



TPI POLENE Public Company Limited



# TECHNOLOGY PRODUCTS INNOVATION

We Build The Future  
Clean and Green Energy

**Sustainability Report 2022**  
TPI POLENE Public Company Limited







# **TPI Polene Public Company Limited**

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# TPIPL



## • Environmental

“Committed to developing into a low-carbon society, driving the Bio-Circular-Green Economy (BCG) strategy, with zero net greenhouse gas emissions targets for sustainable development”



## • Social

“Committed to developing knowledge skills, taking care of health and safety and to enhance the sustainable strength of public well-being in surrounding communities and society”



## • Governance

“Adherence to good governance principles, committed to developing products and services based on technological advancements and deliver value to stakeholders under corporate social responsibility”



## 01



## Message from Board of Directors and Chief Executive Officer [2-22]

### Key Policies for Sustainable Development Zero Net Greenhouse Gas Emissions Target In TPI Polene Group by the year 2043 (B.E. 2586)

TPI Polene Public Company Limited has prepared this Sustainability Report with the objective to disclose the performances in Economic, Social, and Environmental dimensions from the period 1 January 2022 to 31 December 2022, under the principles of good corporate governance to formulate it as a sustainability policy, placing an emphasis on the importance of implementing material sustainability issues as a tool to drive the organization to achieve the vision of sustainability development and to be in with the corporate direction and business strategy of TPI Polene Group. The sustainability issues as approved by the Board of Directors are used for the preparation of this 2022 Sustainability Report in accordance with the GRI Standards of the Global Reporting Initiative (GRI).

The year 2022 continues to be a challenging year for the world to cope with a long-running COVID-19 pandemic, which has consistently affected livings of people around the world and ongoing business operations of the Company. Impacts on climate change have become the prominent issue that has been presently reported. “The 27th session of the United Nations Framework Convention on Climate Change (COP27) or the 27th world’s largest global warming meeting” was held in Sharm El-Sheikh, Arab Republic of Egypt, from 6-18 November 2022. It was attended by heads of state, government leaders and high-ranking officials from many countries and it clearly reflects that global climate change is an urgent issue that needs to be resolved urgently today. The Company is well aware of such situations and trends, closely monitors in response to tackle the impact of climate change concerns to enable the business to recover quickly (Resilience). The Company truly realizes that to operate the business under sustainable foundation actually enables the business to manage and sustain ourselves throughout the crisis.

From the outset, the Company has pursued its business operation in accordance with the guidelines for sustainable development under the principles of ethics and professional management styles, with an emphasis on economic development under the principles of corporate social responsibility and environmental conservation and generates high return on investment to shareholders through the Company’s operational activities. The Company places importance on providing a good quality of life to all stakeholders in accordance with its sustainable guidelines for business operations, society and environment through Green Manufacturing processes, focusing on increasing energy efficiency and increasing the capacity to use renewable energy implementing a business strategy aimed at fostering a low-carbon society through a committed policy to achieve zero net greenhouse gas emissions target for TPI Polene Group by the year 2043 (or B.E. 2568 (through waste recycling activities as alternative fuels in the cement production process of the Company and power plants of TPI Polene Power Public Company Limited) which Thailand has announced that it will achieve its carbon neutral goal by 2050 and achieve net zero emissions by 2065.

In 2022, the Company used approximately 360,675 tons of waste to replace coal fuel, representing approximately 12.29% of the total waste fuel, from the target of 25% due to the gradual substitution of coal for coal at all 4 cement plants in 2022. However, the last completed cement plant has commenced commercial operation to use waste fuel to replace coal in December 2022. Therefore, it is expected that by 2023, cement plants will be able to fully use waste fuel to replace coal fuel by 25%.

The Company has implemented sustainable development which includes establishing corporations with business partners in the supply chain of TPI Polene Group as well as cooperation with the government, private sector, and community. This will give the Company the power to drive material issues of the country, such as reducing greenhouse gas emissions (Circular Economy), in response to Thailand's New Normal policy of bringing solid waste from communities as waste to replace coal fuel as well as to tackle climate change circumstance with a commitment to reduce waste to make our world a better place under the concept of zero waste. Economic growth and population growth have resulted in the amount of waste doubling every year, affecting the environment and ecosystems. In this regard, the Company recognizes the value to waste reduction by ways waste sorting, separated in materials recovery facilities by using recyclable materials, will end up producing impure materials with less quality through environmentally friendly sustainable practices, support for and ally in sustainability by converting waste into renewable fuels and alternative raw materials, as well as developing the capability to operate the business of industrial waste disposal by offering industrial waste management services.

The Company focuses on the zero waste to landfill policy, which is the disposal of waste or waste without damaging the environment and waste disposal by burning together with the main fuel at a cement kiln at a temperature higher than 1,800 degrees celsius in a closed system. It is considered a modern technology and is more environmentally friendly than traditional landfills that cause problems affecting communities

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and the environment. Therefore, there is no release of carcinogenic substances such as methane, nitrogen oxides (NOx) and sulfur dioxide (SO<sub>2</sub>) and ash floats into the atmosphere. It is an efficient and sustainable way to manage waste or industrial waste, in which there will be no waste in the process, thereby minimizing the impact on community health and the environment.

In addition, TPI Polene Group also contributed to reducing impacts and alleviating suffering for communities, society and employees due to the covid-19 pandemic in 2022, supported social assistance projects by organizing a chemical-free project for lunch at Ban Sapbon School, Saraburi Province. Scholarships for well-educated children and waste sorting projects, electricity exchanges, community development, etc., donated winter blankets for the year 2022 to help alleviate the suffering from cold weather to patients and winter victims, supported various public benefit projects and activities for communities, academic institutions, temples, hospitals to support medical services to the public and various government agencies by donating cement and other products,

other construction materials, bio-organic fertilizers, drinking water and healthcare products. In addition, TPI Polene Group also contributed x-ray vehicles and mobile health check-up machines were delivered to the Songklanakarin Hospital. and donated nano-super special armour to King Bhumibol street art project, etc., totaling value of approximately Baht 67.36 million.

