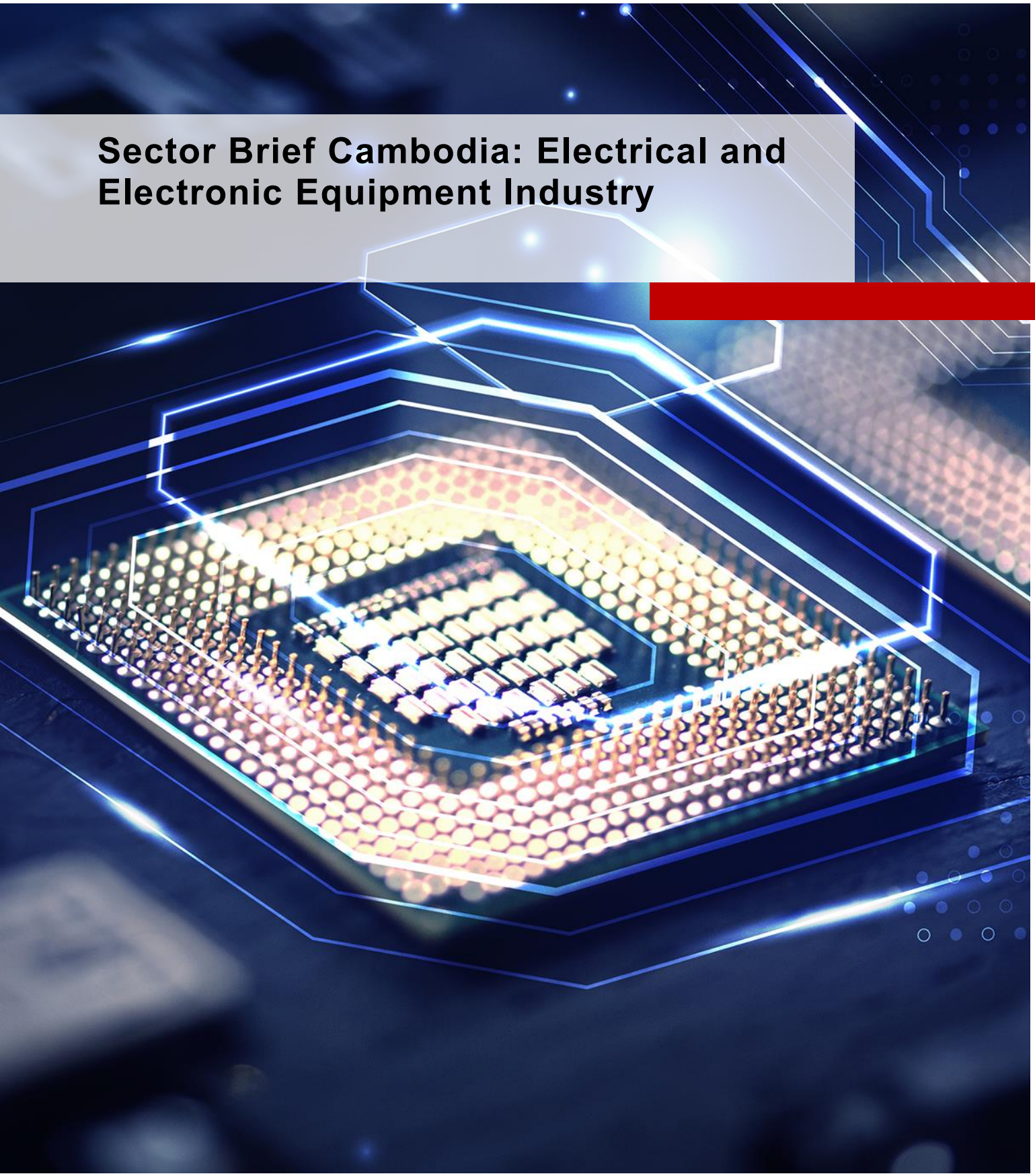
# Sector Brief Cambodia: Electrical and Electronic Equipment Industry



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# Preface

This report presents a comprehensive overview of the electronic sector in Cambodia, with a focus on industry trends and sustainability aspects. It covers the current state of the industry, including prominent players, production processes, and market conditions, as well as emerging trends and challenges. Furthermore, the report examines the sustainability aspects of the electronic sector, delving into its environmental and social impacts.

The report further analyses the efforts of both public and private stakeholders to promote sustainability in the sector, including the role of government regulations, industry standards, and sustainable initiatives.

The findings about Cambodia are largely derived from qualitative interviews using a semi-structured questionnaire, conducted by Eurocham Cambodia on behalf of GIZ FABRIC with various industry stakeholders in the country, for a total of 11 interviews, of which 5 were conducted with private sector representatives and 6 were conducted with individuals from institutions and academia (international organizations, universities, business associations, and governmental authorities).

The report was authored by a team of writers - including Felix Botineau, Sara Monti, and Matthew Pocock - and is intended to serve as a resource for relevant stakeholders interested in promoting the growth and sustainable development of the electronic sector in Cambodia. Our hope is that this report will encourage constructive dialogue and cooperation towards the objective of improving responsible business practices throughout the sector.

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# Abbreviations and acronyms

| | |
|---|---|
| ASEAN | Association of Southeast Asian Nations |
| EEE | Electrical and Electronic Equipment |
| EU | European Union |
| GVC | Global Value Chains |
| IDP | Industrial Development Policy |
| ILO | International Labour Office/Organization |
| NGO | Non-Governmental Organization |
| OECD | Organisation for Economic Co-operation and Development |
| ISO | International Standards Organization |
| PPSEZ | Phnom Penh Special Economic Zone |
| SEZ | Special Economic Zone |

# 1. Introduction

Electrical and electronic products use electric energy to perform tasks. Electrical devices convert electricity into other energy types (heat, light, kinetic energy, etc.); whilst electronic ones use it to carry out more complex tasks, such as moving electrons through circuits. Electrical and electronic appliances are the key to the modern consumer's needs in their everyday life which include some of the most common appliances in the house, including microwaves, fridges, and mobile phones.

| | |
|---|---|
| **Common electrical devices** | Dishwashers, fridges, lights, microwaves, analogue TVs |
| **Common electronic devices** | Mobile phones, laptops, digital cameras, digital TVs, Bluetooth speakers |

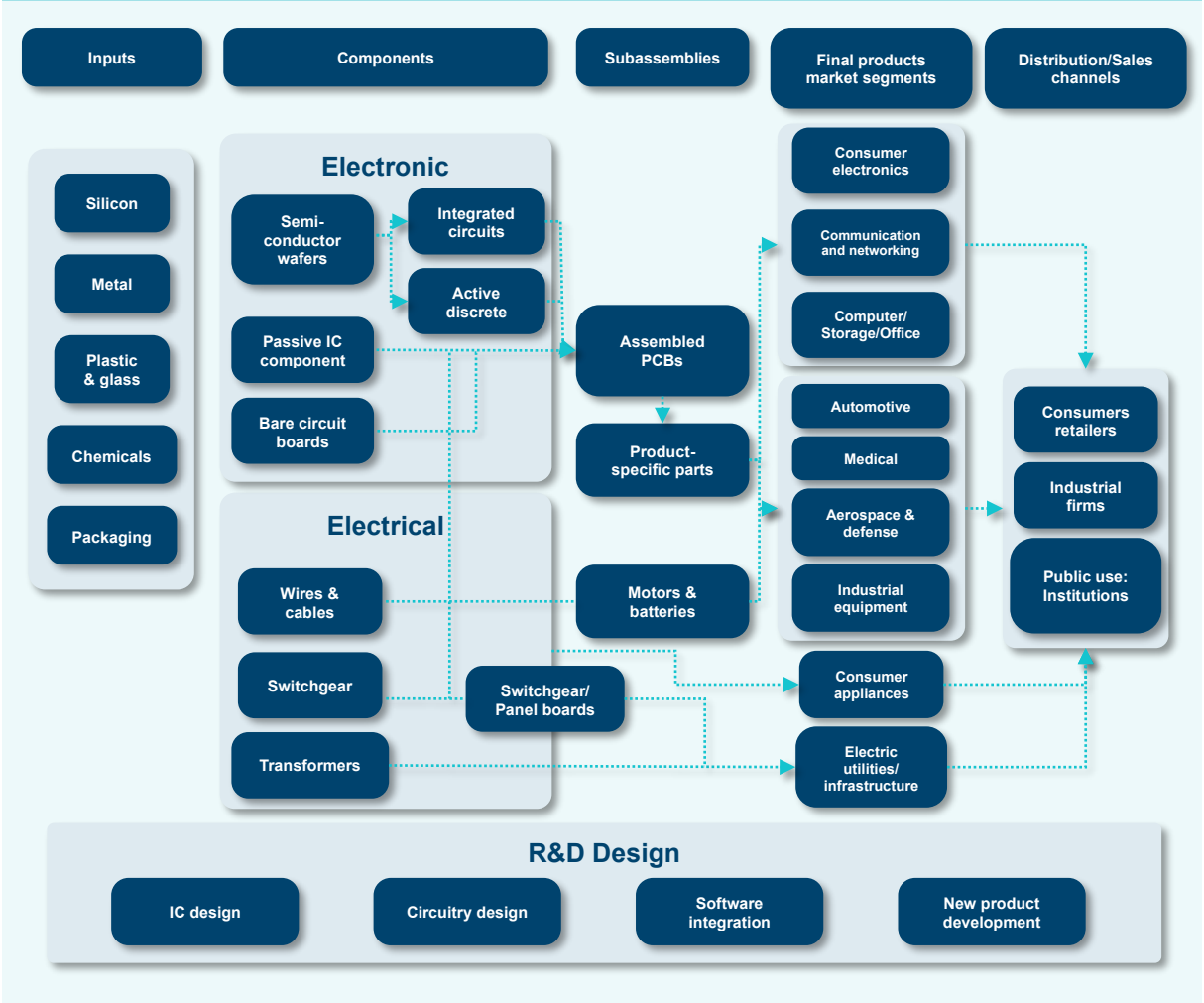
The industry related to the production, marketing, and distribution of such products is called the electrical and electronics equipment (EEE) industry, a term that also constitutes the focal area of research for this paper. Below is a more specific definition of the industry and a graphical overview of its global value chains.

## DEFINITION OF THE EEE INDUSTRY

The electrical and electronic sector is highly complex with a large range of products and definitions varying according to the applied terminology. Electrical engineering is concerned with the study, design, and application of equipment, devices, and systems which use electricity, electronics, and electromagnetism. The discipline is now divided into a wide range of different fields, including computer, systems, power, and radio-frequency engineering, as well as telecommunications, signal processing, instrumentation, photovoltaic cells, electronics, and optics and photonics.

A more specific definition can be found for Electrical and Electronic Equipment which is "designed for use with a voltage rating not exceeding 1,000 volts for alternating current and 1,500 volts for direct current", according to European Union's (EU) regulations. Electrical and Electronic Equipment is divided into the four subsectors: Electronic components, Consumer electronics, Industrial electronics and Electrical products. This study offers a particular focus on Harmonized System (HS) code 85: Electrical Machinery and Equipment and Parts Thereof; Sound Recorders and Reproducers, Television Recorders and Reproducers, Parts and Accessories. In part, HS codes 84 (e.g. data processing) and 90 (e.g. optical devices) also count towards the EEE industry, but will be omitted here as EEE products only make up a small share of these respective codes.

**Fig. 1** | Overview of the EEE global value chain (GVC).




Source: Cambodia in the Electronic and Electrical Global Value Chains (CDRI, 2019)

Cambodia has seen the emergence of its own EEE industry in recent years. Its manufacturing capabilities date back to 2005 when the first plant to assemble construction wires, power cables, aluminium overhead wires, and telecommunication cables was established. Since then, the industry has experienced steady growth (more information is provided in sectoral chapters below).

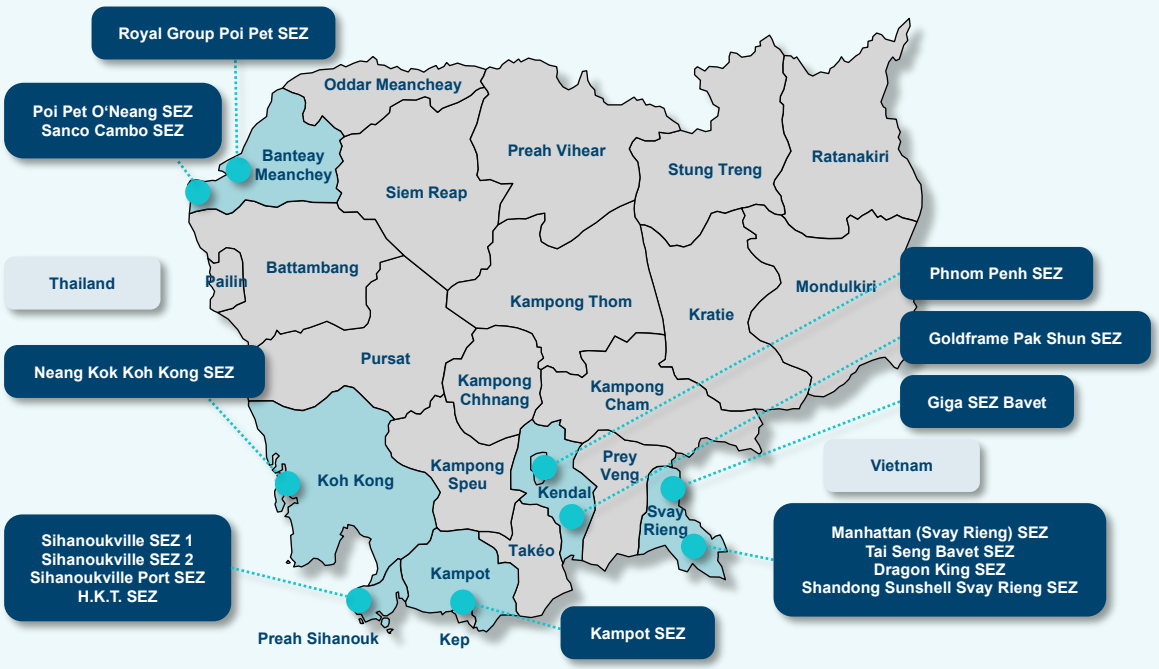
As of April 2023, there are 99 EEE companies registered as Qualified Investment Projects inside SEZ and outside SEZ in Cambodia[1], most of which are in assembly, including major players such as Sumitronics, Minebea, WCFO, Nidec, Hana, Yazaki and SVI. Please refer to Annex A for the complete list. Very few of these companies source material inputs from domestic suppliers, the majority obtaining inputs – i.e. wires, cables, diodes, transistors and electrical transformers – from abroad, mostly from China, Japan, and Thailand. The main reason for the lack of domestic sourcing is due to the inability of suppliers to meet the demanding quality standards of buyers.

