just Bt169 a day. If they work 24-26 days a month, that is equivalent to Bt4, 056-4,394 a month, discounts of 29 percent and 28 percent on the salary of 'permanent' workers. Additionally, the contract workers do not receive health insurance or pension fund contributions, since they are still technically employed by the agency. (It is not known

whether the agency provides any type of health insurance cover or pension fund contribution for them.)

Moreover, contract and agency workers are likely to be the first staff laid off when there is a downturn in the economy. For example, in 2011, the floods halted production and forced some firms to close temporarily and lay off workers. Most of these were agency workers and contract workers. Sanyo Semiconductor (Thailand), for example, laid-off 2,000 employees, most of whom were subcontracted workers.[10]

Surveys carried out in 2006, showed that more than half of the workers were agency and contract workers. The compensation and other employment terms of workers employed through labour agencies were far inferior. The survey pointed out that the inferior contracts of agency workers also created problems for the trade union movement, particularly as regards unions' bargaining power and the legal protection for agency workers in exercising the right to organize and collective bargaining.

The survey also collected recommendations made by union activists as follows: For unions to bargain for limiting the numbers of agency workers; for consultation rights prior to company decisions to engage outside contractors; for equal treatment in terms of wages and benefits; for direct permanent contracts after some years of service; for unions to use labour inspection to combat employers' abuses of agency labour. Interestingly, the paper also discusses a strategy to 'fight back' against the employer who fails to consult the unions on using agency labour by way of a non-cooperation approach: The union policy is to not provide training assistance for newly hired agency workers who work in the assembly line with union members.[11]

2.2 Trade unions in the electronics sector

The Labour Federation of Electrical Appliances and Electronics Workers has been the major industrial federation of unions in the electronics sector. There are 21 unions affiliated with the federation, bringing together 24,456 members in all. Most of its affiliates are the trade unions in Japanese MNCs, such as Panasonic, Sanyo, Sony, Hitachi, Mitsubishi and Fujitsu.

The Labour Federation of Electrical Appliance and Electronics of Thailand and the other federations, namely the Federation of Automobile and Metal Workers, the Thai Iron and Metal Industrial Workers Federation (TIAM) jointly work together under the Confederation of Thai Electrical Appliances, Electronics, Automobile and Metal Workers, bringing together 63,674 members and 88 trade unions in these industries.[12]

III. Samsung in Thailand

Currently, there are three major Samsung companies and production facilities in Thailand: (1) Thai Samsung Electronics Co. Ltd; (2) Thai Samsung Mechanical Co. ltd; and (3) Samsung Electro-Mechanics Nakhonratchasima Co. Ltd.

3.1 Thai Samsung Electronics Co. Ltd

In 1988, Samsung Electronics Co., Ltd established Thai Samsung Electronics Co. Ltd, a joint venture company with a Thai partner, Saha Pathana Inter-Holding Co., Ltd. The joint venture mainly produces home electrical appliances. The first factory was built in Saha Pathana (Sriracha) Industrial Park.

Thai Samsung Electronics now has five factories, employing around 1,700 workers. Individual production units are as follows: Washing machines with 248 workers; microwave ovens unit with 390 workers; air conditioners unit with 548 workers; refrigerators with 244 workers; and the TV receivers and LCDs production unit with 275 workers.

On 3 April 2011, it was reported that the warehouse of Samsung Electronics company was burned down by accident. Around 100 workers escaped from the area, but five workers suffered from smoke inhalation. The cost of the damage was around 50 million baht.

The company produces mobile phone, TFT-LCD monitors, ODDs, DRAMs, SDRAMs, flat-screen TVs, projection TVs, plasma display panel, MP3 players, DVDs, digital camcorders, refrigerators, washing machines, microwave ovens and air-conditioning units. The

major markets of Thai Samsung Electronics are the U.S. and European markets. Thai Samsung Electronics allocated 1 billion baht for sales and marketing of its flat-screen LCD, plasma and LED TVs in 2011. In all, the company captured 41 percent of the country's color TV market

Table 4: Thai Samsung Electronics Co. Ltd

	2011	2010	2009
Cash and deposits in financial institutions	5,822,634,628	1,799,303,554	1,478,210,337
Total assets	31,221,387,881	24,396,859,697	20,476,875,995
Accumulated profits	18,674,225,519	13,896,933,130	9,449,695,812

3.2 Samsung Electro-Mechanics (Thailand) Co., Ltd

Samsung Electro-Mechanics (Thailand) Co., Ltd, located in Wellgrow Industrial Estate in Chachoengsao province, produces electrical components. The factory was established in 1990 with registered capital of 424.25 million baht.

In 2011, there were two major company shareholders, Samsung Electro-Mechanics (Thailand) Co. Ltd. of South Korea, holding 3,181,869 shares which is about 75 percent of the total number of shares; and the Samsung Electronics Asia Holding Pte Ltd of Singapore holding 1,060,625 shares, about 25 percent. In addition, there are several shareholders each holding one share in their own names: Chak KhiKon, Nam Chang Kap, Yong Shang Shoi, Lee Jung Huk, Li Chang Wuk and Li Ho Ik.

In 2011, the company generated total income of 16,197.64 million baht and total profits of 451.414 million baht. It should be noted that the cost of operations, including wages and benefits for workers was equal to around 10 percent of total costs and the rest of the costs were mainly sale and marketing costs which accounted around 90 percent of total costs. In 2009, the company had total income of 9,837.62 million baht with the total profits of 790.26 million baht. The company has been very profitable (i.e, no losses) in the past three years, despite disruptions due to the flooding and global economic downturn.

Table 5: Samsung Electro-Mechanics (Thailand) Co. Ltd

	2011	2010	2009
Cash and deposits in financial institutions	156,115,647	235,778,527	183,145,123
Total assets	5,596,870,486	4,205,648,444	3824120739
Accumulated profits	1,536,356,308	1,385,828,190	1564593744

3.3 Samsung Electro-Mechanics Nakhonratchasima

Samsung Electro-Mechanics Nakhonratchasima produces hard disk drives, electronics appliances, motors, etc and employs 3,000 workers. The company was registered in 1995 with the registered capital of 1,250 million baht. (See Table 6 below.) The starting wage rate for workers is 255 baht per day.[13]

Table 6: Samsung Electro-Mechanics (Nakhornratchasima) Co. Ltd

	2011	2010	2009
Cash and deposits in financial institutions	478,892,399	266,285,757	350,384,653
Total asset	4,159,147,903	4,497,465,373	3,717,218,634
Accumulated profits	- 389,421,497	- 478,957,748	- 788,431,446

Source: Department of Business Development, Ministry of Commerce

This company is the Samsung group's most recent production facility in Thailand, established after the two companies discussed above. From 2009 to 2011, the company incurred negative profits (i.e., losses) of 788.431 million baht in 2009, 478.957 million baht in 2010, and 389.421 million baht in 2011. The losses of the past three years are due to lower sales and high marketing costs.

3.4 Compensation terms of Samsung's workers in Thailand

The basic salary of a worker on the production line of the three Samsung factories is different with two systems of compensation, either daily wage or monthly wage. According to various sources, in Thai Samsung Electronics Co Ltd, rank and file workers earn a monthly wage on average of 11,000 to12, 000 baht per month.. Added to the basic monthly wage are certain benefits, including a diligence allowance of 700 baht/month, a transportation allowance of 500 baht/month, a co-operative allowance of 1,000-1,700 baht/month, as well as free lunches, medical allowance (OPD & IPD including family members), life insurance, provident fund contribution equal to 5 percent of the basic monthly wage, annual leave of 6-14 days (depending on years of service), uniforms, marriage and maternity allowances, birthday present, home electrical appliances/special price for employees, and an annual bonus.[14]

It is to be noted that on average the wage and benefits for working at Samsung in Thailand are comparable higher than other MNCs and local firms in the sector.[15]

3.5 Trade union in Samsung in Thailand

At the Samsung production facilities in Wellgrow Industrial Estate in Chachoengsao Province in Thailand, there are three unions, two of which are in the Samsung Company and another union in the direct supplier of Samsung in Thailand.

The first is the Workers of Samsung Labour Union which was registered in June 2005 with 1,400 members, drawn from the 3,200 workers (2,650 women and 550 men) employed there. The union is affiliated with the Labour Congress Center for Labour Unions, one of 13 national labour centres (labour councils) in Thailand.

The second is the Samsung Supervisors Labour Union, established in June 2006. According to the Thai Labour Law, workers in higher positions, such as managers and supervisors are not eligible to join the same rank and file union as production workers. Therefore, they form their own union to protect themselves. The union is affiliated to the Labour Congress Centre for Labour Unions.

The third union is the Electronics and Mechanics Labour Union, which was established in August 2006 with 300 members from a total workforce of 395 workers. The union is a company-based union in Aneon Company. This company was previously a Samsung production unit that has been sold to another Korean-owned company, ANEON. The union is affiliated with the Labour Congress Centre for Labour Unions.[16]

Union action

The unions were formed in 2006, after Samsung moved a section of its production unit to Aneon Electronics Thailand which is a direct supplier to Samsung.

In short, when the management announced the transfer of workers to Aneon, the workers expressed their dissatisfaction with the transfer and the new terms and working conditions at the new company. The industrial conflict ensued after the 678 workers submitted their demands. There were rounds of negotiation between employer and employee representatives. The number of those supporting the demands increased to 1,768 workers. During the period of negotiations, seven union leaders were dismissed and they filed complaints to the government agency. Five workers were reinstated and the rest received compensation from Samsung.[17] According to Thai labour law, unionized workers have the right to summit their demands and to negotiate their demands collectively with management when at least 15 percent of the total workforce supports the demands.

On 18 May 2005, a settlement was reached after a meeting between the employees' representatives and the employer's representative of Samsung Electro Mechanical Thailand. The agreement concluded on 3 main areas: First, benefits and welfare for workers such as basic salary, bonus, etc; second, regularize the daily wage workers and give them permanent positions; and third, the options for workers that offered by company due to the transfer. (A summary of the agreement is presented in Table 7.

Table 7: Summary of Agreement

1.	Annual bonus increased to 3 months' salary
2.	Shift allowance increased from 30 baht to 50 baht per day and 2 uniforms per year
3.	Diligence pay increased to 600-1,000 baht/ month depending on years of service
4.	Samsung Thai workers are given some options and transfer conditions to the new company
5.	Minimum 5 percent salary increase annually
6.	Daily wage workers elevated to monthly wage worker status after 3 years of service
7.	Continue to implement existing, positive employment and compensation terms of former work unit.

Source: Agreement signed between management of Samsung Electro-Mechanics Thailand and employee representatives on 8 May 2006

According to the information given by a previous Samsung worker and union member[18], after the agreement was signed, the union leaders were offered the compensation (i.e., transfer compensation) for resigning from Samsung, and some were promoted to better positions in Aneon. Currently, there are three union leaders, who were union founders in 2006, still working at Samsung Electro-Mechanics Thailand.

Samsung Electro Mechanics also transferred its workers and union members to a new company, MIR E&DS Thailand Company.

Samsung set up MIR E&DS as a separate company in 2005. The new company produces the electrical components, including Switched-mode power supply and external adapters. Its headquarters is located in Suwan-Si in South Korea and it also operates two factories in Thailand and China.[19]

Nonetheless, since the union was formed, the terms of employment and compensation of the workers in Samsung Electro Mechanics Thailand have been improved to some extent based on the previous collective bargaining agreement in 2006. For example, the annual bonus increased to four months' salary some years, and bonuses

such as travel allowances on the national holidays and other bonuses have been awarded.

However, not every problem has been solved so amicably. Workers at these companies recently reported to the umbrella union, the Labour Congress Centre for Labour Unions that even after the government increased the minimum wage rate nationwide in early in 2013, many workers who have worked for the company for years are still receiving low wages. They need the wage adjustment to be higher than the rate received at present.

In addition to union bargaining, the workers in Samsung also use the Labour Welfare Committee[20] as required by Thai Labour Protection Law as the mechanism to negotiate wage and benefits issues and other matters.

IV. Additional case studies

4.1 Electrolux workers in Thailand

One example of union busting in the electronics sector in Thailand was seen in the case of the Electrolux workers' union. During the collective bargaining period, the union made its demands, proposing that the company increase wages and some benefits, such as by applying the minimum wage rate announced by government. The union also demanded the employer increase the wages of those with several years of service, as well as regularize the positions of those workers hired on a two- year service agency contract.[21]

Between 10 and 21 December 2012, there were a series of meetings between the management and the trade union committee as well as the welfare committee on the new minimum wage and annual wage adjustments. The trade union representatives and welfare committee then submitted a detailed proposal to the management for wage adjustments. (See Table 8 below.)

Table 8: Electrolux union wage hike proposals

Position	Years of Service	Basic salary/month
Operator	2	9000+300
Operator	3	9000+600
Operator	4	9000+900
Operator	5 and beyond	9000+1200

In answer to the union's proposal, on 21 December 2012, the management posted the following announcement:

Table 9: Electrolux management response

Workers with salary of 8,000-8,099 Baht	To be increased by 1,000 baht
Workers with salary of 8,100-10,000 Baht	To be increased by 900 baht
Workers with salary of 10,001-15,000 Baht	To be increased by 800 baht

On 11 January 2013, the management rejected the union's proposals and then dismissed the union president. When the workers found out that the union president had been dismissed, they held a sit-in, demanding the management reinstate the union president. In response, management representatives announced to those demonstrating workers that they all were dismissed.

On 14 January 2013 when the workers returned to the factory to work, they found dismissal notices for the union members and their representatives – altogether 129 persons (67 women workers and 62 male workers). This group then demonstrated in front of Government House, demanding that the management reinstate all of them.

Compensation terms at Electrolux Rayong Plant [22]

A trade union was formed at the Electrolux Rayong plant in February 2011. Workers reported on the problem of forced overtime work which happened frequently at the plant. When they refused to do overtime work, they were threatened they would not be given the

work in the future. The regular working hours are from 8:00 am to 6:00 pm, Monday through-Thursday; and 8.00 am to 5:00 pm for Friday. Any work on Saturday and Sunday is considered overtime work. In practice, most workers have to work from 8 am till 10.30 pm every day, including Saturday and Sunday.

Prior to the implementation of the new minimum wage in Thailand - effective 1 January 2013 - Electrolux workers earned 8,200 baht (US$273) on a monthly basis. Following the minimum wage increase, workers would earn 9000 baht (US$300 per month which is still not enough given the high cost of living. The workers' immediate solution was to do overtime work to earn an additional 3,000 baht (US$100 a month).

At Electrolux Rayong, there are a few benefits provided in addition to the basic wages, such as 1,000 baht (US$33) housing allowance and 30 baht (US$1) meal allowance for those working overtime. These benefits apply to workers with permanent employment contracts. The plant in Rayong has a workforce of 886, including production and office workers. Out of this number, around 250 were employed on short-term contracts through labour agencies; some of these workers were on a six-month contract, some on a four-month contract and some hired on a one-month contract only. The majority of the workers at the Rayong plant are women between the ages of 20 and30.

When the union was formed in 2011, it managed to negotiate a collective agreement which expires this year and the union is preparing to negotiate a new one.

According to the union workers, Electrolux has been expanding in Thailand. The company has opened new plants recently and there have been lots of orders from the buyers and workers have been requested to do lots of overtime work.

The products made at the Electrolux Rayong plant include washing machines, refrigerators and other electrical appliances for European as well as Asian markets.

Since the dismissal of 129 union members and representatives, Electrolux Rayong plant has increased the number of workers hired through labour agencies for the production line. According to the union, the number of agency workers is close to 500, while the number of permanent workers has fallen to around 280.

4.2 NXP Manufacturing (Thailand) Ltd [23]

NXP took over from Philips in 2006. NXP is the world's leader in the design and manufacture of ICs used in smart labels, tags and the corresponding reader components and is the supplier of Apple, Samsung, Nokia, Dell, GM, BMW, Ford, Mercedes, Audi and a number of airlines.

NXP Manufacturing (Thailand) Ltd manufactures and markets application-specific semiconductors, including chips for the auto industry and semiconductor components. The company was formerly known as Philips Semiconductors (Thailand) Co., Ltd. and changed its name in December, 2006. NXP Manufacturing (Thailand) Ltd was founded in 1974 and is based in Bangkok, and operates as a subsidiary of NXP B.V.

On February 27, NXP Manufacturing locked out the Thai workers, forcing them to accept a new work system. Union members were forced to leave the production line. The workers were given only two choices: Sign a company form accepting the new work system and continue working, or resign and leave.

The lock-out was declared by NXP management on 27 February, and effective on 28 February, thereby giving workers 24 hours' notice as required by the Thai labour law. However, the workers working on a night shift on 27 February, most of whom women, were forced to leave the production line several hours before the lock-out order took effect. Many women, including some pregnant workers, had to walk and find their way home in the dark. These workers were also members of the union in dispute with the management over the new system that required workers to work four days consecutively, then have two days off, while adding an additional four hours on the days they worked to make each shift 12 hours long. Prior to the change, the company's work week was from Monday-Saturday, the workers were required to work eight-hour shifts.

This factory has been operating for 38 years, with most of workers having worked there for more than 10 years. Of the total workforce, more than 2,000 are women, employed directly by NXP and paid a daily rate. The daily wage workers at NXP earn 300 baht per day, the

legal minimum wage. In one month, they normally work 26 days. At 300 baht per day, they thus would earn 7,800 baht a month.

Since October last year, union and management had conducted negotiations in which NXP was pushing the union to accept a continuous production schedule which requires workers to work four consecutive days with two days off which can fall on any day in a week; no overtime pay for weekend work; compulsory overtime without advance notice; the reduction of annual holidays from 12 days to 8 days; the elimination of a negotiated pay structure, and finally the positions of daily wage workers to be left in the hands of management alone to decide.

