



# **TOXIC TECH**

Occupational poisoning in ICT manufacturing.

**Report #98**



Swedwatch is an independent not-for-profit organisation that conducts in-depth research on the impacts of businesses on human rights and the environment. The aim of the organisation is to contribute towards reduced poverty and sustainable social and environmental development through research, encouraging best practice, knowledge-sharing and dialogue. Swedwatch has six member organisations: Afrikagrupperna, ACT Church of Sweden, Diakonia, Fair Action, Solidarity Sweden-Latin America, and the Swedish Society for Nature Conservation (SSNC). This report, which can be downloaded at [www.swedwatch.org](http://www.swedwatch.org), is authored by Swedwatch.

Make ICT Fair is an EU wide campaign that aims to improve the lives of workers and communities affected by the production of ICT devices such as smartphones and laptops. Through awareness raising, research and advocacy, the campaign highlights human rights impacts and environmental impacts along the ICT supply chains and inform on solutions. We target EU citizens, Public Procurers, Development Banks, Decision-makers and Companies to improve their purchasing practices and to align policies. Make ICT Fair is funded by the European Union, through the EU Dear Programme and involves eleven European civil society organisations and academia.



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# Executive summary

The global market for devices such as smartphones, tablets and laptops is huge. According to Eurostat, the statistical office of the European Union (EU), the EU imports computers and electronic products worth hundreds of billions of euros every year. Information and Communications Technology (ICT) plays an essential role in our modern societies and enables economic development while furthering democracy by allowing easy and affordable access to the internet.

These products are designed and sold by major global corporations whose brands are well-known on the European market and throughout the world. But workers who manufacture these goods, or the components that they are made from, are at risk of a wide range of human rights impacts, including harmful effects of the chemicals used in the manufacturing process. These, mainly female, workers are in many places falling victim to crippling and deadly occupational illnesses.

All companies involved, both those manufacturing the products and those supplying them to European consumers, have a responsibility to respect human rights throughout their operations. But despite the well-documented impacts in the production of ICT products, Swedwatch research reveals that the issues related to exposure to hazardous chemicals are not being sufficiently addressed.

The health risks connected to the manufacturing of ICT products have been known since the early years of the industry, in Silicon Valley in the 1980s. Following alarming reports, the industry migrated – first to other parts of the USA, then to countries with weak protection for workers, many of them in Asia. Today workers in these countries suffer symptoms of chemical exposure similar to those experienced in the USA in the 1980s. This report tells the story of female workers in one of the countries serving the global demand for ICT devices, the Philippines.

The manufacturing of ICT products in the Philippines takes place in Special Economic Zones (SEZs) where working conditions are often poor and the social and legal protections for workers insufficient. Women interviewed for this report work in poorly ventilated rooms where they are exposed to chemicals with well-known hazardous effects. The laws in place to protect them are not sufficiently implemented and the women state that they work without appropriate protective equipment and safety instructions. The workers describe severe effects on their health and the health of their unborn children; effects that to a large degree corresponds with the known effects of the chemicals used in the processes. In fact, for the women interviewed in this study, cancer and miscarriages are so common that they have become the norm.

Swedwatch's research thus indicates that the human rights of the workers are severely impacted. Companies sourcing ICT components and products from the Philippines are linked to these impacts through their business relationships and must act to ensure respect for human rights in this context.

Acting in accordance with the United Nations Guiding Principles on Business and Human Rights (UNGPs), companies should initiate human rights due diligence

(HRDD) to identify and assess the actual and potential human rights impacts they are linked to through their business relationships with suppliers and sub-suppliers in the Philippines. Considering that hazardous chemicals affect female and male workers differently, it is imperative that the HRDD process is gender sensitive. When properly informed about the risks and impacts companies should also, where necessary, conduct human rights impact assessments (HRIA) to understand the level of involvement in the situation and how best to proceed with the appropriate course of action.



»Workers will inhale the smell of chemicals as soon as they enter the building. But we rarely notice the smell, probably because we're used to it.«

Corporate actors in the EU will note that this is in line with the plans announced by the European Commissioner for Justice for EU legislation on mandatory corporate environmental and human rights due diligence. Echoing the UNGPs, the purpose of such legislation will be to ensure that companies have processes in place to identify, prevent, mitigate, and account for human rights abuses and environmental damage linked to corporate operations, subsidiaries and value chains.

A key factor perpetuating human rights impacts in the ICT sector is lack of transparency. Production of the ICT products that we all use every day is dependent on an opaque and highly complex web of interlocking supply chains with considerable chemical hazards at practically every stage. This is why a company's HRDD process should be open and transparent – so that governments, other business actors and the public can access the relevant information and address the risks in the supply chains.

But even more importantly, workers in the sector have the right to be informed about the risks in their workplace. Being informed about the chemicals used, their potential health impacts and the precautions workers must take to avoid such impacts, is crucial to preventing harm. A worker's legal right to remove herself from a dangerous situation depends on her being informed of the risks. This right to information is a prerequisite to other human rights impacted by chemicals, including the right to decent work as well as the right to life and health for workers and their children.

Addressing the fact that workers are exposed to hazardous chemicals in the supply chains of ICT products is necessary to ensure respect for human rights in this context, as well as an essential step towards fulfilling several Sustainable Development Goals (SDGs).

The global ICT manufacturing sector has been hit hard by lockdowns following the covid pandemic – a development that is likely to impact workers in a number of ways. In the Philippines specifically it is also a well-known fact that the situation for human rights defenders, unions and other labour organizations is already exceedingly severe.

No company sourcing devices and/or components from such a high-risk context can reasonably claim ignorance of the facts, be it regarding the risks inherent in exposure to hazardous chemicals or the human rights situation. Exporting lethal hazards along with production must never be an acceptable business practice.

# Recommendations

*To companies sourcing ICT products or components from the Philippines or from other countries with a high risk of adverse human rights impacts related to hazardous chemicals:*

- Undertake robust and gender sensitive human rights due diligence (HRDD) processes and human rights impact assessments (HRIA) throughout supply chains, to identify and address actual and potential human rights impacts associated with workers' exposure to hazardous substances. HRDD and HRIA should be conducted in line with the UNGPs and follow the Organisation for Economic Cooperation and Development's (OECD) Guidance for Responsible Business Conduct. HRDD should be performed for all activities to which the company is linked through its business relationships. The process should be based on consultation with workers and in cooperation with unions or other actors that are true representatives of the workers.
- Actively work to ensure that no workers are exposed to hazardous chemicals throughout the supply chains. When possible, hazardous chemicals should be eliminated and/or substituted with a safer alternative. Replacement chemicals should be thoroughly tested, also for synergistic and accumulative effects. All chemicals should be proven safe for female workers of child-bearing age. In this process the burden of proof should be on companies to prove that a chemical is safe – never on workers to prove that a disease is work related.
- Where elimination or substitution of hazardous chemicals is not possible, companies should demand that suppliers and sub-suppliers ensure worker protection from exposure either by isolating workers from the hazard, changing the way the work is performed or, as a last resort, by ensuring that workers are provided with, and are required to use, appropriate personal protective equipment (PPE).
- Require suppliers and sub-suppliers to ensure that workers have access to clear and easily understandable information regarding chemicals they are exposed to, allowing the workers to make informed choices regarding potentially hazardous exposure to chemicals at work, without fear of losing their jobs or suffer other negative consequences.
- Demand that suppliers and sub-suppliers comply with the national Occupational Safety and Health (OSH) legislation. This includes ensuring that workers are aware of their legal right to refuse work that is dangerous or otherwise harmful to their health.
- Promote and defend the participation of workers throughout their supply chains and demand that workers be allowed to exercise their right to join unions or be free to otherwise exercise their right to organize and their right to collective bargaining – to ensure influence regarding OSH in general and regarding protection from hazardous chemicals in particular.

