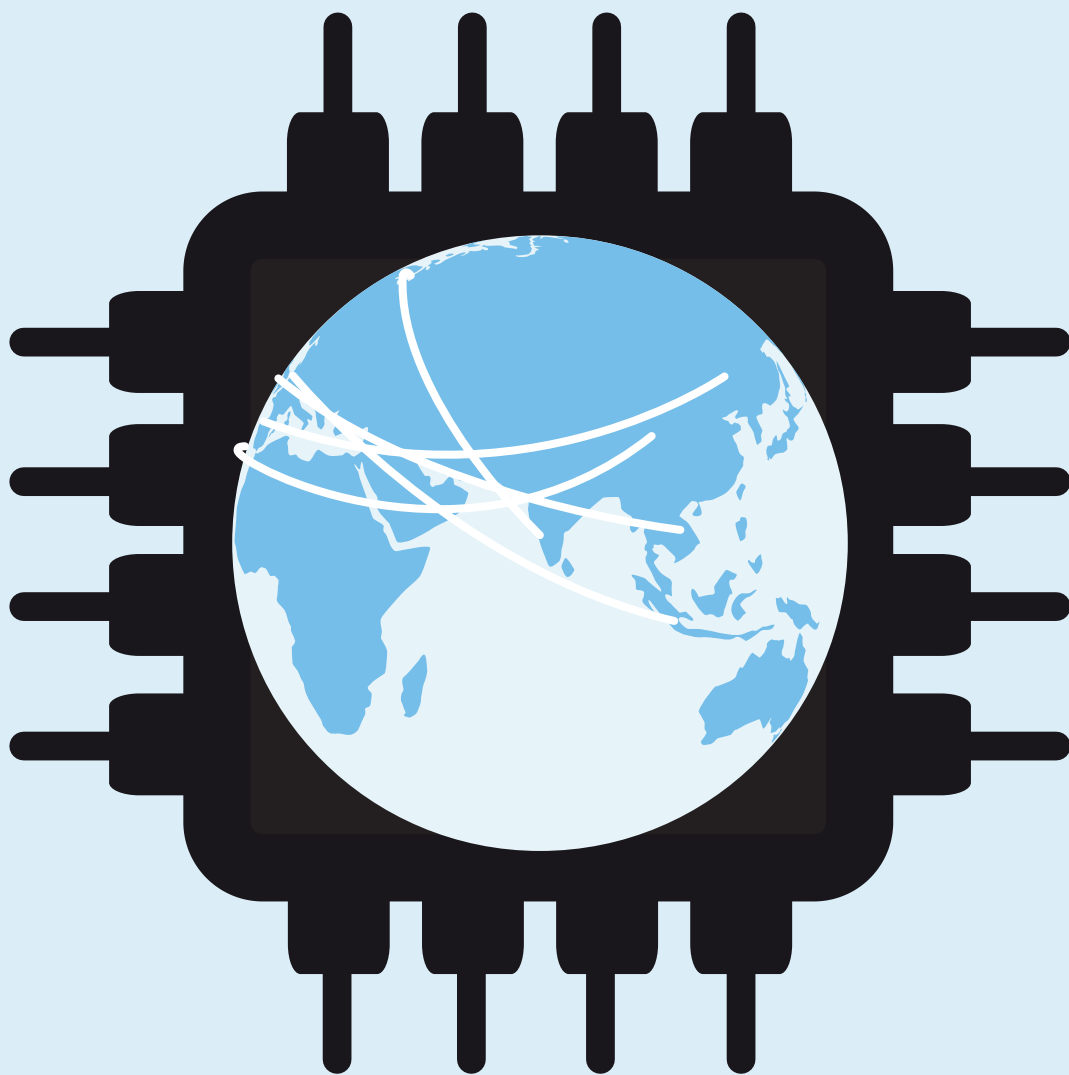


Winds of change



*Public procurement's
potential for improving
labour conditions in the
global electronics industry*

electronics
 watch

Improving working conditions
in the global electronics industry

Winds of change
*Public procurement's potential for improving labour
conditions in the global electronics industry*

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Improving working conditions
in the global electronics industry

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1. Executive summary

Electronics products are a key part of the infrastructure in schools, hospitals and other public institutions sponsored by the taxpayers. But if the taxpayers scrutinised the procurement of IT equipment in regards to social sustainability, would it pass the test?

Data on public procurement of IT equipment is scarce, but the funds involved are known to be huge: the European states' public procurement of ICT equipment, services and software amounted to 94 billion Euros in 2007.¹ The European Commission, as well as most European states, acknowledge the significant footprint of public procurement and therefore have policies for green and socially sustainable procurement. Such policies have the aim of ensuring that the taxpayers' money is used on public spending which does no harm to the environment and does not violate workers' rights in the global supply chain. However, intentions and policies to ensure the sustainability of public ICT procurement are severely restricted by the current structure and setup of the electronics industry.

This report provides an insight of labour issues in the ICT industry, focusing on occupational health and safety issues and freedom of association, compounded by cases from South Korea and China. There are many ways to address these issues – informing and organising among workers, governments of production countries implementing their labour laws, etc. Social responsible public procurement (SRPP) is a new, untried way for institutional consumers on the buying end of the supply chain to exercise influence by using their purchasing power. Electronics Watch is propagating socially responsible public procurement as a means to bring about structural improvements of labour conditions in the global electronics industry.

Due to extensive competition based on cheap labour, the electronics industry is riddled with labour rights violations. Company audits, academic literature and civil society organisations all suggest that the labour rights violations are not specific to single brands, but rather characterise the electronics industry as a whole. No brand can claim to have socially sustainable working conditions throughout its supply chain, and public buyers are therefore left with little guarantee that any ICT equipment being procured live up to international labour standards.

Consequently, European states are buying billions worth of ICT equipment that is at high risk of having been produced in violation of basic labour rights. Workers often endure poverty wages, forced overtime, unsafe working conditions, serious health hazards and violations of their associational rights.

This poses a serious challenge to public buyers who want to ensure their spending of taxpayers' money is sustainable and minimise risks to their image.

The research for this report was conducted by DanWatch, on behalf of Electronics Watch, in the summer of 2014. Field research was carried out in South Korea in May 2014, where qualitative interviews were conducted with local stakeholders including current and former electronics industry workers, NGOs, union representatives and electronics manufacturing companies.

This report will deal with two specific labour rights issues in the ICT industry, illustrated by case stories from South Korea and China.

Recently, incidents of electronic industry workers contracting occupational diseases have gained international attention, as South Korean victims and their support networks have organised their efforts to get recognition and compensation. During specific phases of the production process, workers are exposed to harsh fumes and contact with dangerous chemicals, which can have harmful long-term effects on their health. Within the semiconductor industry specifically, an extensive assortment of chemicals is used; some of these are dangerous to human health and reproduction. In South Korea, 289 workers from the IT manufacturing industry have been documented to have contracted various forms of leukaemia, multiple sclerosis and aplastic anaemia by civil society organisation SHARPS.

In the global electronics industry, the degree of union representation is generally very low, and entrenched resistance to unionisation is widespread. Many ICT manufacturing countries have very little enforcement of labour laws accommodating freedom of association and independent unionising.

Another obstacle to electronic workers exercising their rights to freedom of association and collective bargaining includes the widespread use of precarious, temporary and agency contracts. The electronics industry has one of the largest precarious workforces, and the frequent turnover of workers and their vulnerable position make it difficult to create a base for organising.

South Korea is one of the major ICT producing countries and has a relatively strong tradition of unionising compared to others, and yet the degree of unionisation in the electronics industry is remarkably low. Only 3,5% of the workers in the South Korean electronics industry are represented by a union; the main ICT manufacturing company, Samsung, has practically no independent union membership. According to various sources, including current and former workers, Samsung uses a range of measures to deter workers from forming independent unions in its South Korean operations: monitoring, tracking and harassing workers inside and outside the workplace, as well as demoting, firing or relocating workers who appear to want to form an independent union.

Green and social public procurement is increasingly prioritised by European states as a tool to promote sustainable growth. Electronics Watch considers public procurement as one of the actors with the greatest potential to push the electronics industry towards sustainability: due to its purchasing power, public procurement has considerable leverage in its relation with suppliers. Public procurers' massive purchasing power makes them a highly influential group, who can contribute significantly to the establishment of sustainable production and consumption. Public procurers have the potential to influence the market, in terms of production and consumption trends, in favour of environmentally friendly, socially responsible and innovative products. Additionally, public institutions have an ethical obligation to meet the expectations of the public, whose money they administer. Until now, public procurers have lacked suitable means to realise their potential to influence the electronics industry. Company codes of conducts and industry social auditing are showing limited results in terms of actual change within the industry and have offered little possibility of action to the public sector.

Electronics Watch

Electronics Watch (www.electronicswatch.org) is an independent, non-profit monitoring organisation working to achieve respect for labour rights in the global electronics industry through socially responsible public procurement in Europe.

Electronics Watch provides the missing link in public sector policy on socially responsible procurement by bringing together organisations in the public sector and local monitoring organisations. As a newly established initiative, Electronics Watch will be monitoring working conditions in the global electronics industry to enable socially responsible public purchasing in Europe. It will also provide long term monitoring and improvement of the conditions in monitored factories, in close partnership with organisations based in the countries of production and with an increased focus on the factories, areas and themes that most urgently require attention.

Electronic Watch is the result of a partnership between seven different European organisations, under the coordination of the NGO SETEM and funded by the European Commission.

2. Introduction

Over the past ten years, there has been a rise in attention to the sustainability issues that seem to abound in the global electronics industry: from the mining of minerals to production, from assembling to disposal, many phases in the life of an ICT product are risk areas in terms of basic working conditions and environmental degradation. The harsh conditions in which minerals destined to electronics equipment production are extracted and situations in which they are used to finance local conflicts, as well as suicides in Chinese ICT manufacturing plants, have all been headlining news reports.²

As the recent increase in attention to occupational illnesses in the manufacturing processes of ICT production shows, it is apparent that the industry has to overcome severe challenges if it wishes to live up to expectations of socially responsible production. While there has been more awareness and demand for sustainable ICT products from both consumers and public procurement, no initiatives have so far offered perspectives of structural change that could ensure the improvement of ICT workers' conditions.

Report structure

This report will engage with the challenges and the possibilities in ensuring socially sustainable ICT products, from the perspective of European public procurement, drawing upon cases from South Korea and China.

Among the challenges in the global electronics industry, the report will focus on occupational health and safety and freedom of association. The global issue of health and safety conditions in the industry is introduced in chapter 4, specifically focusing on chemical use in the manufacturing of printed circuit boards (PCBs) and semiconductors as they are known to be some of the most chemically intensive processes. This is thereafter illustrated by case stories from South Korea and China. Chapter 5 delves into the challenges to freedom of association in the global electronics industry, typified by a case from South Korea. A critical review of current social auditing schemes in chapter 6 will lead to a critical assessment of whether states at this moment can rest assured that millions of Euros worth of public procured ICT equipment can live up to declared ambitions of

public procurement promoting sustainable growth. This, as well as the potential of public procurement to act as driver for positive change, will be discussed in chapter 7. Finally, Electronics Watch is presented as a possible model for structural change.

Terms

ICT equipment

Information and communications technology. The electronics industry comprises audio, video and information technology. This report will focus on ICT equipment such as computers, servers and telephones, as these are the main electronic products purchased by most public procurers.

Semiconductors

Semiconductors are used in modern electronics, such as transistors, solar cells, light-emitting diodes (LEDs), quantum dots and digital and analog integrated circuits. A semiconductor works by having electrical conductivity between a conductor, for example copper, and an insulator, for example glass.

Printed circuit boards

A printed circuit board (PCB) supports and connects electronic components by using conductive tracks, pads and other features made from copper sheets that is laminated onto a non-conductive substrate.

Memory chips

A memory chip is an electronic device used for storing data. A RAM chip stores information temporarily while flash memory chips stores the data until erased.

3. Methodology

The following report has been researched and written in the summer of 2014. It is based on existing literature on the status of labour rights in the electronics industry and on the role of public procurement. New cases from field research in South Korea are used to illustrate the industry's general conditions of health and safety and freedom of association.

Desk research

The desk research is based on reports from Chinese, South Korean and international unions, labour right organisations and other kinds of civil society organisations as well as academic articles and reports. Sources include field research conducted by local and European organisations, providing first-hand accounts of working conditions, living conditions and corporate social auditing in the global electronics industry. Data from international databases was used to map developments of global investments and trade.

An effort was made to collect official data on public procurement of ICT in Europe, including national public procurement of ICT hardware from seven selected countries.

However, little official data exists on European procurement of ICT on an EU level and many European states do not have a comprehensive overview of their public spending on ICT. This is noted as contributing to a worrying lack of transparency.

Field research

DanWatch conducted field research for Electronics Watch in South Korea in May 2014. Qualitative interviews were conducted with local stakeholders: current and former ICT workers, NGOs, union representatives and ICT companies.

In two cases, workers who were currently employed declined to meet or be interviewed due to fear of repercussions, such as losing their job.

Pseudonyms have been used to protect the identity of two workers as they are currently employed by an electronics manufacturer or fear reprisals. In both cases, the identity and account of the workers have been verified by a third party. Their real name and workplace is known to the authors.

One interview in China has been conducted by the organisation SACOM on behalf of Electronics Watch.³

DanWatch requested permission to visit Samsung's semiconductor plants in South Korea, but was denied access.