Since 1 March 2013, union members have gone on strike and demonstrated outside the plant. On 13 March, the union workers also demonstrated outside the Netherlands Embassy in Bangkok.

NXP Manufacturing in Thailand employs 3,200 workers, the majority of whom are women. The average wage at the factory is 345 baht (9 euros) per day.

V. Conclusions

Certain features of the Thai labour regime and the case of Samsung reflects that the informalization of labour, through outsourcing and sub-contracting of many positions, is rising, and this has become a common tactic, used by the companies to reduce labour costs and undermine the position of workers and their unions. From the point of view of workers, these practices constitute unfair treatment towards workers, which include transferring workers to another unit or even a different company, agency company, subsidiary or sub-contract company.

In the cases of Samsung and NXP, workers and union members were forced by the company management to accept new terms and conditions or a new working system without consultation of the union and workers. In the Electrolux case, the management forced the workers to sign a new contract, which put them on the same status as a new employee and forced to pass a new probation period.

These are also seen as tactics to limit the capacity of workers to collectively organize to improve their conditions, and where a union

exists, it also weakens the position of the union. On the other hand, in companies where a union had not yet been formed, management's practice of hiring more and more low-paid labour through labour agencies has challenged workers and they have responded by forming a union and finding ways to negotiate on these policies as seen in the case of Samsung in Thailand.

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Workers in Crisis: Japan's Electrical Appliance and Electronics Industries

By Tono Haruhi and Kaneko Fumio

Introduction

This report analyses the long-term decline of Japan's electrical appliance industry, the causes of the decline as well as its impact on workers and local communities. The paper reviews the growth and contraction in this industry in domestic facilities and touches on developments in those facilities set up overseas. It includes producers of all types of electrical appliance products which are divided into electrical appliances and electronic equipment: Electrical appliance sector includes industrial electrical appliances and consumer electrical appliances; the electronic equipment category consists of consumer electronic equipment, industrial electronic equipment and electronic components and devices.

The report is presented in three sections. The first section gives an overview of the long-term decline of these industries and shows that while Japan's economy has been in long-term stagnation as a whole after the collapse of the bubble economy in 1991, the decline in the electrical appliance and electronics industries, which have been pillars of the country's manufacturing industry, has been quite noticeable. Between 1991 and 2011, the number of business establishments decreased by half and the number of employees (in regular employment) as well as the value-added decreased by two-thirds. One of the reasons for the decline has been the shift of production overseas and the other has been the greater competitiveness of manufacturers in Korea and China.

Section 2 describes the trend in the management policies of Panasonic, Sony and Sharp, which are the main producers of electrical appliances and electronic equipment in Japan, as well as the trend in the production of LCD panels and semiconductors, which are the key components. This section also discusses the situation and factors

which led these leading manufacturers into loss-making situations. The fundamental reason why these major manufacturers were loss-making after the Lehman shock of 2008 was that they could not respond to the change in business models worldwide which accompanied the digitization and commoditization of these appliances and equipment. With the advance of digital technology, a "horizontal division of work" model became the mainstream model, wherein companies separated the product development and design processes from the component manufacturing process and the assembly process so that each business unit could make decisions on large-scale investment. However, leading manufacturers in Japan failed to revamp the traditional "vertical integration" model, where companies design products, manufacture key components and assemble the products all in-house.

Added to this background of the failure to transform their business models, the traditional structure of the companies prevented swift management decisions and the management misunderstood the demand structure of the market. On top of that, various factors compounded to make the downturn worse, including the appreciation of the yen, the Lehman shock, and the adverse effects of the transition to digital terrestrial broadcasting and the eco-point system that the Japanese government introduced, and finally the Great Eastern Japan Earthquake. As a result, these companies incurred the biggest losses in their history. Sharp found itself to be on the verge of bankruptcy and had to adopt restructuring measures, including a capital alliance with Hon Hai of Taiwan (Foxconn Technology Group of Taiwan) and Samsung of South Korea.

Section 3 will examine Sharp's Kameyama factory as an example of the effects of the decline of these industries on workers and the local communities. After the Lehman shock, those major appliance and electronics manufacturers that became loss-making resorted to factory closures and massive cuts of the workforce. Non-regular employees were the first to be laid off, followed by regular employees. Regional governments which had invited the major companies to set up factories in their areas, are now seriously suffering from an increase in unemployment, a decline in related services and a drop in tax revenue.

I. Long-term decline of electrical appliance industry

1. Decline in domestic production

Data from the Ministry of Economics, Trade and Industry (METI) as seen in the "Census of Manufacturers" clearly shows the trend of the electrical appliance industry in Japan, breaking out the number of business establishments and employees as well as the amount of the value of shipping (i.e., value of total domestic factory output) and value added. (See Table 1) The number of establishments and employees as well as the amount of value added increased continuously through the 1980s, reached a peak in 1991, then began to decrease. In other words, the electrical appliance industries was booming in the economic bubble of the late 1980s, followed by a long-term decline in the subsequent recession.

The number of business establishments in this industry decreased by more than 50 percent, from 36,979 in 1991 to 17,444 in 2011. The decrease was significantly more drastic in comparison with other indicators, which seems to indicate that many small and medium-sized establishments were forced out due to the recession. As regards the number of employees, it decreased from 1.983 million in 1991 to 1.113 million in 2011, a fall of 870,000 people or nearly 44 percent. As this represents only the number of regular employees, we presume that a certain portion of the decrease has been compensated by an increase in non-regular employees.

The value of shipping (i.e., domestic factory output) decreased from the peak of 60,381 billion yen in 1997 to 40,602 billion yen in 2011, a decrease of approximately 20 trillion yen or 33 percent. The amount of added value also fell from 21,395 billion yen in 1991 to 13,601 billion yen in 2011, a decline of 36 percent.

As a general trend, we can say that the Japanese electrical appliance and electronics industries have been in decline for the past 20 years and that trend has been further exacerbated by the Lehman Brothers' shock and subsequent financial sector crisis of 2008 and the Great Eastern Japan Earthquake of 2011.

2. Fluctuation of imports and exports

Data gathered and published by the Ministry of Finance (MOF) on international trade shows the trends in imports and exports of electrical equipment. (SeeTable 2). With the reclassification of certain items introduced in 2006, the figure for "appliances and equipment - electrical machinery" are now divided among "capital goods - electrical equipment", " consumer durables - domestic electrical appliances" and "others". We applied the new classification to the data from 1999 onwards.

Over the 20-year period, there was a fluctuating but gradual increase until the mid-2000s, when there is a sharp drop in the wake of the Lehman shock, and then a recovery trend. However, we have to take into account that as these statistics are based on values in dollars, a portion of the increase is due to the rise in the value of the yen, so that the rate of increase in the dollar amount was higher than the rate of increase in actual quantity due to the effect of the yen's appreciation.

Particularly notable in Table 2 is the difference between exports and imports. Looking at the movement since 1999, we find that imports and exports have been increasing in parallel for all electrical goods and as the result a balance in foreign trade has been achieved. On the other hand, in the case of domestic electrical appliances, a decrease in exports and an increase in imports have been seen, and, as the result, the trade deficit (higher imports) has risen. It clearly shows a decline in the competitiveness of the industry, especially in the field of domestic electrical appliances.

To analyse the data in more detail and get a better understanding of the downturn, we have divided the electronic equipment industry into three categories: industrial electronic equipment (computers, printers, mobile phones, etc.), consumer and electronic equipment (TVs, video cameras, digital cameras, etc.) and electronic components and devices (semiconductor devices, integrated circuits, liquid crystal devices, etc.). Let us look at the movement in production, exports and imports of each of these categories.

Table 3 (Figure 1) shows the trend for industrial electronic equipment. While production and exports have been falling significantly through the 2000s, imports have been increasing steadily.

The ratio of exports to production has been around 30 percent and the decline in exports and production has been proceeding in parallel. The trade balance between exports and imports in this category reversed in 2003, and imports exceeded exports, and the ratio of imports to production reached 80 percent. The decline in competitiveness is evident.

Table 4 (Figure 2) shows the movement of consumer electronic equipment. The scale of production, imports and exports is much smaller than industrial electronic equipment. Production peaked in 2007 and has been declining since that year, while exports have been declining since 2004. On the other hand, imports have been increasing gradually and exceeded exports in 2010. Although there are differences of scale, a common trend can be seen with industrial electronic equipment and consumer electronic equipment. The decrease in the ratio of exports to production as well as the increase in the ratio of imports to production also indicates a decline in competitiveness.

Table 5 and Figure 3 show the trend for electronic components and devices. Production (i.e., domestic output) and exports have been decreasing gradually, while imports have been levelling off. The difference between imports and exports has been declining gradually but has not reversed to the excess of imports yet. In comparison with other categories, it can be said that this sector has maintained its competitive edge. What is impressive with this sector is the extremely high export-to-production ratio of around 100 percent.

Table 6 further shows the above-mentioned trends at the item level. The figures for the category of computers show a decline in both production and exports, and at the same time rising imports which exceed the level of exports. As regards television sets (TVs), exports are decreasing and imports are increasing but in a less drastic way. In the case of integrated circuits (ICs), production has been decreasing continuously with both exports and imports peaking in 2007, and decreasing since that year.

The Japanese electrical and electronic appliance and equipment industry as a whole thus can be characterized by a long-term decrease in production and exports and continual increase in imports. This trend implies that the industry is in a process of decline as a national industry. This decline can be attributed to two main factors: the transfer of

companies' business activity overseas, often referred to as a hollowing-out of the domestic industry, and the difference in competitiveness with foreign companies. .

3. Expansion of business activities overseas

(1) Increase in foreign direct investment

Japanese companies' foreign direct investment (FDI) overseas has been expanding and can be seen in the increase in the current account surplus, in particular during those economic boom years, and triggered by a change in the exchange rate, i.e., during periods of appreciation of the Japanese yen. Table 7 shows the long-term trends in overseas investment by Japanese electrical appliance manufacturers in terms of the number of deals, the total invested around the world and the total amount invested in Asia alone. As regards the number of deals for the whole world, we can detect occasions of boom in 1972/73, 1978/79, 1986-91 and 1994-96. These years correspond to the periods of strong yen appreciation and fears of its negative impact on domestic exports. The number of deals in Asia shows a similar trend and has been greater than 50 percent except in the first half of the 1980s.

The total amount of FDI has increased in stages with each period of economic boom marking a new step forward. The first peak in Japan's global FDI overseas was in 1990, when the total amount hit $5.684 billion, while the second – and the highest peak – was in 1999, when the total amount reached $16.360 billion. The total amount of FDI in Asia was not so big considering the number of deals and its share in the whole world varies dramatically. The peak year for Japanese FDI in Asia was 1995, when the total amount reached $2.479 billion.

Japan's FDI in the electrical appliance and electronics manufacturing industry was maintained at a considerably high level in 2000s, in contrast to the decline in domestic production and exports. The movement of production facilities overseas and the hollowing-out of the domestic industry continued during this decade.

(2) Increase in the number of affiliated companies overseas

Then, let us examine the performance of companies operating overseas based on the findings of the METI's questionnaire and survey. Table 8 shows the aggregate data on the number of overseas affiliates of Japanese companies and their sales amounts, net profit, and the number of employees. As these figures only represent those companies which responded to the survey, the actual figures could be a little bigger.

The number of overseas affiliates peaked at 1,848 in 2005 and has been decreasing since then. The proportion of affiliates of the electrical appliance industry compared to all affiliates set up by Japanese companies overseas was greater than 25 percent in the 1987-92 period, but declined to 18 percent in the latter half of 2000s. Total sales peaked at 24.799 trillion yen in 2006 and have been decreasing since then. As regards sales of affiliates of the industry compared to all overseas units, the contribution was maintained at more than 30 percent for most years, from the latter half of the 1980s through the 1990s. However, since 2000, it has been falling and by 2011 accounted for just 18.5 percent of total sales of Japanese manufacturing affiliates.

The net profit of these units reflects the global economic trend in the electrical appliance industry and thus varies significantly from year to year. While net profit reached a record high of 545.9 billion yen in 2007, there were several years which ended in a deficit. The proportion of electrical appliance industry as regards all manufacturing affiliates overseas was on the order of 10 percent for many years. The comparison of this figure with the sales amount suggests low profitability in this sector. The number of employees peaked at 1.326 million in 2005 and has been decreasing thereafter. The proportion of those employed in the electrical appliance industry has stayed at around 30 percent but shows a slight decrease in the late 2000s.

It can be said that, in general, overseas affiliates of Japanese electrical appliance companies grew continuously until the mid-2000s and since then have slightly reduced the scale of their operations. Thus, the size of this industry has been decreasing relative to all other manufacturing set up by Japanese companies overseas.

Comparing the scale of business operations of these overseas affiliates with domestic companies, the proportion of overseas

production of electrical appliance increased from around 10 percent to 20 percent. (See Table 9 and Figure 4) Due to the change in statistical categories in 2004, this sector is now divided into two sectors – electrical appliance (including appliances) and information/communication equipment – but the combined figure seems to fluctuate around 20 percent. This ratio is not as high as that of the transport equipment sector (automobile industry), but it is well over the average for the whole manufacturing sector. Furthermore, as can be seen in Table 10, overseas sales as a percentage of domestic sales increased from 10 percent in 1987 to 20 percent in 1996. Growth continued in the last decade, rising to more than 30 percent in 2003, and to 32.6 percent in 2006. Although the ratio fell slightly after that, it remained in a range just below 30 percent.

The ratio of overseas employees is higher. It increased from 10 percent during the latter half of the 1980s to 20 percent in 1993, then to 30 percent in 1997, to more than 40 percent in 2000 and finally to over 50 percent in 2004 (Figure 5). In other words, there were more employees in overseas affiliates than in domestic companies. Since then, the ratio has been steady at around 50 percent.

Thus, the transfer of companies' business activity overseas is one of the major causes of the decline of the electrical appliance and electronics industry in Japan. But there are other causes as well. The impact of the breakthrough of these industries in neighbouring East Asian countries is also important. So, we will examine the trend of electrical appliance industry in East Asia, including Japan, in the next section.

4. Breakthrough of East Asian electrical appliance industry

(1) Increase in production

In the past, the production of electrical appliances was concentrated in advanced industrialized countries of North America, Europe and Japan. However, since the 1970s and in the wake of the rapid industrialization and economic growth in East Asia, this region has risen to become the centre of the global electrical appliance manufacturing. East Asia in this report includes four major areas: Japan; the four newly industrialized economies (NIEs) of South Korea, Taiwan,

Hong Kong and Singapore; the four leading economies of Southeast Asia (ASEAN 4), Thailand, Malaysia, Indonesia and Philippines; and lastly China. Table 11 shows the changes in the output of electronic equipment in this region and in the world.

The total output of electronic equipment in the world nearly doubled from US$703.3 billion in 1990 to US$1.3677 trillion in 2000 and has been maintained at this level (US$1.3987 trillion in 2005). The share of East Asia has risen steadily from 38.8 percent in 1990, to 45.0 percent in 2000, and to 53.3 percent in 2005. Among the sub-regions in East Asia, Japan was dominant in 1990, but was surpassed by China as well as the four NIEs by 2005. The data for 2008 indicates that world production further increased to $1.5688 trillion and the share of East Asia has continued to rise to 58.9 percent. The shares of Japan and the four NIEs have slightly decreased to 13 percent for each, while the ASEAN 4 have increased their share to 7.0 percent, and China has further increased its share to 25.9 percent.

Then, let us examine the breakdown of production. First, as regards electronic equipment, the world production did not grow significantly from 1990 to 2000 but increased substantially around 2005. Meanwhile, the share of East Asia remained around 60 percent without any notable changes, although the share of Japan and NIEs declined and that of China increased dramatically. As regards industrial electronic equipment (including personal computers), in line with the continued growth in world production, the share of East Asia has risen from 40.5 percent to 68.6 percent. In this sector, the decline of Japan and the rise of China are sharply contrasted.

As regards electronic components and devices (semiconductors, integrated circuits, etc.), world production increased 2.3 times between 1990 and 2000 and continued to increase slightly toward 2005. The share of East Asia rose steadily from 52.6 percent in 1990, to 58.7 percent in 2000, then to 71.8 percent in 2005. The breakdown by sub-region indicates that although Japan's share has been declining, Japan maintained a share of 21.8 percent in 2005, noticeably higher than in other sectors. The share of the four NIEs is also high. On the other hand, although China's production is growing, it has not yet caught up with Japan in this sector.

In this way, as East Asia has developed into the global centre of the electronics industry, Japan's position has been eroded and the NIEs' performance has been sluggish. At the same time, China has been experiencing a breakthrough. However, with respect to electronic components, the shares of Japan and the NIEs are still large and China has not caught up with them. This may imply a division of labour in which Japan and the NIEs produce parts and components, while China imports them and assembles these parts and components into final products.

(2) Expansion of trade

Table 12 shows the changes in exports of "consumer electronic equipment - AV appliances" (TVs, VTRs, etc.) and electronic components (semiconductors, liquid crystal panels, etc.). East Asia continuously increased the amount of exports of both AV appliances and electronic components from 1980 to 2007.

As the breakdown of exports of AV appliances indicates, Japan was in the leading position until 1990, followed by three NIEs, South Korea, Hong Kong and Singapore. However, the NIEs surpassed Japan in 2000, and then China surpassed Japan in 2007. Japan's share of these exports fell rapidly from 76.0 percent in 1980 to 10.7 percent in 2007.