- Step up efforts regarding leverage over business partners and regarding sustainable sourcing of ICT components until suppliers' and sub-suppliers' respect for human rights related to workers' exposure to hazardous chemicals can be proven to be satisfactory. This should be done through constructive collaboration with other stakeholders in the ICT supply chains.
- Use leverage over business partners to support human rights defenders and the right to freedom of expression, assembly, and association whenever there is an opportunity to do so.
- Work to ensure that stakeholders throughout the supply chain, such as governments, state authorities and other business actors, comply with their duties and responsibilities to respect the rights of human rights defenders. Defenders must be protected from attacks and threats, so that companies contribute to an enabling environment in which defenders can operate freely without fear of retaliation.
- Implement these recommendations and other efforts in an open and transparent process, in line with the UNGPs' concept of "know and show". Subcontractors and other business partners should be required to declare all chemicals used in the manufacturing process and to communicate this information to other businesses, governments, and the public. Information relevant to respect for human rights should never be considered "confidential".

*Recommendations to the government of the Philippines and to the governments of other countries with manufacturing of ICT components and/or products:*

- Act to ensure that the national Occupational Safety and Health (OSH) legislation is sufficiently enforced and offers adequate protection for workers. In the ICT sector specifically, the legislation should be implemented in a way that protects workers against the risks of exposure to hazardous chemicals, with a special focus on gender aspects.
- Ensure that workers in general, but in SEZs in particular, can exercise their right to join unions and/or are free to otherwise exercise their right to organize and their right to collective bargaining in order to allow workers to influence their working environment and prevent human rights impacts.
- Enable human rights and environmental impacts to be investigated and reported without fear of retaliation and enhance efforts to address factors that allow attacks on defenders to continue, such as impunity for violations.
- Establish and actively maintain grievance mechanisms for defenders and victims of business-related human rights impacts.

*Recommendations to legislators in the European Union (EU):*

- Develop legislation that requires companies that import goods to the EU market to ensure effective safety precautions during the production to protect workers from hazardous chemicals. This could be part of a mandatory HRDD legislation or a separate legal instrument. An important element of this would be to ensure full disclosure regarding which safety precautions have been taken in the manufacturing of ICT products and components entering the EU market and throughout their entire supply chains.

*Recommendations to contracting authorities within the EU:*

- Include social criteria in public procurement processes and contracts for ICT products. Criteria should ensure that suppliers perform effective HRDD throughout supply chains of ICT products. Risks connected to workers' exposure to hazardous chemicals should be included.
- Closely monitor suppliers' compliance with the social criteria and collaborate with other contracting authorities to build the leverage needed to address human rights impacts related to hazardous chemicals in the supply chains of ICT products.

## **Abbreviations**

<b>BWC</b>	Bureau of Working Conditions of the Philippines
<b>CDI</b>	Centre for Development and Integration
<b>CDC</b>	Centers for Disease Control
<b>CNS</b>	Central Nervous System
<b>CTUHR</b>	Center for Trade Union and Human Rights
<b>DCM</b>	Dichloromethane
<b>EU</b>	European Union
<b>EPA</b>	Environmental Protection Agency
<b>HRDD</b>	Human Rights Due Diligence
<b>HRIA</b>	Human Rights Impact Assessment
<b>ICT</b>	Information and Communications Technology
<b>ILO</b>	International Labour Organization
<b>IOHSAD</b>	Institute for Occupational Health and Safety Development
<b>IPEN</b>	International Pollutants Elimination Network
<b>NIOSH</b>	National Institute for Occupational Safety and Health at the CDC
<b>OHS</b>	Occupational Health and Safety
<b>PPE</b>	Personal Protective Equipment
<b>REACH</b>	EU Registration, Evaluation, Authorisation and Restriction of Chemicals
<b>RoHS</b>	EU Restriction of Hazardous Substances
<b>SDGs</b>	Sustainable Development Goals
<b>SEZ</b>	Special Economic Zone
<b>SIDA</b>	Swedish International Development Agency
<b>UNGPs</b>	United Nations Guiding Principles

# 1. Introduction

Chemicals are an integral part of our daily lives. According to the United States Environmental Protection Agency (EPA) more than 86,000 chemicals are used throughout the world.<sup>1</sup> They are used in an estimated 96 percent of manufactured products and in most sectors they are rapidly replacing natural materials.<sup>2</sup>

Chemicals offer great benefits to the global society and are essential in a wide range of sectors. They are used in medicines, clothing, cosmetics, in pesticides and fertilizers that boost agricultural productivity as well as several other industries. However, chemicals can be extremely harmful to humans and the environment.<sup>3</sup> For example, a UN report has estimated that one worker dies every 30 seconds from exposure to toxic chemicals at work.<sup>4</sup>



»When I was forced to resign, my body was finished. The company stole our youth and then they just dumped us. I felt old and sickly and weak. I was 32 years old.«

Exposure to hazardous chemicals can have devastating impacts on nearly all human rights. A link has also been established between poverty and the increased risk of exposure to hazardous chemicals. While economic development can lead to considerable societal benefits, each stage of economic development also has the potential to adversely impact people in new ways. According to the World Bank, negative impacts caused by exposure to hazardous chemicals in any context are likely to be borne disproportionately by the poorest.<sup>5</sup> In addition, women and men are exposed to different chemicals due to social factors – and their bodies react differently to exposure, particularly those of women of reproductive age.<sup>6</sup>

In any supply chain, workers are among those most exposed to hazardous chemicals.<sup>7</sup> The ICT sector is no exception. The supply chains for items like smartphones, tablets and laptops are long and complex, often resembling a web rather than a chain. The materials used to make these advanced electronics are elements from mines around the world and plastic derived from crude oil, as well as integrated circuits such as memory chips, processors and other components made from silicon wafers.<sup>8</sup> People can be exposed to hazardous chemicals throughout the entire production and life cycle of these products, from mining and manufacture to the management of electronic waste.<sup>9</sup>

After the risks regarding exposure to hazardous chemicals in ICT manufacturing were identified in the USA in the 1980s, the industry migrated to countries with weaker protection for workers, many of them in Asia. Many workers in these countries today suffer similar consequences of exposure to hazardous chemicals as those reported among American workers in the 1980s.

This report outlines the human rights consequences of this global development by investigating working conditions in the Philippines, which has become an important manufacturer of ICT components and products. Using extensive government subsidies, the Philippines has succeeded in attracting the industry to its Special Economic

Zones (SEZs) and today, virtually all major global ICT brands source components or finished devices from the country.<sup>10</sup>

However, in the Philippines in general, and in the country's SEZs in particular, worker protection is weak. According to the International Trade Union Confederation (ITUC), the general situation for workers and unions in the Philippines makes the country one of the worst places in the world to be a worker.<sup>11</sup> About 10 percent of the labour force is unionised, and harassment against labour groups are on the rise. Labour rights defenders have also been targeted by extrajudicial killings.<sup>12</sup>

Meanwhile, the global demand for ICT products is enormous. More than seven billion smartphones were produced in the last ten years alone. Such devices have changed the world and generated massive profits.<sup>13</sup> In 2019 the EU imported 240 billion EUR worth of computer, electronic and optical products, making it the top EU import.<sup>14</sup> ICT devices and the software they run have become essential to advance social and economic development. They are essential to ensure access to information and further democracy – and when used in investigations or to assist in global outreach and accountability, the products are used by many civil society organisations working to further human rights.<sup>15</sup>

They are also necessary for the fulfilment of the 2030 Agenda and several of its 17 Sustainable Development Goals (SDGs), for example by connecting people and communities to the internet and allowing more effective education and innovation.<sup>16</sup> Yet many consumers are unaware of the health impacts related to exposure to hazardous chemicals among workers in ICT manufacturing. Female workers of reproductive age are especially vulnerable to the health impacts of many hazardous chemicals. In the Philippines, women make up 70 percent of the ICT manufacturing workforce.

This report tells the stories of the workers serving the world's insatiable demand for ICT products and investigates whether companies that source ICT components and devices from the Philippines are upholding their responsibility to respect the human rights of these workers.

