

IV • *Environmental protection*

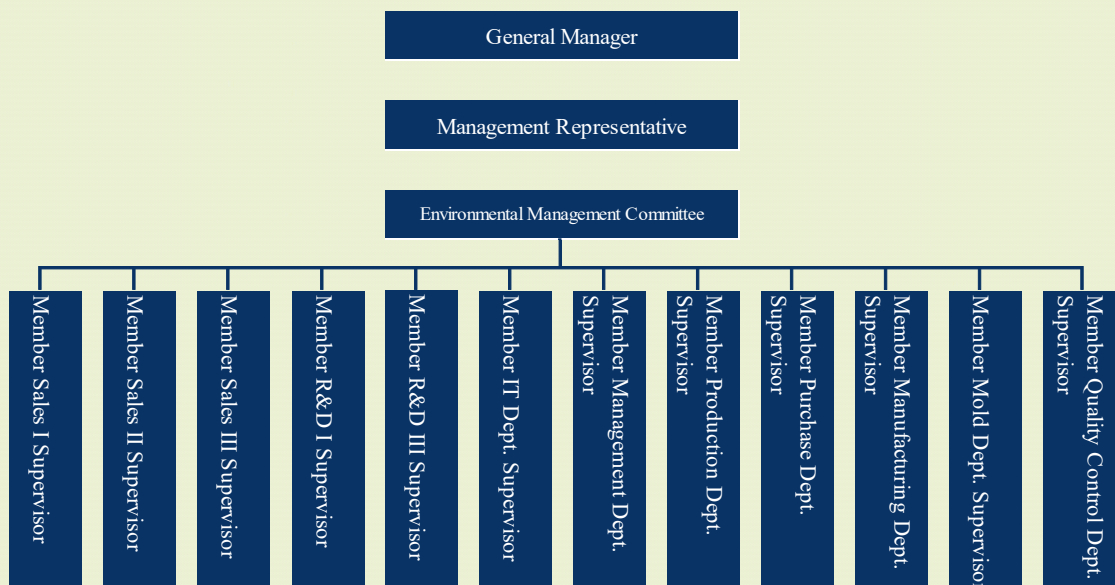


4.1 Environmental commitment and management system

In recent years, emphasis has put on the control of pollution emissions. Different reduction of pollutions and management systems has been the focus of the implementation of pollution control among the enterprises. The company was certified by ISO 14001 in 2011 and has continued to enhance the overall environment which is helpful for the increase of business operations. Meanwhile, it also fortifies the export competitiveness and enhances the company's image. We promise to continue maintaining the ISO 14001 environmental management system as to prevent any possible pollutants and fulfill our social responsibility.

Given the rise of environmental awareness, Cheng Fwa Industrial Co. Ltd. has been committed to the work of environmental protection for several years. It is hoped that through environmental management together with spontaneous and continuous improvement, we could improve the environmental conditions, reduce the actual impacts to the environment, and protect the Earth's limited green resources and environment.

Apart from the organizational structure, we have also established an interdepartmental Environmental Management Committee who is responsible to the integration of the upper level of the organization and the advance of interdepartmental activities. Also, a management representative is selected as to supervise, coordinate, implement, enhance and provide all resources needed for the environmental management system (including human resources, specialized skills, technology, finance, etc.)