Review

All companies mentioned in the following report were given the opportunity to review the findings before publication and to provide comments and corrections of factual errors.⁴ Samsung responded: a summary of the company's response can be found in the appendix. LG, Apple and Foxconn did not respond.

4. Occupational health and safety in the global electronics industry

The global electronics industry faces serious challenges when it comes to providing a safe and healthy work environment for its labourers. In terms of working conditions, there are many different challenges throughout the whole process of production, from the extraction of minerals to the disposal of the ICT product. In this report, however, the focus lies on the processes of production of components and the final assembly of end-products. Such processes are often tough, strenuous, repetitive and stretched over long hours, which can take a physical toll on workers. In other phases of the production process, workers are exposed to harsh fumes and contact with chemicals, which can have harmful long-term effects on their health. The health and safety issues in the industry are so serious that even the brands' own pre-announced inspections find alarming rates of health and safety breaches.⁵

Exhausting conditions in electronics production

Due to the electronics industry's high output demand and the pressure that brands apply on suppliers to get orders done in a limited timeframe, overtime is reported as a widespread issue: in reports on electronics manufacturing and assembly in China, for instance, workers reportedly endure 12-hour shifts, six or sometimes seven days a week during peak production periods.⁶

Factories are often running day and night in a constant hurry. Reports from China describe cycles of 12-hour night shift teams replacing 12-hour day shift teams, for periods of time on which the worker has no influence.⁷ Working long night shifts for extended periods of time - two months in a row or more - is exhausting and has a deteriorating effect on the workers' health.⁸ Reports describe long shifts that are spent in fixed positions,⁹ with some factories' policies preventing workers from sitting down.¹⁰ Such ergonomic difficulties can result in back pains, high blood pressure, dizziness and fainting, as described in a report on the electronics industry in Hungary.¹¹

With widespread reports of working weeks of up to 84 hours, both national labour laws and the International Labor Organization's (ILO) internationally accepted standards are easily exceeded.¹² Major ICT brands acknowledge excessive overtime as a recurring issue and a serious breach of own standards.¹³

Exhausting working conditions in the electronics industry in China

- Biggest exporter of ICT equipment worldwide.¹⁴
- Exported EUR 435.835.421.095 worth of electronic equipment in 2013.¹⁵
- Accounted for 80% of world production of ICT hardware in 2010.¹⁶
- 72,5% of revenue from ICT production in China is held by foreign investors.¹⁷

In China, civil society organisations such as China Labor Watch, China Labor Bulletin, Labor Action China and SACOM have documented exhausting and harsh working conditions:¹⁸

In the Chinese electronics industry, overtime is widespread. In large parts of the production and assembly, overtime is mandatory to keep production going night and day. Moreover, pay is often below living wage, which further forces workers to work overtime.¹⁹

Combined with long working hours and few breaks, the monotonous and repetitive tasks cause extreme exhaustion.²⁰ The organizations report on a harsh and militant management style within the industry, with penalty systems and high production quotas that put pressure on the workers.²¹ The majority of the production of electronics components and assembly of end-products in the Pearl River Delta and the greater Shanghai region, major Chinese manufacturing hubs, is taken on by migrant workers who travel great distances in search of jobs. Migrant workers mostly live in factory dormitories, and they spend almost all of their time in the factories and dormitories, where they are under constant corporate surveillance.²²

The working conditions in supply companies such as Foxconn create a pressure on the individual workers which can take a toll on mental health and has resulted in suicides.²³

Prone to accidents

Workers in the electronics industry are vulnerable if safety standards are not in place or if not given the proper training and safety equipment. Long hours and few breaks increase the likelihood of accidents as well.²⁴ NGOs report that electronics workers can suffer hand burns while soldering and are prone to cuts, electrical shocks and accidents with heavy machinery.²⁵

In 2013, a Samsung plant in South Korea had two hydrofluoric acid leaks over the course of three months which injured seven workers and left one dead.²⁶ At another Samsung plant, three died when a water tank burst in the same year.²⁷

In 2012, the *New York Times* reported on several instances of spontaneous combustion of fumes or particles, which resulted in explosions at Chinese Apple suppliers and caused several deaths and injuries.²⁸

It is argued that there is a considerable connection between lack of workplace unions and the lack of a safe work culture and therefore an increase in workplace injuries; conversely, increased unionisation is argued to limit the number of workplace injuries.²⁹ With a generally low union representation in the global electronics industry,³⁰ accidents are more likely to occur.

Workplace chemicals

The electronics industry uses a wide array of chemicals for different processes in production and cleaning. Just in semiconductor production, the process of making integrated circuits through photolithographic and chemical processes in highly specialised facilities, between 500 and 1000 different chemicals are used.³¹ Some of these chemicals are carcinogenic and lethal in large concentration doses.³²

Many processes in electronics production, such as soldering, doping, photolithography, electroplating, vapour deposition, etching and crystal polishing, involve harmful substances.³³ Even if they wear clean room suits, workers on the factory floors can still be exposed on a daily basis to chemicals, cleaning agents, dust, electromagnetic fields, chemical vapours and fumes as well as accidental releases of gas and other agents which can have a long-term harmful effect on their health.

In particular, the manufacturing and assembly of electronics components printed circuit boards (PCBs) and semiconductors are known to be some of the most chemically intensive processes, posing the greatest risk to the workers' health.³⁴ Cleaning agents used for PCBs have been linked to non-Hodgkin's lymphoma, leukaemia, kidney and liver cancers, male reproductive cancers and embryotoxicity.³⁵ In the semiconductor industry, carcinogenic chemicals, such as arsenic, are used as well as solvents including trichloroethylene, benzene, dichloromethane and heavy metals cadmium and lead.³⁶

Chemical exposure can result in damage such as long-term harms or acute poisonings which can have terminal effects over the course of a few years. Although there is a rapid development of new chemicals for industrial use, studies on the effects and dangers of workplace chemicals are lagging behind.³⁷ Despite the seriousness of the issue, studies and research into workplace chemicals and their effects on the workers' health are limited,³⁸ and WHO has called for further studies of the consequences of unsound chemical management in workplaces.³⁹

Use of dangerous chemicals outsourced

One of the dangerous chemicals used is benzene, a carcinogenic chemical used in paints, thinners, glues and cleaning agents. Benzene is known to cause leukaemia and aplastic anaemia, damaging red blood cells and the bone marrow with potentially lethal consequences.⁴⁰ Benzene has been recognised as a serious carcinogenic in the US and Europe and its industrial use is heavily restricted: however, NGOs claim that it is still unrestrictedly used in electronics manufacturing countries such as China, and studies in South Korea show use of benzene in ICT manufacturing plants.⁴¹

Damage to reproductive health

While there are only a few published independent studies investigating illnesses and diseases as a result of exposure to chemicals in electronics manufacturing, some studies nevertheless show connections between exposure to chemical agents in the manufacturing of semiconductors and damage to human reproduction and higher rates of miscarriages.⁴²

Concerns of damage to the reproductive system in relation to the semiconductor industry were first raised in cases of contaminated spills from semiconductor plants in the US that caused increased spontaneous abortions.⁴³ Subsequent studies have elaborated on the higher risk posed to the female workers' reproductive systems.⁴⁴

While some solvents, such as glycol ethers, are being phased out due to the risk they pose to the female reproductive system, a range of reprotoxins, substances that pose risks to the reproductive abilities, such as xylene, trichloroethylene and phenols are still used in the semiconductor industry.⁴⁵

Studies in the UK and the US show statistically significant increases of cancer cases in employees of semiconductor manufacturers; epidemiologic studies show an increased risk of non-Hodgkin's lymphoma, leukaemia, brain tumour and breast cancer in workers.⁴⁶ One study of IBM semiconductor production over a 30-year period showed an increase in cancer cases which caused workers to die at a younger age.⁴⁷

Organisations have reported workers being in physical contact with agents and chemicals causing rashes and skin irritation at assembly lines and welding stations in Chinese manufacturers.⁴⁸

In 2011, 137 employees of a Chinese electronics supplier were severely injured due to contact with the chemical n-Hexane, used for cleaning glass screens.⁴⁹ Having suffered chronic damage to their central nervous system, the workers were hospitalised for months.

Difficult to get work-related diagnosis

Beyond the limited scientific studies on the causal relationship between workplace conditions and illnesses, it is difficult for workers to get diagnosed with work-related illnesses.⁵⁰ Unlike work-related accidents, the symptoms of the illness will present over a long time span, making it difficult to pinpoint the specific time and place where the cause of health deterioration was encountered. Workers might not themselves think of a relation to working conditions when contracting an illness, and if they do, they have limited ways of establishing proof. The burden of proof is with the worker, and doctors often do not have the ability or the means to establish grounds for producing a work-related diagnosis: doctors may lack specialised knowledge and cannot assess the workplace conditions to determine whether they have had implications for contracted diseases.⁵¹ When workers cannot produce official documentation, it is difficult for them to obtain compensation.⁵²

Limited regulation

International regulation on chemical use in electronics manufacturing is very limited and it is mainly focused on the chemical content in the later stages, such as at consumer level and during disposal.⁵³

In 2006, a European directive on Restriction of Hazardous Substances Directive (RoHS),⁵⁴ aimed at restricting six chemicals in consumer electronics, came into force. The main focus of the directive, however, is on the levels of chemicals in the end product that reaches the consumer. While the directive is reducing pollution and health damages in countries where ICT is disposed of, it does not deal with the production stage and the protection of workers in ICT manufacturing.



Lack of workplace regulation lead to n-Hexane poisoning

Xiao Wang, 21, Shenzhen, China

By July 2014, Xiao Wang had been hospitalised in the Hospital of Occupational Disease Prevention and Cure in Shenzhen for 10 months, diagnosed with n-Hexane poisoning. He had been working at a small workshop of only 16 workers since March 2013, making iPhone replacement screens.

Xiao Wang's job was to use n-Hexane to wipe both surfaces of the screen for adhesion with the touch panel. Workers were provided with facial masks, dust-free clothes and antistatic gloves - for the sake of product quality, he says. At that time, he did not know the name of the chemical he used. "Everyone called it 'white gasoline'". The doctor told him about n-Hexane when he was admitted to the hospital a few months later.

In September 2013, Xiao Wang began to have trouble walking. "Numbness extended from my finger tips, my toes slowly to my shoulders and thighs. It was like my feet were not answering to my brain". He was later admitted to the township hospital for examination but the doctor did not know what the problem was. His family then sent him back to

Shenzhen and through an electromyography examination, he was diagnosed as poisoned by n-Hexane. Xiao Wang was not the only victim. Out of 16 people in the workshop, there were five poisoned workers; one of them was a pregnant woman, who later miscarried due to the poisoning. Since Xiao Wang did not sign a work contract nor had any salary payment proof by the workshop, the Labour Law cannot protect him. And since he is not enrolled in the social security programme, he has to pay all medical expenses for himself.

4a. South Korea: electronics workers struggle to have occupational diseases recognised

Electronics industry in South Korea

South Korea is a high-tech giant:⁵⁵

- In 2012, the electronics industry accounted for 17% percent of all South Korean exports.⁵⁶
- Besides producing high-tech electronic devices such as smartphones and tablets, South Korean companies also supply other ICT brands, including Dell⁵⁷ and Apple, with a number of components (Apple gets components from 33 South Korean factories, mainly owned by Samsung and LG).⁵⁸
- South Korea is the world's second largest semiconductor manufacturing country (16,2% of market share).⁵⁹
- South Korea is the world's largest supplier of memory chips (52,4% of market share).⁶⁰

Two young South Korean female workers who had worked side by side in a Samsung semiconductor plant died in 2006 and 2007 from an aggressive form of leukaemia, thus locally drawing attention to leukaemia in connection with employment in Samsung's factories.⁶¹ Since then, labour rights activists and victims of occupational diseases have formed the grassroots organisation Supporters for the Health And Rights of People in the Semiconductor Industry (SHARPS), which collects cases on occupational diseases.⁶²

The records that SHARPS keeps are the only collection of cases of what appear to be occupational diseases and deaths in the South Korean electronics industry and they therefore only offer a fragmented impression of the extent of the issue. The South Korean semiconductor industry is one of the largest in the world, housing the largest semiconductor manufacturing company, Samsung.⁶³ The workers contracting diseases have mainly worked in so-called 'clean rooms' and many have been employed at Samsung's semiconductor plants in the Gi-heung Factory.⁶⁴

SHARPS: Victims of occupational illness in South Korea⁶⁵

- SHARPS has listed 289 South Korean workers in the semiconductor industry who were diagnosed with various forms of leukaemia, multiple sclerosis and aplastic anaemia.
- 233 of the cancer patients were employed at South Korean Samsung subsidiaries, while the other 56 worked at other electronics manufacturers.
- 119 have died.
- 98 of the workers who died have been employed at Samsung subsidiaries.