In 2021, Cambodia has approximately 54,000 people working in electrical and electronics manufacturing, which account for about 1.43% of the country's total employment. For comparison, the industry employed 600,000 people in Thailand (1.57% of the workforce) and more than a million in Vietnam (1.78% of the workforce). In addition, approximately 47% of the workers were women. By 2027, the Cambodian government aims to create more than 16,000 additional jobs in the industry.

[1] Data provided by CDC on May 24th, 2023.

The growth of the EEE industry has largely been made possible by extensive foreign capital inflows into the country. These important foreign investments can be attributed to low wages, international trade agreements, and Special Economic Zones (SEZs) at strategic locations. These features make Cambodia a particularly attractive location for low-value-added and labour-intensive production, such as assembly and processing. Most EEE companies are located in the Phnom Penh Special Economic Zone (PPSEZ), near ports such as the Sihanoukville Special Economic Zone, or in industrial border zones with Thailand and Vietnam where favourable tariffs and tax incentives are offered to companies.

**Fig. 2** | Map of Cambodian SEZs




Source: EuroCham Cambodia

The Council for Development of Cambodia (CDC) specifically identified two SEZs for the development of electronics clusters:

- The Giga SEZ Bavet, close to Vietnam, is identified as the fastest-growing electronics exporter site in Southeast Asia;
- the PPSEZ (Royal Group Phnom Penh).[2]

[2] Interview with H.E. Nut-un Voanra, Deputy Secretary General, Council for Development of Cambodia (CDC).

# 2. Overview of the industry

**Tab. 1** | Overview of the EEE industry in Cambodia

| Indicator | Value |
|---|---|
| EEE Companies | 99 (2023) |
| EEE employees | 54,000 (2021) |
| EEE Exports – HS 85 | $0,73 billion (Jan-March 2023), 13.7% of total exports<br>$1,99 billion (2022), 8.9% of total exports<br>$1,08 billion (2021), 5.6% of total exports |
| EEE Imports - HS 85 | $0,36 billion (Jan-March 2023), 6.3% of total imports<br>$1,46 billion (2022), 4.9% of total imports<br>$1,19 billion (2021), 4.1% of total imports |
| Foreign Direct Investment | $450 million (since 2011) |
| Main Products | (HS 8544) isolated cables and wires; (HS 8541) diodes, transistors and similar semiconductor products; (HS 8501) electrical motors |
| Main export markets (2021) | USA (50.7%)<br>Thailand (14.5%)<br>Japan (11.9%)<br>Mainland China (6.7%)<br>Hong Kong (4%)<br>South Korea (3.3%)<br>Europe (2.1% - Germany 0.48%) |
| Main import markets (2021) | Mainland China (61.9%)<br>Thailand (17.6%)<br>Vietnam (6.3%)<br>Japan (2.8%)<br>South Korea (2.1%) |

Sources: (UN Comtrade, Cambodian Ministry of Economy and Finance, General Department of Customs and Excise, The Council for the Development of Cambodia (CDC))

## 2.1 Manufacturing and assembly

As mentioned, the profile of the typical EEE company in Cambodia is that of a large foreign multinational company that invests in assembly plants in the country, in industry sub-sectors such as electronic components and equipment (Sumitronics), optic fibre connection assembly (WCFO), and industrial electronics and micro-electronics (SVI). Short profiles of selected successful companies operating in the Kingdom are provided Annex B**.** Other smaller local manufacturers are also present; they cover a wide range of products, from solar photovoltaic cells to wires and switchboards.

Both large and small producers in Cambodia are benefitting from four main competitive advantages:

- A relatively stable political environment with a practical, pro-business and pro-reform government, most of whose leading cadres hold advanced Western levels of education (PhDs) and professional development;
- A cheap and young workforce: Cambodian labour costs on average are lower than those in neighboring Thailand and Vietnam;
- Cambodia's strategic location within ASEAN in proximity to the fast-growing manufacturing and assembly hubs in these two countries;
- Favourable international conditions (i.e. shifting geopolitical balance, trade agreements or trade preferences with key electronics export markets) mark a fourth factor for choosing Cambodia as an attractive destination for manufacturing and assembly. Notably, as we will see more in detail in the trade chapter, the USA has emerged by far as the single largest export market for Cambodia over the last three years, aided by the contingency of several international enabling factors.

Despite these advantages, however, one of the current structural limits hampering the future development of Cambodia's EEE industry is the lack of domestic production and processing facilities for primary components (e.g. steel to make cables and rubber to make their insulation). All primary products and inputs need to be imported, as Cambodia does not have any facilities for their production and processing. China is Cambodia's main supplier for these inputs.

The Cambodian government for its part has announced, through its sectoral strategy document, the *Automotive and Electronics Sectors Development Roadmap*, in line with the Cambodia Industrial Development Policy 2015 – 2025 (IDP), and the Strategic Framework and Programs for Economic Recovery in the Context of Living with the Covid-19 in a new normal (2021-2023). It plans to upskill the country's EEE production capacity, moving from simple components and sub-assembly (e.g. cables and connectors, printed circuit board assembly) in the short-term, to higher value-added components in the longer term. As with most sectoral strategy documents provided by the Cambodian government, it remains to be seen whether they can translate current momentum in the EEE sector to facilitate longer-term, more sustainable upskilling.

## 2.2 Foreign Direct Investment (FDI)

FDI in the Cambodian EEE industry has been increasing since its inception in 2011, with cumulative investment reaching $450 million,[3] and 79 Qualified Investment Projects (or QIPs, more about them in the policy section below) in 2022.[4] In 2011, a major wave of FDI arrived for the first time, which saw large Japanese corporations opening production units in Cambodia as part of their risk-minimizing 'Thailand Plus One Strategy'. Until then, Cambodia's role as an EEE exporter had been negligible.

Currently, all FDI in Cambodia's EEE industry still originates from Asian countries, with China and Japan being the top investors by far[5], followed by Thailand and Taiwan. More than 85% of this foreign investment is related to the manufacturing and assembly of electronic parts, small-size motors and wire harnesses. FDI in other sectors, such as automotive and auto components, has also spurred the growth of the local electrical and electronic equipment industry. For example, car manufacturer Ford made a $21 million investment in a car assembly plant in Pursat which was inaugurated in June 2022. The total investment of the registered vehicle assembly plants in Cambodia currently amounts to $78,4 million.

[3] Council for the Development of Cambodia, Electronics investment overview, 2022.
[4] Cambodia Automotive and Electronic Sectors Development Roadmap 2022.
[5] Cambodia Automotive and Electronic Sectors Development Roadmap 2022.

### YAZAKI BENEFITS FROM THE ''THAILAND PLUS ONE STRATEGY''

Thailand-Plus-One refers to a business strategy in which Japanese firms in Thailand move the production processes of labor-intensive parts to the neighboring countries with cheaper labor cost.

Due to the difficulties of automating the assembly of wire harnesses and the surge of labor cost in Thailand, Yazaki Corporation decided to move to Cambodia in 2012. They opened a $24 million wire harness factory in Koh Kong, a Cambodian province bordering Thailand. Since then, the Japanese automotive component maker has been producing wire harnesses with high efficiency. These vital components supply power to the various devices spread throughout the car and relay data from sensors to the control unit.

As tariffs under the ASEAN Economic Community (AEC) have been repealed, electrical wires and tapes are imported from Thailand duty-free and assembled into wire harnesses. These are then transported back to Thailand with a Yazaki truck that shuttles between Thailand and Cambodia once a day. The manager of Koh Kong factory is Thai, technical assistance and worker training are provided by Thai staff. This is significantly cheaper than sending engineers from Japan and makes it easier to resolve problems because of Thailand's close proximity. Today, Yazaki Corp employs over 3,000 staffs in Cambodia.

## 2.3 European presence

International and European brand presence is limited but noticeable, with well-established brands such as Panasonic, Schneider Electric and Siemens maintaining sales offices in the capital Phnom Penh. The European presence in the Kingdom is limited mostly to distribution, relying on a network of local partners who distribute their imported products. Schneider Electric is distributed by Euro Electrical and Global Camstar while GGear Group is LG's exclusive partner in the country. Local distributors are numerous and vary from small shops to large, long-established companies. They supply a large variety of products, from white goods and lighting to electrical equipment and electronic accessories. Mega Electrical, GGear Group, and Triangle are some of the largest Cambodian distributors. Often, these brands cannot compete in price with their Chinese counterparts and are therefore establishing themselves in the fast-growing premium channel.

# 3. International trade and domestic sales

**Note:** Please see the footnote below on trade data methodology.[6]

In 2022, Cambodia imported electrical and electronic equipment worth a total of $1.46 billion while exporting equivalent products worth $1.99 billion, thus registering a trade surplus of $0.53 billion in the sector, a sizeable amount that testifies to the potential of this industry as a mainstream exporting revenue stream for the Cambodian economy.[7] In terms of relevance compared to other sectors, we also see the importance of the EEE industry increasing: from a 5.6 to 8.9% share of exports from 2021 to 2022, and from a 4.1 to 4.9% share of imports over the same period.

These trends are so far being confirmed with preliminary data from early 2023, which shows a total value of $0,73 billion in exports from January to March 2023 (or 13.7% of total exports), and $0.36 billion in imports over the same period (or 6.3% of total imports).

[6] HS code 85, officially covering electrical and electronic equipment, is the focus of analysis for trade. Data for international trade performance is taken from a combination of Cambodia's General Department of Customs and Excise (GDCE) online portal and the UN Comtrade online portal. There are data limitations: GDCE trade data is provided on a rolling monthly basis and although updated to March 2023, does not disaggregate HS Code 85 exports and imports by source/destination country or sub-heading. To understand these last two figures, we rely on UN Comtrade, which provides them albeit only updated to the end of 2021.

[7] Based on UN Comtrade.

In terms of domestic sales, data is hard to find in Cambodia. Informal consultations with major electronics suppliers reveal, however, that virtually none of Cambodia's locally-made EEE products – such as cables – are intended for the local market (in sectors that are currently experiencing large growth rates, such as construction, tourism or manufacturing), but are rather intended for export.

## 3.1 Exports

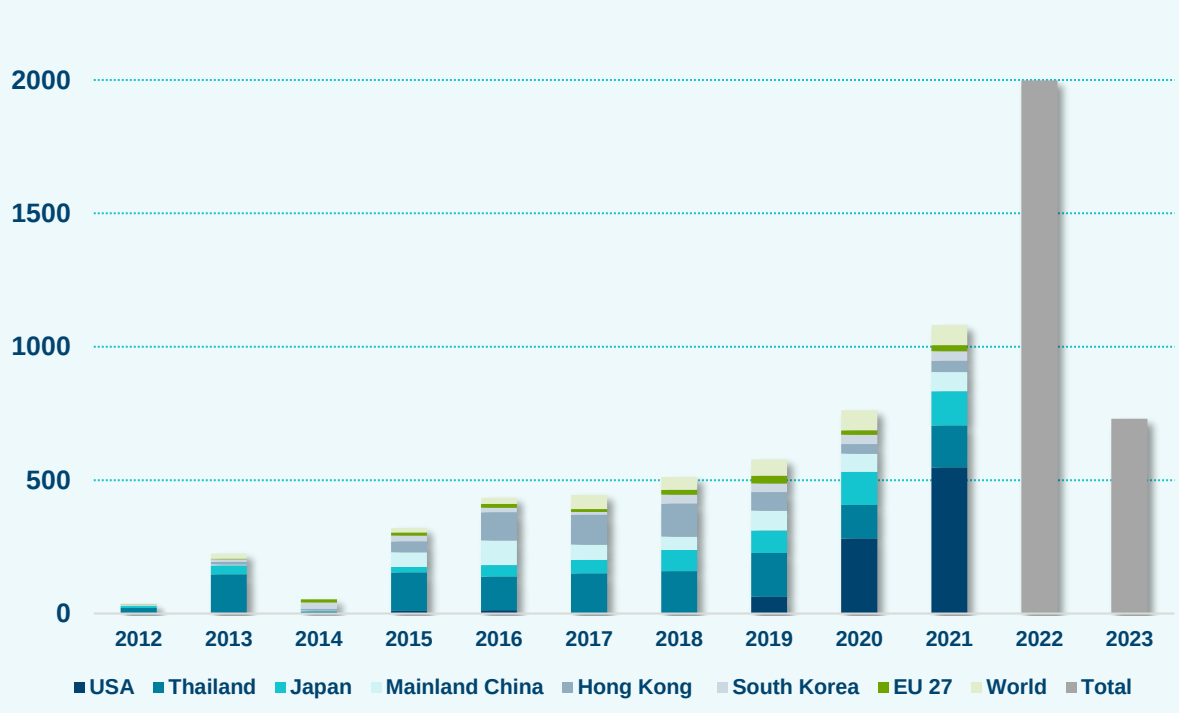
Since 2014, Cambodian international exports of electrical equipment and electronic components under Harmonized System (HS) Code 85 have been increasing rapidly, surging from $0.32 billion in 2015 to $1.99 billion in 2022. This export growth has been primarily driven by less complex products such as wire harnesses, lighting cables, and light-emitting diodes (LEDs).

Despite the COVID-19 pandemic, the year 2021 stands out in particular due to an increase in export value by ca. 42% compared to 2020. Main export markets in 2021 included the USA with a share of 50.7% of total exports, followed by Thailand (14.5%), Japan (11.9%), Mainland China (6.7%), Hong Kong (4%) and South Korea (3.3%). With a combined export value of $983.2 million, they represent 91% of Cambodia's total EEE export value.

The rise of the USA as the key export market for Cambodian EEE products can be explained by a mix of factors, including Cambodia's increasing edge over manufacturing competitors due to a positive management of the Covid-19 pandemic and supply chain disruptions, increased overall global demand for electronics (the USA is a key consumer market) since the pandemic, a general thawing of US-Cambodian relations in the context of closer US-ASEAN relations since late 2022, and US President Biden's suspension of import duties for solar panels and related electronics from Cambodia and 3 other ASEAN countries as part of its solar panel diversification and China de-coupling strategy.

The European Union on the other hand still plays a relatively minor role with an offtake share of only 2.1%. Germany alone accounts for 0.48% ($5.2 million), making it the largest European importer by far since 2017.