## 2. Methodology

This report is a result of research conducted in 2019 and 2020 as part of the Make ICT Fair project, funded by the European Commission under the Directorate-General for Development and Cooperation–EuropeAid and co-financed by the Swedish International Development Agency (Sida). Make ICT Fair aims to improve the lives of workers and those impacted along different stages of the ICT supply chain through research, campaigning, capacity building and advocacy.

Local research was carried out in cooperation with the Center for Trade Union and Human Rights (CTUHR) based in Manila. CTUHR is a civil society organisation engaged in research, documentation and monitoring of human and labour rights risks

and violations. CTUHR contributed both as subject matter experts and by conducting and facilitating local research.

Swedwatch initially conducted a desk study reviewing literature and documentation on hazardous chemicals and their impacts on human rights in the ICT manufacturing sector – including reports from non-governmental organisations (NGOs), scientific papers, and media reports. Swedwatch also carried out several background interviews with experts on the subject. CTUHR then conducted a first round of interviews with workers in the ICT manufacturing sector in the Philippines. Swedwatch also visited the Philippines in 2020 and conducted in-depth interviews and focus groups with factory workers.



»I have no choice.  
I have no other  
income. Even if it is  
dangerous for me,  
I have to do it.«

A total of 25 workers were interviewed. Given the dire situation regarding civic space in the Philippines, and in order to protect the anonymity of interviewees, Swedwatch does not refer to their names or any other easily recognisable characteristics. To further protect the identity of the interviewed workers Swedwatch will not mention what company they work for.

Swedwatch also interviewed several experts and other important sources in the Philippines, including the Director of the government Bureau of Working Conditions (BWC), a labour rights lawyer and a local toxicologist with experience in workers' exposure to hazardous chemicals.

These testimonies provide insights into working conditions in the ICT sector in the Philippines and the global supply chain, allowing Swedwatch to explore the extent to which private actors are upholding their responsibility to respect the human rights of these workers. While these testimonies cannot be used to draw definitive conclusions regarding the sector as a whole, the interviews clearly illustrate the severe human rights impacts associated with exposure to hazardous chemicals in the industry.

Proving the source of an occupational illness in any context can be difficult. Verifying that a medical condition was caused by exposure to a certain chemical is even harder – especially without thorough medical examinations using, for example blood samples and x-rays.

There are other well-known difficulties inherent in this type of research. For example, a worker might not know what chemicals she or he is exposed to or what the appropriate safety precautions are. The worker might also lack the knowledge to connect a medical condition to chemical exposure at work. The symptoms of occupational chemical poisoning or cancer are often similar to those of other diseases, which can cause the worker to receive the wrong diagnosis or treatment.<sup>17</sup> However, the findings presented in section 6 show striking similarities between the symptoms described by the interviewees and the well-documented hazardous effects of the chemicals they are exposed to.

The risks of exposure to hazardous chemicals are compounded by secrecy. A worker cannot be expected to know about the ill effects of a chemical or the symptoms unless this information is provided by the employer. A company might consider the list of chemicals it uses to be a trade secret.<sup>18</sup> There are indications that companies in the ICT manufacturing sector are using toxins that are not disclosed – sometimes even to the companies' own health and safety managers.<sup>19</sup>

While this lack of information might constitute a rights violation in itself, it also makes it difficult to monitor what chemicals a worker is exposed to, and to what degree – especially since the ingredients are constantly changing as technology advances and new products are developed.<sup>20</sup>

### 3. Hazardous chemicals and workers' rights

The International Covenant on Economic, Social and Cultural Rights defines the right to just and favourable working conditions as a fundamental human right.<sup>21</sup> Ensuring decent work for all is also one of the SDGs to be accomplished by the year 2030.<sup>22</sup>

However, the world is still far from fulfilling that goal. The UN Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes, Baskut Tuncak, has stated that workers from around the world find themselves in the midst of a public health crisis due to their exposure to hazardous chemicals at work.<sup>23</sup>

According to the Special Rapporteur, this global crisis remains poorly addressed despite decades of calls for action. Poisonings and other cases of extreme exposure to toxic substances constitute workplace exploitation, which violates workers' right to life, health and physical integrity.<sup>24</sup> Preventing exposure to hazardous chemicals is thus necessary to ensure safe and healthy working conditions and the right to the highest attainable standard of health.<sup>25</sup>

FACT

#### Special Rapporteurs

The UN Special Rapporteurs are independent experts appointed by the UN Human Rights Council with the mandate to monitor, advise and report on human rights situations in specific countries or on specific thematic human rights violations. The findings, conclusions and recommendations of a special rapporteur are presented to the Human Rights Council.

The obvious solution is to replace hazardous chemicals with safer alternatives, yet very few chemicals have been thoroughly studied to determine which are the most dangerous and the potential effects of those used. Banning a substance is simply not enough without proper information about the chemical that replaces it, which could present a similar, or greater, hazard.<sup>26</sup>



»If I cannot afford treatment for my cancer, the company will loan me the money. I can pay them back with salary reductions, when I get back to work.«

Another important concept is the right to information. Every worker has the right to be kept informed of the risks in their workplace. All workers must therefore have information about what hazardous chemicals they are exposed to and the short- and long-term risks associated with this exposure. This is crucial to prevent illness resulting from exposure to hazardous substances.<sup>27</sup>

Workers' right to remove themselves from dangerous situations depends on them being informed of the risks of the substances to which they are exposed.<sup>28</sup> However, workers frequently lack crucial information regarding hazardous substances and the risks associated with handling them, according to the Special Rapporteur.<sup>29</sup> Workers might not know which chemicals they have been using or their level of exposure. When this information is available, it is often presented in a way that is difficult for workers to understand.<sup>30</sup> When workers are poorly informed of the health risks posed by exposure to chemicals, they might not realise that an illness is work-related. This is exacerbated by the fact that many effects of exposure to hazardous chemicals take years to manifest.<sup>31</sup>

According to Good Electronics, a network of organisations and individuals working with human rights and sustainability issues in the global electronics supply chain, workers in ICT manufacturing have been harmed by toxic substances where they have been provided insufficient information regarding the risks they face.<sup>32</sup> Good Electronic states that the situation has been further compounded by efforts to manipulate, obscure, and conceal evidence of actual or potential health impacts.<sup>33</sup>

#### FACT

### Workers' right to know

The International Labour Organization (ILO) is a UN agency with a mandate to advance social justice and promote decent work by setting international labour standards. According to the ILO Chemicals Convention, at a minimum workers and their representatives should have a right to access information about: (1) the identity and hazardous properties of chemicals used at work; (2) precautionary measures; (3) education and training; (4) labels and markings; (5) chemical safety data sheets; and (6) other information required by the convention, such as information required of states and businesses.<sup>34</sup>

The human right not to be exposed to hazardous chemicals also applies to "low levels" of exposure to toxins. Continuous exposure to toxic substances at work can be harmful even when the concentrations do not exceed the permissible levels.<sup>35</sup> For many chemicals there are no safe exposure levels and many of the thousands of substances used in ICT production have not been proven safe, or even tested.<sup>36</sup> Even when there are standards on exposure to a certain chemical, these are rarely sufficient, since workers can be exposed to a mixture of solvents and heavy metals.<sup>37</sup>

So-called safe exposure levels are usually based on evaluations of individual chemicals. Thus, these levels do not take into account the combination effects of many different hazardous chemicals to which a worker might be exposed.<sup>38</sup> Combination effects include *synergistic effects* (how chemicals interact with each other in the body to sometimes cause even more harmful effects)<sup>39</sup> and *cumulative effects* (how a chemical can build up in the body to cause harm over time).<sup>40</sup>

According to Good Electronics, many electronics industry executives and experts have known for decades that the official permissible exposure limits are inadequate to protect the health of workers, and their offspring, when they are exposed to multiple chemicals over long periods of time.<sup>41</sup>



»We have seen the lists of these chemicals and know that they cause cancer.«

The international community has taken steps to address these issues through legally binding treaties on some of the most harmful chemicals. These treaties have helped to reduce some exposures to the targeted chemicals and wastes. But since they are designed to address specific chemicals, issues or groups of chemicals, many hazardous substances remain beyond the scope of the treaties.<sup>42</sup>

For example, the EU's Restriction of Hazardous Substances (RoHS) addresses the issue of waste from 10 hazardous substances associated with the consumer electronics industry. However, the RoHS only applies to chemicals, or products containing chemicals, imported to or manufactured in the EU.<sup>43</sup>

The EU's Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) requires companies manufacturing or importing chemical substances or goods containing chemical substances above or equal to one tonne (per year and company) into the EU to register these substances with the European Chemical Agency (ECHA). All suppliers of goods must inform the ECHA if an article contains more than 0.1 percent of a certain chemical, also above or equal to one tonne (per year and company).<sup>44</sup>

While these restrictions can help European companies to become more sustainable and serve as a global reference point for regulation of hazardous substances they do not address chemicals that workers are exposed to on production lines are therefore of little help to workers outside the EU.