Samsung has consistently maintained that it complies with safety and health standards and that there is no connection between working conditions at the plants and illnesses contracted.⁶⁶ At the same time, medical reviews observed excess risk of different types of cancers in the global semiconductor industry.⁶⁷ Only 3 in 100.000 people die from leukaemia in South Korea.⁶⁸ In 2011, The Korean government conducted a study of workers in the South Korean semiconductor industry in the period 1998-2008, which found no significant increase of leukaemia.⁶⁹ The study was later criticized for its limitations, among them time period and target group, in an independent medical review.⁷⁰

In 2012, academics from South Korean universities conducted a review of the cases compiled by SHARPS, investigating the occurrence of illness. While the review could not conclusively prove a causal relationship between employment at Samsung and occupational diseases, it showed significant patterns, such as diagnoses at young ages and short latency periods.⁷¹ The cases compiled by SHARPS are characterised by victims as young as 20 falling ill after having worked at one of Samsung's factories or subsidiaries.⁷² The cases report different types of cancer with a predominance of leukaemia and lymphoma, but there are also cases of multiple sclerosis, multiple neuritis, Lou Gehrig's disease and infertility.⁷³

According to Richard Clapp, a Boston University professor emeritus of environmental health and epidemiologist who conducted an epidemiological study of cancer and death rates among American IBM workers between 1969 and 2001, the patterns of excess fatalities due to leukaemia and non-Hodgkin lymphoma in South Korea today are similar to the findings of the IBM study.⁷⁴

SHARPS posits that the real number of victims of occupational diseases contracted at Samsung-owned factories is underestimated: many workers might never find out the cause of their illness or want to step forward and risk conflict with Samsung.⁷⁵

Safety at Samsung plants questioned

In 2010, Seoul National University conducted an epidemiological survey on behalf of Korea Occupational Safety and Health Agency on six semiconductor plants owned by three companies.⁷⁶ The parts of the report regarding Samsung

was leaked to South Korean civil society organisations,⁷⁷ who published a review of the findings.

The review found:⁷⁸

- carcinogenic benzene in all of the worksites.
- 99 chemicals used at one of the sites that were never identified by Samsung, demonstrating “insufficient chemical control of the company”.
- “cases of highly toxic chemical exposure”.

In 2011, Samsung published a commissioned report by consulting company Environ Global, stating: “Samsung’s current industrial hygiene monitoring regime is accurately assessing the exposure potential of the workplace.”⁷⁹ From the report, Samsung concluded: “There is no link between the semiconductor production line work environment and the occurrence of occupational cancers.”⁸⁰ According to Samsung, the company does not use benzene in its semiconductor manufacturing, and subsequently commissioned an internationally certified test lab to re-examine the sample which then did not show traces of benzene.⁸¹



Cancer and involuntary abortion after 15 years in the semiconductor industry

MiYeon Kim, 35, South Korea,⁸²

“I have worked in the semiconductor industry for 15 years and two months: I worked in Samsung, specifically in the last production process called the test process. When I was still working, I experienced headaches and menstrual pains and had trouble getting pregnant. Eventually, I did, but it turned out to be a pregnancy-related tumour, so I had to undergo surgery and have an abortion.

The company only gave me five days sick leave after my illness and abortion, so I had to resign. Nine days

after my resignation I found out that I had another malignant tumour, so I had to undergo cancer treatment again. I am now under observation; I was told in February 2014 that I could try and get pregnant again and I am preparing myself for that.

My doctor told me that the disease I contracted while I worked in the semiconductor industry could be related to the working conditions, but he was reluctant to say there was a direct correlation.”

Victims fighting for recognition and compensation

In South Korea, compensation for occupational diseases or accidents is handled by the Korea Workers' Compensation & Welfare Services (KWCWS). KWCWS has never accepted ICT workers' diseases and deaths as occupational in absence of scientific evidence determining direct causality. Many have appealed the decisions to the Seoul High Court, with only one family of the cancer victims achieving formal recognition as victim of occupational cancers for their relative so far.

A Seoul administrative court ruling in 2011 overturned a KWCWS verdict, denying the families of two deceased workers compensation and recognition as victims of work-related illnesses.⁸³ Though scientific research was not available, the court ruled that "It is fit to say there is a link between their leukaemia and their careers."⁸⁴ Following this instance, the court denied similar requests to overturn KWCWS rulings. In September 2014, KWCWS accepted the court's decision regarding one diseased worker, thus granting the first electronics worker in South Korea compensation for a work-related illness.⁸⁵

Samsung's first move in addressing occupational diseases

In May 2014, Samsung issued a statement apologising to the victims and families of "what is suspected to be industrial accidents", promising compensation.⁸⁶ Samsung also promised to stop interfering with victims' cases against the KWCWS. SHARPS welcomed the statement, but noted that it fell short of acknowledging any direct link between workplace conditions and occupational illnesses.⁸⁷

According to Samsung, an undisclosed number of former semiconductor workers with cancer-related illnesses have received assistance from a health support program funded by Samsung since 2011.⁸⁸

Major electronics brands in South Korea

South Korean conglomerate Samsung own the country's leading electronics brand, Samsung Electronics. LG, also a conglomerate, owns the other major electronics brand in South Korea, LG Electronics.

Samsung

- Samsung Group consists of 78 of companies working within electronics manufacturing, shipbuilding, heavy construction, life insurance and more.
- Samsung's electronics manufacturing companies account for approximately 40% of its total value.⁸⁹
- It counts 270.000 workers in South Korea.⁹⁰

Continues..

- Nearly 24% of South Korea's GDP comes from the revenue of Samsung Group.⁹¹
- Profit in 2012: 20,3 billion Euro, globally.⁹²
- Samsung is the world's largest producer of semiconductors, mobile phones and TVs.⁹³

LG

- 4th largest company in South Korea.⁹⁴
- Owns 26 subsidiaries in South Korea, five of which are producing electronics.⁹⁵
- It counts 131.400 workers in South Korea.⁹⁶
- 8.311 workers, or 23% of LG's workforce in South Korea, are represented by unions.⁹⁷
- Profit in 2012: 293,9 million Euro, globally.
- Has stepped up its involvement in the semiconductor industry.⁹⁸

5. Unions and freedom of association in the global electronics industry

Freedom of association and the right to collective bargaining make it possible to promote and develop fair working conditions, also enabling employers and employees to work together and achieve beneficial and productive solutions. They are, therefore, often deemed to be the most vital of all labour rights.⁹⁹ However, in the global electronics industry, the degree of union representation is generally very low and corporate resistance to unionisation is widespread.¹⁰⁰ There are several incidents of workers losing their jobs and being put on an employment blacklist for attempting to organise, or who are told not to join a union or engage in any union activity.¹⁰¹ According to SOMO, an NGO with extensive experience with labour rights in the industry, workers in the global electronics industry are often denied the right to associate freely and bargain collectively. The workers are usually not allowed to elect their own representatives, nor are they able to communicate, let alone negotiate, with management. In absence of these rights, it is almost impossible for workers to improve their working conditions.¹⁰²

It is estimated that worldwide, only a handful of contract manufacturing plants that manufacture products on behalf of brands such as Foxconn have any union presence.¹⁰³ When electronics manufacturing went through a period of massive growth in the 1990s, unions were not able to organise the hundreds of thousands of new electronics workers; this means that today they are not in a position on which to build further organising efforts.¹⁰⁴

What is freedom of association?

Freedom of association is the fundamental principle of the ILO. It denotes the right of workers and employers to freely form or join organisations that promote and defend their interests, without interference from one another or the state. This right should be guaranteed by the state, regardless of occupation, sex, colour, race, creed, nationality or political opinion.¹⁰⁵

What is collective bargaining?

Collective bargaining is a voluntary process through which employers (or their organisations) and trade unions (or workers' representatives) discuss and negotiate their relations and workplace interaction, including pay and other terms and conditions of work. This process of bargaining aims to reach mutually acceptable collective agreements.¹⁰⁶

Barriers to unionisation in the global electronics industry

According to the ILO, workers in export processing zones as well as women, migrant and domestic workers face particular challenges in terms of freedom of association and collective bargaining.¹⁰⁷ As electronics manufacturing is increasingly located in export processing zones and the work is increasingly being performed by women, migrant and domestic workers, the challenges to unionisation in the global electronics industry are numerous.¹⁰⁸ Migrants and domestic workers may be afraid of joining unions and may not be aware of their rights. Traditionally, electronics manufacturing has been performed by men. Organising women does, therefore, pose a challenge to metal unions which used to cater mainly to a male membership.¹⁰⁹

Another obstacle to electronic workers exercising these rights includes the widespread use of precarious temporary and agency contracts.¹¹⁰ The electronics industry is one of the industries with the most precarious workforce.¹¹¹ Temporary workers have no guarantee of remaining in the workplace for an extended period and agency workers have an indirect employment relationship with the company that they work for. Therefore, these workers often fear losing their current or future employment. Unions claim that precarious employment practices are introduced precisely to prevent workers from unionising.¹¹² Moreover, workers who openly join a union or attend union activities are frequently being discriminated, dismissed, harassed, intimidated or retaliated against.¹¹³

The role of governments

Another obstacle to freedom of association is that the governments of some of the new manufacturing countries, such as Vietnam and India, often fail to enforce labour laws, either through lack of resources or from an assumption that a no-union policy will attract more foreign investment.¹¹⁴ States may see the protection of trade union rights as constraining their economic interests. They are, therefore, balancing the responsibilities of attracting FDI and protecting their citizens' rights, and may not promote freedom of association rights if they do not see it as beneficial to their own interests.¹¹⁵

According to the International Labor Organization (ILO), organising is a right of all workers and employers, with no exceptions.¹¹⁶ The freedoms to associate and to bargain collectively are mostly accepted internationally as fundamental rights and are rooted in the ILO Constitution and the Declaration of Philadelphia annexed to the ILO Constitution;¹¹⁷ freedom of association is recognised in the Universal Declaration of Human Rights.¹¹⁸

ILO Conventions No. 87, 'Freedom of Association and Protection of the Right to Organise' and 98, 'Right to Organise and Collective Bargaining', are central to establishing freedom of association. Both ILO conventions have low ratification rates compared to the other core conventions, but even when not ratified, all ILO member countries are bound to implement these rights, as they are a binding part of the ILO Constitution.¹¹⁹ The table below shows that the ratification rate is generally very low for key electronics manufacturing countries.

Ratification of Convention No. 87 and 98 for key electronics manufacturing countries

	Ratification of Convention No. 98: Right to Organise and Collective Bargaining Convention	Ratification of Convention No. 87: Freedom of Association and Protection of the Right to Organise Convention	ILO Member Country
Vietnam	—	—	✓
China	—	—	✓
Indonesia	+ (1957)	+ (1998)	✓
India	—	—	✓
South Korea	—	—	✓
Malaysia	+ (1961)	—	✓
Philippines	+ (1953)	+ (1953)	✓
Thailand	—	—	✓
USA	—	—	✓
Singapore	+ (1965)	—	✓

Source: ILO. Ratification of Convention No. 87 and 98 for key electronic manufacturing countries.¹²⁰

The role of companies

Brands and contract manufacturers are responsible for making sure that workers in their company and subsidiaries as well as those working for their suppliers can exercise their right to association and to collective bargaining. Multinational companies (MNCs) are also responsible for implementing at least the minimum labour and environmental standards throughout the entire supply chain, as internationally accepted, for example, in the UN Guiding Principles.¹²¹ This includes upholding freedom of association and the right to collective bargaining.¹²² In spite of this, the right to freedom of association is often not recognised by MNCs. There are numerous ways in which employers might interfere with these rights, including discrimination and the use of precarious employment.¹²³

Typical violations of freedom of association in the global electronics industry:¹²⁴

- ‘Paper’ unions. While companies might allow a union, it will be formed by members catering to the company’s interest and will do little for the workers. In situations where a single union per workplace is allowed, the company will make sure to establish a union before workers form one.
- Export processing zones (EPZs). States that have EPZs often prevent unions from organising in EPZs in the effort of attracting companies.
- Access. Employers may try to prevent unions from communicating with the workers and vice versa.
- Interference with union activity. Companies may seek to influence union activities to misrepresent the interests of its members.
- Repression. Union representatives may be subjected to discrimination, intimidation and even violence or murder.
- Refusal to recognise and bargain. Companies may deny recognising or bargaining with unions.
- Denial of information. To hinder a proper bargaining process, the company may keep relevant information secret from union representatives.
- Threats. Companies can use threats of, for example, firing or transfer to undermine the workers’ bargaining position.

5a. Electronics manufacturing in South Korea: an industry stripped of unions

South Korea provides an interesting example of the challenges of unionising in the electronics industry. The country generally has a more open framework for unionising than other electronics producing countries in Asia, and this despite the fact that its electronics industry has a history of practically zero tolerance to unionising.¹²⁵ Unlike other electronics manufacturing countries such as China, South Korea does allow for multiple and independent unions.¹²⁶ Nonetheless, it still has room for improvement in terms of granting basic labour rights to citizens: it has neither ratified the ILO Convention No. 87, ‘Freedom of Association and Protection of the Right to Organise’, nor Convention No. 98, ‘Right to Organise and Collective Bargaining’.¹²⁷ According to International and South Korean unions, the South Korean labour laws do not live up to international core labour rights and are calling for ratifications of conventions on rights to organise and forced labour.¹²⁸ Additionally, the right to strike is limited.¹²⁹

Abysmal degree of unionisation in South Korea's electronics industry

In South Korea, 90% of the electronics companies are made up of small and medium companies, most of which are suppliers to Samsung or LG.¹³⁰ LG has an independent union, the LG Electronics Union, affiliated to the Federation of Korean Trade Unions (FKTU), one of South Korea's two national union federations.