**Fig. 3** | Cambodia's top-6 export destinations plus EU 27 under HS Code 85, in USD Mio. (2012-2021)




Source: Based on UN Comtrade

As of 2021, the top three Cambodian export commodity groups in the EEE sector are:

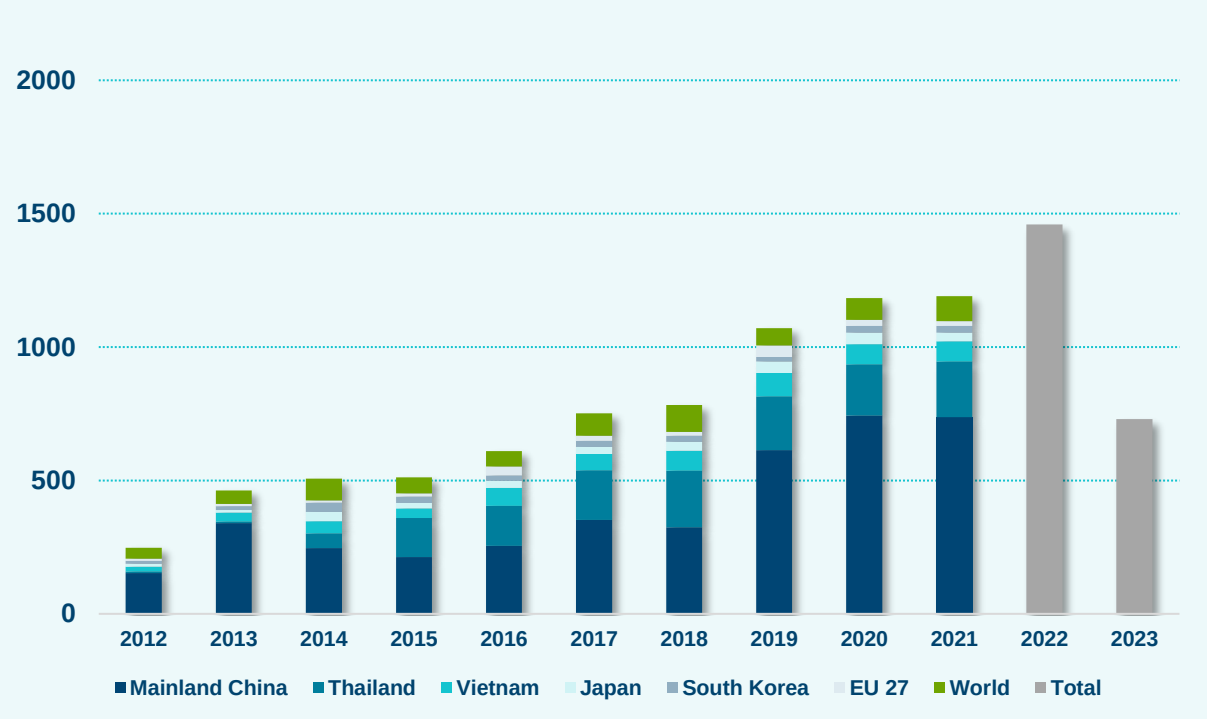
1) *Insulated wire, cable, and other insulated electric conductors* (HS Code 8544)
   Export value: $425.4 million, representing 39.3% of EEE exports
   Main buyers: USA (40%), Japan (26.3%), Thailand (22%), South Korea (7.7%)
2) *Diodes, Transistors and Similar Semiconductor Devices* (HS Code 8541)
   Export value: $273.2 million, representing 25.3% of EEE exports
   Main buyers: USA (94%), Vietnam (2.3%), India (1.3%), Mainland China (1%)
3) *Electric motors and generators* (HS Code 8501)
   Export value: $84.5 million, representing 7.8% of EEE exports
   Main buyers: Mainland China (25.7%), Thailand (20.4%), Hong Kong (16.3%), Japan (9.2%)

In contrast to the EU 27, the United States is Cambodia's top EEE importer, but focuses on low-value-added products such as wires, cables, diodes and transistors. More complex products like electric motors and generators are mostly sent to Asia, where China, Thailand, and Japan are the main buyers.

## 3.2 Imports

Cambodia imported $1,46 billion worth of electrical and electronic equipment in 2022, a relevant increase from 2021 ($1,19 billion). As of 2021, Mainland China is Cambodia's main supplier with a share of 61.9%, followed by Thailand (17.6%), Vietnam (6.3%), Japan (2.8%) and South Korea (2.1%). With a combined supplied value of $1,05 billion, they represent 88.6% of Cambodia's total EEE imports. Again, the European Union is a relatively small partner for Cambodia with EEE import shares fluctuating between 5.3% (2016) and 1.5% (2021). Germany currently supplies 0.55% of these products under HS Code 85, worth $6,5 million in 2021.[8]

**Fig. 4** | Cambodia's top-5 suppliers plus EU 27 under HS Code 85, in USD Mio. (2012-2021)




Source: Based on UN Comtrade

[8] Based on UN Comtrade.

As of 2021, the top three Cambodian import commodity groups in the EEE sector are:

1) *Insulated wire, cable, and other insulated electric conductors* (HS Code 8544)
   Import value: $305,4 million, representing 25.6% of EEE imports
   Main suppliers: Mainland China (54.1%), Thailand (30.4%), Vietnam (7.7%), South Korea (4%)
2) *Electrical Apparatus for Switching or Protecting Electrical Circuits* (HS Code 8536)
   Import value: $118 million, representing 9.9% of EEE imports
   Main suppliers: Mainland China (53.2%), Thailand (15.3%), Japan (12.7%), Vietnam (3.1%)
3) *Bases for Electric Control or the Distribution of Electricity* (HS Code 8537)
   Import value: $91,1 million, representing 7.6% of EEE imports
   Main suppliers: Mainland China (79.4%), Thailand (2.7%), Vietnam (2.5%)

Products under HS Code 8544 (wires/wire harnesses) are both Cambodia's major import and export EEE commodity. Imports originate mainly from China and Thailand, whereas exports are shipped mostly to the USA and Japan, adding a value of $120 million through the labour-intensive assembly. The value added for HS Code 8541 (diodes) is $182,9 million and for HS Code 8501 (small-size motors) $44,5 million, respectively.

While the rather simple products above generate a trade surplus, the more complex products under HS Codes 8536 (electrical apparatuses) and 8537 (electric control & distribution) generate trade deficits of $95,1 million and $87 million, respectively, with the latter registering almost no exports at all. This suggests domestic usage and consumption almost entirely for HS 8537 and predominantly for HS 8536.

## 3.3 Domestic sales

Following the rapid development of the country's economy, the demand for EEE products made in Cambodia is growing at a faster rate than the world's average demand. Since demand for EEE products in Cambodia's local economy is also growing due to high overall growth rates across key sectors (construction, tourism, manufacturing), one would think that part if not most of Cambodia's locally made EEE products would be absorbed in the domestic economy.

However, this does not seem to be the case; or at least, more conclusive evidence is needed to reinforce the assumption that Cambodia's EEE production is virtually all meant for export. As mentioned above, interviews with key buyers of electronics in Cambodia (construction, retail electrics) reveal that Cambodian buyers prefer sourcing internationally, from Thailand or Vietnam, without tapping into domestic supply chains. More data is required to uncover the reasons behind such preference. Currently, there is no available data on the ratio between locally manufactured and fully imported EEE permanently remaining in the country.

In terms of future potential, although it is difficult to speculate on the feasibility of Cambodia's local EEE production for domestic consumption due to insufficient data on buyer and consumer preference, we can highlight certain factors that might increase such feasibility in the future:

1. Increasing energy generation and consumption have created local demand for grid/high-voltage equipment, as well as solar panels, inverters, batteries, generators, and circuit breakers.
2. Furthermore, car assemblies geared towards sales within Cambodia – such as the Ford assembly plant inaugurated in Pursat in 2022 – are major customers for radios, electronic parts, batteries, alternators, and generators.
3. Finally, while not being manufactured in Cambodia yet per se, the local market for consumer electronics such as smartphones has increased along with the rise of income per capita and the emerging middle class in Cambodia. In consequence, the usage of home appliances such as microwaves and toasters are expected to grow as well.

# 4. Policy framework

The electrical and electronic equipment industry is subject to both general laws and regulations on the private sector, as well as broader policies that define national priorities and strategies for action (see Annex C for a selection of the most relevant policies and regulations concerning the EEE sector in Cambodia). With the continued feedback from electronics companies present in the Kingdom, the government is currently also working on initiatives to better address investors' concerns (e.g. reviewing electricity tariffs).

Manufacturers of electrical and electronic products for the Cambodian market are required to apply for a three-year Product Registration License at the Institute of Standards of Cambodia (ISC). This enables them to affix the mandatory ISC Mark on their product to document electrical safety, which can be understood as the Cambodian equivalent to the European CE Marking. Cambodian mandatory standards and their international IEC equivalents for electrical and electronic products under – among others - HS Code 85, are regulated in the Ministerial Regulations (Prakas) No. 115 (2/2004), No. 1003 (9/2006), and No. 1302 (12/2006).

The recently amended *Law on Investment* (2021) streamlines Cambodia's investment environment and – among 18 other industries – explicitly mentions electrical and electronic industries as being entitled to conditional investment incentives, under so-called Qualified Investment Projects (QIPs). These incentives include an exemption from income tax for 3-9 years and VAT exemptions for the purchase of locally produced production inputs, to name a few options. The law also lists measures on investment guarantees and protections, such as fair treatment for domestic and foreign investors and protection against expropriation.

Regarding the role of the EEE sector in the development plans of the Cambodian government, we see it referenced in two key documents.

On a broader level, electronic and electric equipment assembly is the first of five industrial priority sectors defined by Cambodia's overall Industrial Development Policy (IDP) 2015-2025. In preparation for Cambodia's graduation from its Least Developed Country (LDC) status, the policy serves as a guidance to promote the country's industrial development with high economic growth rates and productivity, while fostering economic diversification and improved competitiveness. Increasing technical skills training and the establishment of technical secondary schools are the key medium to long-term strategies for the EEE sector defined in the policy.

Specific to the sector, a recent high-level strategy named *Automotive and Electronics Sectors Development Roadmap* aims to develop the automotive and electronics sectors into the new growth engines of Cambodia. According to the roadmap, the government aims to create more than 26,000 new jobs in the electronic (16,000) and automotive (10,000) sectors and to raise exports of the electronics sector by around $1.6 billion by 2027. The Kingdom will first focus on expanding output in simple components and sub-assembly, including cables and connectors, and printed circuit board (PCB) assembly, before moving up the value chain in the mid-term and turning Cambodia into an integrated electronics production hub, including final assembly, in the long run.

What to make of such ministerial plans? The Cambodian EEE sector holds potential for future growth in its current form, as relatively low-value-added assembling of more complex end-products in automotive, wiring and other areas. The growth of exports and imports over the last 3 years is proof of this. As of April 2023, moreover, there are even promising signs of upskilling production, as new solar panel plants are opening in the country, fueled by FDI. One reason could be investors attempting to capitalise on the 24 months of import tariff suspension for solar panels produced in Cambodia (along with 3 other ASEAN countries) declared by the US government in May 2022, as part of its drive towards diversification of supply of solar panels.

However, it is premature to say whether these encouraging signs mean the Cambodian government's plans to become an established and more sophisticated EEE manufacturer are coming to fruition. First, the government needs to tackle the two endemic weaknesses of local manufacturing: the low skill levels in the local workforce and the high energy costs.

# 5. Business opportunities

Connected to the uncertain nature of the EEE industry's future development in Cambodia, business opportunities for European companies, depending on the outcome, range from little to moderate.

So far, Asian and North American competition dominates the local market. There is very little trade of EEE products between Cambodia and the EU 27 and most related investments in Cambodia are made by other Asian countries.

Still, as the largest importer of EEE products worldwide, the USA discovered Cambodia as a supplier in 2019 and their related imports from the country have increased almost tenfold since then.

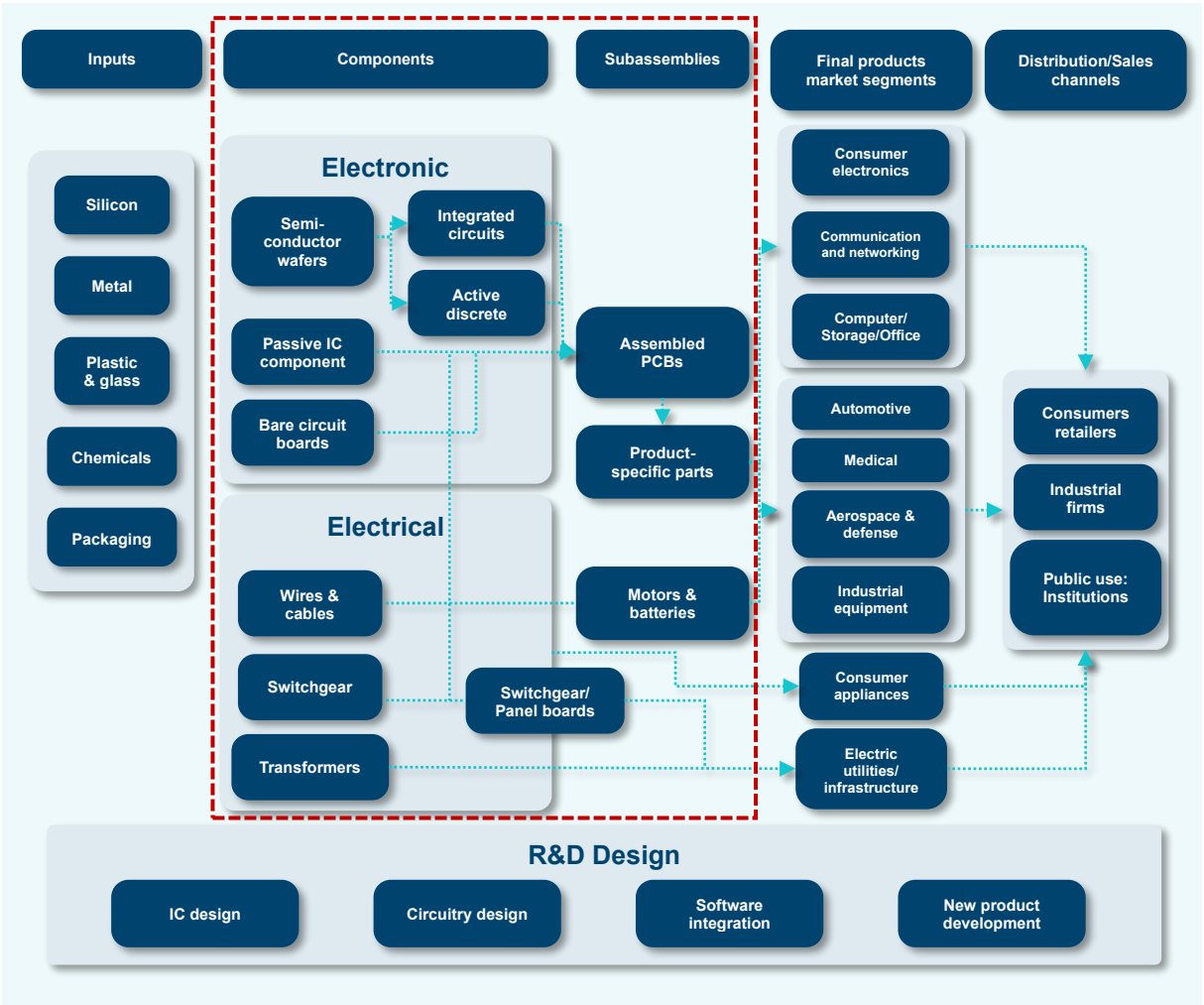
Given the likely similarities between the American and European EEE manufacturing scene, perhaps this roaring success story of sourcing from Cambodia could provide a model for European economies, particularly Germany, to replicate. Germany is the world's fifth largest exporter and the fourth largest importer of EEE products, and it could benefit from Cambodia's EEE growth strategy, drawing on experiences from Vietnam, where it imported $2.7 billion worth of EEE products in 2021– more than twice the value of Cambodia's total current EEE exports worldwide.[9]

## 5.1 Investment in EEE industry / manufacturing

Future interviews with key European EEE manufacturers could shed more light on identifying production segments that are ripe for outsourcing in Cambodia. However, we can speculate that European producers should consider moving low and moderately-complex production segments of the value chain (see diagram below, with segments highlighted in red) to Cambodia.