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With the success of the Company to adopt the values of sustainability in all three dimensions: Environment, Social, and Corporate governance criteria or ESG, to consistently drive business ongoing. The Company is committed to conducting business transparently in parallel with sustainable development and support the Sustainable Development Goals of the United Nations. As a result, the Company has achieved its goals by receiving awards and accreditations from recognized organizations in terms of promoting sustainable development under the principles of good corporate governance policy as follows:

1. The Company was selected as one of the ESG100 securities companies with outstanding performance in environment, society, and governance (ESG) from the assessment of listed securities in 2022 by Thaipat Institute.
2. The Company was selected to be in the sustainable stock THSI (Thailand Sustainability Investment) for the year 2022 from the Stock Exchange of Thailand.
3. The Company received the Corporate Governance Report of Thai Listed Companies : CGR for the year 2022 by the Thai Institute of Directors (IOD) at a very good level (Very Good).

On behalf of the Board of Directors of TPI Polene Public Company Limited and its affiliates would like to thank all shareholders, debenture holders, financial institutions, employees of the Company, and all groups of stakeholders as well as all stakeholders who have supported, trusted, and made important contributions to drive all events and activities to be successful all along. All important operational data has been summarized and disclosed in this Sustainability Report. In the current situation where the world is facing many problems such as epidemics, severe climate change, our cement business is committed to existence with the main goal to help reduce these problems that are occurring and deliver a good quality of life to society and the nation. Our organization will exist in society with business ideas and ways of working (Transformation and change management) along with creating an organizational culture that takes into account the vision, commitment, or commitment that the Company has given in every step of the operation as a leader in driving development work towards sustainability is successful, being a leader in driving sustainable development work to achieve the goal of creating sustainable business growth, participating in solving global warming problems, taking care of all stakeholders in a balanced way, as well as delivering value to the community and society as a whole to further strengthen the sustainable development of the organization, community, society, and the country as always.

Sincerely Yours,



(Mr. Khantachai Vichakkana)  
Chairman of the Board and  
Independent Director



(Mr. Prachai Leophairatana)  
Chief Executive Officer



## Business Drive for Sustainability

### Key Sustainable Development Performance of TPI Polene Group in 2022



#### Economic Dimension

**Total Revenue**  
Baht 50,963 million

**Employee wages and welfare**  
Baht 6,749 million

**Tax paid**  
Baht 174.92 million

**EBITDA**  
13,371 million

**Net profit**  
Baht 7,845 million

**Dividend per share**  
Baht 0.10



#### Environmental Dimension

Aiming to use 25% of waste fuel instead of coal in cement production by 2023

In 2022, cement plants use waste fuel in the amount 360,675 tons instead of all fuels

Recycled 775,631 tons (or 100%) of scrap soil

Use of water from outside 10,737,481 million cubic meters 13.83% decrease compared to 2021

Proportion of recycled water 967,395 million cubic meters 21% decrease compared to 2021

Emission Reduction (Zero Waste) 99.91% in 2022

Hazardous/non-hazardous waste TPIPL 39% / 61%

Investment projects for reducing environmental impact TPIPL Baht 1,678 million

Replacing the existing diesel-powered truck with 60-ton EV mining trucks in an effort of reduce greenhouse and PM2.5 dust.

Prepol-SC Project helps reduce energy consumption upto 25% as waste is used as fuel to replace coal



#### Community and Social Dimension

Community and social contributions Baht 67.36 million

Injury Frequency Rate (IFR) of Employees and Contractors 0.131/0.185

Number of working hours without accidents TPIPL 22,237,755 hours (increase 7.82.% compared to 2021)

Rates of morbidity and occupational diseases that require all records TPIPL 0 case/ 1 million hours

Work-related deaths of employees and contractors 0 case

Average training hours for employees TPIPL 23.72 hours/person/year

Turnover rate TPIPL = 2.93%

Employee satisfaction and engagement with the organization 81.09%

Technology, innovation, and service development projects 7 projects

Product Research and Development Project 14 projects



#### Corporate Governance Dimension

Selling low-carbon products value 11,722.60 million baht

Biological product sales value 117.46 million baht

The product has been certified with the label to reduce global warming Total 20 products

No complaints of privacy violations<sup>(1)</sup>

Business suppliers acknowledge the code of conduct of business suppliers 92.04%

Violation of human rights (Discrimination, Child Labor, Illegal Labor) TPIPL =0

ESG assessed suppliers 91%

Overall customer satisfaction/ satisfaction with solving problems for customers TPIPL 86.40% and 95.40%



### **Announcement**

**Issue no. 1/2022**

### **Subject: Principles of employee duties**

For success in creating sustainable business growth of the Company, TPI Polene Group adheres to Environmental, Social and Governance (ESG) criteria, by embracing the Bio Circular Green Economy as a sustainable business model under the standards of good corporate governance. In carrying out duties and responsibilities, all employees are required to work under the Four Iddhippada: Basic for Success 4, which consists of the following:

Chanda (ASPIRATION) Intention or purpose or desire or zeal. The need to do and always be willing to do what is assigned and aspire to make it work even better.

Viriya (EFFORT) or energy or will.

Citta (CONCENTRATION) Consciousness or mind or thoughts, concentrate on work.

Vimansa (Planning, Result Checking, Good Governance, Research and Development) Planning, results checking, good governance, research and development.

With a committed heart to create a balanced happiness with a better quality of life in a sustainable manner pursuant to FOUR SUBLIME STATES OF MIND, which consist of the following:

MERCY

KINDNESS

SYMPATHETIC JOY

EQUANIMITY

Announced on January 5, 2022

(Prachai Leophairatana)

Chief Executive Officer

Note: This principle of living follows the metaphysical concept of the Four Noble Truths

## Brahma-vihara 4 (FOUR SUBLIME STATES OF MIND)

Metta (MERCY)	Love, desire for others to be happy.
Karuna (KINDNESS)	Desire to get others out of their sufferings
Mudita (SYMPATHETIC JOY)	Pleasure that comes from delighting in other people's well-being, even if one did not contribute to it.
Upekkha (EQUANIMITY)	Even-mindedness and serenity, treating everyone impartially.