## Principles on workers' exposure to hazardous chemicals

In 2019 the aforementioned UN Special Rapporteur released *15 Principles on Human Rights and the Protection of Workers from Exposure to Toxic Substances* (see text box below). These principles, presented to the Human Rights Council in 2019, are based on international human rights law, the UNGPs, ILO instruments, and international agreements on toxic chemicals and wastes.<sup>45</sup>

The principles serve as an important starting point for discussion and research on hazardous chemicals. Several are relevant to the research, analysis and conclusions presented in this report.

FACT

## **Human rights and the protection of workers from exposure to toxic substances**

- Principle 1:** Everyone must be protected from exposure to toxic substances at work.
- Principle 2:** States have a duty to protect the human rights of workers through the prevention of exposure to toxic substances.
- Principle 3:** Business enterprises have a responsibility to prevent occupational exposures to toxic substances.
- Principle 4:** Hazard elimination is paramount in preventing occupational exposures.
- Principle 5:** Duties and responsibilities to prevent the exposure of workers to toxic substances extend beyond borders.
- Principle 6:** States must prevent third parties from distorting scientific evidence or manipulating processes to perpetuate exposure.
- Principle 7:** Protecting workers from exposure to toxic substances protects their families, their communities and the environment.
- Principle 8:** Every worker has the right to know, including to know their rights.
- Principle 9:** Health and safety information about toxic substances must never be confidential.
- Principle 10:** The right to safe and healthy work is inseparable from freedom of association, the right to organize and the right to collective bargaining.
- Principle 11:** Workers, representatives of workers, whistle-blowers and rights defenders must all be protected from intimidation, threats and other forms of reprisals.
- Principle 12:** Workers, their families and their communities must have immediate access to an appropriate and effective remedy, which should be available from the time of exposure.
- Principle 13:** Workers or their families should not bear the burden of proving the cause of their illness or disability to access an effective remedy.
- Principle 14:** Depriving workers of their right to safe and healthy work should be a crime.
- Principle 15:** States should ensure accountability for cross-border cases of workers harmed by occupational exposure.<sup>46</sup>

# Companies' responsibility to respect human rights

While exposure to hazardous chemicals clearly impacts workers' rights, the UNGPs, which the UN Human Rights Council unanimously endorsed in 2011, clarify the responsibilities of companies and the duties of states with regards to the human rights impacts associated with business activities.<sup>47</sup>

The UNGPs require companies to respect human rights in their business activities and throughout their business relationships.<sup>48</sup> The principles are not binding law, but "identify and clarify" the responsibilities of companies and states under existing standards and practices. They distinguish between states' duty to protect against human rights abuses and corporations' responsibility to respect human rights.<sup>49</sup>

The UNGPs define human rights as those listed in the International Bill of Human Rights along with the fundamental labour rights in the core conventions of the ILO. But companies may also need to consider several additional human rights standards. Depending on factors such as a company's operations, context and size, different types of human rights can be at risk in different situations, but the framework makes it clear that all companies should respect all human rights, irrespective of their size or industry.<sup>50</sup>

A central concept of the principles is human rights due diligence (HRDD). This process should include assessing actual and potential human rights impacts, integrating and acting upon the findings, tracking responses, and communicating how the impacts are addressed. This should be an ongoing process, since human rights risks may change over time.<sup>51</sup> The concept of HRDD is further developed in the OECD Due Diligence Guidance for Responsible Business Conduct.<sup>52</sup> When conducting HRDD the company should tailor the process to the specific risks in their operations and take into account how these risks affect different groups, for example by applying a gender perspective to their HRDD.<sup>53</sup>



»As a single mom,  
I am so scared about  
the chemicals.  
I have to be able  
to take care of  
my child.«

HRDD informs a company of impacts that have already taken place, and thereby helps companies to understand when a human rights impact assessment (HRIA) should be conducted. A HRIA can be a time-consuming exercise but is needed to adequately understand who has been impacted, and in what way. A HRIA also helps a company to understand the level of company involvement in the impact and is therefore a vital tool for assessing the appropriate course of action.<sup>54</sup>

When acting on these findings, a central concept is linkage. Linkage describes how a company is connected to adverse human rights impacts either by *causing* the impact, *contributing to* it somehow, or being *linked to* the impact through business relationships with suppliers or other business partners. This means that a corporate actor, for instance a company sourcing an ICT component from the Philippines, is linked to human rights impacts that occur in the production of these components even if the company itself does not directly cause the impact. To act on this responsibility, the company must seek to prevent or mitigate these adverse human rights impacts.<sup>55</sup>



»You will see sometimes female workers fainting or silently crying while at work.«

Where a company has not contributed to or directly caused the human rights impacts, *leverage* is essential. Leverage is a company's ability to effect change when a business partner is causing or contributing to an adverse human rights impact. The appropriate action depends on how close the relationship is between the parties, the severity of the abuse, and whether terminating the relationship with the entity would have adverse human rights consequences. Leverage in this context of ICT manufacturing can take the form of contractual requirements or through dialogue with suppliers.<sup>56</sup>

When discussing ICT brands and their suppliers and sub-suppliers, the supply chain is so complex and opaque that it can be difficult to address human rights issues. However, since the adverse human rights impacts related to hazardous chemicals are so severe, a company needs to exercise leverage over its suppliers to prevent or mitigate these impacts. If the company lacks leverage it should find ways to increase it, for example by offering incentives to the business partner in question, by collaborating with other actors or, as a last resort, ending the relationship.<sup>57</sup>

According to the UNGPs, the responsibility to respect human rights is a universal standard that exists over and above national laws and is applicable independently of states' abilities or willingness to fulfil their own human rights obligations.<sup>58</sup> The framework also formulates the concept of "know and show", meaning that companies have a responsibility to be aware of and report on how their operations impact human rights at all stages.<sup>59</sup>

In April 2020, the European Commissioner for Justice announced plans for EU legislation on mandatory corporate environmental and human rights due diligence. Following a public consultation, the legislation will be discussed in the first quarter of 2021. The purpose of the new legislation is to make corporations identify, prevent, mitigate and account for human rights abuses and environmental damage linked to their operations, subsidiaries or value chains.<sup>60</sup>

FACT

### The Hierarchy of Controls

Identifying and mitigating exposures to occupational hazards is the objective of all OSH work. The Hierarchy of Controls is a way to order these efforts by arranging them, beginning with the most effective controls and proceeds to the least effective.