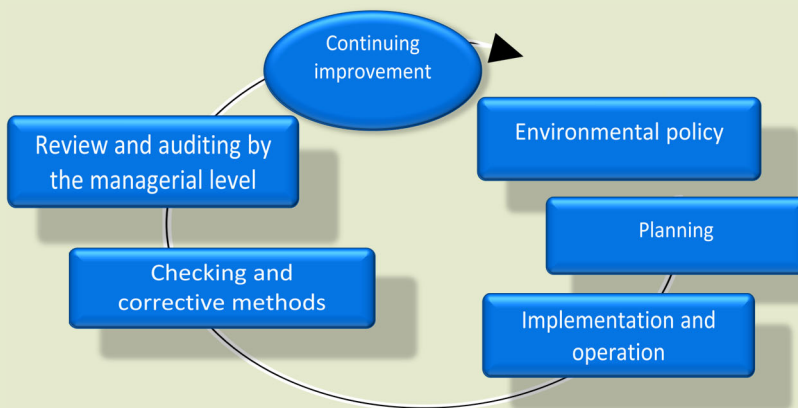


● **Environmental Policy**

Cheng Fwa set up “regulatory compliance, reduction of carbon emissions, pollution prevention, and eco-life” for the environmental policies. It also formulates different strategies and requirements as to enhance the environment. Based on the specifications of the raw materials, manufacturing processes, products, service, chemical products, pollutants administration, it established effective monitoring and management procedures as to reduce the negative impacts to the environment as well as the issues that do not comply with the environmental regulations. It would have an overall auditing and continuing improvements.



~ **environmental management system** ~



4.2 Green products

Owing to the global warming caused by the greenhouse gases, environmental issues began to receive the attention of the world. Due to the rise of environmental awareness in line with the international trend, manufacturers of various electronic products started to request for environmental protection requirements. Different states have promulgated environmental regulations and promoted the development of “green products.” For instance, the EU has Restriction of Hazardous Substances Directive (RoHS) and halogen-free products.

As to achieve the goal of sustainable operation, the company has requested the supply chain to introduce green product management which can effectively control the usage of the limited substances. Thus, Cheng Fwa Industrial Co. Ltd has promoted the green product management system and was certified with ISO-QC080000 Hazardous Substance Process Management (HSPM). It will certainly maintain the effectiveness of the system.

Based on IECQ QC 080000, Hazardous Substances Free (HSF) control shall be requested in the quality control system. Not only shall it comply with the RoHS, it shall also comply with the customers’ requests. In the same year, it was also certified with PUreGMS(GA) HSF certification by Pegatron Corporation.



● HSF Policy

As we know, a clean environment is a must for the sustainable development of human beings. If the substances of the products include pollutants, it would certainly affect the basic conditions for human survival. Regardless the functions of the products, it shall be helpful for the protection of the environment and the society. In the pursuit of green product productions, hazardous substances shall be prevented while regulations shall be complied. We shall also protect the Earth and reduce the impact to the ecosystem. Thus, Cheng Fwa has established the HSF Policy of 「regulation compliance, green manufacturing process and customer satisfaction」.

● Restricted Substance Management

In the pursuit of green product productions, green concepts shall be included in the purchase process. The purchase personnel shall request the samples and specification that are apt to the regulation. In terms of the raw materials, the personnel shall request the suppliers of providing 「environmental policy guarantee” and other HSF reports」and MSDS data. The materials can be used when the raw materials are being reviewed and approved by the authorities.

In the Hazardous Substance Process Management (HSPM), we define the inspection process of the green products, whether it is the part, the raw material or the consumable (alcohol, lubricant, etc.). They are all under strict monitoring and control and are compiled to have green product qualification labels. All personnel who are managing the instruments and doing the inspections are being trained and evaluated. Apart from ensuring the qualification of the parts and the final products, the inspection unit will not notify the purchase personnel as indicated in the regulation. The suppliers shall make the improvement based on the regulations..



The materials used for the products are all free of hazardous substances and free of substances that would damage the environment. Cheng Fwa produces metal stamping products. From the transportation of the raw materials (metal plate) into the plants, the production of the products till the packaging, delivery and transportation, no impacts would be caused over the environment and the health and safety of the personnel.

● Usage of raw materials

We actively assist the company to assess the amount of raw materials and their efficiency as to increase the efficiency of each of them and to decrease the total amount of the materials. Cheng Fwa produces metal stamping products. From the transportation of the raw materials (metal plate) into the plants, the production of the products till the packaging, delivery and transportation, all materials are designed to use the minimum amount of materials as to decrease the usage of materials in each of the product. Based on the statistics, the consumption of the main raw materials has decreased over the past three years. The enhancement made by R&D is visible. The following chart shows the amount of raw materials used during 2018-2022.