## Iddhipada 4 BASIS FOR SUCCESS 4

Chanda (ASPIRATION)	To be content and happy in doing good deeds with enthusiasm and strong intention.
Viriya (EFFORTS)	Diligence, patience, commitment, endurance, willingness to work hard and to never give up; having the courage to tackle any obstacle and having the courage to make changes.
Citta (CONCENTRATION)	Consciousness of the senses, Subconscious mind and Intellect, is of immense power
Vimamsa (R&D)	Involves conducting an investigation or discrimination, a plan, a measure, an invention of a solution.

The Principles of Iddhipada 4 Path of accomplishment in work, which consists of the following:

Chanda (ASPIRATION)	Satisfied with the work we're performing
Viriya (EFFORTS)	Diligence in our work
Citta (CONCENTRATION)	Taking responsibility for the work done
Vimamsa (R&D)	Contemplation and use of wisdom to monitor the work



## Catvari Aryasatyani (Four Noble Truths) Heart of Buddhism (Ariyatham to the Cessation or Extinction of Suffering)

The basic doctrine of Buddhism is the noble path leading to the complete destruction of suffering.

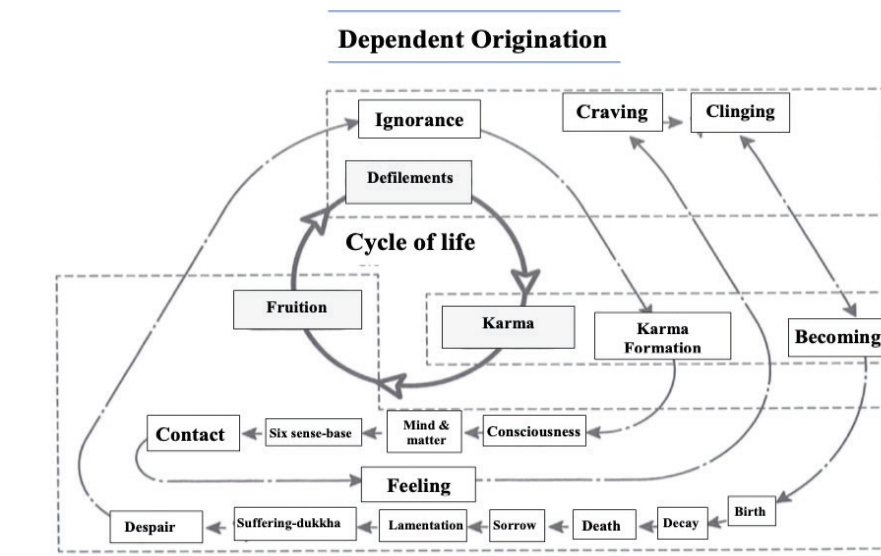
Dukkha	Suffering
Samudaya	The Cause or Origin of Suffering
Nirodha	The Cessation or Extinction of Suffering can be attained by therenouncement or letting go of Tanha
Marga:	The Path leading to the Cessation or Extinction of Suffering

### 1. DUKKHA UNSATISFACTION, SUFFERING, PAIN

The word suffering in the heart of Buddhism does not just mean suffering in Thai as it is understood. It also means difficult conditions to endure in the same conditions and clinging to impermanent states and things or stressful conditions.

### 2. SAMUDAYA THE ORIGIN OR ARISING OF DUKKHA

Consideration of CAUSE OF SUFFERING



### 3. Nirodha (EXTINCTION OF SUFFERING)

is the elimination of defilements, i.e. elimination of defilements with the power to proceed according to the 8-fold path until attaining that path



#### 4. Marga (THE NOBLE EIGHTFOLD PATHS)

The Dharma that kills the defilements or the ten benefits

The Path leading to the Cessation or Extinction of Suffering

1. Right view
2. Right intention
3. Right speech
4. Right action
5. Right livelihood
6. Right effort
7. Right mindfulness
8. Right concentration

**Chants conquering Evil:**  
**Panmare Chino Na Tho**

Panmare Chino Natou Patto Sampothimuttaman  
Chatur Satjung Pakasti Thammajakang Pawattayi  
Etena Sajjavajchena Hotu Me Chayamankalang

#### Devil<sup>1</sup> 5 (What Kills a Person to Die from Goodness)

THE EVIL ONE, THE TEMPER, THE DESTROYER

1. The MARA of Defilement
2. The MARA of Aggregates<sup>2</sup>
3. The MARA of Karma Formations<sup>3</sup>
4. The MARA of Deity
5. The MARA of Death

#### Note

**1. MARA (The Destroyer)** is something that depletes one from his virtues or noble results or something that consumes virtues or prevents one from attaining good results.

- 1.1 MARA of Defilement is love, greed, anger, delusion, evil spirit.
- 1.2 MARA of Aggregates is something that destroys one's Aggregates, makes him pain, sick, crippled, depriving one of the opportunity to do good deeds.
- 1.3 The MARA of Karma Formations is the thought, emotion, and karma cultivator that prevents one from avoiding the suffering in samsara or rebirth of one in 31 places of existence.
- 1.4 The MARA of Death is death that deprives one of the opportunity to do good deeds.
- 1.5 The MARA of Deity is an evil deity who is powerful and inspires one not to do the good deeds.

**2. Five Khandha (Five Groups of Existence or Five Aggregates)** are the five aggregates of form and abstract that make up the collective units which are ordinarily called animals, persons, beings, he, we, etc. The five components incorporated into life.

- 2.1 The corporeality group (rāpa-kkhandha) is the aggregate of form which is the mixture of earth, water, air and fire elements such as hair, skin, bone, and blood.
- 2.2 The feeling group (vedanā-kkhandha) is the aggregate of processing feelings such as happiness, suffering, or indifference.
- 2.3 The perception group (saññā-kkhandha) is the aggregate that remembers what one received or felt. It is the part that defines or perceives the meaning of what have known (Arrom 6) such as white, green, black, red, etc.
- 2.4 The mental-formation group (sankhāra-kkhandha) is the aggregate of thought to identify what you feel and remember whether it good or bad or indifference, neither good nor bad. The mind was led by intention to be good or bad or upyakrit (neither good nor bad) such as kaya-sankhara (physical intent), vajee-sankhara (verbal intent), and mano-sakhara (mind intention).

2.5 The consciousness-group (viññāna-kkhandha) is the aggregate of cognition or knowing of things through the six senses including eyes, ears, nose, tongue, body, and mind.