- **Elimination** – Physically remove the hazard
- **Substitution** – Replace the hazard
- **Engineering controls** – Isolate people from the hazard
- **Administrative controls** – Change the way people work
- **Personal protective equipment** – Protect the worker with PPE

According to the Hierarchy of Controls, the use of PPE is considered the last line of defence against worker injury and illness. PPE is therefore to be considered only when controls higher in the hierarchy are under development or have failed to eliminate the hazard.<sup>61</sup>

## Hazardous chemicals and the 2030 Agenda

In 2015, the UN General Assembly adopted the 2030 Agenda for Sustainable Development, which includes 17 Sustainable Development Goals and 169 targets to help accomplish the goals.<sup>62</sup> According to the UN, chemical contamination is a grave danger with the potential to damage human health, genetic structures and reproductive outcomes. Addressing these issues will require major investments as well as development of new techniques and the main obstacle to addressing the situation is a lack of information and resources to assess risks regarding chemicals.<sup>63</sup>

While some targets are directly relevant to chemicals (see fact box), the sound management of chemicals is relevant to the achievement of many other targets<sup>64</sup> - some examples being those concerning decent work, good health and increasing access to ICT and the internet.<sup>65</sup>

FACT

### **SDG targets concerning chemicals and ICT**

**3.9** By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

**8.8** Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment.

**9.C** Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020.

**12.4** By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimise their adverse impacts on human health and the environment.

## 4. Hazardous chemicals in ICT production

Many chemicals are used throughout the life cycle of ICT products, and many of them present a wide variety of human health and environmental risks. From mining to manufacture and finally e-waste, the industry releases many different toxins that are harmful to the environment and to humans.<sup>66</sup>

The global supply chains for ICT products are highly complex and lack transparency, which makes it difficult to address the risks associated with these substances. A single company can rely on thousands of suppliers, each of which may rely on hundreds or thousands of sub-suppliers.<sup>67</sup>

# Supply chain



**CHEMICALS**

**FINAL ASSEMBLY MANUFACTURER**  
Assembles the components to create the phone

**CHEMICALS**

**COMPONENT MANUFACTURERS**  
Assemble the individual components to make a phone

**CHEMICALS**

**MATERIAL MANUFACTURERS**   **MATERIAL MANUFACTURERS**   **TRADERS**   **TRADERS**

**CHEMICALS**

**SMELTERS & REFINERS**  
Refine raw materials into usable materials for component manufacturing

**CHEMICALS**

**TRADERS**   **TRADERS**   **TRADERS**

**MINES**  
Minerals extracted from different mines

**OIL FIELDS**  
Crude oil extracted from oil fields

However, the risks regarding hazardous chemicals in the industry are well documented. Research has been conducted on most of the relevant components, such as batteries, screens and microchips. The most severe cases have been found in the semiconductor industry. Research from South Korea has shown that workers in semiconductor factories are suffering from occupational diseases such as cancer.<sup>68</sup> But chemical hazards can also be found in later phases of production, for instance when the products are assembled or packaged.<sup>69</sup>

The first signs of reproductive effects from electronics industry chemicals emerged in Silicon Valley in the USA in the 1980s.<sup>70</sup> This was followed by reports of an increased incidence of certain forms of cancer and other health effects among factory workers. Today, ICT production is mostly located in countries where the need for jobs often outweighs the capacity of health and safety controls.<sup>71</sup>



»The products get made at the expense of our health. We suffer in silence because we need the job. If I complained I would be out of a job.«

Many of these countries are in Southeast Asia, where several studies have concluded that the health and human rights of workers have been adversely impacted by exposure to chemicals. The industry in these countries often occupy segments of the supply chain where the tasks involve heating, painting, laser carving and cutting, gassing with metallic coating, and using solvents and detergents. A single mobile phone contains several different plastics, metals and other substances, including some highly toxic chemicals. This contributes to toxic chemical releases and air pollution in the working environment.<sup>72</sup>

The Centre for Development and Integration (CDI), an NGO that works to ensure social and economic development in Vietnam, reported in 2014 on the harmful working conditions in the country's electronics manufacturing and assembling industry. The research noted particular negative impacts on workers' reproductive health.<sup>73</sup> The most extreme findings included mass faintings among workers and an incident where six female workers in the same workshop suffered miscarriages in a single month, including a 7-month-old still-birth, and a case of birth defects that resulted in a termination.<sup>74</sup>

The International Pollutants Elimination Network (IPEN), which is dedicated to minimising and eliminating toxic chemicals, found similar effects among workers in ICT manufacturing in Vietnam, including extreme fatigue and fainting or dizziness. Workers reported that miscarriages were common, even expected. The study called for further research on chemical exposure among electronics workers, especially in open factory settings where a variety of different substances might be used.<sup>75</sup>

## Hazardous chemicals and gender

There are significant linkages between gender and the effects of chemicals.<sup>76</sup> The impact of exposure to toxic chemicals is determined by both social and biological factors. This means that men and women are exposed differently to toxic chemicals, including differences in the kinds of chemicals encountered as well as the level and frequency of the exposure, which depends on the different types of work tasks gener-



»Soldering is very dangerous. I feel pity on those operators. If the machines and chemicals are not covered, workers will eventually contract disease.«

ally performed by women and men. Biological factors such as size and physiological, hormonal, and enzyme differences refer to the fact that men and women vary in their susceptibility to the effects of toxins.<sup>77</sup> For instance, past studies have identified especially sensitive periods to specific chemicals during foetal and child development.<sup>78</sup> Previous research on electronics workers has found increases in certain forms of cancer in female workers and their children.<sup>79</sup>

In Southeast Asia, women comprise 60 to 90 percent of the workforce in electronics factories, depending on the country.<sup>80</sup> A large portion of these women are of child-bearing age.<sup>81</sup> A study done on the industry in the Philippines by the local NGO Institute for Occupational Health and Safety Development (IOHSAD) showed that the most common and pressing hazard faced by female workers was exposure to chemicals.<sup>82</sup> This work was found to affect their menstrual cycle, and cause infertility and frequent miscarriages.<sup>83</sup>

Even exposure to low concentrations of chemicals may cause serious health impacts, such as carcinogenic, immunologic, reproductive and developmental effects. Solvents in particular are known to significantly increase the risk of miscarriage. Research has shown that women who were exposed to less than 0.1 percent of the occupational exposure limits of certain solvents had nearly triple the risk of miscarriage compared to those who were not exposed.<sup>84</sup> In the semiconductor industry, exposure below set limits has been shown to cause miscarriages and severe birth defects.<sup>85</sup>

## 5. The Philippines' ICT industry

The Philippines is an island nation consisting of more than 7,000 islands with a population of about 107 million. While traditionally an agricultural country, the manufacturing sector has been growing steadily and currently contributes about one-fourth of the country's GDP. This is partly because the government is assisting the sector by exempting certain new industries from taxation. Only nominal taxes are imposed on selected industries, and loans on favourable terms are available to others.<sup>86</sup>

The semiconductor and electronics industry is a significant driver of the Philippine economy. In 2018, the industry accounted for 37,6 billion USD or 56 percent of total exports. The top export destinations are Hong Kong (19 percent), China (13 percent) and Japan (13 percent), followed by the USA (12 percent) and Singapore (11 percent).<sup>87</sup>

Nearly all semiconductor and electronics manufacturing firms are located in Special Economic Zones (SEZs) located outside the metro Manila region to take advantage of the lower wages in these regions. The industry is highly subsidised by the government. Companies based in the SEZs also receive tax holidays, fiscal incentives, and security services through the national military forces.<sup>88</sup>



FACT

### Human rights in the Philippines

The human rights situation in the Philippines is highly problematic. According to the research organisation Freedom House, rule of law and application of justice are haphazard and heavily favour political and economic elites. The situation for human rights defenders is a key point of concern, as impunity remains the norm for violent crimes against human rights defenders and journalists.<sup>89</sup>

Long-term violent insurgencies are still taking place in parts of the country, although the conflicts are generally not perceived as a threat to the state. The war on drugs initiated by President Rodrigo Duterte in 2016 has reportedly led to thousands of extrajudicial killings.<sup>90</sup>

Judicial independence has deteriorated during the Duterte administration; corruption and impunity are serious problems. Courts and other anticorruption institutions have failed to hold powerful politicians and their associates accountable for serious allegations.<sup>91</sup>