In 2011, a total 3,5% of the workers in the South Korean electronics industry are represented by a union; the LG Electronics Union accounts for 2%,¹³¹ and less than 1% of the electronics workers in Samsung are represented by a union.¹³²

According to both unions and NGOs, Samsung has an active no-union policy throughout its supply chain¹³³ and declares that it strives to create working conditions "so that employees do not feel the need for a labour union."¹³⁴ As Samsung is the largest electronics manufacturer and employer in South Korea, its position on unionising is the primary reason for the almost non-existing degree of union membership in the South Korean electronics industry. This policy affects not only the efforts to unionise in Samsung's own factories, but also in its suppliers.¹³⁵ The lack of ability to organise has negative consequences for workers in Samsung's supply chain, which makes up 70% of the South Korean electronics industry:¹³⁶ workers are financially pressed, have insecure positions and are subject to extensive scrutiny.¹³⁷ Workers at these subcontractors earn less than half of what Samsung employees make on a monthly basis.¹³⁸

Union membership in the South Korean electronics industry¹³⁹

- Total workers in electronics industry: 430.000
- Union membership: 15.000
- Union presence: 3,5%
- Union membership at Samsung Electronics suppliers: 300
- Union membership at LG: 8.311¹⁴⁰

Samsung's no-union policy

According to interviews with current and former workers at Samsung who had been trying to unionize, Samsung has a system in place to closely monitor workers' activities on a day-to-day basis in the factories, and the company is extremely alert to efforts to organise.¹⁴¹ According to South Korean unionists and workers and Hong Kong-based NGO Asian Monitor Resource Centre, Samsung has used a range of different tactics to deter attempts to unionise, including dispatching workers to other factories, firings, phone tapping and issuing threats to workers and their families.¹⁴²



Anti-union attitude making unionising almost impossible

Sang Su Kim, 55, working at an undisclosed Samsung Electronics plant in South Korea¹⁴³

"I have been working in IT production units in Samsung since 1987. I have been involved in different efforts to try and unionise. Our last attempt was in the period from 2011 to 2013. Because of Samsung's no-union policy, they have a special division designated to prevent these from forming. Once they have gathered information about this kind of movement and labourers meeting, they will try to prevent it.

When they find out that you want to organise in a union, usually you will first be approached by a workplace colleague, then by the direct superior, who will call you to meetings. Then the HR office will intervene and try to make you give up on organising by offering a promotion or a transfer to an easier job. Because of my pride, I rejected these offers.

It is a kind of harassment. They will continue to call you to more and more meetings with different levels of management if you don't quit your efforts to organise. They will tell you constantly that you shouldn't meet with outsiders. This went on for a period of almost a year.

Once we set a date for a workers' meeting, they would try to prevent people from attending it by persuasion or by having management staff waiting outside your house to try and hinder you from going; they would try to delay you by talking or even physically blocking you. I have been shadowed by someone assigned by the company to monitor me.

On the day we wanted to formally inaugurate the labour union, a colleague from work was standing outside my house to prevent me from going. He stalled me for 30 minutes. Eventually the meeting did not take place and the union wasn't formed."¹⁴⁴

Samsung workers are well paid compared to other electronics manufacturers in South Korea, and according to Asian labour rights organisation, AMRC, Samsung's no-union policy is benefitting its direct employees to the detriment of its subcontractors: Samsung is paying its direct employees rather high wages, while anti-union policies along the supply chain reduce workers' efforts to increase wages at subcontractor levels.¹⁴⁵ Besides Samsung and LG, the rest of South Korea's electronics industry is composed by small and medium companies, almost all acting as subcontractors to the two giants. If we compare this to, for example, the South Korean automotive industry, which has a more positive attitude towards unions and therefore a high percentage of union membership, it is clear that the consequences of no-union policies include dras-

tically reduced wages in first and second tiers of suppliers.¹⁴⁶ Lack of unions and insecure employment go hand in hand at Samsung: according to the Ministry of Employment and Labour more than 8.000 workers, or 12% of Samsung Electronics' workforce, were subcontracted through in-house labour agencies in 2010, a practice that is illegal in South Korea.¹⁴⁷ Running in-house labour agencies is a way to keep workers on temporary contracts, though the arrangement is to all purposes more permanent. This increases the company's flexibility and reduces its responsibilities to the worker at the expense of workers' rights and job security.

Court cases in South Korea have established the illegality of the practice in some cases; however, Samsung states that its use of in-house subcontracting complies with labour law.¹⁴⁸

“S Group Worker Management Manual”¹⁴⁹

DanWatch has obtained a copy of a manual that was allegedly found by a worker at a Samsung production plant, dated 2012.

The manual is directed at leadership regarding unionising efforts and ‘problematic labour force management’.

It describes practices of ‘reinforcement of early disintegration and the dissolution of unionization movement’ by employment of ‘the union-response strategy and tactics’.

It also speaks of ‘containing’ and ‘actively countering’ efforts to form unions; union forming is described as a problem and workers wishing to unionise as problematic. The manual offers concrete strategies to prevent unionisation and describes how selected staff should be trained to counter unionising efforts, by for examples monitoring and reporting them and tearing down posters or flyers.

Other strategies are described as:

- ‘Stopping advancement/promotion, and continuing to reduce the number of problematic labourers’.
- ‘Profiling and information gathering on the core problematic labourers’.
- ‘Low ranking performance rating of problematic workers’.
- ‘Relocation’ of ‘problematic workers’.
- ‘Use of promotion on problematic workers to turn them into allies’.

The manual mentions Samsung and its specific branches by name and contains detailed information about unionising efforts in its companies.

Samsung has denied being the author and states that local authorities have been presented with the manual and are investigating its contents.¹⁵⁰

Samsung's first real union: a glimpse of change?

Workers in Samsung companies have been trying to establish unions for decades, without success, but made a small breakthrough in 2011. One of the difficulties reported was that the South Korean labour law only recognised one union at each site, a law which recently was changed to allow multiple unions.¹⁵¹ The law change made the first independent Samsung union possible in 2011; this was established in Samsung theme park Everland.¹⁵² In 2013, the Samsung union became affiliated with the Korean Metal Workers Union, which holds significant legitimacy due to its membership of the Federation of Korean Trade Unions.¹⁵³

Subsequently, the first independent union at a Samsung company producing electronics was established at the company Samsung SDI. It was created in 2014 and currently only comprises 12 workers out of more than 127.000 workers employed in Samsung's electronics manufacturing companies, illustrating the modest progress.¹⁵⁴

6. Insufficient systems for ensuring supplier compliance

The global economy and manufacturing are largely unregulated fields, with no supranational legal framework to ensure socially responsible global production. States carry the main responsibility for protecting their citizens' rights, meaning that workers are left with little protection in authoritarian states like China and states with weak enforcement of labour standards, such as health and safety and rights to organise. MNCs as well as electronics brands are left to voluntary self-regulation, which makes it their own responsibility to ensure that suppliers in often long and complex value chains live up to the corporations' own policies. This has created a market for external social auditing: in the current regime of voluntary CSR, private social auditing firms have become a booming industry, where schemes and services are offered to audit compliance in value chains.¹⁵⁵ However, critics argue that private social auditing firms lack accountability, independence, transparency and credible practices, thus simply having limited potential for improving labour conditions on the ground.¹⁵⁶

From fast to fraudulent

Currently existing social auditing firms face some of the same challenges as MNCs: social auditing firms also have long and complex value chains where accountability and responsibility can be lost along the way. Large social auditing firms also tend to hire other companies to conduct inspections and audits of factories, which, according to unions and civil society organisations, further reduces transparency and accountability.¹⁵⁷ In tight competition with other firms, subcontracting auditors too are pressed to deliver, making inspections fast and superficial.¹⁵⁸

One major point of criticism of the typical procedure adopted by audit firms is that inspections are announced beforehand. By announcing inspections, factory managers have the possibility to prepare for them, and often do so. Factory managers prepare workers and working environments for planned inspections to make a good impression. Civil society organisations and journalists report of factory managers fabricating payslips and other types of documentation, briefing workers on what to say and hiding underage or temporary workers.¹⁵⁹ Occasional bribery of inspectors has been reported in China.¹⁶⁰

Furthermore, there have been reports about instances of 'model factories' and 'hidden' subcontractors. According to Clean Clothes Campaign, buyers and auditors in the garment industry have in these instances been presented 'model factories', while the production is outsourced to subcontractors with worse labour standards.¹⁶¹ While audits sometimes include interviews with workers, the results may not be useful. Interviews with workers are often fast and superficial, and the interviewees selected by management to give satisfactory answers. Furthermore, the setting of social audits seldom creates an atmosphere where workers feel comfortable sharing serious concerns, as the auditor will have no way to earn the trust of the worker in the limited time available.

Auditors rarely invite statements or input from local stakeholders and initiatives that represent the workers.¹⁶²

Lack of transparency

Private audit firms are not obligated to disclose their findings to the public or the state, even if these are alarming. Consequently, it is difficult to assess what is actually done when serious conditions are found. It is also impossible for other entities, such as civil society organisations, to estimate the real impact of social audit schemes.¹⁶³ Hence, little evaluation of the positive impact of social auditing is available, despite the fact that this practice has existed for decades.¹⁶⁴

Conflict of interest

Critics in civil society organisations argue that the major social auditing firms lack independence, having an inherent conflict of interest because of being financially dependent on the companies they are auditing and generally retaining a strong corporate background.¹⁶⁵ Many of the major auditing firms are framed as multi-stakeholder initiatives that include civil society organisations and union representation besides companies in their governance, but in reality they often have weak worker representation.¹⁶⁶

Local unions claim that there have been instances of social audit firms siding with employers to counter efforts to unionise or omitting to mention labour rights, including freedom of association, in training materials.¹⁶⁷

Some critics argue that even in the case of well-functioning and non-fraudulent auditing there are still some basic labour issues such as wage levels, discrimination, working hours, right to collective bargaining and freedom of association that social auditing simply cannot improve because of the inadequate design of the current audit systems.¹⁶⁸

FLA audits of Chinese Apple suppliers under criticism

In the wake of the suicides and media attention to working conditions that followed at Chinese Apple suppliers, Apple decided in 2012 to commission audits from Fair Labor Association (FLA).¹⁶⁹ FLA is a multi-stakeholder initiative which performs audits based on a FLA code of conduct.¹⁷⁰ While FLA audits are more transparent than Apple's own, FLA has received criticism from unions and civil society organisations for not enforcing Apple's promises of supplier reform, which has been described as 'dubious' and almost non-existing.¹⁷¹ The organisations pointed to reports by news media and civil society organisations that documented questionable conditions at Foxconn factories before and after the audits¹⁷² and claimed that multi-stakeholder initiatives such as FLA can function at best as transitional structures until workers can claim 'real' rights and structural reform.¹⁷³

7. European procurement of unethical ICT: can practice live up to policy?

ICT consumption is tremendous. Computers and communications systems are being used up and replaced at a fast pace all over the world. Analysts expect 278 million PCs to be shipped in 2014 for private and public consumption globally;¹⁷⁴ PC shipments to Western Europe alone amounted to 49,8 million units in 2013.¹⁷⁵

European efforts to increase sustainable procurement

Most European states acknowledge the significant footprint of public procurement and therefore have policies for green and socially sustainable procurement. Such policies have the aim of ensuring that the taxpayers' money is used on public spending which does no harm to the environment and does not violate workers' rights in the global supply chain.¹⁷⁶ According to the European Commission, "public procurement is a key part of the Europe 2020 strategy for smart, sustainable and inclusive growth."¹⁷⁷

Both the European states and the European Commission are markedly ambitious when it comes to sustainable procurement: in 2008, the European Commission decided on a target of 50% green public procurement (GPP) for member states to be reached by 2010.¹⁷⁸ A majority of European states have established national action plans to implement green procurement policies,¹⁷⁹ and ICT products are reported to be prioritised in GPP and procurement innovation areas.¹⁸⁰

Increasingly, public procurement is being seen as an important lever which should be used to influence an improvement of social and environmental conditions. Environmental impact and energy saving have been recognised as relevant from the outset and currently remain the largest focus of sustainable procurement issues. However, there is a growing trend of incorporating social aspects into sustainable procurement policies. Socially

responsible public procurement (SRPP) is increasingly important to the public sector in Europe:¹⁸¹ SRPP includes concerns on the social impact of the production, such as working conditions. The majority of European states are in some way engaged in SRPP.¹⁸²

Can a socially sustainable ICT footprint be achieved?

While the European states have sincere intentions and policies for their ICT procurement to be socially sustainable, they are restricted by the structure of the electronics industry. Due to extensive competition on prices in the electronics industry,¹⁸³ the industry is riddled with labour rights violations, as illustrated in chapters 4 and 5. Company audits, academic literature and civil society organisations all suggest that labour rights violations are not specific to single brands, but rather characterise the electronics industry as a whole. This is due to the fact that the value chains of electronics brands are often intertwined with one another, and that all brands are part of an extremely competitive market with high demands in regards to production flexibility and prices. While electronics brands also have policies for socially responsible production, a significant amount of international research shows that in the global electronics production, practice simply does not match policy.¹⁸⁴

As shown in chapter 6, the measures adopted by brands to ensure that factories and contracted suppliers maintain working conditions which live up to their policies are currently insufficient.

Many public buyers have been reported to back up the perspective that the companies' own declarations and systems of compliance are not currently reliable, and procurement experts have expressed a need for improved monitoring systems.¹⁸⁵

No brand is able to claim to have socially sustainable working conditions throughout the value chain, and public buyers are therefore left with little guarantee that any ICT equipment being procured live up to social responsibility standards.

This poses a serious challenge to public buyers who want to ensure a sustainable impact and minimise risks to their image.