[9] OEC data, GER-VTN trade for 2021, https://oec.world/en/profile/country/deu?depthSelector1=HS2Depth&yearlyTradeFlowSelector=flow1&subnationalFlowSelector=flow1

**Fig. 5** | Overview of the production segment of the EEE value chain.




Source: Cambodia in the Electronic and Electrical Global Value Chains (CDRI, 2019)

Existing activities in these segments in the country are either thriving or in their early stages. In addition to the competitive advantages mentioned above, European investors can also expect active intervention and interest from the Cambodian government in attracting foreign investment in these sectors. The government is also likely to actively engage with the private sector to identify and address any weaknesses. The work carried out by EuroCham Cambodia - the high number of fora, Public-Private Sector Dialogues and other forms of engagement organised with representatives of the Cambodian government – is a living testimony to the active role played by Cambodian authorities in working constructively with the local private sector and foreign investors to help improve the local business environment.

## 5.2 Sales offices and local distribution

The Cambodian market for electrical and electronic products is segmented into two main categories: low-cost products from China with varying quality, and high-quality products for customers who are willing to pay more. According to several well-established EEE companies operating in the Kingdom, high-quality brands such as Schneider Electric and Bosch are in high demand by both industrial and end-consumers.

With a steady rise in household income, higher-quality end-consumer products are likely to get increased attention in Cambodia, where the ownership rate of most consumer devices other than cell

phones is still relatively low. For example, household appliances such as microwaves, toasters, coffee makers, etc. have not yet found their way into most Cambodian kitchens, offering potential good opportunities.

Although EU exports of electrical and electronic equipment (HS code 85) to Cambodia increased from $18 million in 2021 to $20.6 million in 2022, they still only accounted for a small percentage of Cambodia's total imports from the EU (2.5% and only the 11th most imported commodity), down from $23.3 million in 2020. Caution on the part of European suppliers is recommended.

Establishing a sales office or partnering with local distributors such as ATS, GGear Group, Mega-Electrical, Euro-Electrical, and Triangle could be considered as options to enter the Cambodian market.

## 5.3 Training, skills, and capacity building

Despite its abundant young labour force, Cambodia still lacks skilled workers in both blue-collar and white-collar occupations due to the shortcomings of its education system which has led to weak research and development capabilities. The workforce is often unable to meet the needs of private companies, including manufacturers of mechanical and electrical equipment, auto and motorcycle parts, and other electronics. While it is currently expected that private companies recruit and train their employees themselves, European education institutes could step in to support the training of electrical engineers through partnerships with local universities. One example from the similar field of mechanical engineering is the Cambodia-Japan Digitalised Manufacturing Centre (CJDM) at the Royal University of Phnom Penh, which has partnered with German-Japanese DMG MORI Academy to provide highly specialized training courses in engineering and manufacturing to prospective graduates as well as employees of private companies. Such cooperation could also be extended to environmental engineering to boost e-waste recycling in Cambodia. The country also presents opportunities in its growing technical and vocational education and training (TVET) sector. TVET institutes that specialise in the training of electrotechnicians would benefit Cambodia's capacity for maintaining electrical installations and performing high-quality assembly works.

## 5.4 E-waste recycling

The rapid development of the Cambodian consumer economy has led to a significant increase in e-waste, including TVs, PCs, refrigerators, air conditioners and washing machines (4 million tons in 2020), increasing by 10% each year. An informal network of waste pickers plays an important role in collecting recyclable materials from e-waste, often from open dump sites. Valuable components are collected and exported, whereas non-valuable waste is disposed of in landfills with other industrial waste.

Following a change in the notification process, e-waste will soon have to be declared separately from EEE items for repair or refurbishment when shipped abroad. This requirement constitutes an opportunity for European investors. Benefiting from the very little competition in this segment, setting up a specialised e-waste recycling plant or EEE repair factory in line with local laws, environmental and work safety labour standards and efficient handling could attract large shipments of e-waste and used EEE products from Europe, to be either repaired and re-sold or completely recycled. It would also increase the attractiveness of Cambodia as an e-waste/EEE-repair destination.

With e-waste recycling gaining momentum worldwide and in Cambodia, trading second-hand machinery for e-waste recycling has huge potential in the country. As new pieces of machinery found in Europe are mostly too expensive for developing countries, Cambodia can be a destination to give a second life to European-used recycling machines, similar to other machines where this has already happened.

# 6. Sustainability analysis

### Cambodia's context in the EEE Sector: a focus on Due Diligence and CSR risk management

In response to the introduction of mandatory laws on human rights and environmental due diligence (HREDD) around the globe, companies are now expected to perform more extensive due diligence in their global supply chains to proactively identify, prevent, and resolve any adverse effects their business operations may have on individuals and the planet.

This section will provide an overview of the risks associated with the EEE sector with a specific focus on Cambodia. It has been structured based on the OECD Due Diligence Guidance for Responsible Business Conduct as a reference. Particularly, the topics covered by the present session are:

- Human Rights
- Environmental impact
- Data Transparency
- Consumers' Protection
- Government Influence

Each of them is briefly assessed from a global perspective in Annex D.

It is important to highlight that the information presented in this specific paragraph regarding Cambodia is primarily based on in-depth qualitative interviews conducted by EuroCham Cambodia with influential industry leaders and stakeholders in the country.

It is a challenging task to gather data on the environmental and social impact of the industry due to its size, intricate nature, and fragmented production processes. These factors pose significant hurdles to research and result in a scarcity of relevant information.

## 6.1 Human rights

### Employment and working conditions

The EEE industry in Cambodia is largely unregulated and informal, which means that many workers may not have job security or adequate labour rights. There are many areas in this industry where labour rights need to be improved and strengthened to ensure fair treatment of workers.[10]

Outlined below are some crucial aspects of the employment and labour conditions in Cambodia that warrant closer monitoring and deeper assessment.

Employers in Cambodia may respond to external pressures and unpredictable production schedules through the use of short-term contracts to ensure that demand is met and flexibility increased through various means, including greater use of part-time, temporary workers.[11] While employers claim this is in the interest of competitiveness, workers on temporary and non-standard forms of contracts have lower wages (between 30%-60% of wage penalties) and do not enjoy the same benefits as permanent or regular employees.

Additionally, although there is no specific figures available for Cambodia, it is important to consider the risks associated with agency workers and the phenomenon of migrant workers, since this is a prevalent issue affecting the EEE industry in all countries neighboring Cambodia. As a result of increased cross-

[10] Interview with UNIDO Cambodia Representative.

[11] Country Reports on Human Rights Practices for 2022, United States Department of State • Bureau of Democracy, Human Rights and Labor.

border flows of workers, migrants attained through brokers are also at risk of being trafficked or forced to work.[12]

### Forced labour

Several reports have addressed the issue of long working hours and overtime in the electronics industry globally. Often overtime hours are not linked to overtime wages payment and in some cases, this also affects toilet breaks or rest breaks when high production targets have to be met.[13]

According to the Global Slavery Index, there is a high prevalence of modern slavery in Cambodia – an estimated 261,000 people are in a situation of modern slavery in a population of 15,5 million. Cambodia is one of the countries with the highest percentage of modern slavery in the world.[14]

According to an interview with a representative of the Phnom Penh Special Economic Zone (PPSEZ), in a significant number of factories in Cambodia, overworking seems to be a common practice, by exceeding the 48-hour limit recommended by the International Labor Organization (ILO) and overtime hours frequently surpassing the maximum of 12 hours per week. Despite labor laws prohibiting such practices, there is a lack of enforcement in Cambodia especially outside the export garment industry[15], and workers who refuse to work overtime are often threatened with contract non-renewal or dismissal.[16]

### Child labour

Although there is no specific available data related to the EEE sector in Cambodia, children are prevalently engaged in forced labor and commercial sexual exploitation, often as a result of human trafficking.-[17] Despite the minimum age requirement being 15, still some 243,371 (or 7.5%) of children aged 5-14 were in the workforce in 2021.[18]

The acquisition of additional data and continuous monitoring activities are essential to facilitate a thorough assessment of the issue of child labor in the EEE sector in the country.

### Freedom of association

In the global electronics industry, the degree of union representation is generally very low and corporate resistance to unionization is considered widespread. A key obstacle to electronic workers exercising these rights includes the widespread use of precarious temporary and agency contracts, as stated above.

On a scale of 1 to 5, Cambodia scores 5 (the worst) for freedom of association and workers' rights, meaning that workers have no guarantees of rights. Strikes are very uncommon, and union registration/representation is often subject to threats and government intervention.

In the past decade, efforts have been made to bust unions. In December 2013, the Cambodian Minister of Labour introduced obstacles to union formation, delaying union certification and giving factory management time to retaliate against union members. Similarly, poor government inspection of factories and labour law enforcement make it nearly impossible for small unions to assert their rights. As part of this study, local stakeholders were interviewed and they indicated that each factory holds its unique perspective on freedom of association and labour rights.

[12] ILO. The impact of procurement practices in the electronics sector on labour rights and temporary and other forms of employment, 2016.

[13] ILO, 2014; ILO, 2016; ILO 2019, The electronics industry in Indonesia and its integration into global supply chains.

[14] Global Slavery Index, (https://www.globalslaveryindex.org/2018/data/country-data/cambodia/)

[15] Country Reports on Human Rights Practices for 2022, United States Department of State Bureau of Democracy, Human Rights and Labor.

[16] Interview with PPSEZ Representative.

[17] 24.3 million children (6.2 percent) are employed in child labour in East and Southeast Asia. (ILO 2020, Child Labour. Global estimates 2020, trends and the road forward).

[18] Child Labor and Forced Labor Reports, Bureau of International Labor Affairs, U.S. Department of Labor.

This suggests that there is variability in how these issues are approached and implemented across different factories. However, what has emerged in general is that there is not enough information about unions or freedom of association in the sector to perform a proper assessment.[19]

Further, negotiations for sectoral collective bargaining in the garment sector - the country's largest and most organized industry - have stalled, which does not bode well for other sectors, including electronics.[20]

### Wage and remuneration

According to Table 2 below, the majority of workers in EEE production are Cambodian unskilled workers, representing 76.1% of the labour force, earning an average of $222.4 per month. They are not able to afford decent living conditions.

**Tab. 2** | Labour structure in EEE firms in Cambodia, 2018

| Occupation | Percentage by occupation category | | Average gross salary of Cambodian workers (in USD per month) |
|---|---|---|---|
| | Cambodian | Foreign | |
| **Administration manager** | 0.1 | 26.8 | 1178.6 |
| **Administration supervisor** | 0.4 | 9.8 | 768.0 |
| **Administration staff** | 1.9 | 0.8 | 388.1 |
| **Production manager** | 1.1 | 42.3 | 790.2 |
| **Production engineer** | 1.7 | 14.6 | 450.0 |
| **Production team leader** | 0.1 | 1.6 | 392.5 |
| **Production technician** | 2.3 | 2.4 | 275.0 |
| **Production skilled worker** | 16.7 | 1.6 | 250.0 |
| **Production unskilled worker** | 76.1 | 0.0 | 222.4 |
| **Total** | 100 | 100 | |

Source: ''Cambodia in the Electronic and Electrical Global Value Chains'', CDRI, 2019

[19] Interview with UNIDO Cambodia Representative and with the Cambodia Academy of Digital Technology (CADT).

[20] Electronics Watch (https://electronicswatch.org/en/the-electronics-industry_2548917); International Trade Union Confederation. Countries at Risk Report Human and Trade Union Rights Committee 2019.

**Tab. 3** | Minimum wage comparison in ASEAN countries (in USD), 2022

| Country | Monthly minimum wage |
|---|---|
| Myanmar | $69 |
| Laos | $72 |
| Vietnam | $179 to $200 |
| Indonesia | $122 to $299 depending on the region |
| **Cambodia** | **$194**[21] (increased to $200 in 2023) |
| Thailand | $258 to $277 |
| Malaysia | $245 (non-urban areas) to 334 (cities) |

Source: Department of Labor and Employment, National Wages and Productivity Commission, Philippines, https://nwpc.dole.gov.ph/ (Annex E)

Despite the average salary being higher than the minimum wage, forced labour remains a prevalent issue, indicating the presence of systemic labour practice problems that need to be addressed. Moreover, as previously mentioned, the excessive working hours further exacerbate the already disproportionately low hourly wages.

Additionally, it should be noted that wages and working time are also affected by the terms of purchasing between the buyer and its suppliers, which often reflect the asymmetrical bargaining position of the two partners and the power of the buyers to switch suppliers. Negotiated prices may not always cover costs. In these conditions, wages become the adjustment variable at the end of the supply chain, with competitive pressures leading to lower wages and longer working hours. [22] [23]

### Occupational health and safety

The EEE industry is associated with multiple health and safety risks including motion injuries, eyesight problems, leukemia, liver and kidney failure, cancer, and miscarriages. This results from prolonged exposure to dangerous toxic substances, not having the correct protective gear, and having to stand for long hours during their shift.

Indeed, manufacturing can include the use of hazardous chemicals. Most manufacturers use PVC plastic and brominated flame retardants (BFRs), which can lead to the release of highly toxic gases. In 2010, most large electronics companies promised to avoid using PVCs and BFRs in the production process, but only a few companies have succeeded.[24]

In addition to the above, psychosocial and emotional pressure should be imperatively considered as they may result in cases of suicide or mass suicide and protest episodes.[25]

[21] The formal application of the Minimum Wage in Cambodia is limited to the garment sector, but it is expected that the average wage in the electronics sector would be comparable.

[22] Electronics Watch, The Atlantic. (2018). Forced labour is the backbone of the world's electronics industry.

[23] ILO 2016, The impact of procurement practices in the electronics sector on labour rights and temporary and other forms of employment.

[24] Greenpeace. (2017). Guide to Greener Electronics.

[25] Electronics Watch, 2018, "The Link Between Employment Conditions and Suicide, A Study of the Electronics Sector in China".