Amount of raw materials used in the past four years (unit: tons)

Year	Main raw materials (iron plate)
2018	2,164
2019	794
2020	1,201
2021	1,913
2022	1,387

● Green supply chain

Integrity and honesty have always been the conditions for choosing Cheng Fwa's partner supplier as we consider them as our long-term partners. We believe that only with similar corporate culture, the partnership would be longer. Different suppliers along Taiwan are not only Cheng Fwa's business partners, but in terms of the components of the raw materials of the parts and the products, the material control in regard to the environmental impact, labor safety and health, human rights, issues in concern of the conflicting metals and minerals, we require the cooperation, participation and monitoring of our partners as to achieve the maximum effect.

Before the shipment and the provision of the service, we request our suppliers to sign 「Supplier Environmental Commitment」 and 「Supplier Social Responsibility Commitment」. This would guarantee the high quality and low risks of their supplies. We also list 「the top 10 suppliers based on the purchase amount」 as to find out their key works in the management framework. We arrange annual field evaluations and inspections as to ensure that the products comply with the specifications and the requirements. Not only do we evaluate the price, quality, technology, delivery and service, the supplier shall also be equipped with good technology and quality regardless the local suppliers who have the advantage of being closer, punctual and cooperative. Only under these conditions can the supplier be listed as our purchase source. Meanwhile, the aforementioned suppliers shall also comply with ISO 14001 and EICC regulations. Regular inspections of the environment, labor, health, safety and ethics are being done.

2018 Since 2022, based on EICC and our company's 「Subcontractors Management Program」, our suppliers have started to sign the 「Supplier Environmental Commitment」 and 「Supplier Social Responsibility Commitment」. The top 10 suppliers shall have their auto evaluation and a second party inspection. The results are shown in the following table :

Year	Amount of agreement	Agreement rate	EICC Auto evaluation	EICC Second Party Inspection
2018	118	71%	Avg. score 94	Avg. score 78
2019	122	71%	Avg. score 94	Avg. score 78
2020	125	71%	Avg. score 90	Avg. score 78
2021	127	72%	Avg. score 90	Avg. score 78
2022	131	72%	Avg. score 90	Avg. score 78

Our major production plants are in Taiwan. More than 90% of the suppliers also have their plants in Taiwan. The flood in Thailand in 2011 and the tsunami and nuclear disaster in Japan did not affect the supply of the raw materials. In response to the trend of green consumption, the company has prioritized products, instruments, equipment and other indirect materials with green labels or eco-friendly labels in order to reduce environmental pollution. Not only do we request the compliance of regulations in the transportation management of the raw materials by the suppliers, the impact of the trucks and containers are also taken into consideration. Thus, guards are arranged to control the traffic and to ensure the transportation safety as to prevent any anomaly or accident. Based on our statistics, there was no accident in 2022 and in the past few years with the trucks and the containers.



In terms of the manufacturing and production of green products, we have control of sources and evaluation and assistance to the suppliers. The flow chart is shown in the following diagram. The hazardous substances are strictly controlled during the production process. In order to prevent the entry of hazardous substances into the parts and the materials during the production process, analysis of hazardous substances (with XRF) and monitoring are done during the importation of the materials. We also assist the suppliers to obtain certification of green products. In order to meet green product standards, we also request the suppliers to comply with international standards or other related green product specifications.

Flowchart: evaluation of and assistance to the suppliers



4.3 Carbon Reduction

After the signing of the Kyoto Protocol in 1997, the world's advanced countries have already established greenhouse gases reduction policies and measures. Based on our care of global climate change, the protection of Earth resources and the fulfillment of the corporate social responsibility, we built a systematic inventory of the greenhouse gas emissions owing to the ISO greenhouse gases



control trend and the demand of greenhouse gases reduction. We would continue to promote the reduction of greenhouse gases emissions and to achieve the goal of cost and resource efficacy, energy saving and environmental protection for a sustainable development. We would make an effort to advance into a low carbon economic society.

Taking ISO 14064-1 and GHG Protocol as the reference, we built GHGEV inventory system in 2011 and carried out the inventory of greenhouse gases emission from 2018-2022. It is hoped that through the data and analysis, we can achieve the goal of emission reduction and to ensure its fulfillment.