Public procurement's potential to change the industry

Currently, public procurers are struggling to monitor compliance effectively. Public spending, however, wields enormous purchasing power in comparison with other consumer groups. This makes public procurers a potential driver of structural improvement in the global electronics industry.

European public procurement represents large volumes of public spending each year. The public procurement of ICT of European states amounted to 94 billion Euro in 2007;¹⁸⁶ European public procurers do have an enormous purchasing power. As public procurers are large purchasers per definition, the brand from whom the public procurers are purchasing will be more likely to comply with their requirements. This is because the brand will fear losing large purchasers, which would result in profit loss.

“We believe that procurement can be a very compelling instrument of social change. We want to get the very best value for money for our members, not just in IT but in the whole range of commodities and services. We know our own power and we know how to wield it to good effect. But it also means that we can use that power to further our members’ values, values that we all share.”

*- London Universities Purchasing Consortium
about its potential to influence change¹⁸⁷*

As a purchaser’s size is crucial to its buying power, public purchasers can enlarge their buying power by joining forces. This way, public procurers can make use of the full extent of their buying power, truly creating significant leverage to influence structural improvement in the industry. This is substantiated by a study on the strategic use of public procurement in Europe showing that brands confirm the potential leverage effect of public demand. The study also indicates that this possibility for leverage is currently not being used enough.¹⁸⁸

The public procurers’ large buying power makes them a highly influential group of bodies, who can contribute significantly to the establishment of sustainable production and consumption.¹⁸⁹ Therefore, public procurers do have the potential to influence the market in terms of production and consumption trends in favour of environmentally friendly, socially responsible and innovative products.¹⁹⁰

Environmentally and socially innovative development and production will be encouraged if the public sector takes further social and environmental issues into account when purchasing.¹⁹¹ Eventually, this can help drive markets in the direction of innovation and sustainability.¹⁹²

According to IT brand HP, public procurement is already among the highest ranking drivers for improved supply chain management.¹⁹³

8. Electronics Watch: enabling socially responsible public procurement

Currently, poverty and human rights abuses are recurring issues in the electronics industry. Serious challenges have been identified when it comes to providing a safe and healthy work environment and securing the right to unionisation. Existing approaches to improving conditions in the industry are lacking evidence of success.¹⁹⁴

Public procurers have an enormous purchasing power; because of this, they have the potential to drive the development of sustainable production and consumption.¹⁹⁵ Moreover, as public procurement is spending taxpayers’ money, the public spending apparatus should be accountable to citizens. Therefore, the responsibility of public procurement goes beyond complying to own policies, as it also should ensure that the spending complies

with the ethical concerns of the public mandate.¹⁹⁶ At the moment, however, there is no comprehensive and independent monitoring system for the electronics industry involving workers and local civil society organisations. As a newly established initiative, Electronics Watch monitors working conditions in the global electronics industry to enable socially responsible public procurement in Europe. Hence, Electronics Watch provides the missing link in public sector policy on socially responsible procurement.¹⁹⁷

An independent organisation monitoring for public buyers

Electronics Watch operates on an affiliation basis, therefore implying an organisational commitment to socially responsible public procurement. Far too often, social audits include problematic elements such as planned inspections.¹⁹⁸ Moreover, the resulting reports are property of the companies, which are not obligated to remedy eventual violations. The Electronics Watch approach avoids these pitfalls by working for the public buyer rather than the brand. Electronics Watch provides its affiliated public sector buyers with up-to-date information about their suppliers, monitoring of local working conditions and structured ways of responding to detected non-compliances. Electronics Watch will provide long term monitoring and improvement of the conditions in monitored factories, in close partnership with organisations based in production countries and with an increased focus on the factories, areas, and themes that most urgently require attention.

These organisations will coordinate surveys, monitoring, investigations, and improvements in factories producing goods for public sector affiliates. As the organisations are based in the regions of electronics production, the public buyers are ensured the best locally based and responsive knowledge of working conditions. Thus, the Electronics Watch model differs from traditional social auditing in that it will not perform superficial one-time spot checks.¹⁹⁹

Helping organisations in the public sector to meet their own policy goals

Electronics Watch will deliver different services to its affiliated public buyers, including country profiles of manufacturing countries, thematic research, accounts of factory surveys and investigative reports. This will enable the affiliated public buyers to become more informed and efficient in meeting their own policy goals for socially responsible public procurement of ICT. Furthermore, Electronics Watch will undertake new research into the ever-evolving nuances of the electronics industry and public procurement, conducting investigations of working conditions in factories around the globe, researching the latest advancements in supply chain traceability, and providing training. The information will be made accessible to the affiliated public buyers through a Europe-wide database, collating information on distributors, brands, and factories.²⁰⁰ Electronics Watch is closely following the tried and tested model of the Worker Rights Consortium for the garments sector in the US, which combines the procurement leverage of its members to incentivise sustainable and fair supply chains by demanding that their suppliers meet international labour rights standards.²⁰¹

Electronics Watch: a game changer

Public procurement has increasingly been identified as a means to push environmentally and socially sustainable growth through collective effort. The public sector in Europe has shown ambitions to increase its positive footprint and realise its potential to influence the industry and improve global working conditions. Moreover, it has an ethical obligation to meet the expectations of the public: it is only lacking the suitable means to do so. Electronics Watch will provide the missing link in public sector policy on socially responsible

procurement. Thanks to its approach, Electronics Watch may become a game changer within the electronics industry. Firstly, it helps public buyers monitor suppliers' compliance with their sustainable or socially responsible procurement policies. Public buyers currently have to rely on brands' audits provided by audit firms. Secondly, it enables the public sector to unite in providing leverage over suppliers in order to create much deeper knowledge and incentivise more significant improvement of their ICT supply chains. Suppliers of the public sector will receive many simultaneous requests for reform from Electronics Watch affiliates when the investigations and surveys of factories conducted by Electronics Watch indicate that reforms are required. Therefore, public buyers will have far greater leverage to negotiate improvements than would otherwise have been the case. Electronics Watch thus enables public institutions to have a real and significant impact on company behaviour and therefore on the lives of workers.²⁰²

9. Conclusion

This report highlights some of the challenges in the ICT industry, challenges so severe they can be classified as structural. Freedom of association and health and safety are recurring labour rights issues in the production of ICT equipment, and while cases from South Korea and China have been used as examples, no ICT brands can claim to be free of them.

Certain phases of electronics manufacturing are highly chemically intensive, with instances of workers being exposed to dangerous chemicals. Cases from South Korea show that workers in the semiconductor industry who contract diseases such as cancer and leukaemia do not have the means to prove a correlation to their working environment. Not being able to get their conditions recognised as work related illnesses means they have no access to compensation.

The low degree of union membership in the global ICT industry is leaving workers vulnerable and in a weak position to claim their rights, and cases from South Korea show how brands are actively opposing independent unionising. As only 12 out of 127.000 workers in Samsung's South Korean electronics manufacturing companies are members of an independent union, there seems to be much room for improvement of labour rights.

Many public institutions both want to and are increasingly expected to take responsibility for the conditions under which their ICT products are made, but have so far been left to rely on the brands' own insufficient mechanisms of ensuring social standards. European states are buying million Euros worth of ICT equipment without guarantees of the production process complying with basic labour standards such as rights to organise and safe working conditions. However, should public buyers join forces and demand from brands that they live up to social standards, they could pioneer the struggle to improve working conditions in the global ICT industry.

Electronics Watch offers a platform for progressive public institutions to unite their efforts. Acting as the link between public buyers and local organisations in manufacturing countries, Electronics Watch will provide effective, on-the-ground monitoring of working conditions, working for compliance with social standards and industry reforms with the aim of using public leverage to push towards a shift in working conditions throughout the ICT industry.

10. Company response

Samsung

Samsung has been presented with the findings of the report and has responded in an email to DanWatch on 22nd September 2014. Parts of the response have been included in the report where relevant, and an excerpt can be found below.

“We recognize that employee health is precious and merits ongoing, robust scientific study. The Samsung Health Research Institute (SHRI), an independent research organization, was created to advance continuous EHS improvement in the semiconductor industry. SHRI has worked on 180 research projects and presented its studies at more than 70 international conferences since its launch in 2010. As is standard practice and a sign of respect in Korea, we provide support to employees who become ill while employed with Samsung. Support may include financial compensation, medical expense assistance and insurance coverage.

We provide comprehensive health benefits, which include subsidies for medical expenses encompassing support for serious illnesses, health checkups and onsite treatment through our medical centers, musculoskeletal treatment center and consultation services with registered medical teams on staff. In 2013, employees for our semiconductor business received more than 21.5 billion KRW in such medical support. This amount does not include various health insurance fees as well as operational costs for onsite medical facilities.”

Endnotes

- 1 Latest figure available; European Union (2012): Guidelines for Public Procurement of ICT Goods and Services, note on p. 4, <http://cordis.europa.eu/fp7/ict/ssai/docs/study-action23/d4-impact-assessment-prep.pdf>
- 2 Such as The Economist: 'Congo's conflict minerals: Clean them up', 19/8/10, <http://www.economist.com/node/16846816>, BBC: 'Foxconn suicides: workers feel quite lonely', 28/5/10, <http://www.bbc.co.uk/news/10182824>
- 3 Students and Scholars Against Corporate Misbehaviour, sacom.hk
- 4 Samsung, LG, Apple and Foxconn.
- 5 Dell (2013): CSR Report, p. 35, <http://i.dell.com/sites/doccontent/corporate/corp-comm/en/Documents/dell-fy13-cr-report.pdf>; The Guardian: 'Child labour uncovered in Apple's supply chain', accessed 25/1/13; <http://www.theguardian.com/technology/2013/jan/25/apple-child-labour-supply>, Apple (2014): Progress report, p. 10, 34, http://images.apple.com/supplier-responsibility/pdf/Apple_SR_2014_Progress_Report.pdf
- 6 DanWatch (2013): 'IT Workers Still Pay the Price for Cheap Computers', http://www.danwatch.dk/sites/default/files/documents/dw_kina_181013_0_0.pdf
- 7 Ibid; China Labor Watch (2014): Investigative Report on Quanta Shanghai Manufacturing City, http://www.chinalaborwatch.org/upfile/2014_02_07/20140206_QuantaShanghaiManufacturing_City.pdf
- 8 China Labor Watch (2011): 'Dell, HP, and NEC Supplier Factory Case Study: MSI Computer (Shenzhen) Co., Ltd.', p. 6, <http://digitalcommons.ilr.cornell.edu/globaldocs/674>; SACOM & WEED (2008): 'The Dark Side of Cyberspace', p. 15; SACOM (2010): 'Workers as Machines: Military Management in Foxconn', p. 9, http://sacom.hk/wp-content/uploads/2010/11/report-on-foxconn-workers-as-machines_sacom.pdf
- 9 SACOM & WEED (2008): 'The Dark Side of Cyberspace', p. 28
- 10 MVO Platform & GoodElectronics (2009): 'Reset. Corporate social responsibility in the global electronics supply chain', p. 43
- 11 ACC & SOMO (2012): 'The Flexsyndrome', p. 59
- 12 ILO stipulates a maximum amount of eight hours per day and a maximum of 48 hours per week and 60 hours per week under special circumstances. Full text: <http://www.ilo.org/global/standards/subjects-covered-by-international-labour-standards/working-time/lang--en/index.htm>, accessed 4/7/14, ACC & SOMO (2012): 'The Flexsyndrome'; SOMO (2007): 'Hard (Disk) Labour'; SOMO (2009): 'Computer Connections. Supply chain policies and practices of seven computer companies', p. 3; China Labor Watch (2014): Investigative Report on Quanta Shanghai Manufacturing City, http://www.chinalaborwatch.org/upfile/2014_02_07/20140206_QuantaShanghaiManufacturing_City.pdf
- 13 Dell (2013): CSR Report, p. 35, <http://i.dell.com/sites/doccontent/corporate/corp-comm/en/Documents/dell-fy13-cr-report.pdf>; Apple (2014): Progress Report, p. 10, http://images.apple.com/supplier-responsibility/pdf/Apple_SR_2014_Progress_Report.pdf; HP (2013): Living Progress Report, p. 35 & 37, <http://h20195.www2.hp.com/V2/GetPDF.aspx/c04152740.pdf>; Acer (2013): CR Report, p. 51 http://www.acer-group.com/public/Sustainability/pdf/Acer_CR_Report2013_EN.pdf
- 14 UN Comtrade, <http://comtrade.un.org/db/>, accessed 1/6/2014
- 15 Ibid.
- 16 Lüthje et al. (2013): From Silicon Valley to Shenzhen. Global Production and Work in the IT Industry, p. 138
- 17 Lüthje et al. (2013): From Silicon Valley to Shenzhen. Global Production and Work in the IT Industry, p. 139
- 18 <http://www.chinalaborwatch.org/>, <http://www.clb.org.hk/en/>, <http://www.lac.org.hk/en/> and <http://sacom.hk/>.
- 19 DanWatch (2013): 'IT Workers Still Pay the Price for Cheap Computers', http://www.danwatch.dk/sites/default/files/documents/dw_kina_181013_0_0.pdf; China Labor Watch (2012): 'Tragedies of Globalization: The Truth Behind Electronics Sweatshops'
- 20 SACOM (2010): 'Workers as Machines: Military Management in Foxconn', p. 12, http://sacom.hk/wp-content/uploads/2010/11/report-on-foxconn-workers-as-machines_sacom.pdf; SACOM (2011): 'Islave Behind the Iphone: Foxconn Workers in Central China', <http://makeitfair.org/en/the-facts/reports/2011/2011/islave-behind-the-iphone>
- 21 China Labor Watch (2014): Investigative Report on Quanta Shanghai Manufacturing City, http://www.chinalaborwatch.org/pdf/2014.02.06-Quanta_Shanghai_Manufacturing_City.pdf; SACOM (2010): 'Workers as Machines: Military Management in Foxconn', p. 12, http://sacom.hk/wp-content/uploads/2010/11/report-on-foxconn-workers-as-machines_sacom.pdf
- 22 Pun, N. and Chan, J. (2013): 'The Spatial Politics of Labor in China: Life, Labor, and a New Generation of Migrant Workers'. The South Atlantic Quarterly, 112:1.
- 23 SACOM (2010): 'Workers as Machines: Military Management in Foxconn', p. 13, http://sacom.hk/wp-content/uploads/2010/11/report-on-foxconn-workers-as-machines_sacom.pdf
- 24 China Labor Watch (2012): 'Tragedies of Globalization: The Truth Behind Electronics Sweatshops'