## 6.2 Environment

### Waste and recycling

In 2021, an estimated 57,4 million tons of e-waste were produced worldwide. It has been reported that approximately 80% of e-waste is shipped to low- and middle-income countries such as China, Nigeria, India, Vietnam, Pakistan and Cambodia.[26]

The Basel Ban prohibits the export of electronic waste to developing countries. However, a specialist in e-waste revealed in an interview that Cambodia receives a significant amount of e-waste labeled falsely as "donations" or "working products". This highlights a larger issue of the lack of a clear definition of what qualifies as e-waste.[27]

Recycling in Cambodia is driven by the informal sector. It is estimated that about 7.3% of municipal waste in Phnom Penh, about 75,000 tons per year, is recycled informally. Yet, the participation in formal recycling operations has been limited and the potential to recycle e-waste such as electronics and batteries has not been explored fully either.[28] This also has been confirmed by the majority of the private sector representatives interviewed for this study: None of them conduct e-waste recycling.

In the Kingdom, some of the items are refurbished and resold, but much is broken down and stripped to recover the small quantities of valuable metals that they contain. Indeed, an informal network of waste pickers plays an important role in collecting recyclable materials from e-waste. According to information obtained from some interviews within the scope of this study, it has been revealed that valuable components of e-waste are transported, often illegally, across borders to Thailand or Vietnam.

In terms of volumes, usually less than 50% of e-waste in Cambodia goes to neighboring countries mostly for recycling purposes, while more than 50% is disposed of in landfills across the country, therefore susceptible to spontaneous burning and release of unintended pollutants.[29]

Markets for recycled products are still undeveloped and no specific national guidelines are currently available to mitigate negative environmental impacts.

### Air and water pollution

Based on the interviews that were conducted during the study, we were not able to gather any information or data that specifically pertained to the air quality and pollution levels within Cambodia's electronic sector. Nevertheless, we can rely on major trends and data from the region to understand key critical aspects of this issue.

During certain stages of the manufacturing process, workers may come into contact with hazardous chemicals and inhale harsh fumes, which could potentially cause long-term health problems.[30] Manufacturing plants in Asia suffer from toxic air quality due to plating, soldering, and solvent-based cleaning processes that lead to severe water and air pollution. Recycling operations involve open-air dismantling of waste, burning of cables to recover copper, and breaking of cathode ray tubes for lead, releasing pollutants such as lead, chromium, cadmium, and PCBs. The smelting of metal components in informal recycling plants also causes serious pollution, with emissions and fugitive dust affecting groundwater and waterways. Used lead-acid batteries are broken up and rebuilt for sale after recycling.[31]

[26] Sciences Direct. (2014). E-Waste: A Global Hazard.
[27] Interview with Mr. Florian Werthmann, e-waste specialist.
[28] National Circular Economy Strategy and Action Plan 2021, Cambodia.
[29] Interview to Phnom Penh Special Economic Zone (PPSEZ) Representative.
[30] ILO 2016, The impact of procurement practices in the electronics sector on labour rights and temporary and other forms of employment.
[31] WHO, 2017, Recycling used lead-acid batteries: health considerations.

## 6.3 Corruption

The country ranks 157 out of 180 in the 2022 Corruption Perceptions Index by Transparency International.[32]

Corruption is a persistent problem in Cambodia and cases of bribery, money laundering and tax evasion commonly occur in the manufacturing industry. The lack of independent law enforcement agencies and weak accountability mechanisms contribute to the situation. Despite this, the government has made some progress in addressing corruption with the passing of the Anti-Corruption Law in 2010 and a law on public procurement in 2012.

## 6.4 Data transparency

To be able to recognize sustainability impacts such as the exploitation of workers, the overexploitation of natural resources, and the improper disposal of electronic waste, robust data from direct and sub-suppliers is necessary.

The highly fragmented production systems and complex supply chains of the EEE industry make data collection and transparency challenging. Our study shows that there is a lack of transparency in information and data among various stakeholders in Cambodia, which is hindering the ability to assess sustainability impact.

For instance, the research team encountered difficulties in obtaining relevant sector data from Governmental authorities, as they only provided the limited information already included in the *Automotive and Electronics Sectors Development Roadmap*. For example, it was only possible upon formal request to receive the exact number of EEE companies operating in Cambodia.

Besides, sustainability data of the Cambodian EEE sector is even less accessible. Public officials have been hesitant to address sustainability concerns in the electronics sector, while the private sector has been reluctant to share information, particularly about employee working conditions. Instead, stakeholders were more inclined to discuss waste disposal practices and related issues in Cambodia and the broader region.

This deficiency could result in significant environmental and social consequences. Therefore, urgent measures must be taken to improve data transparency within Cambodia's manufacturing industry to ensure proper monitoring and regulation of sustainability practices and minimize human rights and environmental impacts.

In addition, in Cambodia there is a perception that numbers will negatively portray factories, which may stem from social attitudes and cultural norms in Cambodia. This can create a barrier to the implementation of transparency and disclosure practices, which can in turn hinder efforts to improve sustainability and human rights in the EEE sector. Overcoming these cultural barriers may require a combination of targeted education and awareness-raising campaigns, as well as the establishment of clear incentives for factories to improve their practices and publicly disclose their sustainability efforts.[33]

## 6.5 Consumer protection

Cambodia’s consumer protection is still in its infant stage. But consumer associations are expected to make their start soon, heavily supported by the Consumer Protection Competition and Fraud Repression Directorate-General (CCF). These consumer associations are not specifically intended to focus on electronics products yet but will probably be forced to in the future as the EEE industry gradually gains importance in the Cambodian economy.

[32] Transparency International (https://www.transparency.org/en/cpi/2021/index/khm).

[33] HREDD Needs Assessment Study, Summary Reports, Eurocham Cambodia, 2022.

Future development of consumer protection is promising, and needed, as counterfeited electronics products are widespread.

## 6.6 Government influence

The *Industrial Development Policy 2015-2025* identifies the electronic sector as a priority industry for sustainable development and emphasizes the transformation of Cambodia's industrial structure from labor-intensive to skill-based linking with global value chains.

The policy encourages the development of industrial centers based on concrete land use plans aimed at managing environmental resources to ensure the sustainability of the ecosystem. In addition, clear standards on environmental protection for investment projects in SEZs and other industrial zones will be established.

The 2021 *National Circular Economy Strategy and Action Plan* aims to guide Cambodia towards a circular economy in the next 15 years by utilizing resources efficiently, maximizing resource value, and creating new economic opportunities. As for e-waste, the strategy includes schemes to enforce sellers and manufacturers of packaging to accept the return of their packaging for recycling, or sellers to accept the return of used products for recycling or refurbishment.

The strategy emphasizes waste segregation and e-waste recycling among its pilot initiatives. Additionally, the strategy highlights the importance of providing economic incentives such as subsidies and VAT exemptions for composting, recycling, and reprocessing activities, including those related to e-waste.

The 2022 *Automotive and Electronics Sectors Development Roadmap*, lacks specific recommendations regarding the prevention or mitigation of social and environmental impact of the sector, except for general statements promoting socio-economic development to make the sector stronger, more inclusive, and sustainable. The government aims to expand the pool of trained electronic workers and encourages the adoption of a more environmentally sustainable approach in the industry.

A key priority is reducing electricity prices, with significant strides already made in improving electricity access and stability. More than 50% of Cambodia's domestic energy production comes from renewable sources, mainly hydropower, which is one of the highest percentages in the region, making Cambodia an attractive location for investors seeking to minimize their environmental footprint.

As per the findings of the interviews conducted with the Council for Development of Cambodia (CDC), it was observed that the CDC exhibited a certain degree of reluctance towards discussing sustainability issues in the electronic sector, encompassing both social and environmental impacts.

Furthermore, given the escalating significance of the electronic sector, which continues to be relatively limited in terms of workforce, the CDC asserted that the retrenched workers from the garment sector due to a decrease in orders over the past year could potentially serve as a viable resource pool for the electronic industry, thereby enabling the industry to increase its employees. In this regard, the CDC expressed no apprehensions concerning the skillsets of these employees, even though the scarcity of skilled labor force in the electronic sector already constitutes a significant obstacle for businesses.

Although the Cambodian government has expressed a positive attitude towards sustainable development and has established a clear vision for the electronic sector, there is still a need for a more practical approach that prioritizes sustainability through specific actions and steps.

## 6.7 Sustainability initiatives

### Globally

The promotion of sustainable electronics involves various stakeholders at the global level. These stakeholders include non-governmental organizations with sector-specific programs, associations that focus solely on electronics, and initiatives that strive towards a more sustainable future for the electronics industry. For a comprehensive list of these stakeholders, please refer to the Annex F.

### Cambodia

In Cambodia, no initiatives or NGOs focus exclusively on sustainable electronics. However, multiple issues in other industries (such as the garment sector) are also present in the EEE sector. As Cambodian electronics manufacturing increases its GDP share, adaptation of initiatives to this specific industry seems ineluctable.

**Tab. 4** | Most important sustainability initiatives in Cambodia

| | |
|---|---|
| **UNIDO, KOICA, Samsung** | UNIDO, KOICA and Samsung are currently collaborating to support young people in gaining skills in the electronics sector, particularly in the repair and installation of consumer electronics (TVs, mobile phones, etc.) |
| **UNIDO, MoE, MoLVT** | UNIDO is collaborating with the Ministry of Environment and Ministry of Labour and Vocational Training on designing the electronic waste inventory, drafting new policies |
| **UNIDO, RGC** | UNIDO and the Royal Government of Cambodia are working together on drafting a new law on electronic waste. |
| **Sustainable Trade Initiative (IDH)** | It promotes safer working conditions for factory workers in the apparel, footwear, and accessories industry by assessing factories and providing a framework for their monitoring, mitigating, and remediating.<br>Such initiative could be soon replicated specifically for the EEE industry. |
| **Clean Green Cambodia** | Clean Green Cambodia is an initiative of the Cambodian NGO Social Trust. This project aims to spread environmental awareness around Cambodia. They gather sustainable initiatives and businesses to facilitate partnerships. They mostly focus on waste management and reduction. Besides, they also offer workshops for schools and businesses, free conferences for businesses, free webinars, or movie screenings. |
| **GGGI** | GGGI's objective in Cambodia is to support green city planning by raising awareness of green growth concepts and instruments as well as to assist in the development of bankable green city projects that result in climate change resilience and improved livelihoods for Cambodia's urban poor. |
| **UNDP Policy and Innovation Hub for Sustainable Development** | It aims to assist Cambodia in attaining these sustainable growth aspirations. The project supports the preparation of a national plan that integrates the 2030 agenda for sustainable development, development of policy research, expands the base for development financing, and promotes innovative solutions across three pillars of UNDP's Country Programme 2019-23: prosperity (inclusive and sustainable growth), |

| | |
|---|---|
| | planet (environmental protection and climate change adaptation and mitigation) and peace (opportunities for all to contribute to and benefit from Cambodia's transformation) |

## 6.8. Sustainability-related certifications in Cambodian EEE companies

To this day, major certification bodies in Cambodia do not offer industry-specific certification programs for the electronics industry. However, multiple sustainable certification programs are applicable for this sector:

**Tab. 5** | Sustainability certification programs available in the EEE sector

| Certificate/ Program | Description |
|---|---|
| **Environmental** | |
| **ISO 14064-1** | Corporate Carbon footprint verification. This program verifies direct and indirect emissions from the operation. |
| **ISO 14064-2** | Emission reduction validation/verification. This helps identify opportunities for emission reductions and confirm reductions over time. Emission reductions are eligible to be converted into carbon credits. These credits can be sold as offsets to companies who want or need to compensate for their own emissions. |
| **ISO 50001** | Energy management. This program verifies how energy is consumed throughout an organization's value chain, providing measurable economic benefits for the business operation. |
| **ISO 14001** | Environmental Management System certification |
| **Life Cycle Assessment (LCA)** | A standardized assessment method for carrying out a multi-criteria, multi-stage environmental assessment of a system over its entire life cycle. |
| **Carbon Neutral certifications** | (In accordance with PAS 2060) |
| **Water and Energy footprint certification** | Enables businesses to calculate how much water and energy they need to make a product or provide a service. |
| **Social** | |
| **Ethical Trading Initiative (ETI)** | This program focuses on 9 principles of good working conditions including freedom of association, no child labour and secure healthy working conditions. |
| **SMETA (Sedex Member Ethical Trade Audit)** | Sedex's unique audit methodology for assessing all aspects of supplier and supply chain responsibility. |
| **2 pillar program** | Verifies 9 ETI base codes |

| | |
|---|---|
| **4 pillar program** | Additionally includes more extensive environmental management requirements. |

Among 26 Cambodian EEE companies screened for this study, four certifications were found:

- **ISO 9001** - a control tool aiming at the efficiency of the organization and the satisfaction of the customer through the continuous improvement of processes and the orientation of attitudes towards quality and is therefore not related to sustainability.
- **ISO 14001 -** As the most important standard within the ISO 14000 series, it specifies requirements of an environmental management system that can be used by an organization to improve its environmental performance.
- **TL9000 -** a quality management system built on ISO 9001 and the eight quality principles but designed specifically for the communications industry
- **ISO 13485** - specifies the quality management system requirements for the medical device industry. It builds on the requirements of the broader ISO 9001:2015 standard in the context of this industry.

At least half of the screened companies detain one certification or more. The most common are ISO 9001 and ISO 14001, while TL9000 and ISO 13485 are more specific and rarer. Only ISO 14001 can be qualified as a sustainability certification. All other certifications mentioned above are not used in the Cambodian EEE industry.
Among the four companies interviewed under the scope of this study, it has emerged that three out of four have obtained the ISO 9001 certification, signifying their commitment to quality management practices.

Additionally, only one of the interviewed companies holds the ISO 14001 certification, indicating their compliance with international environmental management standards. This company also noted that they adhere to national environmental standards at the local level, and have undergone an Environmental Impact Assessment (EIA) to ensure compliance. In the future, this company intends to pursue labour certification (SA 8000).

Two of the four companies expressed plans to pursue the ISO 14001 certification in the future, further underscoring their commitment to environmental management practices.

# 7. Conclusion

In conclusion, the electronic industry in Cambodia faces several challenges that hinder its sustained growth, including the shortage of skilled labour force, lack of data transparency, and environmental and human rights concerns that require concrete actions from the government towards more sustainable development.

Despite these challenges, there are opportunities for the industry's future growth, including the relocation of EEE production components from China and deeper integration into the ASEAN Economic Community. The industry can also benefit from Cambodia's strategic location in ASEAN, which is the third fastest-growing market for electronic devices in the world.

In order to realize the full growth potential, a collaborative effort from all stakeholders is necessary, with a focus on education and skill-building programs to support the development of e-workers. Moreover, the industry must ensure appropriate labour legislation and social protection for temporary workers. Meanwhile, sustained attention to the issues raised here may lead to more decisive action by policymakers toward extending laws down the global supply chain, as evidenced by new reporting legislation.