As regards exports of electronic components, Japan had been leading until 1990, followed by the NIEs, but the ranking was reversed in 2000. The figures for 2007 shows the rise of China, although it has not yet surpassed the three NIEs. Japan's share declined drastically, from 55.0 percent in 1980 to 11.0 percent in 2007, which is the same trend as that of AV appliances.

Important here is the changing composition of the export market. For AV appliances in 1980, when Japan was the top exporting country, the main destination of exported goods from Japan was Europe (27.7 percent), followed by the US (26.3 percent) and East Asia (12.8 percent). In other words, Japan's production was shipped mainly to developed countries. In 2000, when the three NIEs took the lead, the main destination of exported goods from the three NIEs was East Asia (38.9 percent), followed by the US (24.0 percent) and Europe (16.4 percent). In other words, the NIEs were highly dependent on trade

within the East Asian region. In 2007, when China became the leading exporter of these goods, the main destination of exported goods from China was East Asia (39.9 percent), followed by the US (21.4 percent), and Europe (16.3 percent). China was also highly dependent on East Asia.

Then, how about the export market for electronic components? In 1980, when Japan was the top exporting country, the main destination of exported goods from Japan was the US (30.6 percent), followed by East Asia (28.6 percent) and Europe (11.5 percent). In 2000, when the three NIEs took the lead, the main destinations or markets were East Asia (51.9 percent), followed by the US (19.0 percent) and Europe (14.9 percent). The share of East Asia exceeded 50 percent. In 2007, when the three NIEs continued to take the lead, the main destinations and markets were East Asia (72.9 percent), followed by the US (8.1 percent) and Europe (6.1 percent). The share of East Asia increased further. Exports to China constituted 72.9 percent of total exports from the three NIEs to the East Asian region in 2007. This implies a division of labour in the region in which the three NIEs produced the parts and components which were then exported to China, where these parts and components were assembled into the final products to be exported to the East Asian region. The real situation of the breakthrough of electronics industry in East Asia will be discussed in the later sections.

II. Products and manufacturers after the global financial crisis

1. Manufacturers in crisis

(1) Trends of leading manufacturers

In this section, we will present an overview of the trend of major electrical appliance manufacturers after the global financial crisis. Table 13 and Table 14 together with Figure 7 show the sales and net profit of six major manufacturers, Hitachi, Toshiba, Mitsubishi Electric, Panasonic, Sony and Sharp, from 2007, the year before the outbreak of the global financial crisis, to 2012.

In the wake of the Lehman Brothers shock, all six companies saw a decline in sales and revenue in 2008 and 2009 and most of them posted losses in those years. In 2010, these companies, except for Sony, increase their sales slightly and got out of the red. This reflected the effects of a drastic restructuring of each company, a surge in demand from emerging countries, an increase in domestic demand, chiefly to replace older television set models with new ones, supported by the government through its "eco-point" subsidy as well as the transition to the terrestrial digital broadcasting system. The eco-point subsidy was introduced by the government, effective from May 2009 to March 2011, and during which time 5-10 percent of the purchase price was refunded in the form of a coupon to those who bought air conditioners, TVs and refrigerators which were certified as energy-saving products. A total 600 billion yen of the national budget was used in this way. The government introduced this system for the purpose of reducing emissions of CO2, rescuing the electrical appliance and electronics industries and facilitating sales of large screen TVs to respond to the transition to the terrestrial digital broadcasting. Thus, the sales of these six manufacturers increased with the start of this system.

The results for 2011 and 2012 revealed the contrasting fortunes of these the six companies. The three comprehensive manufacturers, Hitachi, Toshiba and Mitsubishi Electric, which mainly relied on sales of heavy electrical appliance sales rather than consumer appliances, reported profits, although sales remained flat. On the other hand, Panasonic, Sony and Sharp, which mainly relied on consumer appliance and electronic equipment sales, showed the worst losses in the history of each company in 2011, reporting decreases in sales of between 10 and 20 percent compared to the previous year. While Sony saw some improvement in 2012, the other two companies did not recover and reported losses again. As regards the business performance of these three consumer electronics companies, the data since 2000 will be discussed in a later section.

The downturn since 2011 reflects the effects of the Great Eastern Japan Earthquake of 11 March of that year. Tohoku district, which was seriously hit by the earthquake, is an important production base for several manufacturing companies in Japan. The factories of appliance and electronic goods manufacturers and many subcontractor companies

were severely damaged and the supply chains disrupted. In addition, the companies suffered rolling electricity blackouts in the wake of the disaster at the Fukushima Daiichi nuclear power plant which caused a power shortage. By August 2011, about 90 percent of the supply chain had recovered, but the effects of the severe flooding in Thailand in October disrupted the supply chain again.

Further, as the transition to terrestrial digital broadcasting was completed in July 2011 and the eco-point subsidy was terminated, demand for new TVs fell drastically, resulting in plummeting prices. The economic crisis of the EU led to a weaker dollar and euro, a higher yen and the depreciation of won, which further eroded the export competitiveness of Japanese companies.

On the other hand, the performances of the three comprehensive manufacturers which mainly relied on sales of industrial electrical equipment and appliance were not too badly hit. The common response of these companies to the crisis was to reduce or move out of the production of digital consumer electronics, LCD panels, mobile phones, TVs and other consumer appliance sectors after 2008, and to shift to the production of heavy electrical goods for industry and to concentrate its management resources on investment in infrastructure in emerging markets (e.g., the development of water supply and sewer systems, roads, railroads, ports, power plants) to establish multiple sources of revenue. As regards the reduced or abandoned sector, as will be discussed later, separate companies were set up with the assistance of the government, such as Japan Display in the liquid crystal panel sector and Renesas Electronics to produce system LSI. These separate companies were set up by consolidating the business units of the original companies which were abandoned.

In 2008, Hitachi recorded a loss of 787.3 billion yen, the largest loss of any manufacturing company in Japan. After that, the company decided to separate or abandon businesses units producing semiconductors, mobile phones, TVs and PCs and related products, which were coming under increasing competition. At the same time, the company invested in infrastructure projects, such as railroads, geothermal and thermal power plants and fuel cell production, thereby changing the direction of the corporate management strategy and focusing on business with enterprises and governments, instead of

consumer electronics. Toshiba had also been doing business in wide range of fields, including semiconductors, industrial goods, railway vehicles, nuclear power plants and consumer electronics. The company decided to reduce its TV business and entirely withdrew from domestic production in May 2012. As regards the semiconductor business, the company maintained its operations in contrast with the collapse of other semiconductor manufacturers in Japan. Mitsubishi Electric also shifted its focus from consumer electronics to business with enterprises, such as construction-related businesses, including turbines and elevators as well as factory automation.

(2) Panasonic

The business performance of Panasonic has been characterized by low growth and low profits since 1990s. In the wake of two consecutive years of losses in 2001 and 2002 as shown in Table 15 and Figure 8, the company reduced its workforce by 13,000 starting in 2001 and reorganized its business units in a substantial way. After that, sales increased steadily and reached the level of 9 trillion yen in 2006 and 2007, with an accompanying increase in operating income. In the meantime, the company concentrated its management resources on plasma TV design and production in order to compete with Sharp's "Kameyama model (which will be described later). It invested 480 billion yen between 2004 and 2009 to build three large plants for plasma TV production in Amagasaki City. However, with the commoditization of LCD TVs, Samsung and LG of Korea took over the global market with their competitive pricing.

In 2007, the company transferred its white goods sector and AV appliances sector, which were unprofitable in Japan, offshore and offered a voluntary retirement plan for its 5,000 employees. In the first half of 2008, the company made its highest profit in its history. In October of the same year, at its 90th anniversary, the company decided to use "Panasonic" as its sole company name, thereby renaming and re-branding the products of group companies Matsushita Electric Industrial and National.

However, just before the anniversary, the collapse of Lehman Brothers shocked the financial world, including Panasonic and reversed

the tide. As a result, the company ended fiscal 2008 with a deficit of 379 billion yen. In response to this situation, the company set up a restructuring plan including a reduction in the number of employees by 15,000, laying off 7,500 workers in Japan and 7,500 overseas in 2009 and 2010, However, the group did not stop the construction of the factories for large-sized LCD panels as an increase in demand for flat-screen TVs was expected at that time due to the effects of the eco-point subsidy and other factors.

In December 2009, the company turned deficit-ridden Sanyo Electric into a subsidiary, and at the same time decided to turn one of its consolidated subsidiaries, Panasonic Electric Works, into a wholly-owned subsidiary. The aim of these decisions was to expand its business in the field of energy and the environment. By taking advantage of Sanyo's solar cell and lithium battery technologies as well as Panasonic Electric Works' solar energy utilization technologies and packaging these with Panasonic's energy-saving appliances, Panasonic planned to launch a power saving systems business which proposed optimisation of total power consumption for office buildings as well as homes.

Fiscal 2009 ended in the red again, with a loss of 103.5 billion yen, but the company received massive orders for TVs, due to the booming demand propped up by the eco-point system and the transfer to digital terrestrial broadcasting. The number of orders surpassed the capacity of the plants and the company registered sales of 8,692.7 billion yen and a profit of 74 billion yen in fiscal 2010. However, the situation changed drastically in 2011. The sales decreased and huge losses in excess of 700 billion yen were registered for the next two years.

The cause of the deficit was a slump in the TV business. The number of TV sets produced in 2011 was 7.2 million, which was about half of the 13.8 million units produced in the previous year. Domestic demand declined rapidly after the boom ended in 2011, and overseas sales did not grow significantly. In this situation, the company announced that it would consolidate its five flat-screen TV factories in the country into two and that it would reduce the number of employees in the entire group from 385,000 to 350,000. In addition, in 2012, the company announced a further reduction of 20,000 employees, mainly in the TV and semiconductor units, which meant the total number of employees would be 330,000. According to the plan, the company

would withdraw from plasma TV production in 2014, reduce the in-house production of LCD TV panels and increase external sales to LG in Korea - eventually withdrawing from this field completely; it would reorganize its Himeji plant, which was producing TV panels, to produce small and medium-sized LCD panels for smart phones and other products.

(3) Sony

Sony, which has been one of the world's top brands, changed its management strategy in 1990s to enter the content business, producing games, music and movies in addition to manufacturing electronics products. Nobuyuki Idei, who was appointed President and CEO in 1995, noticed the potential of the Internet early on and tried to re-enter the production of PC. He promoted a strategy of "integrating hardware and software" in which the company's own content network would facilitate the fusion of digital hardware equipment and software content. In addition, starting with the establishment of Sony Bank in 2001, the company extended its business into the financial sector, including life and general insurance operations, thereby became a multi-industry conglomerate. However, as shown in Table 16 and Figure 9, the company's sales were almost flat until the mid-2000s.

Meanwhile, in April 2003, the "Sony shock" rocked the company. The shock derived from an operating loss in the electronics business, and the share price of Sony tumbled as investors dumped the stock. After this shock, Sony reduced the number of employees by 20,000 and downsized its development department, closing a series of laboratories. Further, in 2004, for the purpose of stabilizing the supply of LCD panels, Sony cooperated with Samsung to establish the S-LCD, a liquid crystal panel plant, and began to receive a supply of panels from Samsung.

When Idei resigned as Chairman and CEO to take responsibility for the loss in the TV business, Howard Stringer, a British journalist, succeeded him. The leadership of Chairman Stringer and President Nakabachi inherited Idei's strategy of "integrating hardware and software" to combine digital equipment with software content such as movies and music, and at the same time started to rebuild the TV

business, taking advantage of the availability of the supply of panels from S-LCD.

Although Sony's profitability was maintained through 2007, as shown in Table 16 (Figure 9), a large portion of the profits was from the financial sector, while its core business, TVs, incurred losses from 2005 onwards despite propping-up efforts. In the wake of the collapse of Lehman Brothers, net income slipped into the red in fiscal 2008 and the deficit continued for four consecutive years until fiscal 2011. The global financial crisis had dealt a serious blow to Sony, which has been involved in the financial sector through its life insurance, property and casualty insurance and banking operations. In addition, the Great Eastern Japan Earthquake in March 2011 and the large scale floods in Thailand in September of that year dealt further blows to the company.

The most likely cause of Sony's losses was the slump in the TV business. Sony's TV business yielded losses for eight consecutive years from fiscal 2005 to fiscal 2012. However, sales of Sony TVs are not negligible. In this field it is still the world's third largest producer as of 2012. There are various reasons why the sales of as many as 20 million units per year do not yield profits. As Sony does not produce the LCD panels in-house, it has been faced with problems in procurement, resulting in difficulty in projecting the overall cost. The company has been challenged from both sides: While Samsung and LG have been building their technical ability to produce high value-added LCD TVs, manufacturers in China and Taiwan are emerging as suppliers of cheap TVs at the low end. Sony was prone to fall into the red, because it produced high-cost LCD TVs and sold them at bargain prices compared to the products of South Korea and Taiwan manufacturers in order to compete with them.

In April 2011, Howard Stringer resigned as chairman and CEO and Kazuo Hirai succeeded him. Hirai promoted a policy in which the company would set games and mobile devices as its core business and make efforts to reduce costs in the TV business through a significant restructuring and reduction of in-house production. In order to reduce the procurement costs of panels, the company decided to dissolve the S-LCD, a joint venture with Samsung in December 2011. At the same time, the company had been considering a series of solutions, such as participating in Japan Display, joining a joint development of EL

(Electro Luminescence), or working together with Hisense China, or consigning mass production of organic EL panels to AUO Taiwan and so on.

(4) Sharp

As Sharp was the most heavily dependent on LCD panels and LCD TVs among three consumer electronics companies, it is in the most desperate situation.

As can be seen from Table 17 (Figure 10), Sharp experienced dramatic growth through the 2000s until 2007. Net sales amounted to 2 trillion yen in 2000 and more than 3 trillion yen in 2006, and profits also increased to more than 100 billion yen in 2006 and 2007.

Sharp had been engaged in the development of LCD technology since its early days. The company released AQUOS LCD TVs in 2001. It was at the forefront of the world in the development of LCD TVs and its sales grew rapidly. President Katsuhiko Machida advocated the "Only One" management strategy and concentrated the company's management resources on the production of liquid crystal display panels. The company announced a plan in 2002 to build factories in Kameyama at a total cost of 315 billion yen. The first factory started operation in 2004 and the second factory in 2006. The company's solar business was also doing well and boasted the largest sales in the world until 2006. The driving forces of its success were LCD products, mobile phones and solar cells produced at the Kameyama factory. These core products accounted for 70 percent of the sales of the company. The success was praised and known as the "Kameyama model".

However, after the collapse of Lehman Brothers in 2008, sales declined and the company ended with a loss of 125.8 billion yen that year. Then, thanks to the special demand of the eco-point policy and digital terrestrial broadcasting, the company's performance recovered slightly. In this situation, Sharp constructed a state-of-the-art LCD panel factory in Sakai City with a total investment of more than 420 billion yen. The Sakai factory started operations in October 2009.

But in the wake of the appreciation of the yen, overseas companies which sold high-quality, low-cost products became more competitive and, at the same time, bulk customers, such as Sony and Toshiba,

stopped buying from the company. In 2011, it was decided that the Sakai factory would specialize in the production of panels of large screens of 60-inches or larger, and that efforts should be made to sell 60-inch AQUOS TV sets mainly in North America. But demand was very weak and the Sakai factory operated at only 50 percent of its capacity. The end of the eco-point program and the transfer to digital terrestrial as well as the floods in Thailand were additional negative factors. Even its solar business lost to the competition as Asian countries improved their technology and cost competitiveness. In addition, because of the buying up of silicon material by Chinese companies, Sharp found it difficult to continue production. By the end of 2011, there were rumours that Sharp was facing bankruptcy.

In 2011, the company reported a deficit of 376 billion yen, the worst in its history. In 2012, losses further increased to 545 billion yen. In an effort to get over this predicament, Sharp announced that it would get a capital injection from Taiwan-based Hon Hai (Foxconn Technology) in March 2012. The investment of foreign capital in a major Japanese electronics manufacturer shocked people in Japan so greatly that this decision was referred to as the "Hon Hai incident". But Sharp's search for foreign investors did not stop there. The company further sought capital investment from Qualcomm and Samsung.

2. Challengers attack core products' sectors

Looking at the trends in the production of liquid crystal display panels and semiconductors, these were the sectors in which Japanese companies were the dominant global force in the past. The slump in the LCD panel business led to a slump in the TV business of Japanese companies and ultimately impacted on consumer electronics manufacturers a whole. As regards semiconductors, we will take up the trends in dynamic random access memory (DRAM) chips and system LSI, other manufacturing and technologies where Japan's businesses were leaders in the field. In addition, we will take up the cases of Elpida Memory, which was acquired by foreign capital after filing for bankruptcy in February 2012, and Renesas Electronics, which managed to survive with the support of the government.

(1) LCD panels

As already mentioned, the business losses of Japan's consumer electronics manufacturers were largely due to changes in the production and markets for flat-panel TVs. The losses derived chiefly from the rise in production costs. The production cost of the LCD panel is the biggest cost in the production of flat-screen TVs, constituting about 70 percent of the production cost of an LCD TV. The price of AQUOS, Sharp's hottest-selling product released in 2001, was sold for 600,000 yen, indicating that these LCD TVs were high value-added products at that time. However, the price of LCD TVs had decreased to one-seventh of its original price in the seven years from 2005 to 2012. Lossesin the TV business were due to the decrease in the price of the LCD panels. The progress in "commoditization" and "standardization" of the production technology of LCD panels enabled emerging manufacturers to compete with low prices, which were made possible by utilizing low labour costs.