The direction emission of greenhouses gases in our company mainly comes from the diesel backup generators, transport vehicles escaping refrigerant gas, the plant's septic tanks and all kinds of frozen methane emissions / air conditioning equipment. In 2022, the amount of emission was 230.21CO₂e Mt. The indirection emission mainly comes from the purchased electricity. The amount of emission was 1921.59CO₂e Mt. Based on the inventory results in 2021, the main emission source of the operation is the carbon dioxide produced in the power generation process from the purchased electricity. The amount of emission accounted for 89.3% of the total emission. Therefore, we will promote more effective and energy-saving measures.

Year	Direct energy	%	Indirect energy	%
2018	151.89 tons/year	7.79%	1798.95 tons/year	92.21%
2019	157.11 tons/year	8.78%	1632.68 tons/year	91.22%
2020	172.57 tons/year	8.61%	1831.1 tons/year	91.39%
2021	182.99 tons/year	7.98%	2111.4 tons/year	92.02%
2022	230.21 tons/year	10.70%	192.59 tons/year	89.30%

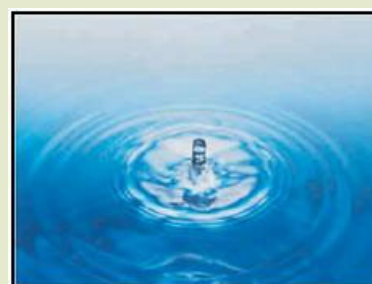
(power : 0.612 Mt / thousand degrees; gasoline: 2.2631 Mt / kiloliter; diesel: 2.6060Mt / kiloliter CO₂)

「Energy conservation」 is a crucial that needs consistent improvement. We actively promote energy saving measures at the offices and the production areas. For instance, in response to the energy saving actions, the light is turned off for one hour during nap time as to reduce the emission of greenhouse gases. Other energy saving measures are listed in the following:

- (1) During 2010 – 2011, all lights are replaced by electrode less lamps or T5 lamps at the production area and at the offices. This could save 40% of the light power.
- (2) The exit indicators have been replaced with LED exit indicators once the old ones were malfunctioning.
- (3) All personal computers and office machines are set up in energy-saving mode. Power shall be turned off when they were not used.
- (4) All air conditioning temperature shall be increase to 26 – 27 °C as to save power (for every increment of 1 °C, 6% of the power can be saved).
- (5) In December 2017, the replacement of high-efficiency air compressors with 100 horses and two units (with government incentives) is estimated to save about 5% of the total electricity in 2018.

● **Water Resources**

Water source in Cheng Fwa: only tap water. Water accounts for the 19% in the manufacturing process, 51% in the daily usage, and 30% in the cooling of the water tower. There is low water consumption as washing is not needed during the manufacturing process. Meanwhile, we have several water saving methods as shown in the following:



- (1) Faucets are replaces with self-closing faucets. Promotion of water saving concept.
- (2) The usage of algae inhibitors in the cooling tower as to prolong the frequency of water changing. Water is changed every three months.

Thus, the average water consumption in 2022 was 58.7 Km³, Increased by 38.2 Km³ in the previous year, decrease was 20.6 Km³.

Type	2018	2019	2020	2021	2022
Water consumption (thousand degree)	33.7	26.7	26.2	38.1	58.7

4.4 Environmental pollution management

With the purpose of energy saving, eco-friendly and green production, carbon reduction is being implemented as to increase energy usage rate and to decrease pollution and energy consumption.

(1) Air pollution control

We strictly comply with the regulations of all sources of pollutions during the manufacturing process. The internal air pollution mainly comes from the VOC volatile gases in the oil washing and network printing process. Yet nitrogen oxides and sulfur oxides are not produced. Thus, the emissions in every season are less than the amount specified in the air pollution control regulations.