# 8. Sources and useful links

**Tab. 6** | Sources and useful links

| | |
|---|---|
| **Government** | • **Ministry of Economy and Finance**<br>• **Ministry of Mines and Energy**<br>• **National Bank of Cambodia**<br>• **Council for the Development of Cambodia**<br>• **OECD** |
| **Fairs** | • **Camenergy 2022**: Largest Energy Fair in Cambodia - November 16 to 18th.<br>• **Cambodia International Construction Industry Expo 2022** - Largest Construction Fair in Cambodia. December 1st to 3rd. |
| **Associations** | • **Cambodia Constructors Association** - more than 300 members, most of them supply construction materials and equipment.<br>• **Cambodian Association of Finance and Technology** - seeks to cultivate interest and technical skills to promote increased innovation, financial inclusion, diversity and collaboration of all Tech and fintech segments.<br>• **European Chamber of Commerce**<br>• **Cambodia Chamber of Commerce**<br>• **International Business Chamber of Cambodia**<br>• **Japanese Business Association of Cambodia**<br>• **Korean Chamber of Commerce**<br>• **Phnom Penh Special Economic Zones (PPSEZ)** |
| **Institutes** | • **Cambodia Academy of Digital Technology**<br>• **Global Green Growth Institute** |
| **Tenders** | • **Bongthom**<br>• **DailyBids**<br>• **CambodiaTenders** |
| **Documents** | CDRI. 2019. Cambodia in the Electronic and Electrical Global Value Chains<br><br>Cambodia's Industrial Development Policy (IDP) 2015- 2025<br><br>Cambodia Electronics and Automotive Sector Development Roadmap<br><br>Circular Economy (CE) Strategy and Action Plan |

ILO 2016, (Working Paper 313) The impact of procurement practices in the electronics sector on labour rights and temporary and other forms of employment

ILO, 2019 (Working Paper 330), The electronics industry in Indonesia and its integration into global supply chains

Electronics Watch, 2018, The Link Between Employment Conditions and Suicide, A Study of the Electronics Sector in China

WHO, 2017, Recycling used lead-acid batteries: health considerations

OECD Due Diligence Guidance in the Electronics Sector

Country Reports on Human Rights Practices for 2022, United States Department of State Bureau of Democracy, Human Rights and Labour

International Trade Union Confederation. Countries at Risk Report Human and Trade Union Rights Committee 2019.

Greenpeace, (2017), Guide to Greener Electronics.

# Annex

Annex A – List of EEE Qualified Investment Projects inside SEZ and outside SEZ in Cambodia

Annex B - Case studies

Annex C - Policy framework

Annex D - Sustainability topics assessment - global perspective

Annex E - Comparative wages in selected countries (2022)

Annex F - Global sustainability initiatives

# Annex A

**Annex A** | List of EEE Qualified Investment Projects inside SEZ and outside SEZ in Cambodia

| No | Company name | Business activity | Outside SEZ/ inside SEZ | Investment capital (USD) |
|---|---|---|---|---|
| 2019 | | | | |
| 1 | FHL INDUSTRIES CO., LTD. | Assemble of electrical and electronic equipment | Outside SEZ | 2,460,660 |
| 2 | MILLPLANT INDUSTRIES (CAMBODIA) CO., LTD. | Assembling electronic components | Outside SEZ | 7,002,233 |
| 3 | CENTURY CREATION LIGHTING (CAMBODIA) CO., LTD. | Lighting manufacturing | Outside SEZ | 5,175,142 |
| 4 | NAT BEST (CAMBODIA) ELECTRICAL & HOME APPLIANCE CO., LTD. | Assembly of all kinds of electrical and electronic equipment factory | Outside SEZ | 3,792,591 |
| 5 | SILVER BEAUTY (CAMBODIA) ELECTRONIC AND LIGHTING CO., LTD. | All kinds of lighting factory | Outside SEZ | 3,296,050 |
| 6 | TOP RISE MASTER INDUSTRY CO., LTD. | Electronic factory | Outside SEZ | 3,857,520 |
| 7 | NINGBO DONGXING (CAMBODIA) ELECTRIC CO., LTD. | (Electronic) assemble all kinds of light bulbs | Outside SEZ | 3,429,600 |
| 8 | MEKO LIGHTING (CAMBODIA) CO., LTD. | (Electronic) All kinds of lighting factory | Outside SEZ | 2,350,100 |
| 9 | JINTEK PHOTOVOLTAIC TECHNOLOGY CO., LTD. | Assemble solar panels manufacture | Outside SEZ | 12,553,957 |
| 10 | FC SOLAR (CAMBODIA) CO., LTD. | (Electronic) assemble solar panels manufacture | Outside SEZ | 5,724,437 |
| 11 | NEW EAST SOLAR ENERGY (CAMBODIA) CO., LTD. | Assemble installation solar factory | Outside SEZ | 6,587,474 |
| 12 | TED INTERNATIONAL (CAMBODIA) INDUSTRIAL CO., LTD. | Electronic | SEZ | 5,086,700 |
| 13 | JIA XIN XIN RENEWABLE RESOURCES (CAMBODIA) CO., LTD. | Manufacturing electronics | SEZ | 4,800,000 |

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|---|---|---|---|---|
| 14 | JIANZHONGRUI ELECTRONICS TECHNOLOGY (CAMBODIA) CO., LTD. | Electronics | | 4,000,000 |
| 15 | QUNYOU (CAMBODIA) ELECTRIC APPLIANCE CO., LTD. | Electronic | SEZ | 9,065,547 |
| 16 | CENTURY MILLION ELECTRONIC PLASTIC CO., LTD. | Made of electronic accessories made of plastic | SEZ | 4,000,000 |
| 17 | ZHONGQI LIHUI CABLE CO., LTD. | Wire cable and cable | SEZ | 20,099,000 |
| 18 | WINTIME (CAMBODIA) CO., LTD. | Lamp | SEZ | 2,433,974 |
| 19 | BRILLANT LIGHTING CO., LTD. | Lamp | SEZ | 1,000,000 |
| 20 | TOMSON MERCHADISE CO., LTD. | Lamp & shelves | SEZ | 5,000,000 |
| 21 | KAI JI PLASTIC INDUSTRIAL CO., LTD. | Wire cable & plastic | SEZ | 6,179,112 |
| 22 | WORLD LIGHTING CABLE CO., LTD. | Wire cable | SEZ | 1,500,000 |
| 23 | NEW BAIJI (CAMBODIA) INDUSTRIAL COMPANY LIMITED. | Lamp | SEZ | 3,000,000 |
| 24 | BILBORTEX (CAMBODIA) CO., LTD. | Lamp | SEZ | 4,251,251 |
| 25 | CABLE ASSOCIATED CO., LTD. | Wiring and wiring devices | SEZ | 446,900 |
| 26 | YUKITA ASIA (CAMBODIA) CO., LTD. | Manufacture of electric components | SEZ | 987,120 |
| 27 | CHIANG CU WIRE & CABLE CO., LTD. | Wire cable & cable | SEZ | 3,242,236 |
| 28 | WING ART LIGHTING AND WARE CO., LTD. | Lamp | SEZ | 7,408,470 |
| 29 | VIITION (CAMBODIA) INDUSTRY CO., LTD. | Lamp | SEZ | 2,000,000 |
| 30 | SUTAI COPPER (CAMBODIA) CO., LTD. | Wire cable, cable | SEZ | 1,818,836 |
| 31 | SEASON PLUS ARTS & CRAFTS CO., LTD. | Plastic & lamp | SEZ | 1,500,000 |
| 32 | DYNATECH LIGHTING TECHNOLOGY CO., LTD. | Lamp | SEZ | 2,265,090 |

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| 33 | STAR JOY ORNAMENT & GIFTWARE CO., LTD. | Lamp | SEZ | 5,057,560 |
| 34 | MR. TREE INDUSTRIAL (CAMBODIA) CO., LTD. | Lamp | SEZ | 300,000 |
| 35 | O'SMART LIGHTS CO., LTD. | Lamp | SEZ | 300,000 |
| 36 | SEASON BRIGHT (CAMBODIA) ELECTRONIC LIGHTING CO., LTD. | Lamp | SEZ | 3,025,486 |
| 37 | SHENGLONG VP-TECH (CAMBODIA) CO., LTD. | Solar panel | SEZ | 20,000,000 |
| **Total** | **37** | | | **174.997.046** |
| **2020** | | | | |
| 1 | * EMAXX ELECTRIC CO., LTD. | Transform and electric factory | Outside SEZ | 2,710,750 |
| 2 | BRANWELL INDUSTRIAL (CAMBODIA) COMPANY LIMITED | Electrical equipment | Outside SEZ | 7,111,910 |
| 3 | LITKCONN TECHNOLOGY (CAMBODIA) CO., LTD. | Assemble all kinds of light bulbs (electronic) | Outside SEZ | 3,460,600 |
| 4 | MING YUNG HUNG ENTERPRISE (CAMBODIA) CO., LTD. | Lamp, accessories lamp, wire and plastic product factory (electronic) | Outside SEZ | 5,455,385 |
| 5 | PRECISE ELECTRIC MANUFACTURING (CAMBODIA) COMPANY LIMITED. | Transformer and switchboard factory (electronic) | Outside SEZ | 5,035,906 |
| 6 | TOPEC ELECTRIC CO., LTD. | Wire, cable and meter box factory (electronic) | Outside SEZ | 8,625,251 |
| 7 | NINGBO BAINIAN (CAMBODIA) ELECTRIC APPLIANCE CO., LTD. | Electrical equipment | Outside SEZ | 2,550,348 |
| 8 | HOUNEN SOLAR INC CO., LTD. | Solar manufacture and assembly | Outside SEZ | 9,530,970 |
| 9 | IMPERIAL STAR SOLAR (CAMBODIA) CO., LTD. | Solar panels factory | Outside SEZ | 7,948,074 |
| 10 | JINTEK CELLS TECHNOLOGY CO., LTD. | Solar photovoltaic cells & accessories factory | Outside SEZ | 7,722,066 |
| 11 | PROSPECT ENERGY (CAMBODIA) CO., LTD. | Solar manufacture and assembly | Outside SEZ | 7,948,074 |

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| 12 | SUNENERGY TECHNOLOGY (CAMBODIA) CO., LTD. | Solar panel assembly factory | Outside SEZ | 6,612,574 |
| 13 | KAINING METAL PRODUCT (CAMBODIA) CO., LTD. | Decorative product and home appliances | SEZ | 8,809,440 |
| 14 | HONG YAO CABLE & WIRE (CAMBODIA) CO., LTD. | Lamp & wire cable | SEZ | 5,680,646 |
| 15 | LONG PURSE INDUSTRIAL (CAMBODIA) CO., LTD. | Connect electric cable made of copper and metal | SEZ | 5,103,994 |
| 16 | SEIKAWA (CAMBODIA) TECHNOLOGY CO., LTD. | Plastic parts for electrical and electronic devices | SEZ | 500,000 |
| 17 | WCFO (CAMBODIA) CO., LTD. | Assemble optic fiber connection | SEZ | 921,566 |
| 18 | NEW PHOENIX DEVELOPMENT INDUSTRY CO., LTD. | Lamp, lamp components, wire cable and kind of plastic products | SEZ | 9,008,500 |
| 19 | CRYSTAL BRIGHT ELECTRIC CO., LTD. | Lamp | SEZ | 5,000,000 |
| 20 | SMART SILVIL STAR CO., LTD. | Decorative light bulbs, straps, hooks and lamp | SEZ | 5,128,470 |
| 21 | RUITO WIRE & CABLE CO., LTD. | Wire cable, cables and roll | SEZ | 1,500,000 |
| 22 | PINNACLE HOME COLLECTION CO., LTD. | Lamp and packaging | SEZ | 6,950,115 |
| 23 | VENUS ENERGY (CAMBODIA) CO., LTD. | Solar panel | SEZ | 3,000,000 |
| **Total** | **23** | | | **126,314,639** |
| **2021** | | | | |
| 1 | * SOLTEAM ELECTRONICS (CAMBODIA) CO., LTD. | Electronics spare parts | Outside SEZ | 4,787,870 |
| 2 | * SHININGMOON LIGHTING (CAMBODIA) CO., LTD. | Lamp and accessories lamp (electronic) | Outside SEZ | 4,255,168 |
| 3 | G A I A INTERNATIONAL CO., LTD. | Home appliances, lamps and electronics | Outside SEZ | 5,125,885 |
| 4 | KUANTECH (CAMBODIA) INTERNATIONAL CO., LTD. | Assemble all kinds of electronics | Outside SEZ | 29,764,064 |

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| 5 | SCHNEITEC CHINT CO., LTD. | Assemble electrical equipment | Outside SEZ | 2,500,000 |
| 6 | YUAN SHUO (CAMBODIA) CO., LTD. | Assemble and install all kinds of electronic equipment and electronic parts | Outside SEZ | 2,247,464 |
| 7 | * IMPERIAL STAR SOLAR (CAMBODIA) CO., LTD. | Solar | Outside SEZ | 25,353,150 |
| 8 | VELONG (CAMBODIA) INDUSTRIES CO., LTD. | Establish a manufacture of BBQ accessories, electric instruments and electric lamp | SEZ | 3,522,851 |
| 9 | Y.T PLASTIC CO., LTD. | Establish of electric equipment & accessories, lamp and kind of lamp components | SEZ | 5,790,200 |
| 10 | HONGLAITE HOME HANDICRAFT (CAMBODIA) CO., LTD. | Establish of lamps, lamps components and curtain components factory | SEZ | 5,194,840 |
| 11 | STARRAY LIGHTING (CAMBODIA) ENTERPRISE CO., LTD. | Establish a manufacture of decorative lighting | SEZ | 2,500,000 |
| 12 | GAN YAO XING LIGHTING CO., LTD. | Establish of lightings, light string, decoration lightings and all kinds of lighting components in the factory | SEZ | 3,130,070 |
| 13 | SOLAR LONG PV-TECH (CAMBODIA) CO., LTD. | Assembly of solar photovoltaic cells and accessories | SEZ | 30,000,000 |
| **Total** | **13** | | | **124,171,562** |
| **2022** | | | | |
| 1 | JT ELECTRONICS CO., LTD. | All kinds of electronic lamps and accessory lamps | Outside SEZ | 5,395,444 |
| 2 | GORGEOUS LIGHTS CO., LTD. | Lamps and accessories lamps (electronic) | Outside SEZ | 8,103,547 |
| 3 | JBT TECHNOLOGY CO., LTD | Light decoration (electronic) | Outside SEZ | 5,452,620 |
| 4 | LHTL DECORATION (CAMBODIA) CO., LTD. | Manufacture and assemble all kinds of decorative lighting cables and artificial trees (electronic) | Outside SEZ | 6,183,752 |