The market share of Japan's TV producers changed significantly. Table 18 (Figure 11) shows the major companies' share of the global flat-screen TV market in 2005 and 2012. In 2005, Panasonic was the largest producer, Sharp was the third and Sony the fifth. In all, these Japanese manufacturers had 47.4 percent or about half of the global market. However, since that time, Samsung has taken the lead, followed by LG. In 2012, these two Korean manufacturers captured 42.7 percent of the global market. Samsung on its own had a dominant share of 27.7 percent, which was larger than the combined total of all Japanese manufacturers of 25.3%.

Table 19 shows the amount of production and external sales of LCD TV panels of leading manufacturers in 2010 as shown in the 12 November 2011 issue of "Diamond Weekly". Two Korean companies, LG and Samsung, which were ranked first and second respectively, produced approximately 50 million units each. The third and fourth ranked were Taiwan companies, Chimei and AUO respectively, which specialize in external sales and produced more than 30 million units each. In contrast, Sharp was ranked fifth with production of 16 million units, which was only one third of Samsung's output. It is also noticeable that the top four Korean and Taiwanese companies, sold 20 - 30 million units each to external buyers, thereby taking advantage of the

economies of scale of their large investments. On the contrary, while Sharp and Panasonic sold 5 million and 3.5 million units respectively to external buyers, most of the output of Japanese companies was for their own TV production. This also suggests that the two Japanese panel manufacturers could not compete with the lower cost products of Korean and Taiwanese manufacturers.

Meanwhile, South Korean and Taiwanese manufacturers built state-of-the-art factories one after another and began to produce high-quality, low priced panels in the late 2000s. In contrast to the age of cathode ray tube (CRT) TVs, when barriers were high for new entrants, the digital age opened up opportunities for new entrants as LCD panels could be easily manufactured by outsourcing components and parts to others. As a result, South Korea, China and Taiwan began producing low priced products in large quantities. In addition, the strong yen and weak Korean won also undermined the price competitiveness of Japanese products. Although Samsung's LCD business was also said to have been lossmaking in 2011, it made profits in the manufacture of glass substrate. Samsung had taken advantage of its strength in terms of its business size and profit structure to put pressure on competitors, aiming to be "the last man standing" in this competition. Then, in the summer of 2011, Chinese companies started the operation at their LCD panel factories, trying to catch up with South Korea and Taiwan. As a result, there has been an oversupply of LCD panels, while demand for LCD TVs has turned sluggish. It is expected that Chinese manufacturers will drive down prices further and eventually control the emerging markets.

The earnings' performance of Japanese manufacturers continued to worsen in 2011. In response to the slump in the TV business, Hitachi and Toshiba ceased production of television sets and Panasonic reduced its television factories and withdrew from plasma TV production. Thus, only Sharp continued to produce LCD panels for televisions in Japan. In August 2011, Toshiba, Hitachi and Sony announced that they had decided to integrate their small and medium-sized LCD panel operations (for smart phones and other products) and launch Japan Display with funds from The Innovation Network Corporation of Japan (INCJ), a public-private fund. INCJ's capital investment amounted to 200 billion yen, which comprised 70 percent of the total capital.

INCJ borrowed this amount from private financial institutions with government guarantees. Although the global market share of these three companies in small and medium-sized LCD panels was only 6 - 9 percent each in 2010, the combined total is larger than Sharp's 15 percent, situating the new company in a leading position.

At the same time, the move to withdraw from LCD panels had begun. Samsung was on its way to shift from LCD panels to organic EL (electro-luminescence) panel production and expand its in-house production. On the other hand, Sony and Panasonic, which were suffering from depressed demand and a shortage of funds, announced their plans for the joint development of organic EL in June 2012. As regards the commercial production planned to start after 2014, they intended to outsource production to AUO, a Taiwan manufacturer.

(2) Semiconductors

The semiconductor industry has undergone significant changes in its basic structure and the failure to respond to these changes has condemned Japanese semiconductor manufacturers to a long slump. Table 20 shows the world's top 10 semiconductor manufacturers in terms of sales. After Intel took the lead in 1992, it consolidated its domination by monopolizing the share of processors using Microsoft Windows and, taking advantage of the "Wintel system". It has maintained this position for more than 20 years. Samsung entered the top 10 in 1993, when it took the lead in DRAM production and has maintained the second position since 2002 when it took the lead in NAND flash memory.

As regards Japanese companies, while five companies were on the list for 1995 and three companies for 2000 and 2005, only two companies were on the list for 2012, namely Toshiba (the fifth) and Renesas (the sixth). While Renesas, a semiconductor manufacturer established as a result of the merger of Japanese semiconductor manufacturers, was in a management crisis, Toshiba was performing well. In contrast to other Japanese manufacturers, Toshiba did not choose to disconnect or integrate its semiconductor division. It withdrew from DRAM and concentrated its management resources on NAND flash memory, securing the second largest share in this sector

after Samsung. It planned to continue the development of NAND flash memory technology.

During the 1970s, US companies controlled 50 percent of the global market for semiconductors. Japanese companies, which specialized in DRAM, overtook US companies in 1986 and maintained the lead until 1992. The competitiveness of Japanese companies was based on the "vertical integration model", which many of the manufacturers adopted in their processes of technology development, circuit design and production, so that they could ensure high quality through adjustments between different divisions while reducing production costs by streamlining the manufacturing process.

However, in the mid-1990s, as the focus of the industry shifted to PCs, lower prices became the main concern because PCs did not require such high quality DRAMs as did large-size computers. As a result, the presence of Korean and Taiwan firms increased. Samsung, among others, invested heavily in plant and equipment, in contrast to the reluctance of Japanese companies in the face of the IT recession, and lowered the manufacturing cost of DRAMs. Defeated in the price competition, one by one, Japanese companies withdrew from DRAM and reorganized their businesses. Some of them tried to resist by integrating their operations into Elpida Memory with the support of the government. However, the strategy did not work as expected, and Elpida Memory was eventually sold to foreign companies. Thus, the plight of Japanese companies grew more serious.

Since the late 2000s, the advent of smart phones and social networking services has led to an extraordinary change in the world of semiconductors. In 2011, shipments of tablet devices, including smart phones, exceeded PCs. The main semiconductor components used in PCs and tablets are processors, DRAM and NAND flash memories. Samsung, which controls more than 40 percent of the global market for both DRAM and NAND, also manufactured processors for the tablet. Samsung was also a foundry supplying to Apple on a production-on-orders basis and used its in-house processors for this business, too. Industry watchers believed that with the increase in the popularity of tablet terminals, the absolute advantage of "Wintel system" would collapse and Samsung would soon surpasses Intel and becomes the top semiconductor manufacturer in the terms of world sales.

(3) Elpida Memory

In 1999, NEC and Hitachi integrated their DRAM units to set up Elpida Memory, the first dedicated DRAM manufacturer in Japan. In 2003, Mitsubishi Electric sold its DRAM unit to Elpida Memory, Fujitsu also withdrew from the DRAM business and Toshiba sold its DRAM unit to a U.S. company. In this way, Japanese manufacturers withdrew from this market, leaving only Elpida Memory as the sole manufacturer of DRAM in the country.

Table 21 (Figure 12) shows the global market share of DRAM makers. Elpida's share decreased to 4 percent in 2002, putting it in fifth place after Samsung, Micron of the US, Hynix of South Korea and Nanya Technology of Taiwan. From the next year on, Elpida increased its market share, which rose to 14.2 percent in 2008, thus in the third place after Samsung and Hynix. However, the profit rate was poor. Elpida registered a losst of 147.4 billion yen partly due to the effects of the collapse of Lehman Brothers. The price of DRAM for PCs plunged in 2007 and fell to US$1 in January 2008, pushing earnings downward. Faced with a financial crisis, Elpida received 30 billion yen in public funds through the Development Bank of Japan after the "Industrial Revitalization Act" was applied in June 2009. In addition, it commissioned production in Taiwan companies. Although net sales increased slightly and operating income recovered to post a small profit, a significant improvement in performance has been difficult to achieve.

Since then, sales of PCs and consumer electronics products have continued to stagnate due to the crisis in Europe and other factors. As the result, the price of DRAM fell further and in 2011 it eventually fell below US$1, which had been regarded as the profit line of this business, condemning DRAM makers to losses. Elpida moved 40 percent of the manufacturing facilities for general-purpose products to Taiwan and reorganized its Hiroshima plant to specialize in producing semiconductors for smart phones and other products utilizing advanced technologies. But in February 2012, the company suffered further financial difficulties and filed for bankruptcy under the Corporate Rehabilitation Law. Total liabilities amounted to 448 billion yen, making it the largest bankruptcy in the manufacturing industry in history in Japan. In July, after a series of negotiations and battles

over the acquisition of the bankrupt Elpida Memory by U.S., Korean, Chinese and Japanese companies, Micron Technology, an American company, acquired it for 200 billion yen. Elpida has become a subsidiary of Micron Technology, supplying DRAMs for smart phones. As Elpida isthe world's third largest producer of DRAMs in terms of sales, and Micron is the fourth, the acquisition has created the world's second largest supplier of DRAM, surpassing Hynix.

(4) Renesas Electronics

After withdrawing from DRAM production, Japanese semiconductor giants concentrated their management resources on the system LSI (SOC: System on Chips) in the expectation of growth in digital consumer electronics and mobile phones. NEC established NEC Electronics in November 2002, which was dedicated to the system LSI business. In April 2003, Hitachi and Mitsubishi Electric separated their respective semiconductor units and integrated these units to launch Renesas Technology. In April 2010, NEC Electronics and Renesas Technology integrated their managements to establish Renesas Electronics. The new company gained a world SOC market share of 30 percent and captured 42 percent of the market for micro controllers for automobiles. When their eight factories stopped operation due to the Great Eastern Japan Earthquake, automakers' production systems were severely affected.

In fiscal 2011, the company reported a loss for the third year in a row, and rumours of bankruptcy of Renesas spread in the spring of 2012. The cause of the loss was the poor performance of digital consumer electronics, which led to the poor performance of custom-made system LSI. In May 2012, the company presented a reorganization plan which included selling 12 of its 18 factories in Japan, reducing the number of employees by 14,000 or 30 percent, outsourcing production to TSMC of Taiwan and specializing in the microcomputer (MCU) business, In addition, Renesas requested a loan of 100 billion yen from its investors, Hitachi, Mitsubishi Electric and NEC as well as four banks including Tokyo-Mitsubishi UFJ. In December of that year, at the end of all the twists and turns, a loan of a total of 150 billion yen was provided, consisting of 140 billion yen from

Innovation Network Corporation of Japan and 10 billion yen from Toyota, Panasonic and other parties. In October, 7,400 employees took early retirement and a further reduction of 5,000 staff was planned. The company plans to disconnect its loss-making system LSI business and specialize in the MCU business.

It may have been because the Japanese government thought that the total withdrawal from fields such as LCD panels and semiconductors would not be beneficial to Japanese industry, that the government spent tax money to help the reorganization and integration mentioned above. For Elpida Memory 30 billion yen of public funds was injected through Development Bank of Japan although the company was eventually absorbed by foreign capital. Innovation Network Corporation of Japan, a public-private fund invested 140 billion yen in Renesas Electronics and 200 billion yen in Display Japan, a company jointly set up by Toshiba, Hitachi and Sony. As the failure of Elpida Memory indicates, it is doubtful whether a company which has consolidated abandoned business units from different companies can become a profitable enterprise.

3. Global reorganization

So far, we've seen how the Japan's manufacturers in the electrical appliance and electronics industries have undergone a decline. In the following sections, we will a) summarize the factors behind the decline of these industries; b) describe the changes in the global business models; and c) take up the case of Sharp, which misunderstood these changes and ended up in such a serious financial crisis that it had to partner with foreign capital.

(1) Factors of decline

There are three main reasons for the decline in the fortunes of Japanese electrical appliance and electronics producers. First, they misunderstood the changing trends in the global electronics industry as regards digitization and commoditization. Japanese manufacturers were good at technologies in the era of the analogue which required high levels of skill for fine-tuning parts. However, in the wake of

digitization, any company can produce high-quality products, even if it is a newcomer, as long as it has the production machinery programmed for the specific process. Japanese manufacturers also failed to respond to commoditization. While Japanese manufacturers had been pursuing high quality and high priced products targeted at domestic consumers as well as those in Europe and America, market demand in developed countries stalled and emerging markets have become increasingly important. For emerging markets, the key to surviving global price competition was to purchase a large amount of general-purpose components, produce in large quantities at low wages, and sell in large quantities.

Second, they could not make prompt and appropriate decisions in response to changes in the period. In LCD panels as well as in semiconductors, huge investment was needed to survive the global competition, but they failed to change their traditional management strategy of producing a wide variety of products and did not focus on areas of strength. While the average time-to-market of new products has been shortened, Japanese companies were not able to make quick decisions in contrast with Korean and Taiwan companies' top-down decision-making, in which owners can make quick decisions with respect to investment or business strategy. In addition, due to the lack of market research, they failed to grasp the needs of consumers of the world, especially in emerging countries. Furthermore, as Japanese companies responded to their poor performance by solely reducing the number of employees, a lot of development and manufacturing engineers were recruited by Korea, Taiwan or Chinese companies, resulting in an outflow of technological capabilities and increased external competition.

Third, in terms of the business environment, there were a series of unfavourable factors. Although the eco-point system and the transition to digital terrestrial broadcasting were intended to prop up the electronics industry, the increase in demand caused by these measures was only temporary. Thus, after the boom was over, demand fell rapidly, and the blow to the companies was all the heavier. The strong yen and cheap won, trends which continued from the period of the collapse of Lehman Brothers until the end of 2012, eroded any price competitiveness that Japanese products may have had. In addition,

natural disasters such as the earthquake in 2011 and the floods in Thailand disrupted the supply chains.

(2) Changes in the business model

The predominant global business model has shifted from the "vertically integrated" model adopted by Japanese manufacturers, where they produce everything from the parts and components to the final products in-house, and has been replaced with the "horizontal division of work" model.

The "horizontal division of work" model consists of the combination of fabless companies, which specialize in product design, marketing and distribution, and OEM (original equipment manufacturing), EMS (electronic manufacturing service) or foundry companies, which specialize in production on the basis of outsourced contracts from fabless companies. This business model corresponds to the needs of increasingly sophisticated and complicated semiconductors and software that make up the core of digital products; this model enables each type of company to invest and produce on a large scale and thereby keep prices low. For PCs, "the horizontal division of work" model was established with the rise of assembly plants in China, producing products for U.S. semiconductor companies and Taiwan capital companies under the "Wintel system". In the early 2000s "the horizontal division of work" model gained momentum with the digitization of consumer appliances.

The success of Japanese companies, both in consumer electronics and semiconductors, was based on "the vertically integrated" model in the analogue era. In mid-2000s, as Japanese companies were moving their assembly plants for PCs and audio products to overseas plants and the outsourcing of production was increasing, there was a debate over which model was desirable, "the horizontal division of work" model or "the vertically integrated" model. As regards television set production, many manufacturers, such as Sharp and Panasonic, insisted on "the vertically integrated" model. This model was favoured because of the superior quality control it afforded management, the merit of accumulation of advanced manufacturing technology, and protection against an outflow of technology. Based on this strategy, large-scale

factories such as Sharp's Kameyama factory were constructed.

In this context, Samsung, which continues to top the list of profitable manufacturers, is in a unique position. While adopting "the vertically integrated" model, it also plays the role of a supplier of parts and components for the world in "the horizontal division of work". Quick decision-making by the company owner and abundant financial resources, allowed the group to make a series of large-scale investments, enabling mass production of the main electronic components, such as LCD panels, DRAMs, and NAND flash memories. In this way it took the leading position from Japanese companies and gained overwhelming price competitiveness.

As Apple launched its iPhone in 2007 and iPad in 2010 and the sales of smart phones and tablet terminals exploded, another change was taking place in the position of Japanese companies on the global stage – the breakthrough of fabless companies like Apple, Qualcomm, and VIZIO accompanied by the rapid growth of EMSs, such as Hon Hai of Taiwan (known as FoxConn Technology Group in English) which tied up with the former. According to data for 2012, Hon Hai boasted an overwhelming production capacity with one million employees. Thus it is able to put the ideas of Apple and other fabless companies into mass production at its Hon Hai/Foxconn plants in China, within a very short period of time.

To respond to this, Samsung launched the Galaxy series. As Samsung controls overwhelming shares in the markets of key components (DRAM, flash memory, LCD panels, microprocessors and so on), which are highly profitable, it can achieve a very high profit rate. In the Japanese market, Samsung products were not accepted in their early days and Samsung withdrew from the market in 2007. But later, NTT DoCoMo, the leading communications company in Japan, began to introduce Samsung's Galaxy series, and this led to a dramatic rise in Samsung's presence in Japan.

(3) Sharp's partnership with foreign capital

Manufacturers of electronics were returning to Japan, and investing huge amounts in the construction of plants for the production of high value-added TV panels. These decisions were encouraged by the lifting

of the ban on the dispatch of temporary workers to manufacturing in 2004, allowing companies to introduce non-regular employment, as well as by the lure offered by the municipality. Sharp took the lead by launching its first Kameyama factory for the integrated production of LCD panels and TVs in 2004 and the second Kameyama factory in 2006. Its success was praised as the "Kameyama model". The company built a state-of-the-art factory in Sakai, which started operations in October 2009. However, the business performance of the company began to deteriorate with the outbreak of the global financial crisis in 2008 and worsened year after year, resulting in losses of 376 billion yen in 2011 and 545 billion yen in 2012.