- The Truth Behind Electronics Sweatshops', p. 109
- 25** SOMO (2007): 'Hard (Disk) Labour'; China Labor Watch (2012): 'Tragedies of Globalization: The Truth Behind Electronics Sweatshops'; SACOM & WEED (2008): 'The Dark Side of Cyberspace', p. 17
- 26** The Verge: 'Samsung's marketing brings attention to factory deaths as well as devices', <http://www.theverge.com/2014/3/27/5552874/death-at-samsung-plant-raises-safety-concerns>, accessed 27/4/14; Parliamentary Audit Civil Society Report (2010): 'Is the Chemical Exposure Control at Samsung Semiconductor Plants? p. 7; Samsung (2013): Sustainability Report, p. 58, http://www.samsung.com/us/aboutsamsung/sustainability/sustainabilityreports/download/2013/2013_Sustainability_Report.pdf
- 27** The Verge: 'Samsung's marketing brings attention to factory deaths as well as devices', <http://www.theverge.com/2014/3/27/5552874/death-at-samsung-plant-raises-safety-concerns>, accessed 27/4/14
- 28** The New York Times: 'In China, Human Costs Are Built Into an iPad', <http://www.nytimes.com/2012/01/26/business/ieconomy-apples-ipad-and-the-human-costs-for-workers-in-china.html?pagewanted=all&r=0>, accessed 25/1/12
- 29** Brown, G. D. (2002): 'The global threats to workers' health and safety on the job', p. 15, *Social Justice*, 29:3; Rory O'Neill (2002): 'The Union Effect', <http://www.hazards.org/unioneffect/unioneffect.pdf>; ILO (2003): 'Safety in numbers'
- 30** MVO Platform & GoodElectronics (2009): 'Reset. Corporate social responsibility in the global electronics supply chain', p. 20
- 31** HESA (2008): 'Cancers in "Silicon Glen". Scottish electronics industry victims fight for future generations', p. 23
- 32** Kim, M-H., Kim, H. and Paek, D. (2014): 'The health impacts of semiconductor production: an epidemiologic review'
- 33** MVO Platform & GoodElectronics (2009): 'Reset. Corporate social responsibility in the global electronics supply chain', p. 42
- 34** Raj-Reichert, G. (2012): 'Governance in Global Production Networks: Managing environmental health risks in the personal computer production chain', p. 16, <http://labourandelectronics.net/wp-content/uploads/2013/06/Governance-in-Global-Production-Networks-Managing-Environmental-Health-Risks-in-the-Personal-Computer-Production-Chain.pdf>; Kim, M-H., Kim, H. and Paek, D. (2014): 'The health impacts of semiconductor production: an epidemiologic review'
- 35** Raj-Reichert, G. (2012): 'Governance in Global Production Networks: Managing environmental health risks in the personal computer production chain', p. 16-17, <http://labourandelectronics.net/wp-content/uploads/2013/06/Governance-in-Global-Production-Networks-Managing-Environmental-Health-Risks-in-the-Personal-Computer-Production-Chain.pdf>
- 36** Kim, M-H., Kim, H. and Paek, D. (2014): 'The health impacts of semiconductor production: an epidemiologic review'; HESA (2008): 'Cancers in "Silicon Glen". Scottish electronics industry victims fight for future generations'
- 37** ILO (2014): 'Safety and health in the use of chemicals at work', p. 4, http://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/publication/wcms_235085.pdf
- 38** Raj-Reichert, G. (2012): 'Governance in Global Production Networks: Managing environmental health risks in the personal computer production chain', p. 17, <http://labourandelectronics.net/wp-content/uploads/2013/06/Governance-in-Global-Production-Networks-Managing-Environmental-Health-Risks-in-the-Personal-Computer-Production-Chain.pdf>
- 39** ILO (2014): 'Safety and health in the use of chemicals at work', p. 5, http://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/publication/wcms_235085.pdf
- 40** China Labor Bulletin (2014): 'Painted into a corner: Factory worker left with nowhere to go after contracting anaemia', <http://www.clb.org.hk/en/content/painted-corner-factory-worker-left-nowhere-go-after-contracting-anaemia>; American Cancer Association: 'Benzene', <http://www.cancer.org/cancer/cancercauses/othercarcinogens/intheworkplace/benzene>, accessed 6/5/14
- 41** Parliamentary Audit Civil Society Report (2010): 'Is the Chemical Exposure Control at Samsung Semiconductor Plants? p. 4; Ban Benzene Campaign: Declaration', <http://banbenzenecampaign.weebly.com/ban-benzene-declaration.html>, accessed 4/7/14; The Guardian: 'Apple urged to stop using harmful chemicals in its factories', <http://www.theguardian.com/technology/2014/mar/12/apple-harmful-chemicals-factories-labour>, accessed 12/4/14
- 42** Chen, P-C., Hsieh, G-Y., Wang, J-D. and Cheng, T-J. (2002): 'Prolonged time to pregnancy in female workers exposed to ethylene glycol ethers in semiconductor manufacturing'. *Epidemiology* 13 (2), p. 191-196 <http://ntur.lib.ntu.edu.tw/bitstream/246246/75810/1/>; Hsieh, G-Y., Wang, J-D., Cheng, T-J. and Chen, P-C. (2005): 'Prolonged menstrual cycles in female workers exposed to ethylene glycol ethers in the semiconductor manufacturing industry', *Occupational and Environmental Medicine* 62: p. 510-516, <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1741062/pdf/v062p00510.pdf>; Schenker, M. B., Gold, E.B, Beaumont, J.J., Eskenazi, B., Hammond, S.K., Lasley, B.L., McCurdy, S.A., Samuels, S.J., Saiki, C.L. and Swan, S.H. (1995): 'Association of spontaneous abortion and other reproductive effects with work in the semiconductor industry', *American Journal of Industrial Medicine* 28(6), p. 639-659, <http://onlinelibrary.wiley.com/doi/10.1002/ajim.4700280603/abstract>

- 43 Kim, M-H., Kim, H. and Paek, D. (2014): 'The health impacts of semiconductor production: an epidemiologic review', p. 96
- 44 Ibid, p. 97
- 45 HESA (2008): 'Cancers in "Silicon Glen". Scottish electronics industry victims fight for future generations', p. 23
- 46 Kim, M-H., Kim, H. and Paek, D. (2014): 'The health impacts of semiconductor production: an epidemiologic review'
- 47 Clapp, R.W. (2006) 'Mortality among US employees of a large computer manufacturing company: 1969–2001'. Environmental Health: A Global Access Science Source 5, p. 30-40, <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1626450/>
- 48 SACOM & WEED (2008): 'The Dark Side of Cyberspace', p. 17-29
- 49 New York Times: 'Workers Sickened at Apple Supplier in China', 22/2/11 <http://www.nytimes.com/2011/02/23/technology/23apple.html?pagewanted=all>
- 50 Solidarity Center (2014): 'Empowering Workers, Creating Safe workplaces', p.5, <http://www.solidaritycenter.org/Files/ANROEV.Catalysts%20for%20Change.6.9.14.pdf>
- 51 DanWatch interviews with cancer victims, MiYeon Kim and Park Min Suk, Jeong Ae-Joeng, wife of deceased Hwang Min-Woong and Hwang Sang-ki, father of deceased Yumi Hwang, South Korea, May 2014.
- 52 AMRC (2013): 'Labour Rights in High Tech Electronics. Case Studies of Workers' Struggles in Samsung Electronics and its Asian Suppliers', p. 43
- 53 Greenpeace (2007): 'Cutting Edge Contamination', p. 13
- 54 European Commission: 'Recast of the RoHS Directive', http://ec.europa.eu/environment/waste/rohs_eee, accessed 15/7/14
- 55 Thomas White International: Industry overview, <http://www.thomaswhite.com/pdf/TW-Industry-Overview-Korea-Taiwan-Electronics-2011.pdf>
- 56 World Bank, <http://data.worldbank.org/indicator/TX.VAL.ICTG.ZS.UN>, accessed 24/4/14
- 57 Dell (2014): Samsung SSDs for Dell notebooks, <http://www.dell.com/learn/us/en/04/sb360/samsung?c=us&l=en&s=bsd&preview=true>
- 58 Apple (2014): Supplier list, http://images.apple.com/supplier-responsibility/pdf/Apple_Supplier_List_2014.pdf; New York Times: 'Samsung: Uneasy in the Lead', http://www.nytimes.com/2013/12/15/technology/samsung-uneasy-in-the-lead.html?_r=0, accessed 3/4/14
- 59 Global Post: 'South Korea world's 2nd-largest semiconductor supplier in 2013', <http://www.globalpost.com/dispatch/news/yonhap-news-agency/140324/s-korea-worlds-2nd-largest-semiconductor-supplier-2013>, accessed 24/4/14
- 60 Ibid.
- 61 Bloomberg Businessweek: 'Samsung's War at Home', <http://www.businessweek.com/articles/2014-04-10/deaths-at-samsung-alter-south-koreas-corporate-is-king-mindset>, accessed 10/4/14
- 62 SHARPS: 'About Sharps', <http://stopsamsung.wordpress.com/about-sharps/>, accessed 10/5/14
- 63 Business Korea: 'Korea Became World's Second-largest Semiconductor Manufacturer in 2013', <http://www.businesskorea.co.kr/article/2980/semiconductor-industry-korea-became-world%E2%80%99s-second-largest-semiconductor-manufacturer>, accessed 17/1/14
- 64 Kim, I., Kim, H-J., Lim, S.Y., Kongyoo, J. (2012): 'Leukemia and non-Hodgkin lymphoma in semiconductor industry workers in Korea'
- 65 DanWatch email interview with SHARPS, 28/4/14
- 66 Bloomberg Businessweek: 'Samsung's War at Home', <http://www.businessweek.com/articles/2014-04-10/deaths-at-samsung-alter-south-koreas-corporate-is-king-mindset>, accessed 10/4/14
- 67 Kim, M-H., Kim, H. and Paek, D. (2014): 'The health impacts of semiconductor production: an epidemiologic review'
- 68 Bloomberg Businessweek: 'Samsung's War at Home', <http://www.businessweek.com/articles/2014-04-10/deaths-at-samsung-alter-south-koreas-corporate-is-king-mindset>, accessed 10/4/14
- 69 Lee H-E, Kim E-A, Park J, Kang S-K. (2011): 'Cancer mortality and incidence in Korean semiconductor workers'
- 70 Kim, M-H., Kim, H. and Paek, D. (2014): 'The health impacts of semiconductor production: an epidemiologic review', p. 100
- 71 Kim, I., Kim, H-J., Lim, S.Y., Kongyoo, J. (2012): 'Leukemia and non-Hodgkin lymphoma in semiconductor industry workers in Korea', p. 51
- 72 Ibid.
- 73 AMRC (2013): 'Labour Rights in High Tech Electronics. Case Studies of Workers' Struggles in Samsung Electronics and its Asian Suppliers', p. 43; Kim, M-H., Kim, H. and Paek, D. (2014): 'The health impacts of semiconductor production: an epidemiologic review'
- 74 DanWatch email interview with Richard Clapp, Professor Emeritus, Boston University School of Public Health, 10/9/14
- 75 DanWatch email interview with SHARPS, 28/4/14
- 76 Samsung Electronics (the Giheung and Onyang plants), Hynix (the Ee-Cheon and Cheongjoo plants) and Amkor Technology Korea (the Seoul and Gwangjoo plants).
- 77 Corporate for All, People's Solidarity for Participatory Democracy (PSPD), Korean Women Workers Association and Environmental Justice
- 78 Parliamentary Audit Civil Society Report (2010): 'Is the Chemical Exposure Control at Samsung Semiconductor Plants?', p. 7