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| 5 | LINGBENYANG OPTOELECTRONICS (CAMBODIA) CO., LTD. | Assembly lamps electronic and accessories electronic | Outside SEZ | 5,178,549 |
| 6 | MEKO INTELLIGENT (CAMBODIA) CO., LTD. | All kinds of lighting, electronic products and electronic accessories assembly | Outside SEZ | 31,952,384 |
| 7 | SHENG KA SHIN ELECTRONIC REBORN RESOURCH CO., LTD. | Electronics assembly | Outside SEZ | 9,670,663 |
| 8 | YURA HARNESS (CAMBODIA) CO., LTD. | Wire harness assembly (electronic) | Outside SEZ | 6,773,223 |
| 9 | ACADEMIC SOLAR ENERGY MFG CO., LTD. | Solar panel | Outside SEZ | 8,183,635 |
| 10 | Elite Solar (Cambodia) Co., Ltd. | Assembly of solar panels | Outside SEZ | 47,205,161 |
| 11 | KITATSU SOLAR (CAMBODIA) CO., LTD. | Solar assembling | Outside SEZ | 23,449,848 |
| 12 | SOLTEAM (CAMBODIA) CO., LTD. | Electronic and electrical products and parts | SEZ | 14,756,000 |
| 13 | WISDOM POWER TECHNOLOGY (CAMBODIA) CO., LTD. | Assemble of electrical voltage equipment (low, medium and high) | SEZ | 3,000,000 |
| 14 | XIANTONG WIRE AND CABLE CO., LTD. | Wire, cable and cable reel | SEZ | 5,000,000 |
| 15 | GREEN LINK ELECTRIC CO., LTD. | Decoration of lighting | SEZ | 5,500,000 |
| 16 | RAINBOW LIGHTING CO., LTD. | All kinds of light | SEZ | 5,345,060 |
| 17 | FORESTSTAR TREE INDUSTRIAL (CAMBODIA) CO., LTD. | Christmas tree, Christmas tree lights, Christmas tree ornaments & Christmas tree accessories | SEZ | 5,402,171 |
| 18 | L-Q NEW ENERGY CO., LTD. | Solar panel | SEZ | 84,501,000 |
| 19 | SOLAR LONG PV-TECH (CAMBODIA) CO., LTD. | Assemble of solar photovoltaic cells and accessories | SEZ | 12,000,000 |
| **Total** | **19** | | | **293,053,057** |
| **2023 (as of April)** | | | | |
| 1 | EBELNO (CAMBODIA) CO., LTD. | Electronic equipment assembling | Outside SEZ | 5,256,700,00 |

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|---|---|---|---|---|
| 2 | GE NEW ENERGY TECHNOLOGY (CAMBODIA) CO., LTD. | Solar | Outside SEZ | 6,716,752,00 |
| 3 | SUNFLOWER ENERGY (CAMBODIA) CO., LTD. | Solar and assembling solar | Outside SEZ | 15,666,211,00 |
| 4 | WON STAR ENTERPRISE CO., LTD. | Decorative lighting, plastic decorative products and other decorative accessories | SEZ | 2,000,000 |
| 5 | XIN TAI CHANG (CAMBODIA) ARTS AND CRAFT CO., LTD. | Lighting and lighting accessories | SEZ | 8,600,598 |
| 6 | TECHNOMATE (CAMBODIA) PRECISION METAL CO., LTD. | Solar and lighting | SEZ | 10,000,000 |
| 7 | TECHNOMATE (CAMBODIA) TECHNOLOGY CO., LTD. | Solar and lighting | SEZ | 10,000,000 |
| **Total** | **7** | | | **58,240,261** |
| **Grand Total** | **99** | | | **776.776.565** |

**Note:**

| | |
|---|---|
| | **Under-Construction** |
| | Non-operation |
| * | Expansion |

# Annex B

**Annex B** | Case studies - examples of successful companies operating in Cambodia

YAZAKI

The history of YAZAKI began in 1929 when Sadami Yazaki was selling automotive wire harnesses. In 1935, YAZAKI was expanded to create YAZAKI ELECTRIC WIRE INDUSTRIAL Co. Ltd with 70 employees. Today, YAZAKI is a Japanese multinational company that manufactures components for electrical distribution systems, including instrumentation, switches, terminal blocks, and connectors.

YAZAKI also has other activities such as manufacturing of electrical wires and cables, gas products and air conditioning. The company's relocation process started in 1962 with its subsidiary THAI YAZAKI ELECTRIC WIRE CO. LTD.

Today, YAZAKI has more than 300,000 employees on five continents.

As it is difficult to automate the assembly of wire harnesses and labour costs surged in Thailand, Yazaki decided to move into Cambodia in 2012. They opened a $24 million wire harness factory in Koh Kong, a Cambodian province bordering Thailand. Since then, the Japanese automotive component maker is turning out wire harnesses as fast as it can. These vital components supply power to the various devices spread throughout the car and relay data from sensors to the control unit.

Electrical wires and tapes are imported from Thailand duty-free, thanks to the scrapping of tariffs under the ASEAN Economic Community (AEC), and assembled into wire harnesses in Koh Kong. These are then shipped back to Thailand with a Yazaki truck that shuttles between Thailand and Cambodia once a day.

The manager of the Koh Kong factory is Thai; technical assistance and worker training are provided by Thai staff. This is drastically cheaper than sending engineers from Japan and makes it easier to resolve problems because Thailand is right next door.

Today, Yazaki Corp employs over 3,000 persons in Cambodia.

MinebeaMitsumi
Passion to Create Value through Difference

Established in 1951, MinebeaMitsumi is a Japanese comprehensive precision components manufacturer that integrates a wide range of cutting-edge technologies, from ultra-precision machining technologies, such as miniature and small ball bearings, which boast the No.1 global market share, to motors, sensors, semi-conductors and wireless technologies. They create new value through difference and contribute to the age of IoT (Internet of Things) as an Electro-Mechanics Solutions™ provider.

MinebeaMitsumi currently has about 100,000 employees and operates in 166 bases in 27 countries.

One of the characteristics of MinebeaMitsumi is its high overseas ratio, with approximately 90% of production, 70% of sales, and 90% of employees. They place great value on hiring local employees in Asia and other countries where they operate and grow together through human resource education.

in 2010, Mineaba established a local subsidiary in the Phnom Penh Special Economic Zone, as Cambodia's first manufacturer of precision electronic components and commenced production in 2011. Since then, the company has been making efforts to contribute to local communities through employment creation, improving the living environment of employees, and education through the manufacture of a variety of electronic components such as small motors. Currently, the Cambodia Factory is one of the most important manufacturing bases for MineabaMitsumi. With approximately 9,000 employees, it has the largest number of employees employed by a Japanese company operating in Cambodia.

They have been working on the "Smart City" project since 2015, installing approximately 12,116 high-efficiency LED streetlights in Phnom Penh and Siem Reap, combining wireless networks and various sensors to resolve issues such as energy conservation and infrastructure development and contribute to the sustainable growth of Cambodia.

Panasonic

Panasonic Corporation is a worldwide leader in the development of diverse electronics technologies and solutions for customers in the consumer electronics, housing, automotive, and B2B businesses. The company, which celebrated its 100th anniversary in 2018, has expanded globally and now operates 528 subsidiaries and 72 associated companies worldwide.

Founded in 2010, Panasonic Cambodia is the official representative office of Panasonic Singapore in Cambodia, responsible for the sales/aftermarket sales, marketing and distribution of Panasonic products in both the B2B and B2C segments.

Since 2010, Panasonic Cambodia has established itself as a reliable partner among leading businesses in the Kingdom. Panasonic has committed to enhancing Cambodian lives with its wide range of consumer electronics through innovation.

As a result, Panasonic's presence is now evident everywhere.

It offers real-time technology solutions and expertise to businesses, by providing the industry's top-quality products and one-stop services, creating and maintaining long-term relationships with clients in the process. The unprecedented rise of the Cambodian construction industry in the last decade saw the construction of countless residential and commercial projects. Panasonic saw the opportunity and has therefore emerged as the number one air conditioning solutions provider in the Kingdom and became a major pillar for key development projects in the city.

Indeed, residential and commercial developers in Cambodia utilize top-end appliances and other electronics in their projects, and Panasonic Cambodia's wide range of products covers much of the ever-evolving needs of developers.

Panasonic complements its wide array of products with expert technical expertise as well as software to efficiently manage and scale operations according to business needs.

✉ service@kh.panasonic.com

GGEAR GROUP

GGEAR Group began its operation in 2011 as LG Exclusive Electronic Supplier in Cambodia. It is also the exclusive partner of the Hyundai elevator and AJ auto parking system.

The company offers all range of LG products including Home Appliances, Home Entertainment, Room Air-Conditioner and Commercial Air-Conditioner. Such premium products and services bring customers toward a new level of daily life routine with the latest technology in their hands.

GGEAR is committed to being a leading electronic supplier in by offering premium products and services.

GGEAR Group succeeded in opening various LG BrandShops in Cambodia: Phnom Penh, Siem Reap, Batambang, Kampong Cham, Sihanouk Ville, Phsar Doeumkor(PP), Stueng Mean Chey (PP), Takhmao, Kamport, Tul Kok(PP), Kampong Thom, Kampong Speu, Sen Sok(PP), Takeo, Stung Treng, Svay Rieng. Krong Soung and Toul Tumpoung (PP). Their goal is to be closer to their customers across all Cambodian provinces.

✉ info@ggear.kh.com

GES Cambodian was created in 2011.Since then, it has become a full-line wholesale distributor of electrical/electronic products of 11 different brands, their main product being power cables.

It has a strong network of products distributed in diverse areas such as industrial, commercial, institutional and residential.

GES Cambodian is also a Yazaki Partner and an official distributor of some internationally recognized brands, such as Bosch.

As the market is highly competitive and very price-driven, GES Cambodian is diversifying its activity in the healthcare sector, aiming to provide electronic devices to the industry in the coming years.

Although most of their imported inputs come from Singapore and Vietnam, they are very open to opportunities and interested in products from other sourcing markets.

For instance, they are currently in a phase of testing for a Turkish ZKO cable.

✉ seihavin@gescambodian.com

ATS is a specialist in energy, electrical distribution, and automation systems. They supply, design and manufacture solutions meeting specific clients' and projects' needs thanks to their panel building facility and multi-technologies/multi-brands approach. They also represent and/or distribute worldwide famous brands such as LSIS, Socomec, Philips Lightning, Schneider Electric, Indelec etc.

ATS was established in 2003 from scratch, to deliver world-class electrical supplies and solutions for the Construction, Infrastructure and Energy markets. Thanks to their network of retailers and contractors, they provide countrywide access to the major brands they represent. In 2007, they became Cambodia's first electrical panel builder and operate the country's largest and most integrated manufacturing facility in the industry. Since they are an authorized distributor of Philips lighting and are actively engaged in promoting energy-efficient LED lighting solutions.

Today, it employs more than 180 persons and has a turnover of around $10 million per year.

✉ f.vaganay@ats.com.kh

Siemens is a global powerhouse in electrical engineering in providing products, systems and solutions along the value chain of electrification, from power generation to transmission, power distribution and smart grid to the efficient use of electrical energy. They are the world leader in the application of automation technologies and are well-poised to assist their customers into the age of digitalization. For more than 170 years, the company has stood for engineering excellence, innovation, quality and reliability.

Siemens Representation Cambodia has been set up in 1998 and is today part of Cambodia's sustainable development initiatives. Siemens Cambodia offers a complete portfolio of products, systems, solutions and services from a single source. The company's activities are focused on creating value for customers by improving energy efficiency, productivity and flexibility of their plants and business.

✉ sopheak.soun@siemens-energy.com

As one of the Top 50 most influential electronic subcontractors, SVI is recognized as a world leader in Electronic Manufacturing Services, collaborating with prestigious companies that are lead the global industry. Globally, SVI has over 35 years of industrial experience and expertise. It is a premium manufacturing company that strives for growth, profitability, integrity and social responsibility. They specialized in Industrial Electronics, Micro-Electronics for telecommunications components, specialized electronic assemblies, and medical technologies industries.

SVI opened its Cambodian manufacturing facility in the Phnom Penh Special Economic Zone in 2019. Their modern EMS factory employs more than 700 employees specialised in high-end Electronic Manufacturing, and supplies their global customers with advanced surface mount technology (SMT), Insertion Mount Technology (IMT) and Box build operations. To maintain their position as the leading EMS service provider in SE Asia, they continuously invest in automation, new technology and training for their employees.

In 2022, the construction of a second - environmentally friendly - manufacturing factory is ongoing.

✉ salesasia@svi.co.th

Founded in 1997, WCFO is a supplier of high-performance components and integrated fiber optic connectivity solutions that touch key optical access markets. Their products include high quality, intelligent, versatile, and high-density optical racks/cabinets, patch panels, attenuators, adaptors, splitters, WDM solutions and a wide variety of standard and custom cable assemblies. Their extensive

experience in fiber connectivity products, sheet metal solutions and plastic (injection-molded) custom designs empower the integration of multiple technology platforms providing greater manufacturing flexibility and reduced manufacturing costs.

Established in Cambodia in 2020, WCFO Cambodia is the local arm of Hong Kong-based WCFO Communication. The company has seized the opportunity to invest in the Kingdom to produce and export to China, the US, Europe and other ASEAN countries.

They chose Cambodia because of its young, trainable and affordable labour force, and the preferential treatment Cambodia enjoys from developed countries, especially since the on-going US-China trade war. The recently signed Cambodia-China bilateral free-trade agreement could only reinforce this position.