As Sharp had concentrated its management resources on the LCD panel business, they had no other choice but to make the LCD business the axis of its rebuilding strategy. The company developed and promoted the commercialization of indium-gallium zinc oxide (IGZO), a semiconducting material that can be used as a transparent thin film transistor, replacing amorphous silicon as the active layer of an LCD screen. Using IGZO, the latest LCD model featured a more beautiful image and longer battery life. In the end, however, the company sold the facility for producing television panels in Kameyama Plant to a Chinese company, and in 2011, switched to the production of small and medium-sized panels for iPhone and tablets. Apple paid 70 billion yen of the total purchase price of 100 billion yen. Dozens of Apple's employees were said to reside in the first Kameyama factory and that the rooms where the company's employees deal with sensitive information were off limits to Sharp's employees. In August 2012, the company announced job cuts of 5,000 employees, nearly 10 percent of its entire workforce. When it offered the first round of voluntary retirement for 2,000 employees in November of that year, a total of 3,000 employees applied for it. Although Sharp had reduced its solar power generation business and sold its overseas TV factories, there was still an urgent need for further restructuring.

The company also ventured to partner with foreign investors. The first step was to partner with Hon Hai/Foxconn, the largest EMS in the world and Apple's contract manufacturer. The negotiations started in 2011 and when the agreement on the partnership was announced on 27 March 2012, Japanese society was shocked at what the domestic

media reported extensively as the "Hon Hai incident". According to the agreement, HonHai would invest 67 billion yen in Sharp and become its largest shareholder and Sharp would sell a 46.5 percent stake in Sharp Display Products (SDP), which operated the Sakai factory, to the chairman of Hon Hai for 60 billion yen. The intention of Hon Hai was to absorb Sharp's LCD technology and product development capabilities and thereby enhance its own technological competitiveness. In particular, Hon Hai was said to be focusing on the technology involved in IGZO. Speculation rose over the intention of Hon Hai in seeking this capital alliance. One explanation was that Apple's iTV, which was under development, required the technical capability of Sharp because Chi Mei Optoelectronics (renamed Innolux), an affiliate of Hon Hai, did not have the capability. Another explanation was that they could not expect high profitability with their current production system, which assembled each iPhone at a cost of only $10 or so per unit, and, thus, they wanted to shift from the production-on-order business to the vertical integration model by establishing a partnership with Sharp.

Sharp's Sakai factory had been running at very low production rates, at 50 percent and even 30 percent in the worst case, because of the sluggish sales of large-sized LCD panels and had become the main cause of losses for the company. The investment from Hon Hai and the increase in utilization, thanks to the fixed orders for panels, led to a turnaround in performance. However, the purchase of the stake in Sharp by the chairman of Hon Hai was put off because of the collapse in the stock price of SHARP. The share fell from 550 yen at the time of the "Hon Hai incident" to less than 200 yen. In its original plan, Hon Hai was willing to invest 67 billion yen at a price of 550 yen a share to become the largest single shareholder with a 9.9 percent stake. However, as the current price of 200 yen per share meant a significant write-down in the value of this asset for them, Hon Hai wanted renegotiate the terms of the investment.

Trapped in financial difficulty and faced with the maturation of convertible bonds worth 200 billion yen (originally issued for the purpose of reinforcing the LCD production line) , Sharp obtained credit lines of 360 billion yen from its main bank. At the same time, it made efforts to establish partnerships with U.S. companies. First,

it negotiated with Intel and got a pledge of investment of 40 billion yen. After the pledge by Intel, Sharp established a partnership with Qualcomm, which agreed to invest 10 billion yen. Therefore, the negotiation with Intel was discontinued. Sharp planned to cooperate with Qualcomm to develop the next generation panel for tablet-type terminals. Sharp received an initial 5 billion yen from Qualcomm and the remaining investment was postponed. Sharp intended to utilize the support from the U.S. companies to negotiate more favourable terms with Hon Hai.

In the meantime, symptoms of decline in demand for Apple products began to appear. Early in 2013, the first Kameyama factory producing the iPhone 5 decreased its operation rate because of the sluggish demand. The second Kameyama factory began adjusting its production of panels for iPad in July 2012. In January 2013, Apple's stock price plunged. It was said that the company's ability to develop innovative products had lost momentum after the death of company founder Steve Jobs. Apple then began waging legal battles with Samsung over the sale of its smart phones in many parts of the world. Irritated at Samsung, Apple changed the supplier of panels from Samsung to Sharp and there were rumours about the change of the supplier of DRAM from Samsung to Elpida Memory.

In order to get out of the impasse, Sharp agreed to accept funding from Samsung in March 2013. A contract was agreed on under which Samsung would invest 10.4 billion yen in Sharp's stock at the rate of 290 yen per share. With this partnership, Sharp would improve its financial position and expand the supply of LCD panels to Samsung. With the order for LCD panels from Samsung, the operation rate of the second Kameyama factory increased and the company made a profit in the second half of fiscal 2012. Although betrayed by Sharp which chose Samsung as its partner, Hon Hai announced its willingness to further continue negotiations.

Sharp thus has been in a delicate position because the company undertook to produce for different companies competing against each other. For example, the first Kameyama factory produces for Apple, the Sakai factory produces for Hon Hai and core factories produce for Samsung and Qualcomm.

With these partnerships with these foreign companies, Sharp has been seeking a way out of its financial and operational difficulties. For Hon Hai and Samsung, the partnership has been aimed at incorporating the Sharp's technology. Since Sharp would not like to transfer its core technology, it is unlikely that the company could maintain stable, long-term partnerships with foreign capital. Sharp's future, in competition with these global corporate giants, is also difficult to predict.

III. Restructuring of electrical appliance and electronics industries

The Japanese electrical appliance and electronics manufacturers responded to the crisis in their industries first by closing and reorganizing their production sites in Japan as well as overseas and reducing the number of employees. A series of redundancy cuts of workers, which were said to be the most drastic since the end of World War II, impacted on the local economy all over the country. In this section, we will take up the case of Sharp's Kameyama plant as an example of how the restructuring affected the local economy, which previously thrived as a 'castle town' of the company.

1 Restructuring situation

(1) The most drastic downsizing since the end of World War II

Figure 5 shows the number of regular workers employed in Japan and overseas by the Japanese electrical appliance industry. The number of domestic workers decreased from the peak of 1.98 million in 1991 to 1.11 million in 2011. (Due to changes in statistical methods introduced in 2002, the data since that year is not continuous with previous years). On the other hand, the number of overseas workers working for Japanese manufacturers in these sectors continued to increase and reached 1.3 million, or 50 percent of the total workforce in the industry in 2007.

With the bursting of the Tech Bubble or IT Bubble in 2001, the operations of Japan's major electrical appliance manufacturers fell into the red in 2001 and 2002. They responded to the situation with a series

of structural reforms, including transferring the production of high volume goods overseas, offering voluntary, early retirement to middle-aged and older employees and reorganising the semiconductor and LCD businesses. As major manufacturers still had some savings at that time, they could pay the premium to those who accepted voluntary retirement and arrange new jobs for them. It was referred to as "Daimyou (or feudal lord) restructuring", implying privileged retirement. There were also the tailwinds of the economic boom in the U.S. and the weaker yen from 2002 through to the summer of 2008, and exporters continued to lead the booming Japanese economy. Although the sales of these manufacturers in Japan were steady, their profits were small because of the price competition with South Korean and Taiwan companies, as shown above. But their profits were still increasing. In addition, companies held on to those profits inretained earnings, refusing to benefit workers. For example, Panasonic had retained earnings of 4.5 trillion yen in March 2008.

Worker Dispatch Law, 2004

Concerning that period, special attention has to be paid to the revision of the Worker Dispatch Law in 2004, which allowed companies to dispatch workers to manufacturing plants. Although the original Worker Dispatch Law, which came into effect in 1986, did not allow companies to dispatch workers to manufacturing factories, companies escaped the regulations and made non-regular workers work in their factories in the form of contract work. In the semiconductor and other high-tech electronics manufacturing, factories which operated 24 hours a day, introduced contract workers for the third (midnight) shift in order to reduce production costs.

After the revision of the Worker Dispatch Law in 2004, with a tailwind of opportunity from the depreciation of the yen, Japan's major electrical appliance manufacturers accelerated their efforts to come back to the country and constructed large-scale plants. The Kameyama plant was a good example of this. Its main aim was to protect Japan's production technology in a kind of "black box". In this way, they tried to prevent the outflow of know-how to Asian competitors, such as Samsung which had become a major concern at that time. Samsung's

"Samsung Yokohama Research Institute", which was established in 1992, was said to be not only recruiting laid-off engineers to promote the research and development efforts in Japan but also functioning as its base for headhunting. Samsung was also said to have obtained IT talent resources in the wake of restructuring after the collapse of the IT bubble and had assimilated the technology of Japan's manufacturers.

When the global financial crisis hit the country, the immediate response by Japanese companies was to dismiss dispatched workers, the most vulnerable among the non-regular workers. In November 2008, Toyota announced its plan to cut 3,000 fixed-term employees, triggering the "Toyota shock". A rush of dismissals of dispatched workers followed immediately in the automobile and the electrical appliance industries. The government announced its estimate that a total of 216,408 people would be made redundant in all industries by June 2009 and that this number would include 26,602 regular employees. However, associations of dispatch companies and contractors for manufacturing industries estimated that 400,000 people would lose their jobs.

Based solely on the aggregation of figures reported in major newspapers, major electrical appliance manufacturers cut nearly 80,000 workers, mainly non-regular workers, from the end of 2008 to 2009. In addition, as overseas employees are easier to dismiss, 250,000 workers in plants overseas were dismissed in 2008, as indicated in Table 10. The figures for 2011 show that the total number of employees dismissed in Japan rose to 230,000 and in overseas plants by 190,000 since 2007. It has to be noted that these figures only include regular workers and that non-regular workers are not counted.

In 2011, in the wake of the deterioration of the business performance of the three consumer electronics companies triggered by the slump of their TV business, large-scale factories in the country were closed one after another and restructuring affected not only non-regular workers but also full-time employees. The wave of restructuring extended through the entire supply chain. Table 22 shows the employee dismissals reported at the major electrical appliance manufacturers reported in the media since 2012. These figures alone add up to more than 140,000 people. However, some of the reported figures included future plans and in some cases non-regular workers and overseas employees were both counted. Therefore, the data may not be taken

as a consistent time series. As the number of employees shown in the annual reports of these companies represents only regular employees, the exact number of the redundancies is also unknown. Unfortunately, figures concerning the restructuring of the supply chain are not available, either. Nevertheless, the dismissal of 140,000 people was the most drastic since the war, undermining the foundation of these industries, which had been pillars of the economy.

(2) "Expulsion rooms"

The front page of the Asahi Shimbun on 31 December 2012 featured a report about "Expulsion rooms" in one of Panasonic's subsidiaries. According to the report, employees who belonged to a poorly-performing department or who did not accept voluntary retirement were gathered in a place called the "expulsion room" (*oidashi-beya*) and left without any assignment or assigned chores or piecemeal work, thus indirectly encouraged to resign and look for another job. The Asahi Shimbun obtained data which revealed the existence of such rooms in two subsidiaries of Panasonic, showing that a total of 449 people had been sent to these rooms. The report saids that there were also expulsion rooms at Sharp, Sony, NEC and other major electrical appliance manufacturers, all aimed at forcing retirement, and as a result many people were pushed into retirement because of this treatment and harassment by the companies. In comparison with the "Daimyou restructuring" of the period after the collapse of the IT bubble, the restructuring policy of these days has been characterized by blatant layoffs, reflecting the lack of financial flexibility of the companies. Needless to say, these cases are supposed to be only the tip of the iceberg and the actual status of these expulsion rooms is not known.

In January 2013, the Ministry of Health, Labour and Welfare began an investigation of the use of *oidashi-beya* by interviewing five major companies (Panasonic, Sharp, Sony, NEC and Asahi Seimei). On the other hand, President of Rengo (the Japanese Trade Union Confederation), Mr. Nobuaki Koga, held a press conference on 24 January and said, "The union will immediately begin interviews with industry unions over this issue. Trade unions have to strengthen the role of checking". On 29 January, the Ministry of Health, Labour and

Welfare explained that it was difficult to contact the employees and concluded, based solely on the insufficient interviews with companies, that there was no illegal activity. The ministry said it would continue to monitor the issue closely.

Trade unions, in general, responded very slowly to this situation, despite the fact that it was clearly the most drastic restructuring industry since the war. Koga's remark on the *oidashi-beya* issue was very indicative. Koga, who was a leader of the Panasonic union as well as leader of the Denki Rengo (Japanese Electrical, Electronic & Information Union), admitted that he had come to know of the existence of these expulsion rooms through the article in *Asahi Shimbun* and that he had not known the actual situation at all. As we can imagine from his remark, Denki Rengo, which is an industrial union for workers in this industry, has had no record of resisting the restructuring in the industry. At its annual convention held in July 2012 there was no discussion or criticism of the restructuring in their companies. We cannot find any official view of the union on this issue in their web page.

Faced with redoubled pressure from the management especially after the Lehman Brothers' shock, it was local community unions, which did not belong to Rengo, which took the lead in supporting dismissed non-regular workers. Community unions, including the Management Union and Electrical and Information Union, are serving as the rescue organizations for those who were sent to the expulsion rooms and advising them. The Electrical and Information Union has also been cooperating with Zenroren (National Confederation of Trade Unions) in a series of activities including research, public meetings and leafleting at the gate of electronics companies in protest against these management decisions.

1. Impact on local economy

(1) Extensive supply chains across the country

Local areas where large factories of the major electrical appliance companies are located are often called "company castle towns" in Japan. A large number of subcontractor factories set up around these large

factories and support the local economy. A series of plant closures would then affected the entire castle town. Since the beginning of the 2000s, local governments have strengthened their efforts to invigorate their local economies by competing each other to attract major companies which were considering the "return to Japan". They offered the companies a series of incentives, including reclamation of the industrial complex, subsidies, and special tax treatment.

Panasonic and Sharp were typical of those manufacturers which made a "return to Japan". The two companies adopted the "vertical integration model" and maintained extensive supply chains, like the mesh of net, across the country including businesses involved in to the production of materials, parts, assembly and sales. Teikoku Databank conducted a survey with respect to the number of establishments and employees of primary and secondary subcontractors of the two companies in 2012. According to this survey, the Sharp group had 11,971 establishments in its network, employing a total of 677,561 people, while the Panasonic Group had 31,513 establishments with a total number of 1,477,311 employees. These establishments were spread across the country, while Osaka Prefecture, where these two companies had their headquarters, was the centre of production and sales and the home of a total of 9,000 affiliated establishments of the two groups. There had been only fragmentary information about the collapse, downsizing and restructuring of primary and secondary subcontractors and others further down the supply chain due to the poor performances of Panasonic and Sharp, and details were not disclosed. In any case, it is a matter of fact that a total of nearly two million jobs dependent on these two companies were affected by the slump in the parent companies.

For areas which were "company castle towns", the closure of the core factories meant the whole town would lose employment opportunities. Laid-off workers would find it difficult to get new jobs. In addition, the local industries, which had provided a variety of services to the factory workers, would also be affected seriously. The tax revenue of local governments would also be affected. Thus, closures of factories due to the slump in the electrical appliance industry in Japan would bring about immeasurable effects on the domestic economy of the whole country.

(2) The case of Kameyama City, Sharp's castle town

In this section, we will revisit Sharp's "Kameyama model" from the perspective of its impact on the domestic economy. Kameyama City in Mie Prefecture is a small city with a population of 50,000. The local governments of Mie Prefecture and Kameyama City launched the "Crystal Valley Initiative" to improve the infrastructure and spent a total of 13.5 billion yen, 9 billion yen and 4.5 billion yen, respectively, to attract the Sharp Kameyama plant. After the construction of Sharp Kameyama plant was decided In 2002, 35 companies entered into a business relationships with the plant including 14 companies which built new facilities or expanded existing facilities. Sharp decided to manufacture state-of-the-art LCD panels and large-size TVs at the Kameyama plant and promoted the production system as the "Kameyama model".

The "Kameyama model" was a great success. The number of workers at the affiliate companies was also increased.. As Table 23 indicates, the number of workers increased when the first factory and the second factory started their operations in 2004 and 2006, respectively. At the peak in 2008, a total of 4,700 were employed: 3,100 of which were regular workers and 1,600 non-regular workers. However, looking at the trend of non-regular workers, of whom migrant workers from Philippines and other countries composed the majority, the number has been decreasing year by year from 2,300 workers employed in 2004.

The population of Kameyama City increased by 5.2 percent from 2003 to 2010, due to the operation of the factories and the influx of workers. The number of rental units,, hotels and taxis also increased and the number of rental housings for workers increased to over 3,000 units, more than ten-fold in comparison with the years before the construction of the factories. There used to be only one business hotel in the city, but the number rose to seven, operating at their full occupancy every day, due to demand from customers who were SHARP's business partners coming from every corner of the world. The coffers of Kameyama city were filled. According to Table 24, the city's local tax revenue increased from 7.1 billion yen in 2003 to 14.6 billion yen in 2008. The success of Kameyama triggered fierce battles among local governments to attract

major companies. Sakai City in Osaka Prefecture followed Kameyama in successfully attracting Sharp's next new factory.

Then came the collapse of Lehman Brothers and the global economic shock. In December 2008, the Kameyama factory reduced its production level for the first time, due to its failure to match the price competitiveness of Samsung and other companies in South Korea and Taiwan. Subsequently, the Kameyama factories began to cut their workforces after the Sakai plant started its operation in October 2009, putting an end to Kameyama's role as the state-of-the-art production plant. As shown in Table 23, the reduction started with non-regular workers. Faced with the full-blown crisis since the year 2011, the reduction has been extended from non-regular workers to regular workers. As of the end of 2012, the total number of workers at Kameyama factories had fallen to 2,500 (with 2,200 regular workers and 300 non-regular workers), almost half of the number employed at the peak.