The Five Aggregates are abbreviated into two groups, namely the abstract and the form (Rupa Khandha).

3. **Apisankhara** 3 is the thought, emotion, and karma cultivator, comprising of:

3.1 Punyaphisangkharā is a thought that enhances good karma (merit).

3.2 Apunyaphisangkharā is a thought that enhances evil karma (sin).

3.3 Anenchaphisangkhan is a thought that is calm, unable to be upset or excited.

4. **Fetter** is the defilement that binds the animals to suffering or defilement that binds the mind to the cycle of defilement, karma, and the result of karma. There are 10 fetters:

4.1 Sakkaya-ditthi: One has the view that the five aggregates are self.

4.2 Wichikitcha: One has doubts about the virtues of the Three Jewels, namely the Buddha, the Dharma, and the Sangha

4.3 Silappatapramas: One adheres to the sacred things or customs by believing in magic which is not Buddhism or adheres to the wrong practices, which is not the aim of Buddhism.

4.4 Kamaraka: One has contentment in sensual pleasures or lust.

4.5 Vengeance: One adheres with anger.

◇ Udhamphakiasayojana or the Five Higher Fetters are:

4.6 Rupa-raka: One has greed for material existence or attachment to realms of form.

4.7 Arupa-raka: One has greed for immaterial existence or attachment to formless or abstract realms.

4.8 Mana: One had conceit or pride with the feeling of being better, worse, or equal with others.

4.9 Uttacca: One is distracted or restless.

4.10 Avijja One has ignorance of the Four Noble Truths

Phra Sodaban is the one who puts an end to all of the first three fetters, namely Sakkaya Ditthi, Vicikiccha, and Silabbat Pramas.

Sakathakami is the one who puts an end to all first three fetters, and reduces lust and anger. Anakami is the one who puts an end to the five lower fetters.

Arahant is the one who puts an end to all 10 fetters.

5. **Sankhara** is body and mental formations, together with volitional formations and volitional activities. Sankhara also means “formations” or “that which has been put together” of all including ingredients, decorations, parts of the body, mind, life, spirit, all things that made up. (Volitional Formation is what our brains think. The more we think, the more formations follow like a shadow following our body. What is in the brain will be expressed through words and actions, which is karma. Since our minds are endlessly concerned or embellished, we commit karma endlessly, resulting in us being reborn indefinitely. In the Trinity (Trilak), sankhara is the thing being formed or improvised, which is all the the mind and forms.

[Paticca-samuppada (the Dependent Origination; conditioned arising) Sankhara 3 is

5.1 Kayasangkhara: bodily formation, bodily volition

5.2 Vajisangkharā: verbal formation, verbal volition

5.3 Manosangkharā: mental formation, mental volition ]

Sankhara has three qualities known as trilak (three marks of existence as follows):

1. Anicca: Impermanence

2. Dukkha: State of suffering or being oppressed, state which cannot stand it in its original condition, state that will deteriorate because of being oppressed by Anicca.

3. Anatta: No real self, incapable of being in power

**The opposite of Sangkhara is Wisangkharā**

**Wisangkharā is Nirvana, which is eternal. It leads to nicca, sukhā, anatta (dharma).**

# 02

## Our Pride Awards in 2022



### TPIPL received CG Score at very good



On October 27, 2022, TPIPL received the Corporate Governance Report of Thai Listed Companies: CGR 2022 at a very good level (Very Good) from the Thai Institute of Directors Association.

### THSI TPIPL were listed in Thailand Sustainability Investment (THSI)



On October 10, 2022, TPIPL were listed in the Thailand Sustainability Investment (THSI) 2022 from the Stock Exchange of Thailand.

### TPIPL Top 2022 ESG Emerging Stocks



On July 1, 2022, the Company was selected as a listed company with outstanding environmental, social and governance (Environmental, Social and Governance: ESG) performance in the group of sustainable lifestyle companies that are worth investing or 2022 ESG Emerging List by Thaipat Institute.

### TPIPL received honorary awards (Sustainability Disclosure Award)



On December 21, 2022, TPIPL received an honorary award (Sustainability Disclosure Award) for the year 2022, which is an award that assesses the status of sustainability disclosure (From Sustainability Report and 56-1 One Report 2021) of members of community organizations, sustainability information disclosure (Sustainability 3 companies from Thaipat Institute).

### CSR-DIW Continuous Award



Entrepreneur Responsibility Standards Complied

The Standard of Responsibility of Industrial Entrepreneurs to Society from the Department of Industrial Works

Cement Factory L.1

Cement Factory L.2

Cement Factory L.3

Cement Factory L.4

Mortar 1-2

Mortar 3

Mortar 4

Autoclaved Aerated Concrete Factory (AAC)

### GLOBAL Economics Awards



Best Product Innovations for Sustainable Development  
Top innovative products for sustainable development from The Global Economics, the UK's leading financial magazine.

### ESG performance is appraised at “Gold Level” by Thaipat Institute.



TPIPL and TPIPP received an ESG performance assessment in 2020 at the Gold Level by Thaipat Institute, with the use of 30 WFE ESG Metrics from the World Federation of Exchanges (WFE).

### The Company received the 2021 Green Industry Level 4 (Green Culture)



Award for Cement Plant line 1, 2, 3 and Total Waste Adjustment Plant (Waste Disposal Plant). A “green culture” means having everyone in the organization cooperate to work in an environmentally-friendly manner in all aspects of the business to become part of the corporate culture, which makes the gross product greener for the country. Green GDP is also highly valued in the Ministry of Industry’s certification process.

### The Company received the 2021 Green Industry Level 3 (Green System) Award



for Cement Line 4, certified as Green Industry Level 3 (Green Culture). Green system involves systematic environmental management, which is monitored, evaluated, and reviewed for continuous development, including receiving accepted environmental awards and through the certification of various environmental standards by the Ministry of Industry’s certification.