- 79** Environ International Corporation (2011): Samsung Workers Exposure Characterization Study, p 34, http://www.samsung.com/global/business/semiconductor/minisite/EHS/pdf/Environ_Samsung_Worker_Exposure_Characterization_Study.pdf
- 80** Samsung (2012): Sustainability report, p. 27, http://www.samsung.com/us/aboutsamsung/sustainability/sustainabilityreports/download/2012/2012_sustainability_rpt.pdf
- 81** DanWatch email interview with Samsung 22/9/14
- 82** DanWatch interview with MiYeon Kim, South Korea, May 2014
- 83** Seoul Administrative Court Division 14 Ruling, 23 June 2011
- 84** Korea Herald: 'Samsung Everland fires union leader for leaking corporate information', <http://www.koreaherald.com/view.php?ud=20110718000936>, accessed 18/7/14
- 85** The Hankyoreh: 'In seven-year fight with Samsung, father keeps promise to deceased daughter', 11/9/14 http://english.hani.co.kr/arti/english_edition/e_national/654751.html
- 86** Associated Press: 'Samsung Finally Apologizes To Workers Who Got Cancer While Making Chip', http://www.huffingtonpost.com/2014/05/14/samsung-apologizes-to-cancer-stricken-chip-workers_n_5321059.html, accessed 05/14/2014; SHARPS: 'SHARPS Cautiously Welcomes Samsungs' Apology', <http://stopsamsung.wordpress.com/2014/05/14/sharps-cautiously-welcomes-samsungs-apology/>, accessed 14/5/14
- 87** SHARPS: 'SHARPS Cautiously Welcomes Samsungs' Apology', <http://stopsamsung.wordpress.com/2014/05/14/sharps-cautiously-welcomes-samsungs-apology/>, accessed 14/5/14
- 88** DanWatch email interview with Samsung, 22/9/14
- 89** Estimation based on Bloomberg figures: <http://www.bloomberg.com/quote/102780:KS>, accessed 18/7/14
- 90** Korea Herald: 'Samsung Everland fires union leader for leaking corporate information', <http://www.koreaherald.com/view.php?ud=20110718000936>, accessed 18/7/14
- 91** Bloomberg Businessweek: 'Samsung's War at Home', <http://www.businessweek.com/articles/2014-04-10/deaths-at-samsung-alter-south-koreas-corporate-is-king-mindset>, accessed 10/4/14
- 92** Samsung: Performance 2012, http://www.samsung.com/uk/aboutsamsung/samsung/performance_5.html, accessed 4/7/14
- 93** Business Korea: 'Korea Became World's Second-largest Semiconductor Manufacturer in 2013', <http://www.businesskorea.co.kr/article/2980/semiconductor-industry-korea-became-world%E2%80%99s-second-largest-semiconductor-manufacturer>, accessed 17/1/14, Samsung (2013): Sustainability Report, p. 8, http://www.samsung.com/common/aboutsamsung/download/companyreports/2013_Sustainability_Report.pdf,
- 94** Business Korea: 'LG Reviving System Semiconductor Business', <http://www.businesskorea.co.kr/article/4811/synergy-creation-lg-reviving-system-semiconductor-business>, accessed 27/5/14
- 95** LG: Overview, Korea, http://www.lgcorp.com/about/overview.dev?region_code=003&country_id=28&country_name=Korea#map, accessed 4/7/14
- 96** LG: Overview, <http://www.lgcorp.com/about/overview.dev>, accessed 4/7/14
- 97** LG: Labor rights protection, <http://www.lg.com/global/sustainability/employee/labor-rights-protection>, accessed 4/7/14
- 98** Business Korea: 'LG Reviving System Semiconductor Business', <http://www.businesskorea.co.kr/article/4811/synergy-creation-lg-reviving-system-semiconductor-business>, accessed 27/5/14
- 99** SOMO (2012): 'Freedom of association in the electronics industry', p. 1
- 100** Holdcroft, J. (2010): 'Organizing Electronics Workers', <http://www.industrialunion.org/archive/imf/organizing-electronics-workers>; IndustriAll Global Union (2010): 'Barriers to organizing', <http://www.industrialunion.org/archive/imf/barriers-to-organizing>
- 101** IndustriAll Global Union (2010): 'Barriers to organizing', <http://www.industrialunion.org/archive/imf/barriers-to-organizing>
- 102** SOMO (2012): 'Freedom of association in the electronics industry', p. 1
- 103** IndustriAll Global Union (2010): Barriers to organizing, <http://www.industrialunion.org/archive/imf/barriers-to-organizing>
- 104** IndustriAll Global Union (2010): Barriers to organizing, <http://www.industrialunion.org/archive/imf/barriers-to-organizing>
- 105** ILO (2004): 'Freedom of Association and Collective Bargaining'(fact sheet), p. 1, http://www.ilo.org/wcmsp5/groups/public/---ed_norm/--declaration/documents/publication/wcms_decl_fs_5_en.pdf
- 106** ILO (2004): 'Freedom of Association and Collective Bargaining'(fact sheet), p. 1, http://www.ilo.org/wcmsp5/groups/public/---ed_norm/--declaration/documents/publication/wcms_decl_fs_5_en.pdf
- 107** Ibid, p. 2
- 108** IndustriAll Global Union (2010): 'Barriers to organizing', <http://www.industrialunion.org/archive/imf/barriers-to-organizing>
- 109** Ibid.
- 110** SOMO (2009): 'Reset. Corporate social responsibility in the global electronics supply chain', p. 30
- 111** International Metal Workers Federation (2010): 'Organizing Electronics Workers', <http://www.industrialunion.org/archive/imf/organizing-electronics-workers>

- 112** IndustriAll Global Union (2010): 'Barriers to organizing', <http://www.industrial-all-union.org/archive/imf/barriers-to-organizing>
- 113** SOMO (2009): 'Reset. Corporate social responsibility in the global electronics supply chain', p. 30
- 114** IndustriAll Global Union (2010): 'Barriers to organizing', <http://www.industrial-all-union.org/archive/imf/barriers-to-organizing>
- 115** Kang, S.L. (2012): Human Rights and Labor Solidarity: Trade Unions in the Global Economy, p. 4
- 116** ILO (2004): 'Freedom of Association and Collective Bargaining' (fact sheet), p. 2, http://www.ilo.org/wcmsp5/groups/public/---ed_norm/---declaration/documents/publication/wcms_decl_fs_5_en.pdf
- 117** ILO (2014): 'Freedom of association and the effective recognition of the right to collective bargaining', <http://www.ilo.org/declaration/principles/freedomofassociation/lang--en/index.htm>
- 118** SOMO (2012): 'Freedom of association in the electronics industry', p. 2
- 119** SOMO (2012): 'Freedom of association in the electronics industry', p. 2
- 120** ILO (2014): Country profile, <http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:11003:0::NO> and ILO (2013): Alphabetical list of ILO member countries, <http://www.ilo.org/public/english/standards/relm/country.htm>
- 121** UN (2011): Guiding Principles on Business and Human Rights', http://www.ohchr.org/Documents/Publications/GuidingPrinciplesBusinessHR_EN.pdf
- 122** SOMO (2012): 'Freedom of association in the electronics industry', p. 2-3
- 123** SOMO (2009): 'Reset. Corporate social responsibility in the global electronics supply chain, p. 30 and SOMO (2012): Freedom of association in the electronics industry', p. 3; IndustriAll Global Union (2010): 'Barriers to organizing', <http://www.industrial-all-union.org/archive/imf/barriers-to-organizing>
- 124** SOMO (2012): 'Freedom of association in the electronics industry', p. 3
- 125** Kang, S.L. (2012): Human Rights and Labor Solidarity: Trade Unions in the Global Economy, p. 66-111
- 126** Freedomhouse: 'South Korea', http://www.freedomhouse.org/report/freedom-world/2013/south-korea#.U2dpLlF_uFU, accessed 2/5/14
- 127** ILO: Ratification by conventions, <http://www.ilo.org/dyn/normlex/en/f?p=1000:12001:0::NO>, accessed 2/5/14
- 128** ITUC (2012): 'Internationally Recognised Core Labour Standards in Republic of Korea', http://www.ituc-csi.org/IMG/pdf/korea_tpr_final.pdf
- 129** Lee, D. (2009): 'Repression Against Workers - Republic of Korea', http://www.amrc.org.hk/alu_article/repression_against_workers_republic_of_korea
- 130** AMRC (2013): 'Labour Rights in High Tech Electronics. Case Studies of Workers' Struggles in Samsung Electronics and its Asian Suppliers', p. 38
- 131** AMRC (2013): 'In the Belly of the Beast: Samsung Electronics' Supply Chain and Workforce in South Korea', p. 7, <http://www.amrc.org.hk/system/files/3%20Samsung%20Electronics%E2%80%99%20Supply%20Chain%20and%20Workforce%20in%20South%20Korea.pdf>
- 132** Han, J. (2011): 'Production, Supply-chain, and Working Conditions in the Korean Electronics Industry', Research Institute for Alternative Workers' Movements
- 133** IndustriALL: 'IndustriALL Executives condemn Samsung for union busting', <http://www.industrial-all-union.org/industriall-executives-condemn-samsung-for-union-busting> accessed 5/12/13; AMRC (2013): 'Labour Rights in High Tech Electronics. Case Studies of Workers' Struggles in Samsung Electronics and its Asian Suppliers'
- 134** Samsung (2011): 'Labor & Human Rights', http://www.samsung.com/us/aboutsamsung/sustainability/talentmanagement/download/Labor_and_Human_rights.pdf
- 135** AMRC (2013): 'Labour Rights in High Tech Electronics. Case Studies of Workers' Struggles in Samsung Electronics and its Asian Suppliers', p. 37
- 136** Ibid.
- 137** DanWatch interviews with Sang Su Kim, worker at Samsung electronics plant, South Korea. The name has been changed to protect the worker, the name and workplace is known to the authors. Yu Soon Park, Executive Director of Irregular Workers, Korean Metal Workers Union, Wee Yoeng Il, head of Samsung Electronics Service Workers Union, South Korea, May 2014.
- 138** AMRC (2013): 'Labour Rights in High Tech Electronics. Case Studies of Workers' Struggles in Samsung Electronics and its Asian Suppliers', p. 38
- 139** Han, J. (2011): 'Production, Supply-chain, and Working Conditions in the Korean Electronics Industry', Research Institute for Alternative Workers' Movements. Samsung has informed DanWatch that the company does not have figures of independent union membership. Source: DanWatch email interview with Samsung 22/9/14
- 140** LG: Labor rights protection, <http://www.lg.com/global/sustainability/employee-labor-rights-protection>, accessed 4/7/14
- 141** DanWatch interviews with Sang Su Kim, worker at Samsung electronics plant, South Korea, Yu Soon Park, Executive Director of Irregular Workers, Korean Metal Workers Union, Wee Yoeng Il, head of Samsung Electronics Service Workers Union, South Korea, May 2014.
- 142** DanWatch interview with Samsung worker Sang Su Kim, Yu

- Soon Park, Executive Director of Irregular Workers, Korean Metal Workers Union, co-establisher of Samsung SDI Union and SHARPS, South Korea, May 2014; AMRC (2013): 'Labour Rights in High Tech Electronics. Case Studies of Workers' Struggles in Samsung Electronics and its Asian Suppliers', p. 35; Lee, K-S. (2011): 'Interrogating "Digital Korea": Mobile Phone tracking and the Spatial Expansion of Labour Control'
- 143** DanWatch interview with Samsung worker Sang Su Kim, South Korea, May 2014
- 144** Samsung denies any shadowing or monitoring of its employees, and reject to have no-union policies, stating: "Globally, there are active labor unions in accordance with local laws in our 18 manufacturing sites out of 38 manufacturing sites", source: DanWatch email interview with Samsung 22/9/14
- 145** AMRC (2013): 'Labour Rights in High Tech Electronics. Case Studies of Workers' Struggles in Samsung Electronics and its Asian Suppliers', p. 38; Samsung denies that the wage levels at subcontractors are due to its union policies, and state that "It is rather linked to country and industry-specific characteristics, and is irrelevant to our company's policy." DanWatch email interview with Samsung 22/9/14
- 146** AMRC (2013): 'Labour Rights in High Tech Electronics. Case Studies of Workers' Struggles in Samsung Electronics and its Asian Suppliers', p. 39; ministry of employment and labour, industrial labor power survey
- 147** Interview with Ha Kyung Ryng, Attorney, 18/5/14, AMRC (2013): 'Labour Rights in High Tech Electronics. Case Studies of Workers' Struggles in Samsung Electronics and its Asian Suppliers', p. 42 & ministry of employment and labour
- 148** DanWatch email interview with Samsung 22/9/14
- 149** Manual obtained in South Korea, May 2014, from anonymous worker. Manual on file with DanWatch
- 150** DanWatch email interview with Samsung, 22/9/14
- 151** Interview with Yu Soon Park, Executive Director of Irregular Workers, Korean Metal Workers Union, 19/5/14
- 152** PAMRC (2013): 'Labour Rights in High Tech Electronics. Case Studies of Workers' Struggles in Samsung Electronics and its Asian Suppliers', p. 44; Financial Times: 'South Korea: labour union strikes back', <http://blogs.ft.com/beyond-brics/2011/07/29/south-korea-labour-union-strikes-back/>, accessed 29/7/11
- 153** The Kyunghyang Shinmun: 'Launch of First Trade Union of Regular Workers at Samsung Group Affiliate', http://english.khan.co.kr/khan_art_view.html?artid=201403251835567&code=710100, accessed 5/7/14
- 154** Interview with Yu Soon Park, Executive Director of Irregular Workers, Korean Metal Workers Union, 19/5/14, in 2011, Samsung employed 26,000 workers in Samsung Displays and 101,973 workers in Samsung Electronics in South Korea; <http://www.samsungdisplay.com/eng/customer/faq1.jsp>; http://www.samsung.com/us/aboutsamsung/sustainability/sustainabilityreports/download/2012/2012_sustainability_rpt.pdf
- 155** New York Times: 'Fast and Flawed Inspections of Factories Abroad', <http://www.nytimes.com/2013/09/02/business/global/superficial-visits-and-trickery-undermine-foreign-factory-inspections.html?pagewanted=all&r=0>, accessed 1/9/13
- 156** AFL CIO (2013): 'Responsibility outsourced: Social Audits, Workplace certification and twenty years of Failure to protect Worker Rights'; Holdcroft, J.: 'Creating conditions for collective labour relations to improve labour rights in the electronics industry', http://www.ilera-directory.org/15thworldcongress/files/papers/Track_2/Poster/CS1W_45_HOLDCROFT.pdf; IDS (2006): 'The ETI code of labour practice: Do workers really benefit?'; Wells, D. (2009): 'Local Worker Struggles in the Global South: reconsidering Northern impacts on international labour standards', p. 569
- 157** Wells, D. (2009): 'Local Worker Struggles in the Global South: reconsidering Northern impacts on international labour standards', p. 568; AFL CIO (2013): 'Responsibility outsourced: Social Audits, Workplace certification and twenty years of Failure to protect Worker Rights', p. 13-16; Clean Clothes Campaign (2005): 'A Quick Fix', <http://www.cleanclothes.org/resources/publications/05-quick-fix.pdf/view>, Clean Clothes Campaign (2005): 'A Quick Fix', <http://www.cleanclothes.org/resources/publications/05-quick-fix.pdf/view>
- 158** GoodElectronics& CSR Platform (2009): 'Reset. Corporate social responsibility in the global electronics supply chain', p. 16; SOMO (2009): 'Configuring Labour Rights', p. 50
- 159** AFL CIO (2013): 'Responsibility outsourced: Social Audits, Workplace certification and twenty years of Failure to protect Worker Rights', p. 26; Wilshaw, R. (2011): 'Buyers beware: Audit idiocy', <http://policy-practice.oxfam.org.uk/blog/2011/08/buyers-beware-audit-idiocy>; Clean Clothes Campaign (2000): 'A Quick Fix'. p. 18-22; New York Times: 'Fast and Flawed Inspections of factories abroad', <http://www.nytimes.com/2013/09/02/business/global/superficial-visits-and-trickery-undermine-foreign-factory-inspections.html?pagewanted=all&r=0>, accessed 1/9/13; New York Times: 'Ruse in Toyland: Chinese Workers' Hidden Woe', <http://www.nytimes.com/2003/12/07/world/ruse-in-toyland-chinese-workers-hidden-woe.html>, accessed 5/7/14
- 160** China Labor Watch (2011): 'Auditing Giant Intertek Sued In Relation to Auditor Bribery', <http://chinalaborwatch.org/news/new-369.html>; China Labor Watch (2009): 'Corrupt Audits Damage Worker Rights', <http://chinalaborwatch.org/pdf/2009bvcorruption1209.pdf>
- 161** Clean Clothes Campaign (2005): 'A Quick Fix', p. 25, <http://www>