The justice system fails to guarantee due process rights. Arbitrary detention, disappearances, kidnappings, and abuse of suspects are common. Lawyers and prosecutors have been targeted with deadly violence. According to Freedom House, the police and military routinely torture detainees.<sup>92</sup>

Human rights and environmental defenders have been assassinated, and the President has publicly threatened those who oppose his policies. Environmental and land rights defenders are particularly at risk, according to the research organisation Global Witness.<sup>93</sup> The human rights organisation Frontline Defenders has reported that 43 human rights defenders were killed in the Philippines in 2019 alone.<sup>94</sup>

The Philippines has ratified all ILO core conventions.<sup>95</sup> However, according to the ITUC Global Rights Index, it is one of the 10 worst countries in the world to be a worker. According to the ITUC, trade union members face intimidation, violent attacks and even murder. Trade union members are also facing constraints or outright denials of their freedoms of speech and assembly.<sup>96</sup> Less than 10 percent of the labour force is unionised and, according to Freedom House, harassment against labour groups increases, and their leaders have been targeted with extrajudicial killings in the past decade.<sup>97</sup>

Even though labour rights are formally guaranteed by law, their weak enforcement results in severe and widespread violations of labour standards. Workers in the electronics industry have stated that unions are not allowed in their companies, and that suspensions and terminations are used to discipline workers who are absent due to overwork and fatigue, or to punish those who join or seek to organise unions.<sup>98</sup> Many of these issues are related to the SEZs, where informal mechanisms and

unwritten policies serve to quell labour unrest. According to Electronics Watch, workers have stated that unions are in effect prohibited in their factories or in their SEZs. The industry organisation Semiconductor and Electronics Industries in the Philippines (SEIPI) advertises that the industry is “non-unionised”.<sup>99</sup>



»We have to endure in silence, we have to endure the pain every day, because we need the job.«

A majority of the country's ICT manufacturing workers are women. The Philippine constitution stipulates female workers' right to safe and healthy working conditions, considering their “maternal functions”.<sup>100</sup> However, according to Electronics Watch, female workers handle toxic chemicals without proper training on health hazards and prevention. Workers interviewed by Electronics Watch associated a range of health problems with their working conditions.<sup>101</sup> Female workers in Filipino SEZs have been shown in a study by The University of Manila to suffer from a wide range of medical conditions that could be linked to exposure to chemicals.<sup>102</sup>

In 2019, the Philippines adopted a new Occupational Safety and Health (OSH) law which replaced an older set of standards and introduced penalties for non-compliance. According to the law, a company that is inspected and found to be non-compliant is given 90 days to adhere or face a fine.<sup>103</sup>

The law has several sections relevant to this research, such as a worker's right to be informed of the risks in their workspace, including the risks connected to exposure to chemicals, and the right to refuse if their assigned work is perceived as harmful.<sup>104</sup>

“Workers have a right to be aware of the risk inherent in a certain task, including the risks connected to exposure to chemicals. In cases of imminent danger situations, the worker has the right to refuse work,” Teresita Cucueco, Director of the Government Bureau of Working Conditions (BWC), said in an interview conducted by Swedwatch.<sup>105</sup>

The BWC Director told Swedwatch that in 2019 the bureau inspected 103 companies in the electronics manufacturing sector. Regarding general health and safety, the



»The union has made the situation much better. The union gives us a voice and tells us about the chemicals and the risks. The union can help us in legal matters, but there is still a lot that we do not know about the ill effects of the chemicals.«

compliance rate was said to be 54 percent. When reviewing how many employers had provided a worker orientation on safety and health the number was 78 percent, according to the Director.

“Every company should have a safety officer to whom they can complain. Because, regarding chemicals, even if there is no imminent danger, continuous exposure can lead to a disease.”

The BWC Director told Swedwatch that it would be easier for workers to push for change and bring issues to the attention of the BWC if they were organised, but that this is difficult in the SEZs.

“Companies located in the special economic zones do not have unions. That has always been an issue, because allegedly unions have difficulty in organising workers in the zones. The zones say that they do not discourage unions, but still the unions have difficulties.”

Swedwatch interviewed a local labour rights lawyer on the implementation of the new OSH law, who described enforcement as weak:

“Laws in the Philippines are generally good, just as good as the laws in the US or Europe. The problem is the implementation: a law that cannot be implemented is useless”.

According to the lawyer, information regarding the risk of occupational exposure to hazardous chemicals can be very difficult for a worker to understand, especially one who might not have finished secondary education. It is difficult even for an educated worker to read the law or make sense of technical information on a chemical data sheet. Workers are generally dependent on their employers and learn to tolerate risks in order to keep their jobs.

“Unemployment is high in the Philippines. A worker’s number one priority is to get a job and keep it. The employer knows this and will just tell the worker that if they don’t like the job, they can go work somewhere else.”

The lawyer agreed that the situation is even worse when companies are based in SEZs, because the zones have no obligation to allow union organisers into either the zones or the companies:

**“In the Philippines the workers have rights, but they are useless rights.”**

## 6. Swedwatch's investigation in the Philippines

For this study, 25 workers from six ICT manufacturing companies in the Philippines were interviewed about working conditions and occupational health and safety, with a special focus on exposure to hazardous chemicals. Most of the interviewees work as factory operators, mainly in soldering, assembly or quality control. Two hold administrative positions and one is a line leader (manager).

All but two interviewees are women, aged 19–56. Most of them were permanently employed, but some had shorter contracts or were agency employees. They have worked between three months and 38 years in the sector. Twelve of them have children.

The factories where the interviewees work are typical of the ICT sector in the country. They mainly supply the global market with components such as microchips, Wi-Fi parts, LCD displays or other components for smartphones. But some also assemble products such as headphones or chargers.

All operators stated that their contract requires them to work eight-hour days, but in order to earn enough to survive they have no choice but to work overtime, up to the legal limit of four hours per day. Refusing to work overtime is considered unacceptable, meaning that they work 12-hour shifts, six days a week, for around 8 USD per day. Sitting is not allowed outside of break time.

The workers were generally aware of what brands the components are manufactured for – most of them are well-known companies, part of the global ICT sector selling their products all over the world, including the EU market. Swedwatch has accessed customer lists of one of these companies and can confirm that virtually all major global brands in the ICT sector can be found among the customers.

Although unions are basically non-existent in the ICT manufacturing sector in the Philippines, 10 of the interviewees work at factories with a union. This selection enables Swedwatch to compare the experiences of unionised and non-unionised workers.

Most workers were given a safety orientation at the start of their employment. In some cases, this orientation included the handling of chemicals but did not elaborate on what specific chemicals the worker would come into contact with, or the risks related to exposure to these chemicals.

“We were given a safety orientation. But no one told us about the risks. We were told how to perform the task, but the chemicals and their effect on the body, that was not included in the orientation,” says one worker interviewed by Swedwatch.

The interviewees described a working environment in which hazardous chemicals are handled without proper protective equipment. Most workers stated that they were only

provided with thin surgical masks that do not protect against the fumes. Others said the company only issues thin latex gloves that break when exposed to the chemicals.

“The chemicals were so strong that the gloves melted on our hands. But we only got three or four pairs per shift. When the gloves were gone, we got chemicals on our hands. When I got home after my shift, I had stains on my fingertips and my hands were tingling”, one worker said to Swedwatch.

According to the interviewees, chemicals are handled at most stations on a production line and ventilation is generally poor, meaning that all workers are exposed to chemicals from all stations.

“We breathe these fumes all the time, and after a while you get used to the smell and the headaches. But if someone new enters the factory, they notice the smells immediately”.

The only exception is a factory where the workers have organised a union. According to these workers, proper masks for workers doing soldering was one of the first issues to be brought up with management. Soldering in this factory is now performed with a filtered mask.