TPIPL and TPIPP have been awarded and received certificates under “the Project to promote industrial factories to have social responsibility and sustainable communities” in the CSR-DIW Award and CSR-DIW Continuous Award categories for the year 2021



from the Department of Industrial Works, Ministry of Industry, which complies with the policy of ESG and Bio Circular-Green Economy-BCG. TPI Polene Group adheres to a policy of driving the economy towards sustainable development (ESG and Bio Circular-Green Economy-BCG) by focusing on balanced growth in all dimensions by adhering to Environmental, Social and Governance (ESG) criteria and by embracing the Bio Circular Green Economy as a sustainable business model under the standards of good corporate governance. Five of the Company's plants have received CSR-DIW awards, namely Cement plant line 4, Mortar plant line 1, 2, 3, 4, and our Lightweight Concrete Plant, including Cement plant line 1, 2 and 3, which were certified with three CSR-DIW Continuous Awards.



# 03

## About TPI Polene



### Information TPI Polene [2-1]

TPI Polene Public Company Limited, or TPIPL, was incorporated and registered as a limited company under the name “Polene Co., Ltd” on September 24, 1987, by the “Leophairatana” family as the founder, managing the business operation until now, with an initial registered capital of Baht 100,000. Polene Co., Ltd engaged as an intermediary in purchasing PE (Polyethylene) plastic resin from Thai Petrochemical Industry Public Company Limited, “TPI”, which has now changed its name to IRPC Public Company Limited.

On October 24, 1989, Polene Co., Ltd. was renamed TPI Polene Co., Ltd., and later in March 1990, the Company was transferred the LDPE (Low Density Polyethylene) plastic resin and promotional privileges under the Board of Investment. On November 20, 1990, the Company was listed on the Stock Exchange of Thailand and converted into a public company limited on February 17, 1994.

On April 5, 2017, the ordinary shares of TPI Polene Power Public Company Limited (a 70.24% owned-subsiary Company) were listed on the Stock Exchange of Thailand. TPI Polene Power Public Company Limited is the largest waste-to-fuel power plant business operator in Thailand.

As of December 31, 2022, the Company had a registered capital of Baht 23,560,235,000 (23,560,235,000 shares) and paid-up capital of Baht 18,935,235,000 (18,935,235,000 shares), at the par value of Baht 1 per share.

TPI Polene Group operates its main business, which can be categorized by four groups of businesses as follows:  
[2-6]

1. **Construction sector:** manufacture & sale of cement, mortar, clinker, ready-mixed concrete, CRT/FCB, light-weight concrete and cement paint, etc.
2. **Petrochemical and Chemical sector:** manufacture & sale of EVA/LDPE plastic resins, EVA Emulsion and EVA Powder, EVA Encapsulant / EVA Interlayer / Film, ammonium nitrate and nitric acid., etc.
3. **Energy and Utilities sector:** Manufacture and sale of waste-based alternative fuel, a waste heat recovery power plant, a coal-fired power plant, a waste-based -fired power plant, oil and NGV service stations., etc.
4. **Agricultural business and others** consist of the following:
  - 4.1 Healthcare products such as Bio Knox, Micromknox Solution, mouthwash, vegetable washing liquid, energy drink Pro-150 and Pro Vita, liquid soap, drinking water, dishwashing liquid, grease remover and Biosan, etc.
  - 4.2 Products for plants such as organic fertilizers and soil enhancers, etc.
  - 4.3 Products for animal such as bio-stimulants for livestock and fishery, etc.
  - 4.4 Other businesses such as life insurance business, etc.

#### Business Overview [2-6]

<https://www.tpipolene.co.th/th/>



#### TPIPL Products [2-6]

<https://www.tpipolene.co.th/th/aboutus/about-tpi/busines>



Presently, the Company's head office is located at TPI Tower 26/56, Chantatmai Road, Thungmahamek, Sathorn, Bangkok 10120. The Company's business units and its subsidiaries are located in Thailand. The Company has a marketing network throughout the country and sells products overseas, such as clinker products which are sold to China, Bangladesh and ASEAN countries. Fiber cement products and concrete tiles are sold to Australia, New Zealand, the Middle East, Asia and Europe, etc. [2-6] and plastic resin products are sold to China, India, South Asian and Southeast Asian countries. All of the Company's operations aim to be part of driving the economy as well as delivering value to shareholders and related stakeholders in accordance with the Company's vision and mission.

## Head Office Address Factories and Affiliates [2-1] [2-6]

### Head Office

26/56 Chan Tat Mai Road, Thungmahamek, Sathorn, Bangkok 10120

Tel. Number: +66 (0) 2213-1039-49, 285-5090-9

Fax Number: +66 (0) 2213-1035, 213-1038

Web Address: <http://www.tpipolene.co.th>

### Industrial plants

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>● <b>Cement Plant/ Power Plant/ Mortar Plant/ Lightweight Concrete Plant/ Pyrolysis and RDF Plants</b><br/>299 Moo 5, Mittraparp Road, Tambol Tubkwang, Amphur Kangkhoy, Saraburi 18260<br/>Tel. Number: + 66 (0) 3633-9111<br/>Fax Number: +66 (0) 3633-9228-30</li> </ul>                            | <ul style="list-style-type: none"> <li>● <b>LDPE/EVA Plant / EVA Emulsion and EVA Powder</b><br/>999 Moo 5 Sukhumvit Road, Tambol Chuengnoen, Amphur Muang, Rayong 21000<br/>Tel. Number: + 66 (0) 3880-3090-9<br/>Fax Number: +66 (0) 3880-3086</li> </ul> |
| <ul style="list-style-type: none"> <li>● <b>Concrete Roof Tiles and Fiber Cement Plants</b><br/>77 Moo 7, within CRT Plant sub-road from Sai Ban Kork Street, Banlardkaopoon and Highway no.1014, Tambol Ban Kang, Amphur Chaloem Phrakiat, Saraburi 18260<br/>Tel. Number: + 66 (0) 3667-0370-5<br/>Fax Number: +66 (0) 3667-0377</li> </ul> | <ul style="list-style-type: none"> <li>● <b>Solar Film Plant</b><br/>49/1 Moo 1, Phichainarong Songkham Road, Tambol Nachong, Amphur Muang Saraburi, Saraburi 18260<br/>Tel. Number: + 66 (0) 3673-1724</li> </ul>  |
| <ul style="list-style-type: none"> <li>● <b>Ammonium Nitrate and Nitric Acid Plant</b><br/>140/7 Moo 4, Sukhumvit Road, Tambol Tapong, Amphur Muang, Rayong 21000<br/>Tel. Number: + 66 (0) 3866-4724-7</li> </ul>  |   |