The trend in city's tax revenue has followed the slump at the Kameyama factory, decreasing every year since 2008 to 10.4 billion yen in year 2012. The town which used to be vibrant is now beaten down with a sharp recession. As subcontract jobs have diminished, the service industries which served the plants' workers have been affected, too. Although the rent for a typical apartment for non-regular workers collapsed from 50,000 yen to 20,000 yen, there are few people looking to rent them. As a result landlords, who built apartments with loans, are at a loss as to how to repay them. Hotels, restaurants and taxis have all been operating at very low capacity utilization rates.

In the wake of the closing of these large-scale factories, disputes over the refunding of subsidies offered by local governments have taken place here and there. For example, as regards the Kameyama factory, Sharp returned 640 million yen in subsidies to the government of Mie Prefecture. As regards Sharp's Sakai factory, for which the city government allocated a subsidy of 15 billion yen, litigation has been launched by the residents requesting the return of the subsidy. Local governments have been offering the site at a very cheap rate, providing utilities at a discount, improving the infrastructure and granting subsidies in order to attract big companies. All of these large incentives have been financed by tax money.

Many people argue that the most important reason for the decline of Japan's electrical appliance manufacturers was their failure to recognize the changing trends in the global electronics industry toward digitization and commoditization and to develop business models to respond to those trends. Korean companies, such as Samsung and LG, can produce products of as high quality as, or in some sectors, even superior quality to, Japan's products and at lower cost. Manufacturers in Taiwan and China are also catching up. It will be difficult for these Japanese companies to regain their leading position in the world market.

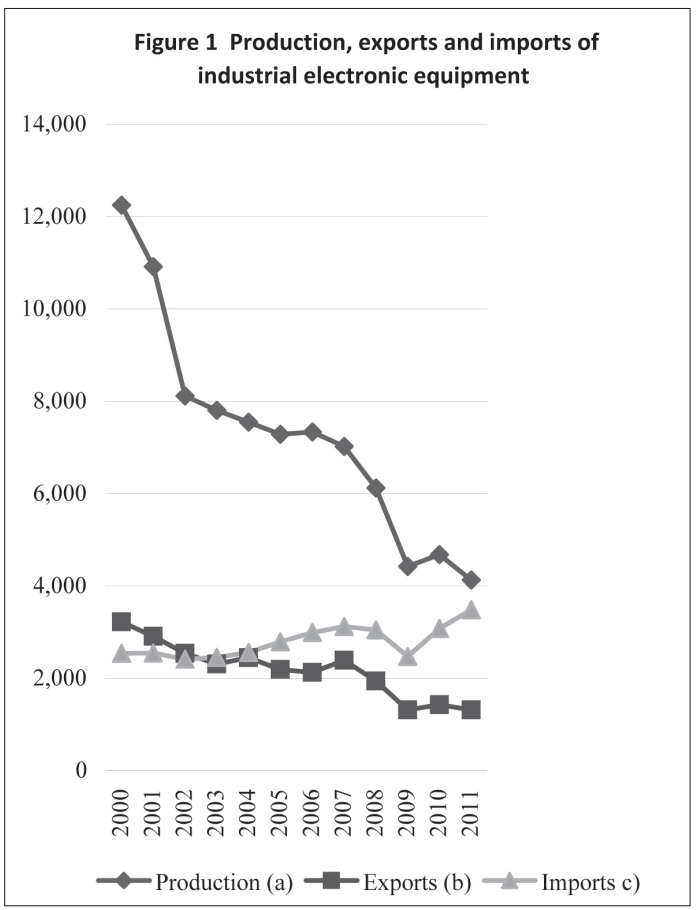
However, it is important to ask "Is ' the horizontal division of work' model good for the workers?" Key players of "horizontal division of labour" model, such as Hon Hai, make large-scale investments, employ a large number of workers at large factories and promote price competition. Samsung, which adopts both "vertical integration" and "horizontal division of work" models, is taking advantage of its overwhelming financial strength to expand its business all over the world, seeking cheaper labour. On the other hand, workers are separated between regular employees and non-regular employees, divided by national boundaries and forced to compete with each other and without knowing each other.

Once a large investment fails, it leads to the closure of factories, such as the cases of Sharp and Panasonic, forced restructuring and serious damage to local economy. Where will this chicken game of global competition lead us? Established trade unions are not always friends of the workers who are at the bottom of the global competition. This is true with regards to not only Rengo and its affiliate in electrical industry in Japan but also trade unions of all the countries in the world.

We have been committed to the causes of workers in the past 25 years, including the court battles of non-regular women workers in the electrical appliance industry in 1980s and 1990s, and supporting activities for Philippine Toyota Union (TMPCWA) since the year 2000. From our experience, we believe that issues concerning workers should not be delegated to trade unions alone. It is necessary that we, as citizens, galvanize public opinion and push our governments to closely monitor companies, such as Samsung in order to make them respect international labour standards. It would also be effective to bring specific cases of the violation of labour rights or the violation of OECD

Guidelines for Multinational Enterprises to the Committee on Freedom of Association of the ILO or OECD and promote lobbying activities to persuade international organizations and international labour organizations.

List of Figures/Tables



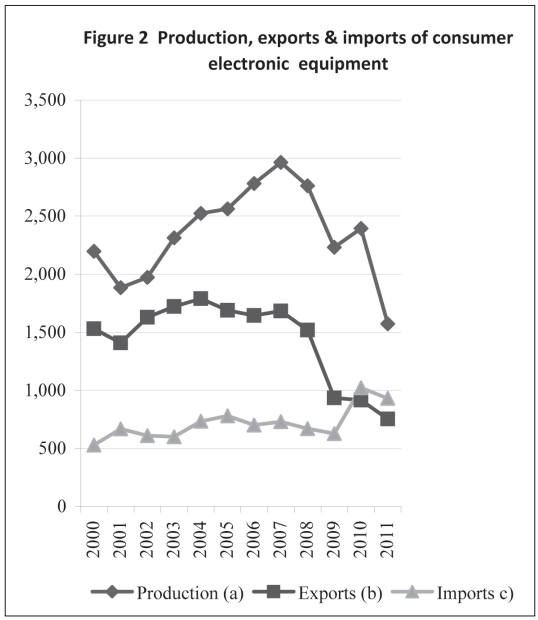


Figure 2 Production, exports & imports of consumer electronic equipment
3,500
3,000
2,500
2,000
1,500
1,000
500
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
Production (a)
Exports (b)
Imports c)

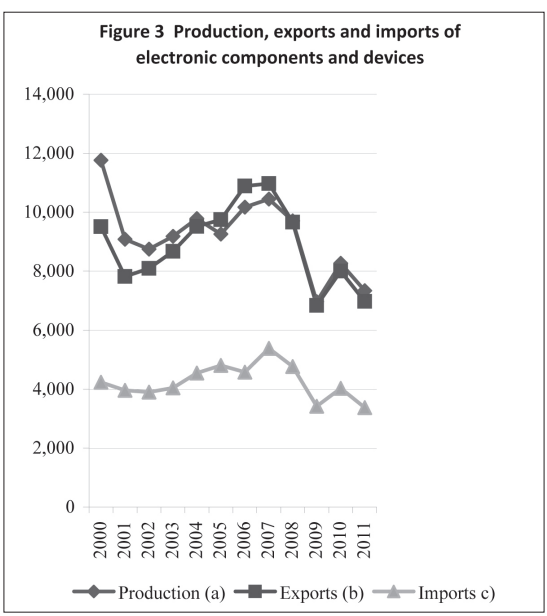


Figure 3 Production, exports and imports of electronic components and devices
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
Production (a)
Exports (b)
Imports c)

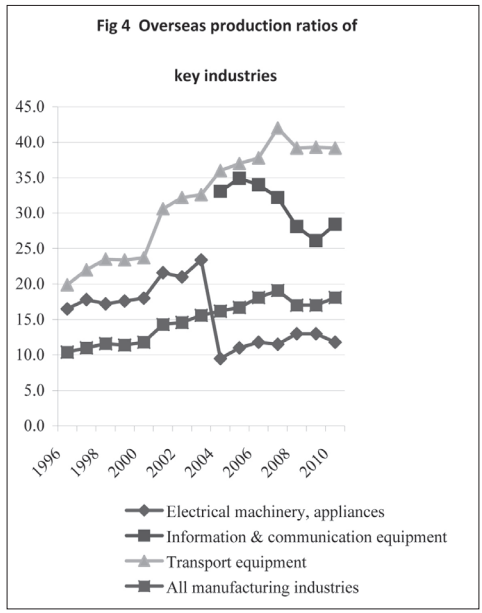


Fig 4 Overseas production ratios of
key industries
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
1996
1998
2000
2002
2004
2006
2008
2010
Electrical machinery, appliances
Information & communication equipment
Transport equipment
All manufacturing industries

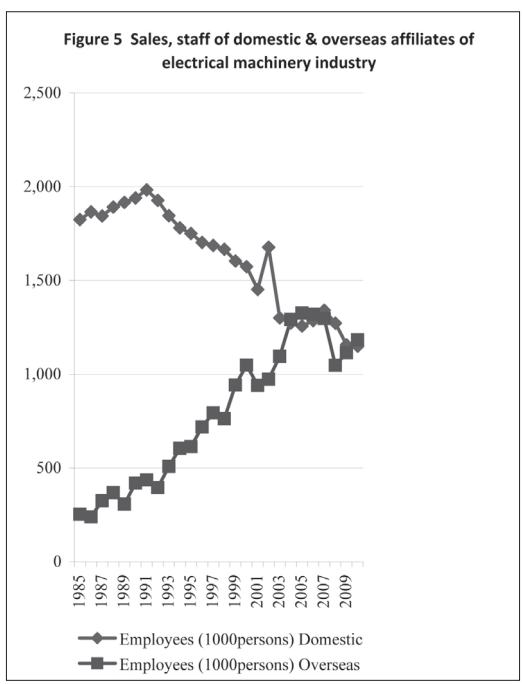


Figure 5 Sales, staff of domestic & overseas affiliates of electrical machinery industry
2,500
2,000
1,500
1,000
500
0
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
Employees (1000persons) Domestic
Employees (1000persons) Overseas

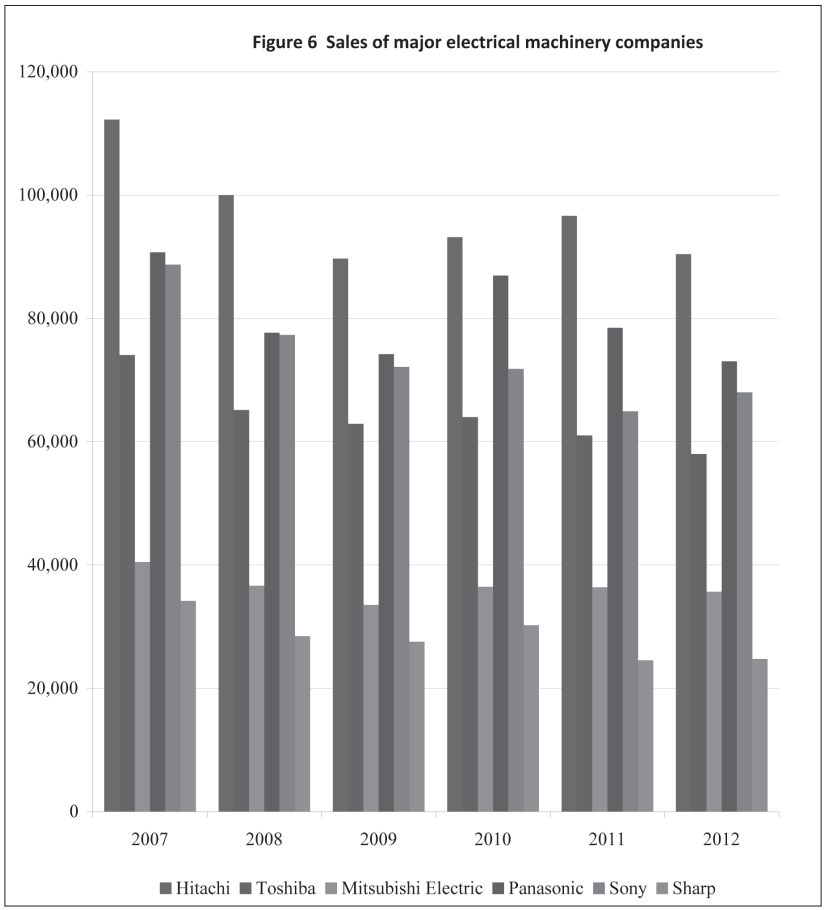


Figure 6 Sales of major electrical machinery companies
120,000
100,000
80,000
60,000
40,000
20,000
0
2007
2008
2009
2010
2011
2012
Hitachi
Toshiba
Mitsubishi Electric
Panasonic
Sony
Sharp

Figure 7 Net profit of major electrical machinery companies

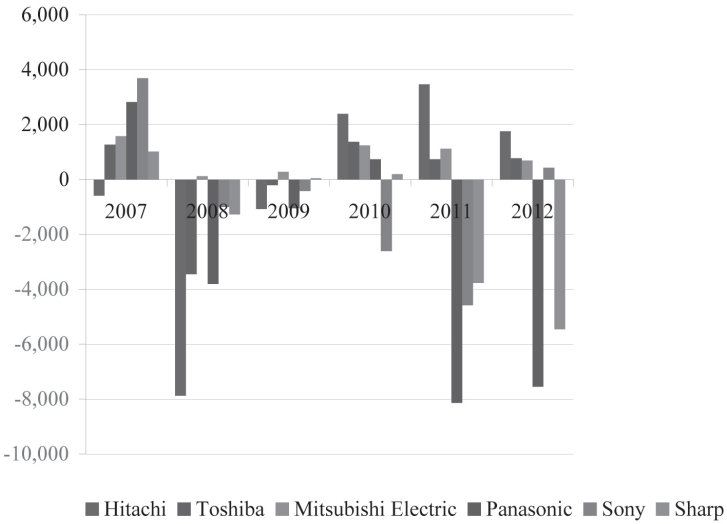
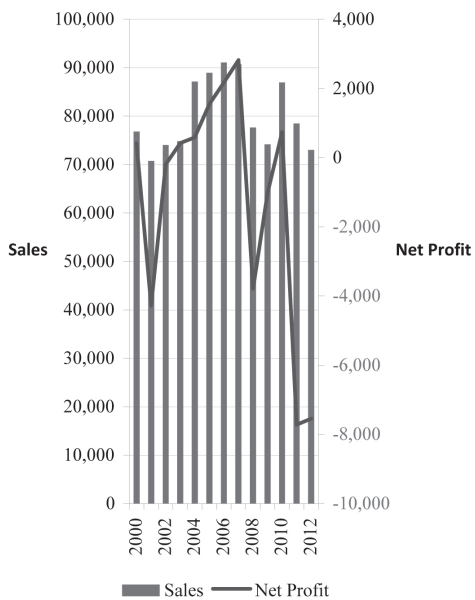


Figure 8 Panasonic's sales and net profit



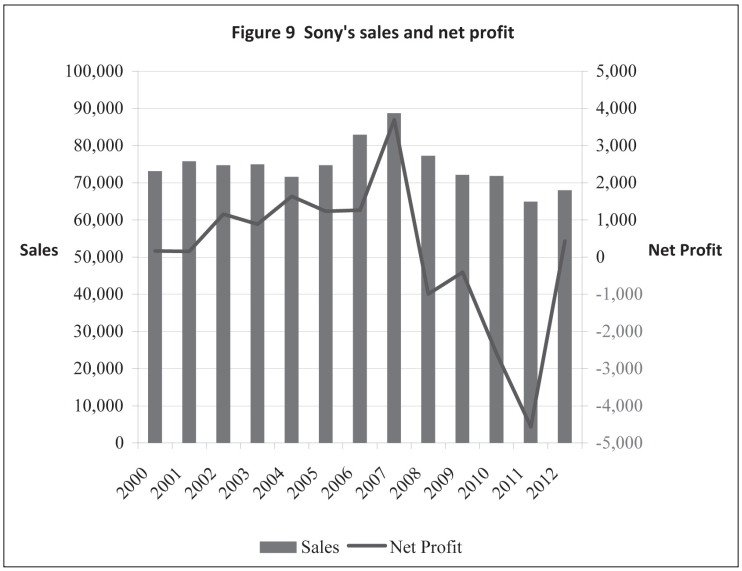


Figure 9 Sony's sales and net profit
Sales
Net Profit
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
5,000
4,000
3,000
2,000
1,000
0
-1,000
-2,000
-3,000
-4,000
-5,000
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
Sales
Net Profit