✉ sales@wcfo.com

# Annex C

**Annex C** | Policy framework - most relevant policies and regulations concerning the EEE sector

| Policy | Year | Key authority | Key Features |
|---|---|---|---|
| **Labor Law of the Kingdom of Cambodia** | 1997 | Ministry of Labor and Vocational Training | • Regulates all employment contracts performed in Cambodia<br>• Sets labor standards that EEE manufacturers would have to comply with. |
| **Prakas on industrial standard of Cambodia for electrical and electronic products as mandatory standards** | 2004 | Ministry of Industry, Mines and Energy | • Establish the Industrial Standards of Cambodia for electrical and electronic products |
| **Law on Commercial Enterprises (LCE)** | 2005 | Ministry of Foreign Affairs and International Cooperation | • Provides a comprehensive legal framework for the establishment and operation of businesses |
| **Rectangular III** | 2013 | Ministry of Planning | • Job Creation and Ensuring Better Working Conditions for Workers and Employees<br>• Establishment of Social Safety Net for Civil Servants, Employees and Workers<br>• Expand the capacity of low-cost and hi-tech electricity production<br>• Encourages the private sector to invest in electricity generation, transmission, and distribution infrastructure<br>• Improves the legal framework: improved trade facilitation, reduced administrative procedures; expansion to international markets<br>• New SEZ in operation, attracting investments from new sources and in new sectors, especially electronics<br>• Expansion of the industrial base thanks to the promotion of the business environment through developing industrial standards, easing SMEs' access to finance, supporting priority |

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| | | | activities with tax incentives on inputs |
| **Government's National Strategic Development Plan 2014-2018** | 2014 | | • Strengthens SEZs to attract foreign investment<br>• Encourages technology transfer<br>• Aims to broaden export markets |
| **Cambodia Industrial Development Policy 2015-2025** | 2015 | | • Identifies electrical/electronics sector as key for Cambodia's development<br>• Stresses the importance of technical skills training |
| **Sub-Decree No. 16 on Electrical and Electronic Equipment Waste** | 2016 | | • covers all the activities regarding disposal, storage, collection, transport, recycling, dumping of electrical and electronic equipment waste. |
| **Telecommunication Law** | 2016 | | • Increases the government's authority over the industry and grants officials' overbroad surveillance powers |
| **Rectangular strategy IV** | 2018 | Ministry of Planning | • Develops and implements a master plan for technical education in the general and technical education high schools, especially in electricity and electronics<br>• Further strengthens and expands the development of necessary supporting infrastructures, including ICT infrastructure |
| **Cambodia trade integration strategy 2019-2023** | 2019 | Ministry of Commerce | • Implements 2017-2025 Technical and Vocational Education and Training (TVET) Policy<br>• Promotes joint ventures<br>• Promotes export and in-market support<br>• Stresses that high electricity costs hinder electronics actors' ability to move-up the value chain<br>• Highlights the importance of the EEE sector in the country's development - states the need to go from labour intensive to skilled jobs<br>• Aims to facilitate G2G and B2B missions to key markets (Japan, China, US, Germany among others) to boost investment and joint venture |
| **New Investment Promotion Law** | 2021 | Ministry of Commerce | • Modernizes and streamlines Cambodia's investment environment, gets closer to ASEAN best practices |

| | | | |
|---|---|---|---|
| | | | • Creates an open, transparent, predictable, and favourable legal environment to attract and promote domestic and foreign investment in Cambodia<br>• Lists procedures for registering and implementing investment projects<br>• Lists new measures on investment guarantees and protections<br>• Sets priority sectors for investment, including the Electronics and Electrical industry. |
| **Prakas on minimum wage** | 2021 | Ministry of Labour and Vocational Training | • Sets minimum wage for 2022 as applicable for workers and employees in the manufacturing industry<br>• Salary of $192 per month. 1.5 days of annual leave per month. 24 consecutive hours of rest per week. |
| **Digital Economy and Society Framework** | 2021 | Supreme National Economic Council | • Defines the common direction for digital infrastructure development<br>• Highlights the features of the Digital Economy (Highly Digital Goods and Services including electronic information services: IT-Intensive Services or Goods Production: Products and services in the ICT sector)<br>• Promotes electronic exhibition and trade activities<br>• Stresses the need for development of infrastructure, technology, and digital payment systems<br>• Promotes transition from cash to electronic payment |
| **Cambodia Automotive and Electronics Sectors Development Roadmap** | 2022 | Eight Ministries and state institutions | • Selects EEE sector as priority to contribute to the post-Covid-19 economic recovery of Cambodia<br>• Highlights the long-term vision and guidance for developing the EEE sector in Cambodia, and introduces the action plan for inter-ministries |

# Annex D

**Annex D** | Sustainability topics assessment - global perspective

| OECD Due Diligence Topic | Global EEE risks[34] |
|---|---|
| **Human rights**<br>Enterprises can have an impact on virtually the entire spectrum of internationally recognized human rights. As such, it is important that they meet their responsibilities.<br><br>**Employment and industrial relations**<br>Companies should respect and ensure all workers' rights | Human rights violations in electronics manufacturing include:<br>• Forced labor, hazardous working conditions, child labor, low wages, and excessive working hours.<br>• Workers lack the right to organize and bargain collectively for better working conditions and wages. |
| **Environment**<br>From the sourcing of raw materials to the final consumer, companies have a heavy impact on the environment. They should optimize their whole supply chain to better take care of it. | The electronic sector poses significant environmental risks, including:<br>• E-waste<br>• Resource depletion<br>• Energy consumption<br>• Chemical pollution<br>• Water consumption |
| **Corruption**<br>Companies should ensure preventive measures against bribery and corruption in international business. This is true for all companies: small, medium and large ones. | Financial crimes such as bribery, corruption, money laundering and tax evasion commonly take place in the industry. The extractive industries, such as minerals, is the one most prone to foreign bribery. |
| **Disclosure**<br>Enterprises should ensure that timely and accurate information is disclosed on all material matters regarding their activities, structure, financial situation, performance, ownership, and governance. | Corporate secrecy and lack of transparency of supply chains play a key role in perpetuating human rights violations in the EEE industry.<br>Workers and consumers should have access to information on purchasing practices; buyer-supplier relations; the position of a company in the value chain; production facilities, labor force conditions; corporate human rights due diligence policies and practices, materials, components, and end-products. |
| **Consumer protection**<br>Enterprises should ensure fair business, marketing and advertising practices, and quality and reliability of the products that they provide. | Consumer protection is an essential aspect of sustainability in the electronic industry. It ensures that consumers are protected from unsafe, harmful or unethical products, and that they are able to make informed decisions |

[34] OECD Due Diligence Guidance in the Electronics Sector

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| | about the products they purchase. This can also help to prevent the disposal of defective or unsafe products, thereby reducing electronic waste and environmental harm. |
| **Government Influence** | Government intervention is crucial in ensuring the sustainability of global supply chains in the electronics sector. Without it, the following risks are significant:<br>• environmental degradation,<br>• labor exploitation,<br>• lack of transparency,<br>• supply chain disruptions, and<br>• social and economic inequality |

Reference: OECD Due Diligence Guidance for Responsible Business Conduct

# Annex E

**Annex E** | Comparative wages in selected countries (2022) (source)

| Country/City | Daily minimum wage | | Monthly minimum wage | | Exchange rate per US$1 |
|---|---|---|---|---|---|
| | In local currency | In US$ | In local currency | In US$ | |
| Myanmar (Kyat) | 4,800 | 2.31 | 144,000 | 69.34 | 2,076.7200 |
| Lao PDR (Kip) | 36,667 | 2.42 | 1,100,000 | 72.60 | 15,152.3000 |
| Bangladesh (Taka) | 270 | 2.90 | 8,100 | 86.94 | 93.1654 |
| Pakistan (Rupee) | 667 | 3.02 - 3.78 | 20,000 - 25,000 | 90.71 - 113.39 | 220.4760 |
| Mongolia (Tugrik) | 14,000 | 5.34 | 420,000 | 160.31 | 2,620.0000 |
| Cambodia (Riel) | 26,061 - 26,332 | 6.47 - 6.66 | 781,824 - 789,968 | 192.00 - 194.00 | 4,072.0000 |
| Vietnam (Region I & II) (Dong) | 138,667 - 156,000 | 5.92 - 6.66 | 4,160,000 - 4,680,000 | 177.63 - 199.83 | 23,420.1000 |
| Philippines/Region XI | 427 | - | 12.81 | 227.90 | 56.2082 |
| Philippines/Region IV-A | 334 - 435 | 5.94 - 7.74 | 10,020 - 13,050 | 178.27 - 232.17 | 56.2082 |
| Philippines/Region VII | 387 - 435 | 6.89 - 7.74 | 11,610 - 13,050 | 206.55 - 232.17 | 56.2082 |
| Philippines/Region III | 399 - 450 | 7.10 - 8.01 | 11,970 - 13,500 | 212.96 - 240.18 | 56.2082 |
| Thailand (Baht) | 313 | 8.60 - 9.23 | 9,390 - 10,080 | 258.05 - 277.01 | 36.3885 |
| Indonesia (Rupiah) | 60,434 - 148,424 | 4.07 - 10.00 | 1,813,011 - 4,452,724 | 122.11 - 299.90 | 14,847.6000 |
| Philippines/NCR | 533 - 570 | 9.48 - 10.14 | 15,990 - 17,100 | 284.48 - 304.23 | 56.2082 |
| Malaysia (Ringgit) | 37 - 50 | 8.19 - 11.16 | 1,100 - 1,500 | 245.62 - 334.94 | 4.4784 |
| China (Yuan Renminbi) | 53 - 86 | 7.62 - 12.50 | 1,580 - 2,590 | 228.70 - 374.89 | 6.9088 |
| Taiwan (Taiwan Dollar) | 842 | 27.65 | 25,250 | 829.63 | 30.4351 |
| Hong Kong ($) | 300 | 38.23 | 9,000 | 1,146.76 | 7.8482 |
| South Korea (Won) | 73,280 | 54.37 | 1,914,440 | 1,420.33 | 1,347.8800 |
| Japan (Yen) | 6,560 - 8,328 | 47.35 - 60.11 | 196,800 - 249,840 | 1,420.37 - 1,803.18 | 138.5550 |
| New Zealand (NZ Dollar) | 136 - 170 | 83.45 - 104.31 | 4,070 - 5,088 | 2,503.49 - 3,129.36 | 1.6259 |

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|---|---|---|---|---|---|
| Australia (Aus. Dollar) | 171 | 117.88 | 5,131 | 3,536.34 | 1.4510 |

# Annex F

**Annex F** | Global sustainability initiatives

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| **Global Enabling Sustainability Initiative (GeSI)**<br>https://gesi.org/ | Established in Europe in 2001, GeSI is an Information and Communications Technology (ICT) industry association concerned with sustainability challenges for the industry that seeks to provide "impartial information, resources and best practices for achieving integrated social and environmental sustainability through digital technologies. |
| **Electronics Watch**<br>https://electronicswatch.org/en/ | In 2015 Electronics Watch was formally launched as an independent monitoring organisation, bringing together public sector buyers and civil society organisations in electronics production regions, with experts in human rights and global supply chains. |
| **Responsible Business Alliance**<br>www.responsiblebusiness.org | The Responsible Business Alliance - which goal is to ''advance sustainability globally'' has put in place various initiatives on responsible labour, factory, and minerals, as well as multiple CSR assessment tools. |
| **SERI**<br>https://sustainableelectronics.org/ | SERI is the only multi-stakeholder, collaborative nonprofit organization in the world focused exclusively on minimizing the environmental and health risks posed by used and end-of-life electronics, while also maximizing the social and economic value presented by this equipment. |
| **Global Electronic Council**<br>https://globalelectronicscouncil.org/ | The Global Electronic Council is a mission-driven nonprofit that leverages the power of purchasers to create a world where only sustainable technology is bought and sold. GEC manages the EPEAT™ ecolabel, a free resource for procurement professionals to identify and select more sustainable products. In addition, the EPEAT ecolabel is a resource for manufacturers to demonstrate that their products conform to the highest sustainability standards. |
| **International Electronics Manufacturing Initiative**<br>https://www.inemi.org | Not-for-profit R&D consortium of leading electronics manufacturers and suppliers, along with associations, government agencies, and universities. iNEMI roadmaps the future technology requirements of the global electronics manufacturing industry, identifies and prioritizes technology and infrastructure gaps, and helps eliminate those gaps through timely, high-impact collaborations among our members. |

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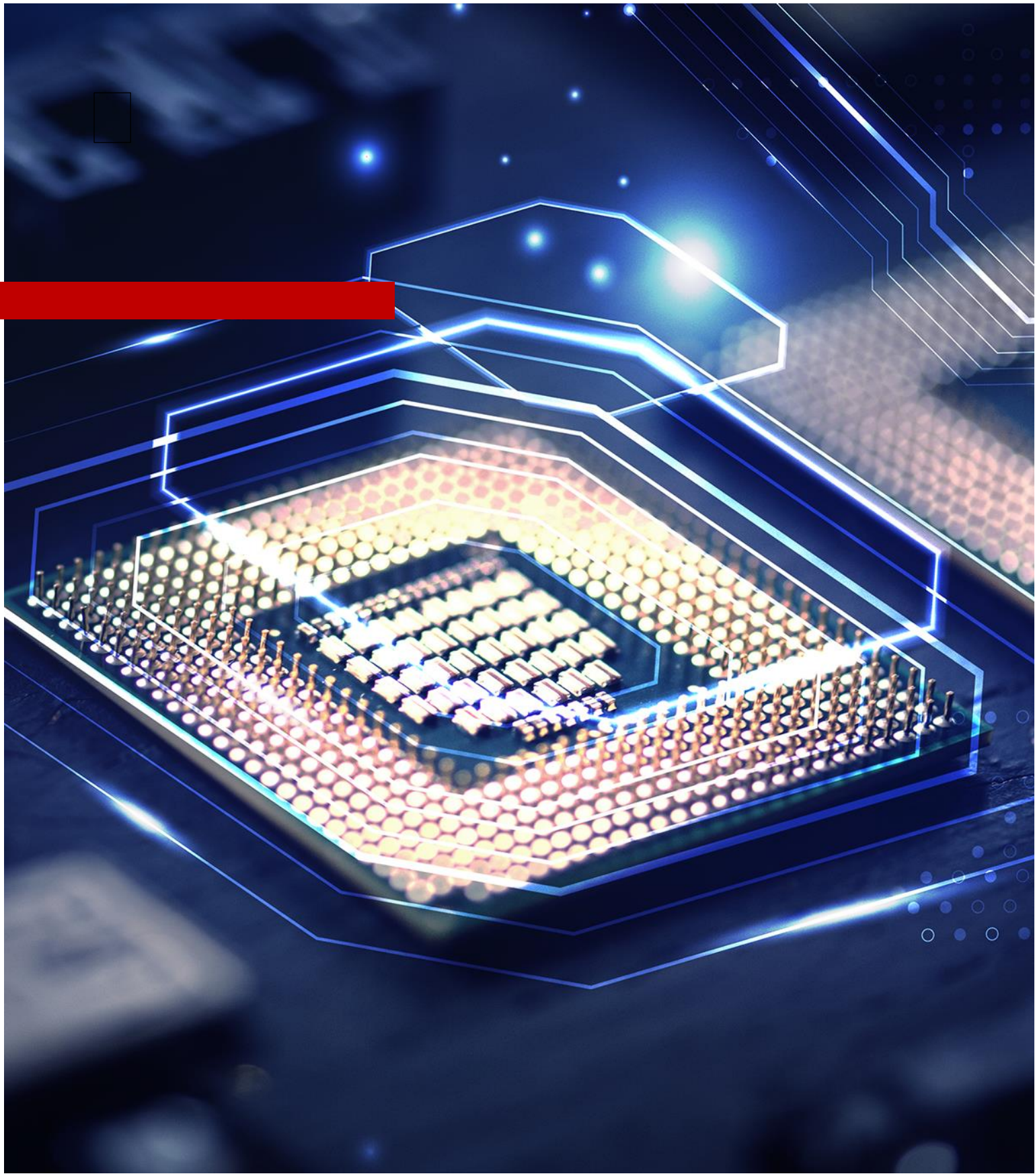
| | It has developed an Eco-Impact Estimator tool that can measure the overall environmental impact of a new electronic design. |
| **Restriction of Hazardous Substances Directive** (RoHS) | Best-known environmental initiative in the electronics industry<br>RoHS restricts the use of several hazardous materials and substances used in the manufacture of electronic and electrical equipment destined for sale in European markets. |
| **Sustainable Electronics Initiative** | The initiative started in the United States in the summer of 2009 by the Illinois Sustainable Technology Center. It provides research, education, technical assistance, and data management for the general public and other interested parties with regard to electronics and electronic waste. |
| **Green Peace** | Guide to Greener Electronics 2017 |



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