(2) Water pollution control

The company complies with EPA regulations and have installed wastewater treatment equipment as to comply with the emission standard specified in the regulation. Every half a year, an inspection company would come to collect the wastewater and report to EPA. The EPA evaluations of irregular wastewater collection samples are all in the regulatory standard. Till 2022, there was no punishment or penalty from the EPA.

Type	2018	2019	2020	2021	2022
Wastewater emissions (thousand degrees)	6.2	5.1	4.8	6.9	4.3

(3) Waste control

Currently, the main waste source comes from the packaging materials of the iron sheet roll and product delivery as well as the daily wastes from the staff.

As to implement the concept of environmental protection, Cheng Fwa has started to promote ecological measures in the offices, dormitories and the restaurants. We advocate "resources saving" as to reduce waste output; we also advocate "waste classification and zero waste actions" as to educate the colleagues the idea of recycling. In this way, the concept of waste reduction would be rooted in the employees' daily life.

We comply with the EPA waste cleanup regulations. In addition to the sludge cleaning and waste cleanup by the legitimate manufacturers. We recycle all the possible materials and classify them into their corresponding categories as to reduce the output of waste and garbage. We reduce the internal scratch spaces and the polluted environment. At present, there was no penalty or punishment from the EPA.

● At present, the main outputs of internal waste are:

- 1) General industrial waste:
Waste, packaging materials and other non-recycling value wastes.
- 2) Wastewater treatment sludge:
Inorganic sludge (treated by the sludge removal processing industry and reported to New Taipei City Government).
- 3) Recyclable resources :
Iron, aluminum, copper, cardboard boxes, plastic bottles, beverage cans, lamps.



Type	2018	2019	2020	2021	2022
General industrial waste (tons)	67	64	71	70	51
Wastewater treatment sludge (tons)	0.39	0.24	0.95	0.43	0.36
Recyclable resources (tons)	910	560	690	680	530

In order to have a proper placement for the wastes before the cleaning and to achieve the goals of recycling and waste reduction, general industrial waste zone, general waste, recycling and hazardous waste zones are established within the plant. General wastes are landfilled. The recycling resources, such as boxes, metals, glasses, and plastics. After the clear classification of the wastes, the recycling tasks are being outsourced; the sludge is being reported and outsourced for further treatment.

Owing to the increase of recycling proportion and the reduction of wastes, we encourage the staff at the plant to carry out direct classification of the wastes. We also promote the usage of metal meal box and we actually provide one to each as to avoid using disposal tableware. This would decrease the paper or plastic wastes.

(4) Chemicals management

In terms of chemicals management, we would first carry out the classification and risk assessment of the hazardous substances within the chemicals. Accident prevention operating measures are established in concern of the chemicals. The description is as the following:

1) Chemicals entering into the plants

All chemicals, including ink, plate cleaners, degreasing agents shall be inspected before entering into the plants. After the inspection, the person in charge shall place them at a fixed visible place and label the substance safety chart for colleagues' reference. If the chemicals is used up, the empty bottle shall be placed in a ventilated area and place it at the recycling zone so that the suppliers would take in charge of it.



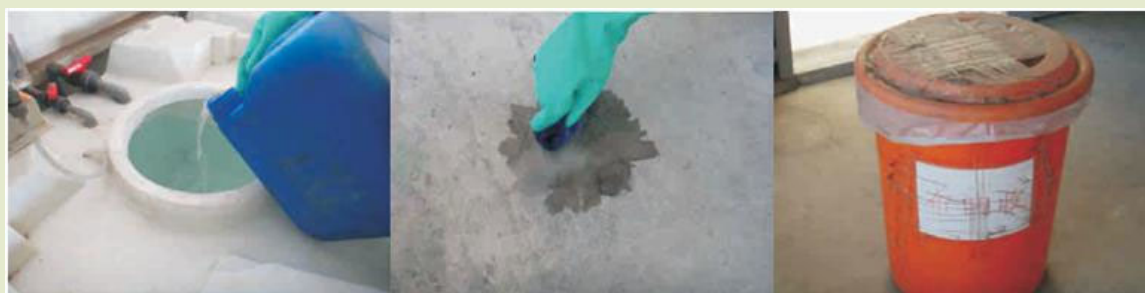
2) Chemicals use management:

Safety and health training and education as well as first aid measures are taught to the chemicals personnel. Protection equipment shall be wore and the chemicals shall be used as indicated by the SOP. If the chemicals remains, it shall be placed at the indicated area with a tray as to prevent chemical leakage. The main operators and the supervisors shall receive training from the outside as well as organic solvent safety and health educational training with certificate.