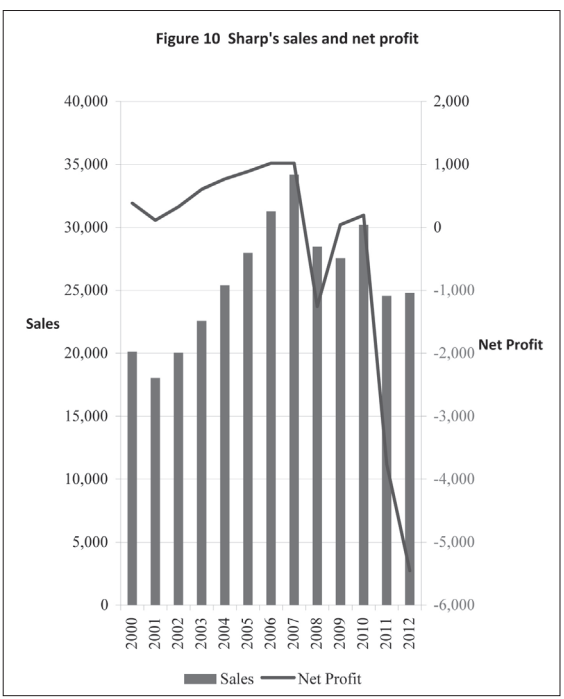
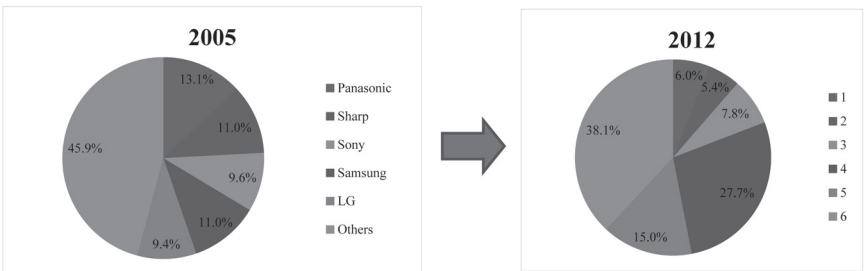
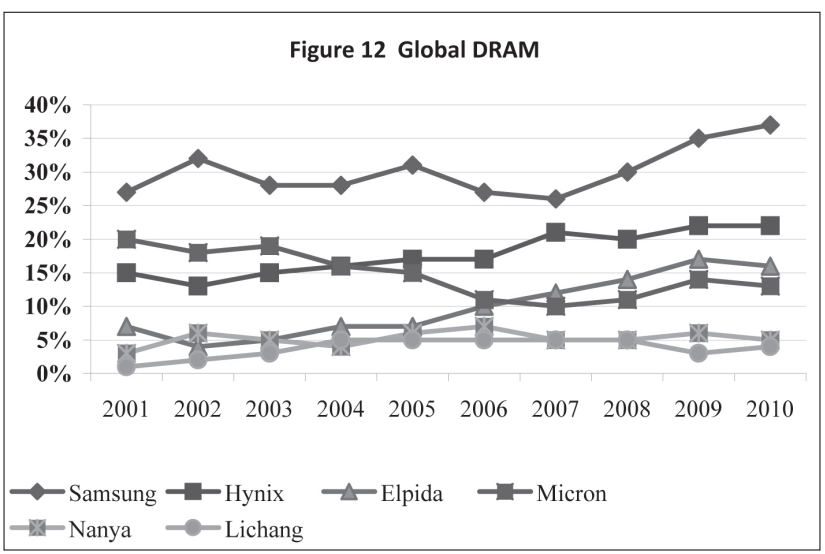


Figure 10 Sharp's sales and net profit
Sales
Net Profit
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2,000
1,000
0
-1,000
-2,000
-3,000
-4,000
-5,000
-6,000
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
Sales
Net Profit

Figure 11 Global TV sales by company





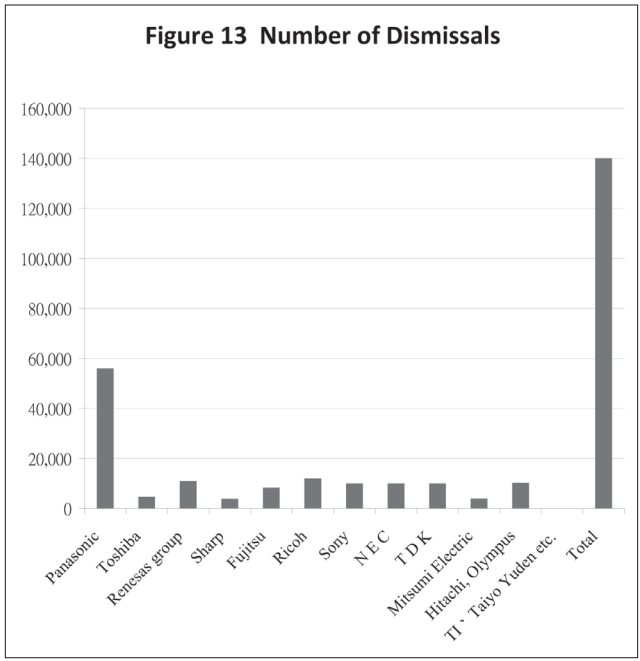


Figure 13 Number of Dismissals
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
Panasonic
Toshiba
Renesas group
Sharp
Fujitsu
Ricoh
Sony
N E C
T D K
Mitsumi Electric
Hitachi, Olympus
TI・Taiyo Yuden etc.
Total

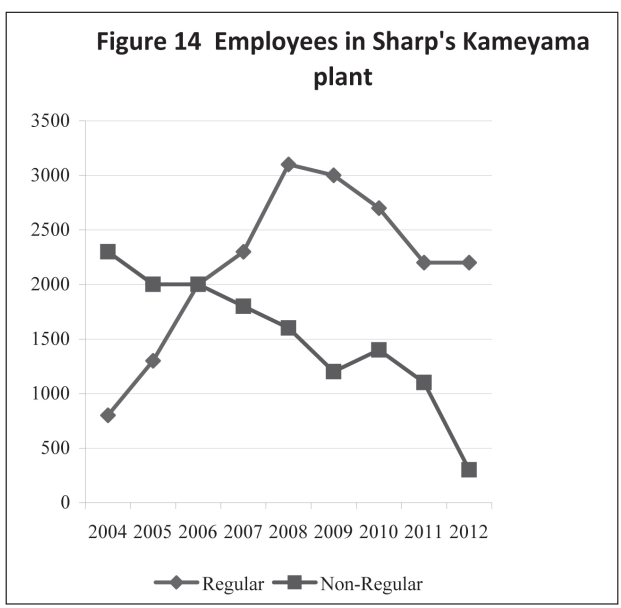


Figure 14 Employees in Sharp's Kameyama plant
3500
3000
2500
2000
1500
1000
500
0
2004 2005 2006 2007 2008 2009 2010 2011 2012
Regular
Non-Regular

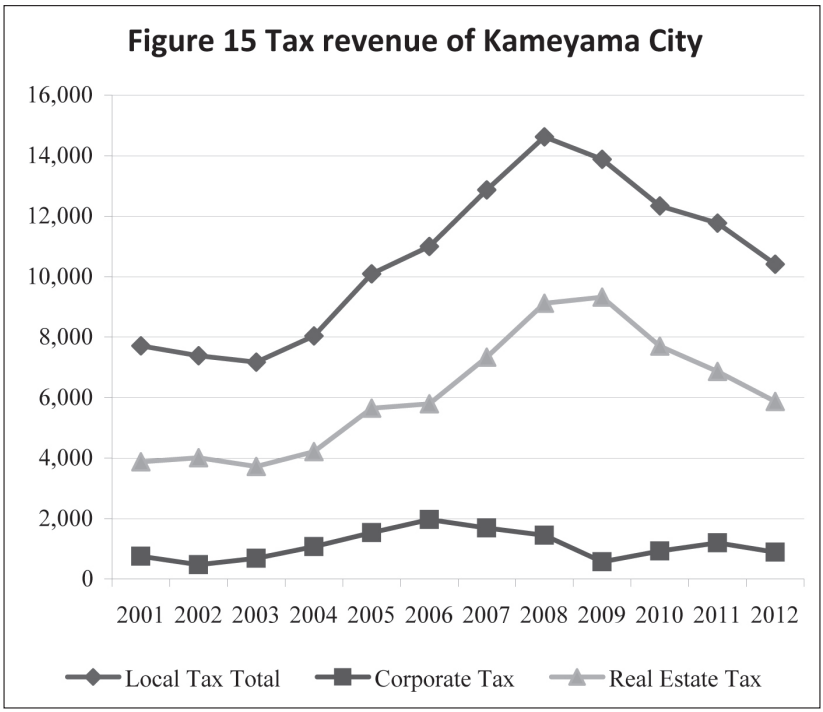


Figure 15 Tax revenue of Kameyama City
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012
Local Tax Total
Corporate Tax
Real Estate Tax

Table 1 Growth trend of Japan's electrical machinery & appliance industry

	Establishments		Employees		Value of Shipping		Value added	
	Number	(%)	1,000s	(%)	(bln yen)	(%)	(bln yen)	(%)
1965	14,285	2.5	851	8.6	2,301	7.8	881	9.1
1970	23,978	3.7	1,341	11.5	7,331	10.6	2,925	11.9
1975	30,356	4.1	1,214	10.7	10,821	8.5	4,144	9.8
1980	34,411	4.7	1,358	12.4	22,235	10.4	8,720	12.2
1983	40,844	5.2	1,645	14.5	31,675	13.3	12,160	15.0
1985a	42,274	5.6	1,843	16.0	40,949	15.3	14,927	16.2
1985b	34,196	7.8	1,825	16.8	40,842	15.4	14,863	16.4
1986	35,167	8.1	1,866	17.1	41,228	16.2	14,723	16.5
1987	33,973	8.1	1,844	17.2	41,945	16.5	15,179	16.4
1988	35,347	8.1	1,891	17.3	46,782	17.0	17,158	16.7
1989	34,800	8.3	1,916	17.5	50,876	17.0	18,828	17.0
1990	36,116	8.3	1,940	17.4	54,529	16.9	20,085	16.9
1991	36,979	8.6	1,983	17.5	58,624	17.2	21,395	17.0
1992	35,091	8.5	1,927	17.3	54,565	16.6	19,093	15.8
1993	33,937	8.2	1,845	16.9	52,103	16.7	18,008	15.7
1994	31,656	8.2	1,780	16.9	52,025	17.3	18,428	16.3
1995	31,342	8.1	1,750	17.0	54,831	17.9	19,643	16.8
1996	29,826	8.1	1,703	16.9	57,748	18.4	20,165	16.9
1997	28,898	8.1	1,687	17.0	60,381	18.7	20,164	16.8
1998	29,738	8.0	1,666	16.9	56,292	18.4	18,429	16.3
1999	27,522	8.0	1,604	17.1	54,905	18.8	17,800	16.5
2000	27,282	8.0	1,574	17.1	59,449	19.8	20,144	18.3
2001	24,396	7.7	1,452	16.4	52,466	18.3	16,095	15.6
2002	22,380	7.7	1,677	20.1	46,041	17.1	14,578	15.0
2003	22,141	7.5	1,300	15.8	48,014	17.5	15,732	15.9
2004	20,733	7.7	1,273	15.7	49,396	17.4	16,475	16.2
2005	20,753	7.5	1,257	15.4	49,066	16.6	16,589	15.9
2006	19,717	7.6	1,286	15.6	51,163	16.3	17,149	15.9
2007	19,992	7.7	1,341	15.7	55,326	16.5	17,527	16.1
2008	19,772	7.5	1,272	15.2	51,880	15.4	15,131	14.9
2009	17,413	7.3	1,157	15.0	40,049	15.1	11,557	14.3
2010	16,564	7.4	1,149	15.0	44,338	15.4	14,307	15.8
2011	17,444	7.6	1,113	14.9	40,602	14.2	13,601	14.9

Note: % indicates proportion of electrical machinery industry among all manufacturing industries.
Source: *Census of Manufacturers* , METI

Table 2 Exports and imports of electrical machinery and appliances

(Unit：US$ million)

	Exports of electrical machinery	Exports of electrical equipment	Domestic electrical appliances	Imports of electrical equipment	Domestic electrical appliances	Trade balance of electrical equipment	domestic electrical appliances
		(a)	(b)	c)	(d)	a-c	b-d
1988	61,975						
1989	64,431						
1990	65,903						
1991	73,703						
1992	77,390						
1993	84,503						
1994	97,205						
1995	113,533						
1996	100,367						
1997	99,961						
1998	89,592						
1999	101,626	90,975	2,404	36,038	3,947	54,937	-1,543
2000	127,192	116,472	2,266	48,969	4,791	67,503	-2,525
2001	95,469	87,421	1,700	43,288	5,065	44,133	-3,365
2002	95,282	87,208	2,033	40,631	5,159	46,577	-3,126
2003	110,836	102,049	2,302	46,172	5,507	55,877	-3,205
2004	132,708	122,376	2,795	56,202	6,381	66,174	-3,586
2005	132,459	123,173	2,504	59,562	7,466	63,611	-4,962
2006	138,262	128,803	2,185	66,838	7,090	61,965	-4,905
2007		134,429	2,038	71,373	7,072	63,056	-5,034
2008		137,778	1,812	74,352	7,560	63,426	-5,748
2009		108,435	1,055	62,157	7,033	46,278	-5,978
2010		135,338	1,258	82,948	8,690	52,390	-7,432
2011		136,291	1,270	90,138	9,218	46,153	-7,948

Source: JETRO, Database.

Table 3 Production, exports & imports of industrial electronic equipment

(Unit: \ billion, %)

	Production	Exports	Imports			
	(a)	(b)	c)	b-c	b/a	c/a
2000	12,244	3,219	2,537	682	26.3	20.7
2001	10,914	2,904	2,544	360	26.6	23.3
2002	8,114	2,539	2,410	129	31.3	29.7
2003	7,801	2,309	2,448	-139	29.6	31.4
2004	7,542	2,446	2,557	-111	32.4	33.9
2005	7,284	2,189	2,787	-598	30.1	38.3
2006	7,332	2,128	2,986	-858	29.0	40.7
2007	7,017	2,385	3,119	-734	34.0	44.4
2008	6,116	1,936	3,045	-1,109	31.7	49.8
2009	4,421	1,314	2,471	-1,157	29.7	55.9
2010	4,672	1,422	3,073	-1,651	30.4	65.8
2011	4,123	1,314	3,484	-2,170	31.9	84.5

Source: Japan Electronics and Information Technology Industry Association (JEITA)

Table 4 Production, exports and imports of consumer electronic equipment

(Unit: \ billion, %)

	Production	Exports	Imports			
	(a)	(b)	c)	b-c	b/a	c/a
2000	2,197	1,531	530	1,001	69.7	24.1
2001	1,885	1,409	668	741	74.7	35.4
2002	1,974	1,630	610	1,020	82.6	30.9
2003	2,313	1,722	601	1,121	74.4	26.0
2004	2,524	1,789	734	1,055	70.9	29.1
2005	2,562	1,689	781	908	65.9	30.5
2006	2,781	1,644	701	943	59.1	25.2
2007	2,962	1,683	730	953	56.8	24.6
2008	2,761	1,519	670	849	55.0	24.3
2009	2,232	935	629	306	41.9	28.2
2010	2,394	917	1,022	-105	38.3	42.7
2011	1,573	754	931	-177	47.9	59.2

Source: JEITA

Table 5 Production, exports & imports of electronic components and devices

(Unit: \ billion, %)

	Production	Exports	Imports			
	(a)	(b)	c)	b-c	b/a	c/a
2000	11,759	9,509	4,235	5,274	80.9	36.0
2001	9,079	7,818	3,955	3,863	86.1	43.6
2002	8,750	8,089	3,899	4,190	92.4	44.6
2003	9,182	8,670	4,040	4,630	94.4	44.0
2004	9,779	9,519	4,548	4,971	97.3	46.5
2005	9,257	9,746	4,803	4,943	105.3	51.9
2006	10,169	10,889	4,577	6,312	107.1	45.0
2007	10,442	10,968	5,384	5,584	105.0	51.6
2008	9,706	9,662	4,762	4,900	99.5	49.1
2009	6,962	6,840	3,416	3,424	98.2	49.1
2010	8,266	8,003	4,027	3,976	96.8	48.7
2011	7,342	6,977	3,371	3,606	95.0	45.9

Source: JEITA

Table 6 Production, exports & imports of leading electronic equipment

(Unit: \ billion)

	Computers			**TVs**			**ICs**		
	Production	Exports	Imports	Production	Exports	Imports	Production	Exports	Imports
2000	3,298	536	429	293	53	187	4,615	2,934	1,918
2001	2,737	692	716	259	53	227	3,429	2,372	1,699
2002	1,879	488	655	340	92	188	3,222	2,543	1,672
2003	1,590	239	736	423	135	154	3,437	2,712	1,754
2004	1,540	242	785	555	172	162	3,619	2,928	1,977
2005	1,441	285	898	723	149	156	3,288	2,900	2,034
2006	1,398	322	912	926	127	113	3,636	3,180	2,451
2007	1,316	320	915	1,010	116	93	3,766	3,522	2,493
2008	1,165	242	930	1,033	83	101	3,307	2,976	2,130
2009	849	152	693	777	27	173	2,361	2,269	1,510
2010	929	151	875	1,136	26	456	2,680	2,737	1,773
2011	718	128	1,020	558	20	426	2,228	2,321	1,419

Source：JEITA

Table 7 Overseas investment (FDI) by electrical machinery industry

	Number of deals			Value (US$ million)		
	World	Asia	%	World	Asia	%
1965	14	5	35.7	3	1	33.3
1966	19	11	57.9	5	2	40.0
1967	21	17	81.0	7	3	42.9
1968	29	21	72.4	7	3	42.9
1969	39	32	82.1	22	16	72.7
1970	43	38	88.4	22	15	68.2
1971	33	23	69.7	30	19	63.3
1972	111	86	77.5	69	36	52.2
1973	184	156	84.8	156	83	53.2
1974	66	43	65.2	99	30	30.3
1975	48	34	70.8	96	36	37.5
1976	67	38	56.7	164	44	26.8
1977	53	33	62.3	161	32	19.9
1978	143	95	66.4	243	93	38.3
1979	145	72	49.7	180	55	30.6
1980	103	37	35.9	309	71	23.0
1981	113	48	42.5	475	57	12.0
1982	103	42	40.8	267	43	16.1
1983	118	53	44.9	502	45	9.0
1984	146	65	44.5	409	93	22.7
1985	133	47	35.3	513	51	9.9
1986	212	111	52.4	987	262	26.5
1987	322	184	57.1	2,421	467	19.3
1988	316	164	51.9	3,041	852	28.0
1989	303	154	50.8	4,480	934	20.8
1990	269	121	45.0	5,684	827	14.5
1991	209	120	57.4	2,296	871	37.9
1992	179	95	53.1	1,817	540	29.7
1993	187	119	63.6	2,762	884	32.0
1994	207	154	74.4	2,634	1,376	52.2
1995	297	228	76.8	5,381	2,479	46.1
1996	222	139	62.6	6,513	1,831	28.1
1997	187	109	58.3	6,689	1,816	27.1
1998	127	78	61.4	3,429	673	19.6
1999	142	83	58.5	16,360	945	5.8
2000	167	125	74.9	3,056	1,432	46.9
2001	147	101	68.7	3,865	1,285	33.2
2002	118	74	62.7	3,920	899	22.9
2003	123	92	74.8	5,005	889	17.8
2004				2,039		
2005				4,377		
2006				7,041		
2007				4,691		
2008				5,675		
2009				2,505		
2010				1,361		
2011				7,334		

Note: '%' indicates the percentage of deals and share of the value of total investment in Asia.