### Affiliates in which the Company directly holds shares of at least 10%

#### Construction Sector

- **TPI Concrete Co., Ltd.**

26/56, 5th Floor, TPI Tower, Chan Tat Mai Rd.,  
Thungmahamek, Sathorn, Bangkok 10120  
Tel: (02) 678-5350-74  
Fax: (02) 678-5375-6

#### Energy Sector

- **TPI Polene Power Plc.**

26/56, 8th Floor, TPI Tower, Chan Tat Mai Rd.,  
Thungmahamek, Sathorn, Bangkok 10120  
Tel: (02) 285-5090-9  
Fax: (02) 213-1035

#### Agriculture Sector

- **TPI Polene Bio Organics Co., Ltd.**

26/56, G Floor, TPI Tower, Chan Tat Mai Rd.,  
Thungmahamek, Sathorn, Bangkok 10120  
Tel: (02) 285-5090-9  
Fax: (02) 213-1035

#### Other Industry

- **Polene Plastic Co., Ltd**

26/56, TPI Tower, Chan Tat Mai Rd., Thungmahamek,  
Sathorn, Bangkok 10120  
Tel: (02) 285-5090-9  
Fax: (02) 213-1035

- **TPI Commercial Co., Ltd.**

26/56, TPI Tower, Chan Tat Mai Rd., Thungmahamek,  
Sathorn, Bangkok 10120  
Tel: (02) 678-5470  
Fax: (02) 678-6511

- **TPI Healthcare Co., Ltd.**

26/56, TPI Tower, Chan Tat Mai Rd., Thungmahamek,  
Sathorn, Bangkok 10120  
Tel: (02) 285-5090-9  
Fax: (02) 213-1035

- **TPI Service Co., Ltd.**

26/56, TPI Tower, Chan Tat Mai Rd., Thungmahamek,  
Sathorn, Bangkok 10120  
Tel: (02) 285-5090-9  
Fax: (02) 213-1035

#### Petrochemical Industry

- **Thai Nitrate Co., Ltd.**

26/56, 21st Floor, TPI Tower, Chan Tat Mai Rd.,  
Thungmahamek, Sathorn, Bangkok 10120  
Tel: (02) 678-5450-2  
Fax: (02) 678-5484

- **TPI All Seasons Co., Ltd.**

26/56, 8th Floor, TPI Tower, Chan Tat Mai Rd.,  
Thungmahamek, Sathorn, Bangkok 10120  
Tel: (02) 285-5090-9  
Fax: (02) 213-1035

- **Mondo Thai Co., Ltd.**

26/56, 19th Floor, TPI Tower, Chan Tat Mai Rd.,  
Thungmahamek, Sathorn, Bangkok 10120  
Tel: (02) 678-5470  
Fax: (02) 678-6511

- **TPI Bio Pharmaceuticals Co., Ltd.**

26/56, TPI Tower, Chan Tat Mai Rd., Thungmahamek,  
Sathorn, Bangkok 10120  
Tel: (02) 285-5090-9  
Fax: (02) 213-1035

- **Bangkok Union Life Insurance Plc.**

175-177, 8th Floor, Bangkok Insurance Tower,  
Surawongse, Bangrak, Bangkok 10500  
Tel: (02) 634-7323-30  
Fax: (02) 634-7331

- **Thai Propoxide Co., Ltd.**

26/56, TPI Tower, Chan Tat Mai Rd., Thungmahamek,  
Sathorn, Bangkok 10120  
Tel: (02) 285-5090-9  
Fax: (02) 213-1035

- **United Grain Industry Co., Ltd.**

26/56, 27th Floor, TPI Tower, Chan Tat Mai Rd.,  
Thungmahamek, Sathorn, Bangkok 10120  
Tel: (02) 678-6988-97  
Fax: (02) 678-6988-99

- **TPI Smart City Co., Ltd.**

26/56, TPI Tower, Chan Tat Mai Rd.,  
Thungmahamek, Sathorn, Bangkok 10120  
Tel: (02) 285-5090-9  
Fax: (02) 213-1035

- **TPI Distribution Center Co., Ltd.**

26/56, TPI Tower, Chan Tat Mai Rd.,  
Thungmahamek, Sathorn, Bangkok 10120  
Tel: (02) 285-5090-9  
Fax: (02) 213-1035