- cleanclothes.org/resources/publications/05-quick-fix.pdf/view
- 162** AFL CIO (2013): 'Responsibility outsourced: Social Audits, Workplace certification and twenty years of Failure to protect Worker Rights', p. 20, 31, 40
- 163** SOMO (2009): 'Computer Connections. Supply chain policies and practices of seven computer companies', p. 10
- 164** Hiscox, M.J., Schwartz, C. and Toffel, M.W. (2008): 'Evaluating the Impact of SA 8000 Certification', <http://www.hbs.edu/faculty/Publication%20Files/08-097.pdf>; Short, Jodi L., Toffel, M.W. and Hugill, A. (2014) 'Monitoring the Monitors: How Social Factors Influence Supply Chain Auditors', Harvard Business School Working Paper, No. 14-032, p. 3 <http://dash.harvard.edu/bitstream/handle/1/11591700/14-032.pdf?sequence=3>
- 165** AFL CIO (2013): 'Responsibility outsourced: Social Audits, Workplace certification and twenty years of Failure to protect Worker Rights'; New York Times: 'Inspectors Certified Pakistani Factory as Safe Before Disaster', <http://www.nytimes.com/2012/09/20/world/asia/pakistan-factory-passed-inspection-before-fire.html?pagewanted=all&r=0>, accessed 5/7/14; Short, Jodi L., Toffel, M.W. and Hugill, A. (2014) 'Monitoring the Monitors: How Social Factors Influence Supply Chain Auditors', Harvard Business School Working Paper, No. 14-032, p. 3 <http://dash.harvard.edu/bitstream/handle/1/11591700/14-032.pdf?sequence=3>
- 166** AFL CIO (2013): 'Responsibility outsourced: Social Audits, Workplace certification and twenty years of Failure to protect Worker Rights', p. 19-24
- 167** Ibid, p. 13-16
- 168** O'Rourke, D. (2000): 'Monitoring the Monitors', <http://web.mit.edu/dorourke/www/PDF/pwc.pdf>; Wells, D. (2009): 'Local Worker Struggles in the Global South: reconsidering Northern impacts on international labour standards'
- 169** Apple (2012): 'Fair Labor Association Begins Inspections of Foxconn' <http://www.apple.com/pr/library/2012/02/13Fair-Labor-Association-Begins-Inspections-of-Foxconn.html>
- 170** Fair Labor Association, <http://www.fairlabor.org/>
- 171** Nova, S. & Shapiro, I. (2014), 'Assessing the Reforms Portrayed by Apple's Supplier Responsibility Report', <http://www.epi.org/publication/assessing-reforms-portrayed-apples-supplier/>; International Business Time: 'Fair Labor Association: 'Boredom' Caused Apple Factory Suicides?', <http://www.ibtimes.com/fair-labor-association-boredom-caused-apple-factory-suicides-411850>, accessed 16/2/12; AFL CIO (2013): 'Responsibility outsourced: Social Audits, Workplace certification and twenty years of Failure to protect Worker Rights', p. 45
- 172** SACOM (2012): 'Sweatshops Are Good for Apple and Foxconn, But Not for Workers', <http://www.scribd.com/doc/95395223/Sweatshops-Are-Good-for-Apple-and-Foxconn-But-Not-for-Workers>; New York Times: 'In China, Human Costs Are Built Into an iPad', <http://www.nytimes.com/2012/01/26/business/ieconomy-apples-ipad-and-the-human-costs-for-workers-in-china.html?scp=4&sq=foxconn&st=cse>, accessed 25/1/12
- 173** AFL CIO (2013): 'Responsibility outsourced: Social Audits, Workplace certification and twenty years of Failure to protect Worker Rights', p. 45
- 174** Gartner (2014): 'Gartner Says Worldwide Traditional PC, Tablet, Ultramobile and Mobile Phone Shipments On Pace to Grow 7.6 Percent in 2014', <http://www.gartner.com/newsroom/id/2645115>
- 175** Gartner (2014): <http://www.gartner.com/newsroom/id/2662915>; <http://www.gartner.com/newsroom/id/2484815>; <http://www.gartner.com/newsroom/id/2619515>; <http://www.gartner.com/newsroom/id/2570220>
- 176** AEA (2009): Assessment and Comparison of National Green and Sustainable Public Procurement Criteria and Underlying Schemes, p. 3, <http://ec.europa.eu/environment/gpp/pdf/Criteria%20and%20Underlying%20Schemes.pdf>; Kahlenborn, W., Moser, C., Frijdal, J. and Essig, M. (2010): 'Strategic Use of Public Procurement in Europe', p. 16
- 177** European Commission (2014): Revision of Public procurement Directives - Frequently Asked Questions, http://europa.eu/rapid/press-release_MEMO-14-20_en.htm
- 178** AEA (2009): Assessment and Comparison of National Green and Sustainable Public Procurement Criteria and Underlying Schemes, p. iii, <http://ec.europa.eu/environment/gpp/pdf/Criteria%20and%20Underlying%20Schemes.pdf>
- 179** Kahlenborn, W., Moser, C., Frijdal, J. and Essig, M. (2010): 'Strategic Use of Public Procurement in Europe', p. ii; European Commission: National GPP Strategies
- 180** Kahlenborn, W., Moser, C., Frijdal, J. and Essig, M. (2010): 'Strategic Use of Public Procurement in Europe', p. 26 and 52
- 181** Kahlenborn, W., Moser, C., Frijdal, J. and Essig, M. (2010): 'Strategic Use of Public Procurement in Europe', p. ix; AEA (2009): Assessment and Comparison of National Green and Sustainable Public Procurement Criteria and Underlying Schemes, p. iv, 3, <http://ec.europa.eu/environment/gpp/pdf/Criteria%20and%20Underlying%20Schemes.pdf>
- 182** Kahlenborn, W., Moser, C., Frijdal, J. and Essig, M. (2010): 'Strategic Use of Public Procurement in Europe', p. 51
- 183** WEED & SACOM (2008): The Dark Side of Cyber Space, p. 10, http://www2.weed-online.org/uploads/the_dark_side_of_cyberspace_dec.2008.pdf
- 184** China Labor Watch (2012): 'Tragedies of Globalization, The Truth Behind Electronics

- Sweatshops'; DanWatch (2013): 'IT Workers Still Pay the Price for Cheap Computers', http://www.danwatch.dk/sites/default/files/documents/dw_kina_181013_0.pdf
- 185** Kahlenborn, W., Moser, C., Frijdal, J. and Essig, M. (2010): 'Strategic Use of Public Procurement in Europe', p. 137
- 186** Europe Union (2012): Guidelines for Public Procurement of ICT Goods and Services, note on p. 4, <http://cordis.europa.eu/fp7/ict/ssai/docs/study-action23/d4-impact-assessment-prep.pdf>
- 187** The Guardian: 'Procurement as an instrument of social change', <http://www.theguardian.com/higher-education-network/efficiency-exchange-partner-zone/procurement-as-instrument-of-social-change>, accessed 1/8/14
- 188** Kahlenborn, W.; Moser, C.; Frijdal, J. and Essig, M. (2011): 'Strategic Use of Public Procurement in Europe – Final Report to the European Commission', p. 145
- 189** Ibid.
- 190** Kahlenborn, W.; Moser, C.; Frijdal, J. and Essig, M. (2011): 'Strategic Use of Public Procurement in Europe – Final Report to the European Commission', p. 1
- 191** Procure IT Fair (2009), p. 8, http://electronicswatch.org/en/buy-it-fair-guideline-for-sustainable-procurement-of-computers_5004.pdf
- 192** UNEP (2014): The 10YFP Programme on Sustainable Public Procurement, http://www.unep.org/10yfp/Portals/50150/downloads/Brochure_SPP%20Programme_10YFP_June30.pdf
- 193** Raj-Reichert, G. (2012): 'Governance in Global Production Networks: Managing environmental health risks in the personal computer production chain', p. 110, <http://labourandelectronics.net/wp-content/uploads/2013/06/Governance-in-Global-Production-Networks-Managing-Environmental-Health-Risks-in-the-Personal-Computer-Production-Chain.pdf>
- 194** For more information: http://electronicswatch.org/en/our-aims_1377, http://electronicswatch.org/benefits-affiliation_98142.pdf and http://electronicswatch.org/en/the-electronics-industry_2937
- 195** Kahlenborn, W.; Moser, C.; Frijdal, J. and Essig, M. (2011): 'Strategic Use of Public Procurement in Europe – Final Report to the European Commission', p. 145, http://ec.europa.eu/internal_market/publicprocurement/docs/modernising_rules/strategic-use-public-procurement-europe_en.pdf
- 196** European Commission: 'Public Procurement: Better value for taxpayers' money', http://ec.europa.eu/internal_market/publications/docs/public-procurement_en.pdf
- 197** For more information: http://electronicswatch.org/benefits-affiliation_98142.pdf, <http://electronicswatch.org/en/why-affiliate-95134> and http://electronicswatch.org/en/our-aims_1377
- 198** AFL CIO (2013): 'Responsibility outsourced: Social Audits, Workplace certification and twenty years of Failure to protect Worker Rights', p. 26; Wilshaw, R. (2011): 'Buyers beware: Audit idiocy', <http://policy-practice.oxfam.org.uk/blog/2011/08/buyers-beware-audit-idiocy>; Clean Clothes Campaign (2000): 'A Quick Fix'. p. 18-22; New York Times: 'Fast and Flawed Inspections of factories abroad', <http://www.nytimes.com/2013/09/02/business/global/superficial-visits-and-trickery-undermine-foreign-factory-inspections.html?pagewanted=all&r=0>, accessed 1/9/13; New York Times: 'Ruse in Toyland: Chinese Workers' Hidden Woe', <http://www.nytimes.com/2003/12/07/world/ruse-in-toyland-chinese-workers-hidden-woe.html>, accessed 5/7/14
- 199** For more information: http://electronicswatch.org/benefits-affiliation_98142.pdf, <http://electronicswatch.org/en/how-to-affiliate-95184> and <http://electronicswatch.org/en/why-affiliate-95134>
- 200** For more information: http://electronicswatch.org/benefits-affiliation_98142.pdf
- 201** For more information: http://electronicswatch.org/en/electronics-watch-holds-its-first-conference-in-amsterdam_15259
- 202** For more information: http://electronicswatch.org/en/the-power-of-public-buyers_1313, <http://electronicswatch.org/en/why-affiliate-95134> and http://electronicswatch.org/benefits-affiliation_98142.pdf

Winds of change
*Public procurement's potential for
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