Many workers were not aware that they have a legal right to refuse dangerous work.<sup>106</sup> Others said they would be fired if they refused to work. According to one interviewee, “If we want to know whether the chemicals are dangerous the manager asks us if we want the job or not. They say that we applied for the job and should not be complaining”.

Indeed, most interviewees were not bitter or resentful of their employers. They were generally thankful to the company for having a job and felt proud that they could help make high-quality components for products that are sold all over the world.

## Health impacts

The workers interviewed for this study experience several adverse health effects as a result of their job. Swelling and pain in the legs and feet are a common result of standing up for 12-hour shifts. Many suffer from severe myopia and reduced eyesight caused by working with microscopes. Urinary tract infections are common because the breaks are short, and toilets often far away. Some reported that their hearing has been impaired by the noise in the factories.

Some workers worried that their health had been impacted by equipment that emits heat, radiation or ultrasound. But the most severe health effects were perceived to be related to chemical exposure. These health issues range from irritation and discomfort to potentially life-threatening conditions.

The most common symptoms described were dizziness, headaches and chest pains that arise when exposed to fumes from chemicals or dust and smoke from processes that involve heating or burning.

“When you open the machine, it is very painful for the chest. There is no smell, but you can feel the pain in your chest”, said a machine operator in an interview with Swedwatch.

Skin conditions are common, mainly rashes on the hands and arms where they are exposed to chemicals. One interviewee who used to work with nickel paste stated that she suffers from nickel dermatitis as a result.

Some workers complained that they were suffering from muscle spasms. Others suspected that their bodies and immune system had been compromised because they and their colleagues suffer more from high blood pressure, diabetes, pneumonia and tuberculosis than the general population.

Many of the women mentioned reproductive health problems. They said that they have irregular periods, suffer from myoma and have difficulties conceiving. Many have experienced miscarriages themselves, and many more talked about colleagues who had suffered miscarriages or stillbirths.

“I have had miscarriages. I never got cancer but several of my co-workers got ovarian cancer or breast cancer. I had two miscarriages and I know of another worker who had one, she eventually needed surgery to her ovaries”, said a former electronics worker to Swedwatch.

According to the interviewees, breast cancer and ovarian cancer are common among the female workers. Swedwatch talked to one worker who was diagnosed with a tumour in one of her ovaries and had to have a hysterectomy, and another who recently had an operation to treat breast cancer.

In an interview with Swedwatch, one worker reported, “I am the fourth woman in our production line to get cancer. I got breast cancer and the others got ovarian cancer. There was another woman who died, but I am not sure if it was cancer or not”.

Many workers stated that they had co-workers who had been diagnosed with other forms of cancer, such as leukaemia and thyroid cancer.

“We had a colleague who died of thyroid cancer. She worked the night shift at the soldering station for seven years and then she died, at the age of 26”, said a soldering operator to Swedwatch.

## Commonly used hazardous chemicals

According to the interviewees, a wide range of chemicals is used in the manufacturing process. For instance, alcohols and different solvents and thinners are used for cleaning, and superglues and inks are used in final product assembly. Soldering paste and solder flux are used for soldering. Oils and greases are common, as are substances such as nickel paste and potassium hydroxide.

Some workers could name the proper names of the chemicals, while others only knew the product name or could describe the chemical and its purpose, like “I work with different types of solvents”. This makes it difficult to draw general conclusions about the workers’ exposure to chemicals.

However, the workers could clearly identify some of the chemicals, many of which are known to cause symptoms like headaches and dizziness. Others have been found to cause nerve damage, reproductive problems or cancer.

Three of these chemicals are described in detail below – methylene chloride (also known as dichloromethane or DCM), toluene and lead. Most of the interviews named at least one of these substances. Exposure to these chemicals is known to have serious health effects, which closely correspond to the symptoms reported in the interviews.

## DCM

DCM is a clear, sweet-smelling liquid chemical used in many industries for removing paint, degreasing and cleaning. It is also a neurotoxin that can damage the brain and central nervous system (CNS).<sup>107</sup> Exposure to DCM can cause immediate effects on the CNS including decreased visual, auditory and psychomotor functions.<sup>108</sup>

According to the EPA, animal studies have shown that inhaling DCM increases liver and lung cancer as well as mammary gland tumours, as well as damage to the liver, kidney, CNS and cardiovascular system. Based on this evidence, the EPA considers DCM to be a probable human carcinogen.<sup>109</sup>

The National Institute for Occupational Safety and Health (NIOSH) at the Centers for Disease Control (CDC), the national public health institute of the USA, has concluded that there is enough evidence on the carcinogenicity of DCM to warrant concern about the potential consequences of occupational exposure to the substance.<sup>110</sup>

## Toluene

Toluene is a clear liquid that occurs naturally in crude oil. The short-term effects of exposure to toluene are fatigue, confusion, headaches, dizziness, unconsciousness, memory loss and nausea.<sup>111</sup>

The long-term effects associated with exposure to this chemical include ataxia (lack of muscle control), tremors, cerebral atrophy, nystagmus (involuntary eye movements) and impaired speech, hearing and vision. According to the EPA, these neurobehavioral effects have been observed in occupationally exposed workers.<sup>112</sup> Toluene is also a so-called reproductive toxin as it affects the reproductive system – studies on humans have shown that toluene can affect the foetus, causing damage to the CNS, attention deficit, and craniofacial and limb anomalies in the children of exposed pregnant women.<sup>113</sup>

# Lead

Lead is a heavy metal that affects multiple body systems – an effect that was first documented as early as 2000 BC.<sup>114</sup> According to the World Health Organization (WHO), there is no safe level of exposure to lead. The main cause of occupational exposure to lead is said to be inhalation of lead particles generated by burning materials that contain the substance.<sup>115</sup>

Once lead has entered the body it is distributed to the brain, liver, kidney and bones. It is also stored in the teeth and bones, where it accumulates over time. Lead that is stored in bone tissue is released into the blood during pregnancy and becomes a source of exposure to the developing foetus.<sup>116</sup>

In utero lead exposure can cause a baby to be born too early or too small, hurt the baby's brain, kidneys or CNS, increase the likelihood of learning or behavioural problems and put the mother at risk of miscarriage.<sup>117</sup>

## FACT

### **A toxicologist perspective**

During the research Swedwatch talked to a toxicologist to help put the workers' testimonies into context and to support the analysis. The toxicologist, who will remain anonymous, was not surprised about the findings from Swedwatch's interviews. According to him, there is little awareness of occupational chemical exposure in the Philippines.

"Some workers might have an inkling that they have been exposed to something because they are getting sick. Often workers are exposed to chemicals when they are quite young and within a few years they get sick because of the chemicals."

The toxicologist stated that the incidence of cancer and reproductive issues experienced by the interviewed workers fit a familiar pattern and are well known in the ICT manufacturing sector.

"That workers experience spontaneous abortions has been documented all over the world. The chemicals also cause fertility problems and there is a lot of cancer in the industry."

According to the toxicologist, it is very difficult to identify the precise factors behind a certain medical condition such as cancer. However, when workers are exposed to high doses of carcinogenic substances and subsequently suffer from cancer, the connection cannot be disregarded.

"We have the scientific data for most of these chemicals. With many of these chemicals it is obvious that they are harmful. Even if they are not sufficiently tested themselves, they often belong to a group of chemicals that is known to cause cancer. There is not really a lack of proof."

The toxicologist confirmed the adverse effects associated with exposure to DCM, toluene and lead.



“DCM is really bad. Its known carcinogenic effects are much higher than those of many other chemicals. Toluene affects the reproductive system and can cause damage to the brain. Lead fumes are extremely toxic. I am surprised they even use it. I thought lead had been phased out.”

Wearing a surgical mask made from paper or cloth is not enough, according to the toxicologist.

“That kind of mask is useless against chemicals such as these. You must use a special mask with a filter. Also, handling solvents with latex gloves will of course not be enough. There are gloves that can be used, but surgical gloves offer no real protection.”