- **Polene Silicon Co., Ltd.**

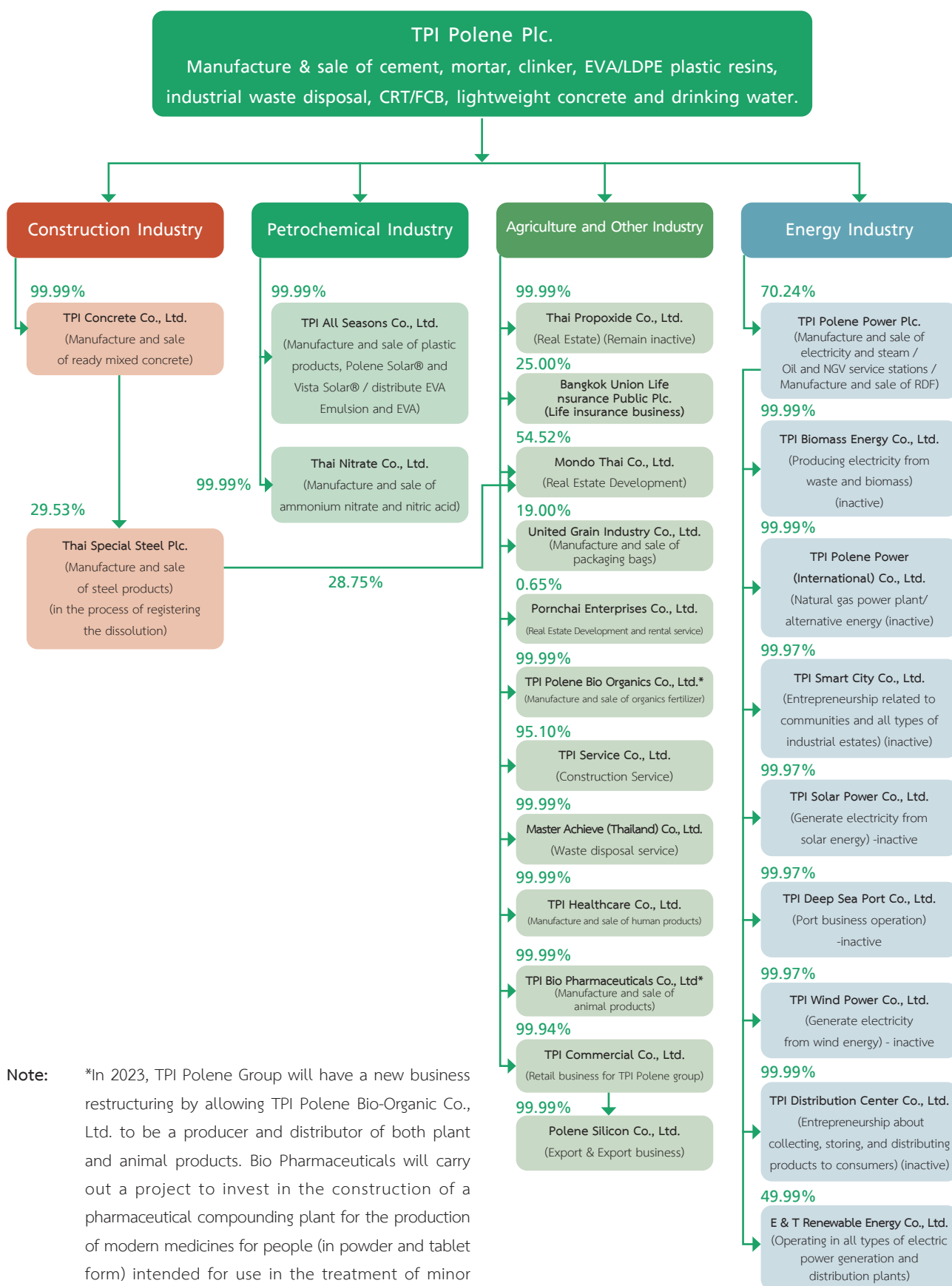
26/56, TPI Tower, Chan Tat Mai Rd.,  
Thungmahamek, Sathorn, Bangkok 10120  
Tel: (02) 285-5090-9  
Fax: (02) 213-1035

- **TPI Biomass Energy Co., Ltd.**

26/56, TPI Tower, Chan Tat Mai Rd.,  
Thungmahamek, Sathorn, Bangkok 10120  
Tel: (02) 285-5090-9  
Fax: (02) 213-1035



## Business Structure of the Group [2-1]



**Note:** \*In 2023, TPI Polene Group will have a new business restructuring by allowing TPI Polene Bio-Organic Co., Ltd. to be a producer and distributor of both plant and animal products. Bio Pharmaceuticals will carry out a project to invest in the construction of a pharmaceutical compounding plant for the production of modern medicines for people (in powder and tablet form) intended for use in the treatment of minor ailments that may occur in everyday life.

## Overview of TPI Polene Public Company Limited [2-1] [2-6]

As of 31 December 2022 (excluding affiliates)

Company Name	TPI Polene Public Company Limited or TPIPL
Nature of legal affairs	Listed on the Stock Exchange of Thailand
Head Office Location	26/56 Chan Tat Mai Road, Thungmahamek, Sathorn, Bangkok 10120 Tel. Number: +66 (0) 2213-1039-49, 285-5090-9 Fax Number: +66 (0) 2213-1035, 213-1038 Web Address: <a href="http://www.tpipolene.co.th">http://www.tpipolene.co.th</a>
Registered Capital	Baht 23,560,235,000 million
Paid-up capital	Baht 18,935,235,000 million
Total Assets	Baht 144,499 million
Total Liabilities	Baht 81,685 million
Total Shareholders' Equity	Baht 62,814 million
Net sales	Baht 48,133 million
Business Unit	<p><b>Head Office Bangkok</b></p> <p>Three major distribution terminals are located in Pathum Thani, Udon Thani and Chachoengsao provinces, and two warehouses are located in Samut Prakarn and Nong Khai provinces.</p> <p>The six sub-distribution terminals are located in Songkhla, Phitsanulok, Ubon Ratchathani, Surin, Surat Thani and Lamphun provinces, and one warehouse is located in Ubon Ratchathani.</p> <p><b>Cement plant, Saraburi Province</b></p> <p>67 concrete batching plants (in Bangkok metropolitan area and metropolitan areas such as Mahachai, Ayutthaya province, Rayong province, Map Ta Phut, Pattaya, Sriracha, Bo-win and Udon Thani province)</p> <p>Concrete roof tile and fiber cement plants,</p> <p>LDPE/EVA plants, Rayong Province</p>

## Employee Information [2-7] [2-8]

As of 31 December 2022

Employee details	2020		2021		2022	
	Number (persons)	percent	Number (persons)	percent	Number (persons)	percent
Total number of employees	7,004	100	7,016	100	7,226	100
<b>Classified by gender</b>						
<b>Male</b>	<b>5,954</b>	<b>85.01</b>	<b>5,958</b>	<b>84.92</b>	<b>6,126</b>	<b>84.78</b>
Male employees younger than 30 years old	844	12.05	1,070	15.25	1,054	14.59
Male employees aged 30-50 years	3,566	50.91	3,564	50.80	3,577	49.50
Male employees over 50 years old	1,544	22.04	1,324	18.87	1,495	20.69
<b>Female</b>	<b>1,050</b>	<b>14.99</b>	<b>1,058</b>	<b>15.08</b>	<b>1,100</b>	<b>15.22</b>
Female employees younger than 30 years old	202	2.88	201	2.86	201	2.78
Female employees aged 30-50 years	660	9.42	663	9.45	693	9.59
Female employees over 50 years old	188	2.68	194	2.77	206	2.85
<b>Classified by employment contract</b>						
Full-time staff	6,199	88.51	6,220	88.65	6,439	89.11
Contract employee	805	11.49	796	11.35	787	10.89
<b>Classified by place of operation</b>						
Head office	1,113	15.89	1,392	19.84	1,388	19.21
Cement plant, Saraburi province	4,490	64.11	4,233	60.33	4,364	60.39
CRT and FCB plants, Saraburi province	811	11.58	812	11.57	900	12.46
LDPE/EVA plants, Rayong province	590	8.42	579	8.25	574	7.94

**Remark :** The Company's employees exclude subsidiaries' employees.

## Vision, Mission, and Operational Strategy [2-23]

TPI Polene Group operates its business with a focus on developing innovation and the technology has been applied to increase product value, with the research and development team of TPI Polene Group itself focusing on the policy towards sustainable development (ESG & Bio Circular-Green Economy-BCG for Sustainability) to low-carbon production to balance business growth, and maintain the environment, while creating strength to Thai society as part of driving the economy, as well as generating good returns and continuously creating balance for shareholders and related stakeholders under a policy of good corporate governance.