Source: *Monthly Review of Fiscal Statistics* , Ministry of Finance; JETRO, Database.

Table 8 Electrical machinery & appliance industry as % of Japan's manufacturing overseas

	Overseas affiliates		Sales		Net Profit		Employees	
	(number)	(%)	(\ billion)	(%)	(\ million)	(%)	(persons)	(%)
1977	307	17.1	1,147	27.1	41,478	45.8	152,574	23.2
1978	308	17.5	1,440	29.2	33,886	32.0	183,842	30.0
1979	366	19.1	1,852	26.6	41,233	24.0	207,101	31.6
1980	297	18.7	1,864	29.8	50,152	19.2	184,982	30.3
1981	364	21.0	2,805	29.7	62,039	25.3	197,481	31.0
1982	413	20.9	3,004	31.4	53,673	69.0	195,292	28.0
1983	319	19.7	1,949	29.1	44,849	49.4	143,428	26.9
1984	513	24.4	5,787	43.1	129,770	51.4	214,330	30.0
1985	534	23.8	3,704	37.2	48,962	138.4	252,861	31.6
1986	465	24.1	3,923	37.4	21,473	43.9	239,438	33.0
1987	675	25.1	4,730	36.2	21,278	15.4	324,895	36.1
1988	816	25.2	6,407	36.4	36,378	11.4	368,425	35.0
1989	670	25.3	6,777	30.4	26,660	11.7	307,039	33.3
1990	884	25.9	7,957	30.4	30,357	16.8	419,215	33.8
1991	940	26.6	8,107	32.0	-1,099	-	435,796	34.6
1992	820	27.0	7,320	29.1	9,788	21.8	394,757	35.3
1993	1,033	23.3	8,567	29.5	69,627	120.4	508,407	33.7
1994	1,291	22.5	10,509	30.5	156,647	31.6	604,478	34.2
1995	1,278	24.4	12,464	34.0	118,437	21.4	613,716	33.1
1996	1,476	23.0	15,210	32.1	140,071	17.9	717,746	32.3
1997	1,549	23.6	17,508	33.6	-78,047	-	793,632	34.3
1998	1,505	23.5	16,443	32.5	-131,637	-	763,012	34.3
1999	1,619	23.2	17,561	34.6	223,302	27.9	943,064	36.6
2000	1,827	24.5	19,605	34.9	257,916	24.0	1,048,486	37.4
2001	1,472	22.6	20,392	31.9	-187,369	-	940,440	35.7
2002	1,612	23.3	18,179	28.2	178,655	10.9	974,354	34.7
2003	1,653	23.2	21,405	30.1	328,985	17.5	1,095,338	35.2
2004	1,809	23.2	22,083	27.8	443,300	17.9	1,292,000	38.0
2005	1,848	23.0	23,449	26.8	101,600	3.7	1,326,000	36.6
2006	1,791	21.6	24,799	24.9	447,400	12.5	1,320,000	34.8
2007	1,735	20.9	23,391	21.1	545,908	13.0	1,297,318	32.8
2008	1,544	19.0	19,571	21.5	74,965	4.5	1,047,253	29.4
2009	1,523	18.1	16,295	20.8	341,982	14.3	1,114,835	30.3
2010	1,511	18.0	18,375	20.6	465,991	11.3	1,183,802	29.8
2011	1,535	17.7	16,342	18.5	227,313	7.4	1,107,369	26.9

Source: *Survey of Overseas Business Activities* , METI
Note: % indicates electrical machinery and appliance makers among all manufacturing affiliates overseas.

Table 9 Overseas production as % of domestic output

(Unit: %)

	Electrical machinery, appliances	Information & communication equipment	Transport equipment	All manufacturing industries
1996	16.5		19.9	10.4
1997	17.8		22.0	11.0
1998	17.2		23.5	11.6
1999	17.6		23.4	11.4
2000	18.0		23.7	11.8
2001	21.6		30.6	14.3
2002	21.0		32.2	14.6
2003	23.4		32.6	15.6
2004	9.5	33.1	36.0	16.2
2005	11.0	34.9	37.0	16.7
2006	11.8	34.0	37.8	18.1
2007	11.5	32.2	42.0	19.1
2008	13.0	28.1	39.2	17.0
2009	13.0	26.1	39.3	17.0
2010	11.8	28.4	39.2	18.1

Source: *Survey of Overseas Business Activities* , METI

Table 10 Sales, staff of domestic & overseas affiliates of electrical machinery industry

	Sales (\ billion)			Employees ('000 persons)		
	Domestic	Overseas	Ratio(%)	Domestic	Overseas	Ratio(%)
1985	40,842	3,704	8.3	1,825	253	12.2
1986	41,228	3,923	8.7	1,866	239	11.4
1987	41,945	4,730	10.1	1,844	325	15.0
1988	46,782	6,407	12.0	1,891	368	16.3
1989	50,876	6,777	11.8	1,916	307	13.8
1990	54,529	7,957	12.7	1,940	419	17.8
1991	58,624	8,107	12.1	1,983	436	18.0
1992	54,565	7,320	11.8	1,927	395	17.0
1993	52,103	8,567	14.1	1,845	508	21.6
1994	52,025	10,509	16.8	1,780	604	25.3
1995	54,831	12,464	18.5	1,750	614	26.0
1996	57,748	15,210	20.8	1,703	718	29.7
1997	60,381	17,508	22.5	1,687	794	32.0
1998	56,292	16,443	22.6	1,666	763	31.4
1999	54,905	17,561	24.2	1,604	943	37.0
2000	59,449	19,605	24.8	1,574	1,048	40.0
2001	52,466	20,392	28.0	1,452	940	39.3
2002	46,041	18,179	28.3	1,677	974	36.7
2003	48,014	21,405	30.8	1,300	1,095	45.7
2004	49,396	22,083	30.9	1,273	1,292	50.4
2005	49,066	23,449	32.3	1,257	1,326	51.3
2006	51,163	24,799	32.6	1,286	1,320	50.7
2007	55,326	23,391	29.7	1,341	1,297	49.2
2008	51,880	19,571	27.4	1,272	1,047	45.1
2009	40,049	16,295	28.9	1,157	1,115	49.1
2010	44,338	18,375	29.3	1,149	1,184	50.8

Note: '%' indicates the percentage of overseas to domestic

Source: *Census of Manufacturers, Survey of Overseas Business Activities* , METI

Table 11 Production of electronic equipment in East Asia

（Unit：US$ 100 million, %）

		1990		2000		2005		2008	
Electronic equipment (all categories)	Japan	1,845	26.2	2,636	19.3	1,916	13.7	2,037	13.0
	NIEs	608	8.6	1,832	13.4	1,928	13.8	2,047	13.0
	ASEAN4	147	2.1	870	6.4	953	6.8	1,102	7.0
	China	127	1.8	810	5.9	2,656	19.0	4,060	25.9
	East Asia	2,727	38.8	6,148	45.0	7,453	53.3	9,246	58.9
	World	7,033	100.0	13,677	100.0	13,987	100.0	15,688	100.0
Consumer electronic equipment	Japan	321	37.9	193	19.8	254	15.2		
	NIEs	128	15.2	98	10.0	81	4.8		
	ASEAN4	34	4.1	124	12.7	113	6.8		
	China	62	7.3	169	17.3	606	36.1		
	East Asia	545	64.4	584	59.8	1,054	62.9		
	World	846	100.0	974	10.0	1,676	100.0		
Computers	Japan	532	29.5	651	17.3	332	7.6		
	NIEs	169	9.4	663	17.6	354	8.1		
	ASEAN4	22	1.2	344	9.1	409	9.4		
	China	6	0.4	275	7.3	1,897	43.5		
	East Asia	729	40.5	1,933	51.3	2,992	68.6		
	World	1,802	100.0	3,772	100.0	4,361	100.0		
Electronic components & devices	Japan	585	33.6	1,098	26.9	919	21.8		
	NIEs	228	13.1	804	19.7	1,055	25.0		
	ASEAN4	68	3.9	308	7.6	451	10.7		
	China	34	2.0	184	4.5	603	14.3		
	East Asia	915	52.6	2,394	58.7	3,028	71.8		
	World	1,744	100.0	4,077	100.0	4,217	100.0		

Notes: NIEs, newly industrialized economies, are Korea, Taiwan, Hong Kong and Singapore;
ASEAN 4 are Thailand, Malaysia, Indonesia and Philippines.
Sources: *Industrial Development and Structual Change in East Asia* , Yoji Fujii;
Original data from *Yearbook of World Electronics Data* , Elesevir Advanced Technology

Table 12 Exports of electronic equipment in East Asia

(Unit: US$ million, %)

		1980		1990		2000		2007	
AV appliances	Japan	12,223	76.0	28,809	51.9	30,516	26.8	33,700	10.7
	NIEs	3,727	23.2	19,435	35.0	42,248	37.1	112,662	35.7
	ASEAN 4	133	0.8	4,599	8.3	21,739	19.1	23,144	7.3
	China	0	0.0	2,623	4.7	19,508	17.1	146,281	46.3
	East Asia	16,083	100.0	55,466	100.0	114,011	100.0	315,787	100.0
Electronic Components	Japan	2,314	55.0	12,991	48.7	29,751	24.1	23,564	11.0
	NIEs	1,415	33.6	9,364	35.1	51,348	41.5	93,977	43.8
	ASEAN 4	479	11.4	3,845	14.4	30,620	24.8	26,076	12.2
	China	0	0.0	500	1.9	11,974	9.7	70,890	33.0
	East Asia	4,208	100.0	26,700	100.0	123,693	100.0	214,507	100.0

Notes: NIEs here are S. Korea, Hong Kong & Singapore; ASEAN 4, Thailand, Malaysia, Indonesia & Philippines
Sources: *Industrial Development and Structual Change in East Asia* , Yoji Fujii;
Original data from *Yearbook of World Electronics Data* , Elesevir Advanced Technology

Table 13 Sales of major electrical machinery companies

(Unit: \100 million)

	2007	2008	2009	2010	2011	2012
Hitachi	112,267	100,003	89,685	93,158	96,658	90,410
Toshiba	74,043	65,127	62,912	63,985	61,003	58,002
Mitsubishi Electric	40,498	36,651	33,533	36,453	36,395	35,671
Panasonic	90,689	77,655	74,180	86,927	78,462	73,030
Sony	88,714	77,300	72,140	71,813	64,932	68,008
Sharp	34,177	28,472	27,559	30,220	24,558	24,785

Sources: Company Annual Reports

Table 14 Net profit of major electrical machinery companies

(Unit: \100 million)

	2007	2008	2009	2010	2011	2012
Hitachi	-581	-7,873	-1,070	2,389	3,471	1,753
Toshiba	1,274	-3,436	-197	1,378	737	775
Mitsubishi Electric	1,580	122	283	1,245	1,121	696
Panasonic	2,819	-3,790	-1,035	740	-8,128	-7,542
Sony	3,694	-989	-408	-2,596	-4,566	430
Sharp	1,019	-1,258	44	194	-3,760	-5,453

Sources: Company Annual Reports

Table15 Panasonic's sales and net profit

(Unit: \100 million)

	Sales	Net Profit
2000	76,816	415
2001	70,738	-4,278
2002	74,017	-195
2003	74,797	421
2004	87,136	585
2005	88,943	1,544
2006	91,082	2,172
2007	90,689	2,819
2008	77,655	-3,790
2009	74,180	-1,035
2010	86,927	740
2011	78,462	-7,721
2012	73,030	-7,542

Source: Panasonic's Financial Reports

Table 16 Sony's sales and net profit

(Unit: \100 million)

	Sales	Net Profit
2000	73,148	168
2001	75,783	153
2002	74,736	1,155
2003	74,964	885
2004	71,596	1,638
2005	74,754	1,236
2006	82,957	1,263
2007	88,714	3,694
2008	77,300	-989
2009	72,140	-408
2010	71,813	-2,596
2011	64,932	-4,566
2012	68,008	430

Source: Sony's Financial Reports

Table 17 Sharp's sales and net profit

(Unit: \100 million)

	Sales	Net Profit
2000	20,129	385
2001	18,038	113
2002	20,032	326
2003	22,573	607
2004	25,399	768
2005	27,971	887
2006	31,278	1,017
2007	34,177	1,019
2008	28,472	-1,258
2009	27,559	44
2010	30,220	194
2011	24,558	-3,760
2012	24,785	-5,453

Source: Sharp's Financial Reports

Table 18 Global TV sales by company

	2005	2012
Panasonic	13.1%	6.0%
Sharp	11.0%	5.4%
Sony	9.6%	7.8%
Samsung	11.0%	27.7%
LG	9.4%	15.0%
Others	45.9%	38.1%

Source: Nihon Keizai Shimbun

Table 19 Production of panels for TV Sets (2010)

(Unit: 10 thousand units)

	Self-use	Selling	Total
L G	1,800	3,290	5,090
Samsung	2,150	2,780	4,930
Chimei		3,870	3,870
A U O		3,500	3,500
Sharp	1,100	500	1,600
Panasonic	800	350	1,150
B O E		510	510
C P T		180	180

Source: *Diamond Weekly*

Table 20 Top 10 companies in semi-conductor sales

	1990	2000	2005	2010	2012
1	NEC	Intel	Intel	Intel	Intel
2	Toshiba	Toshiba	Samsung	Samsung	Samsung
3	Hitachi	NEC	T I	Toshiba	Qualcomm
4	Motorola	Samsung	Toshiba	T I	T I
5	Intel	T I	STMicro	Renesas	Toshiba
6	Fujitsu	STMicro	Infineon	Hynix	Renesas
7	T I	Motorola	Renesas	STMicro	Hynix
8	Mitsubishi	Hitachi	NEC	Micron	STMicro
9	Philips	Infineon	Philips	Qualcomm	Broad Com
10	Panasonic	Micron	Freescale	Infineon	Micron

Source: Takashi Yunogami, The Lessons from the Crushing Defeat of Japan's Electronics Industry

Table 21 Global DRAM sales

	Samsung	Hynix	Elpida Memory	Micron Technology	Nanya Technology	Lichang Technology
2001	27%	15%	7%	20%	3%	1%
2002	32%	13%	4%	18%	6%	2%
2003	28%	15%	5%	19%	5%	3%
2004	28%	16%	7%	16%	4%	5%
2005	31%	17%	7%	15%	6%	5%
2006	27%	17%	10%	11%	7%	5%
2007	26%	21%	12%	10%	5%	5%
2008	30%	20%	14%	11%	5%	5%
2009	35%	22%	17%	14%	6%	3%
2010	37%	22%	16%	13%	5%	4%

Source: *Asahi Shimbun*

Table 22 Employee dismissals in major companies（2012～13）

Name of company	Employee dismissals
Panasonic	56,000
Toshiba	4,688
Renesas group	11,011
Sharp	3,900
Fujitsu	8,300
Ricoh	12,000
Sony	10,000
N E C	10,000
T D K	10,000
Mitsumi Electric	3,946
Hitachi, Olympus	10,266
TI、Taiyo Yuden etc.	
Total	140,105

Source: *Rodo Joho*

Table 23 Employees in Sharp's Kameyama plant

	Regular	Non-Regular
2004	800	2,300
2005	1,300	2,000
2006	2,000	2,000
2007	2,300	1,800
2008	3,100	1,600
2009	3,000	1,200
2010	2,700	1,400
2011	2,200	1,100
2012	2,200	300
Source: Mie Prefecture Government		

Table 24 Tax revenue of Kameyama City

(Unit: \ million)

	Local Tax Total	Corporate Tax	Real Estate Tax
2001	7,707	747	3,873
2002	7,386	475	4,011
2003	7,175	680	3,720
2004	8,039	1,073	4,215
2005	10,092	1,534	5,651
2006	11,000	1,965	5,789
2007	12,867	1,690	7,336
2008	14,618	1,443	9,117
2009	13,884	564	9,316
2010	12,341	922	7,706
2011	11,764	1,194	6,859
2012	10,408	882	5,870

Source: Mie Prefecture Government

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This book is dedicated to all workers who have lost their lives in struggles for their rights, and to those who have suffered due to occupational diseases and industrial accidents in South Korea and many other places in Asia and beyond, and to victims who have died due to cancer from working in electronic factories. This book also salutes the survivors and their families, who struggle every day for justice.

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