Based on strict requirements above chemicals management, there was no significant spillage before the end of 2021.



※In the event of spillage when using it, a cloth shall be used to wipe out the chemicals. The waste cloth shall be recycled to the cloth recycling bin (as shown in the following picture).



※Personnel with environmental or safety and health certificates:

Certificate	No.
First Aid Certificate	6 persons
Hypoxia operation supervisor certificate	1 person
Organic solvents operation supervisor certificate	2 persons
Specific chemicals operation supervisor certificate	2 persons

(5) Environmental protection equipment investment costs

Based on the compliance of water pollution control act, the air pollution control act and the preservation of the environment from destruction, Cheng Fwa has established environmental protection equipment as to comply with the regulations and to fulfill its responsibility of environmental protection. In 2018 and 2022, all the old equipment were replaced and the environmental protection equipment investment costs are shown in the following table:

● Environmental protection equipment investment costs:

Equipment	Cost in 2012
Wastewater treatment equipment investment	2.2 million
Air pollution discharge line investment	400 thousand

● Environmental protection equipment operation and maintenance costs (average per year):

Item	Cost in 2018	Cost in 2019	Cost in 2020	Cost in 2021	Cost in 2022
Certificate fees	40 thousand	25 thousand	50 thousand	0 thousand	23 thousand
Sludge removal costs	30 thousand	38 thousand	38 thousand	42 thousand	46 thousand
General waste removal costs	280 thousand	280 thousand	280 thousand	440 thousand	440 thousand
Operating personnel costs	360 thousand	360 thousand	360 thousand	360 thousand	360 thousand
Operation and maintenance costs	70 thousand	70 thousand	70 thousand	70 thousand	70 thousand

After being treated by the latest ecological equipment, the indicators of the wastes are all lower than the legal standard:

Indicator of hydrogen ion concentration:PH, suspended solids(SS), chemical oxygen demand:COD and oil.

Comparison \ Item	PH	SS	COD	OIL
EPA standard	6.0~9.0	<30mg/L	<100mg/L	<10mg/L
Cheng Fwa data	8.3	24.3mg/L	21.6mg/L	1.9mg/L

4.5 Promotion of green concept

Based on the CSR sustainable development, we advocate in the education and promotion of environmental protection concepts. The new environmental protection awareness is being rooted within the staff. We have active interactions with the outside world, such as the schools, communities, competitors and governments. We have systemic promotion of green management among the suppliers and internalize the environmental protection actions into our life and works. This kind of operation would comply with the customers' and society's expectations. Our staff will become the citizen of green Earth. The following is the internal and external activities for promoting green concepts:

● Internal activities

(1) Seminars: EPA was invited to promote the concept of 「green life」.



- (2) To encourage the staff to become carbon reduction white collars, such as taking the public transportation.
- (3) Every Tuesday is the Vegan Meal Day in the staff restaurant.
- (4) To encourage the staff to follow a simplistic life-style. Do not waste resources.
- (5) To promote energy-saving activities in the office and the plants.
 - 1) Propaganda posters.
 - 2) Use less plastic bags and meal boxes.
 - 3) Turn off the computer after work and during nap time as well as the light and computer setting.
 - 4) Use waste paper as post-it. Less photocopies. Digitalization of information .
 - 5) Greening of the office.
 - 6) Garbage recycling.
 - 7) Use more stairs and less lifts.
 - 8) Have your own tableware. No provision of disposal tableware in the restaurant.
 - 9) Water saving toilets and faucets as to save the water.



● participation in external environmental activities

- 1) One-hour light off during the nap.
- 2) Sponsorship for environmental associations; promotion of green activities



Tamsui Manor - Beach clean-up