The lack of ventilation in the workspace described by workers is also a factor to consider. “It is very serious that the different processes are not segregated. This increases the exposure to workers’ health. If there is a series of processes with many different chemicals, dissolving, burning, heating, spraying, then the whole building is probably contaminated.”

The toxicologist pointed out that in the general population the incidence of a certain form of cancer is generally quite low. When several workers in the same factory are diagnosed with the same form of cancer, this is an indication that there is a contributing factor in the workplace.

“Even if you had one cancer patient in 1,000 workers, I would consider that high. Even one case would be significant. If you get more than one, it should have something to do with the exposure.”

## 7. Conclusions

Despite the responsibility of all companies to respect human rights in their business activities, it is well known that the human rights of workers in the global production chain of ICT products are impacted in several ways – not least regarding their exposure to hazardous chemicals.

The global demand for ICT devices has pushed the manufacturing of these products to countries where workers do not enjoy the same protection as workers in the USA and Europe – where many of the products are sold. The poor working conditions – combined with insufficient legal protections for workers – risk having disastrous impacts on workers exposed to hazardous chemicals.

According to this research, the Philippines is no exception. The findings indicate that workers are exposed to known toxins without proper protections and precautions – and that they suffer severe health effects including cancer, reproductive damage and other serious illnesses.

When analysing the interviews conducted for this research, the resemblance between the documented effects of these chemicals and the testimonies of exposed workers is striking with regards to both acute symptoms and potentially deadly and crippling long-term medical conditions. Fearing reprisals and unemployment, workers stay in their jobs even when they are at risk of contracting tumours, experiencing miscarriages and other serious effects of the chemicals they are exposed to.

The chemicals used are known to cause serious health effects even at low concentrations, and the findings from the interviews seem to largely confirm this picture. The workers interviewed describe a situation in which cancer and miscarriages are so common that they have become the norm.

Based on the research findings, Swedwatch can conclude that in the factories investigated, the local OSH law is not enforced sufficiently to ensure protection from chemicals. Despite the protections guaranteed by the law, the workers interviewed for this study demonstrated a low awareness of the risks associated with exposure to hazardous chemicals. Workers also handle hazardous chemicals without proper protective equipment or ventilation.

FACT

### **ICT and the pandemic**

The outbreak of covid-19, which spread across the world during the first half of 2020 and was declared a pandemic by the WHO in March 2020, has had an extreme impact on all global sectors and markets - not least the electronics industry. Delays in shipments and other problems has created an uncertainty that has proven problematic for the industry.<sup>118</sup>

A prolonged pandemic will have serious effects on the sector and will likely impact the workers manufacturing ICT for the global market. A decline in production could lead to layoffs and lost income, while an end of the lockdown most likely will mean that companies need to make up for lost revenue by increasing production output.<sup>119</sup>

Often the workers are housed in special accommodations where disease easily spreads. Looking to the future, a possible result of the pandemic could be an increase in automation where workers in the sector are replaced by machines.<sup>120</sup>

Safe and healthy working conditions are a basic human right. Exposure to hazardous chemicals is clearly an urgent adverse impact on a worker's right to life and right to the highest attainable standard of health. According to the UNGPs, companies that are linked to such impacts through their business relationships have a responsibility to act to prevent and mitigate these impacts.

Therefore, companies sourcing products and components from the Philippines must act swiftly to ensure respect for human rights in this context, starting with adherence to the UNGPs. There are a few key elements in the findings that companies should consider during this process.



»When a worker contracts cancer, the company will not cover the costs. Instead the company will force the worker to resign.«

Swedwatch's findings underline the importance of assessing how women and men face different risks with regards to hazardous chemicals, and how their health is impacted differently by exposure to chemicals. This can only be done with a gender sensitive HRDD approach. To comply with the UNGPs, companies sourcing ICT from the Philippines should conduct this type of gender-sensitive HRDD to identify and assess the actual and potential impacts of hazardous substances that they are linked to through their business relationships with suppliers and sub-suppliers in the country.

HRDD informs a company of impacts that have already taken place and helps companies to understand when a human rights impact assessment (HRIA) should be conducted. A HRIA can be a time-consuming exercise but is needed to adequately understand who has been impacted, and in what way. A HRIA also helps a company to understand the level of company involvement in the impact and is therefore a vital tool for assessing the appropriate course of action.

One of the obvious end goals of this process is to replace hazardous chemicals with alternatives that are proven to be safe, also from synergistic and accumulative effects, with a focus on female workers of reproductive age.

In cases where elimination or substitution of a substance is not possible, workers should be protected by isolating them from the hazard or by changing the way the work is performed. As a last resort, workers should be provided with, and be required to use, the appropriate PPE. Companies should ensure that business partners comply with the national OSH legislation. Workers must have access to clear and understandable information about the substances they are exposed to, in order to be aware of the chemical risks and be able to exercise their right to refuse dangerous work.

Having access to information and being able to make an informed choice regarding chemical hazards at work is not only a human right in itself; it is also a necessary prerequisite for the enjoyment of a number of other rights, including the most basic human rights to health and life.

These efforts should be open and transparent. All business partners should be required to declare what chemicals are used in the manufacturing process and communicate this information to other businesses, governments and the public. Information relevant to respect for human rights should never be considered "confidential".

The global demand for ICT products is significant, and the supply chain is complex and opaque. But companies should nevertheless act swiftly to prevent the threats and impacts faced by workers in the sector. If a company sourcing ICT products and components from the Philippines perceives that it has insufficient leverage over the business partner causing or contributing to the impact, it must act to increase its leverage. In this context leverage should be increased and exercised until suppliers' and sub-suppliers respect for human rights related to workers' exposure to hazardous chemicals is proved to be satisfactory. This could be accomplished through collaboration

with other stakeholders in the ICT supply chains - such as industry peers or other parties - to create approaches that are in the workers' best interests.

States also have an important role to play. The Philippines has a duty to protect the human rights of its citizens, and the home-states of companies sourcing ICT products should introduce mandatory HRDD legislation and guide companies on how to perform HRDD. However, as stressed in the UNGPs, a company's responsibilities exist independently of a state's ability or willingness to address the impacts.

Other key actors are contracting authorities, for example within the European Union. When procuring ICT for public bodies in the EU, public procurers should include social criteria in their contracts. These criteria should ensure effective HRDD within supply chains, including the risks connected to workers exposure to hazardous chemicals.



»I feel happy that our products are used all over the world and that they last for many years. But it is at the expense of our health. But there is nothing I can do about that. I need the job and cannot complain. I have no choice.«

Addressing the fact that workers are exposed to hazardous chemicals in the supply chains of ICT products would be an important step towards fulfilling several SDGs, including those relating to decent work, good health and well-being as well as responsible consumption and production. It would also be a step towards increasing global access to ICT without risking adverse human rights impacts in supply chains. If the situation is not addressed, it risks undermining the goals as set out in the 2030 Agenda.

The situation for Filipino human rights defenders, including those working on labour rights, is extremely difficult and has been widely reported on. The country is notorious for being a high-risk environment from a human rights perspective and companies sourcing from the Philippines have a responsibility to be aware of this and show how they have addressed the risks.

Although barriers to unionisation in the Philippines and the situation for trade unions in the country in general are beyond the scope of this report, this subject intersects with hazardous chemicals to a large degree. The interviews indicate, in a very concrete way, that in factories with an active union it is easier for workers to make their voices heard and push for improvements in OSH.

With this report, Swedwatch calls on companies that source ICT from the Philippines to urgently act to ensure that workers are protected from exposure to hazardous chemicals, and that workers and representatives of workers, at factories from which they source products and components, are protected from intimidation, threats, violence and other forms of reprisals.

An ICT company that seeks to respect human rights throughout its operations can never accept that hazardous production is exported to countries with weaker protection for workers. Outsourcing of labour and production might be a necessity to lower production costs and increase profit margins, but this should never be at the cost of human rights.

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