**Vision** A leader in the business of construction materials, plastic resin, and clean energy power plants with excellence and international standards and conducting business with responsibility for sustainable growth in Economic, Social, Environmental dimensions through a policy of good corporate governance towards sustainable development using Bio-Circular-Green Economy-BCG and growing with innovation and technology in all dimensions of work procedures to enhance competitiveness and be at the forefront of the industry.

### Mission

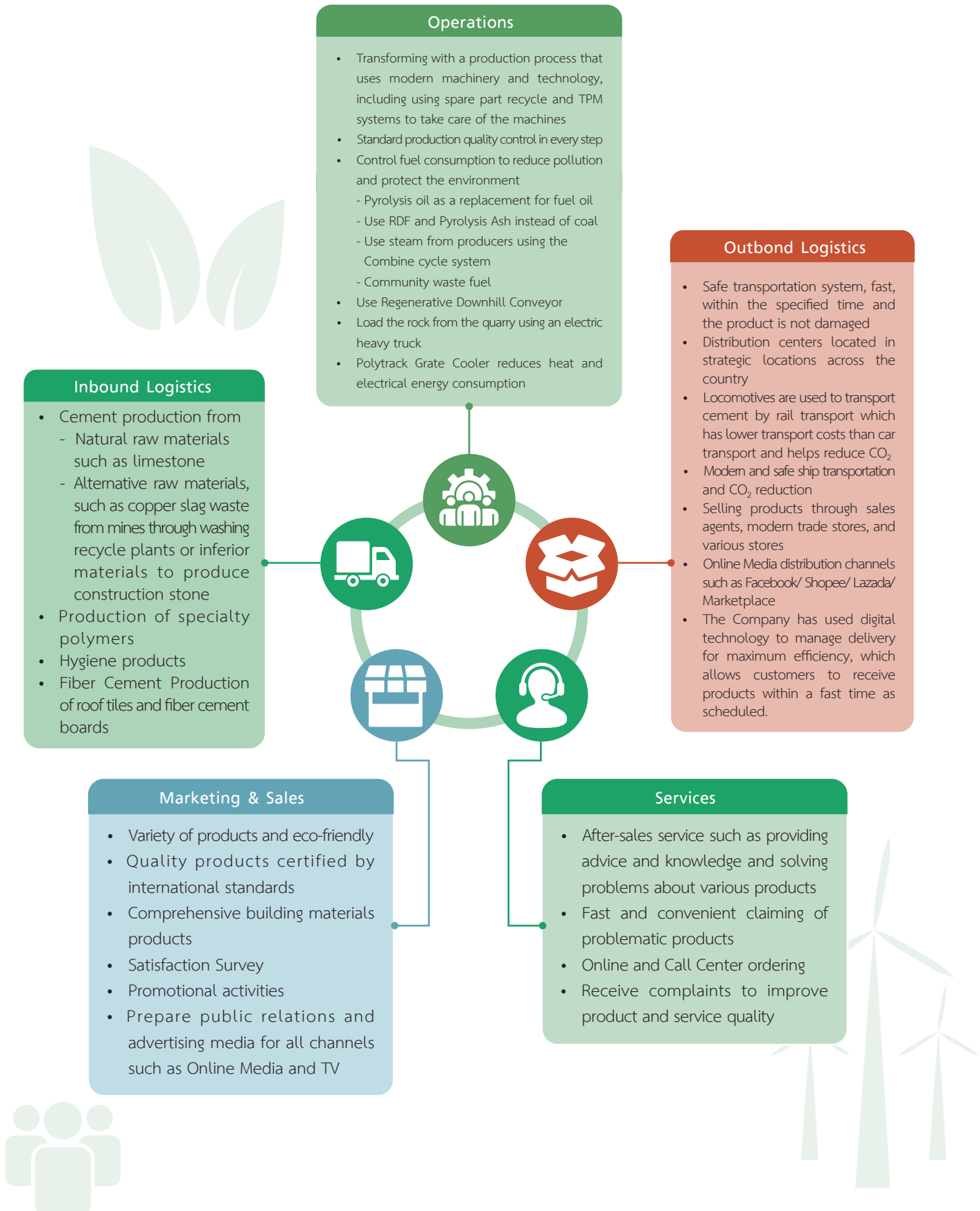
Deliver worthy products and services to customers that are beyond superior with a decisive management style and flexible adaptation to new business concepts, covering all aspects of risk management; focus on efficient investment and resourceful production processes, with the proper use of resources, aiming to reduce greenhouse gas emissions to be environmentally friendly in parallel with managing costs and expenses to the appropriate level and to create sustainable returns to shareholders, maintain balanced stakeholders throughout the country, society, community, shareholders, customers, business suppliers and employees.

### Business Strategy

- Seek investment opportunities that offer good returns on investment, with risks at a manageable level, focused on investing effectively, reduce costs, review investment plans, and prioritize investment projects by aiming to improve returns on investment.
- Have the Company's own product research and development team use technology and innovation to manage business continuity in a comprehensive and fast manner.
- Improve production efficiency to increase competitiveness, including using waste as a coal substitute fuel and using waste materials as raw materials to reduce greenhouse gases, along with efficient disposal of waste.
- Seek market opportunities, including developing products to create added value, have international standards, and be environmentally friendly. Meet customers' needs to use products and services for optimal performance.
- Distribute products to targets quickly and efficiently, including adding online commerce models and "New Normal" stores in the community to support the launch and expansion of TPI Polene Group products.
- Develop work procedures in conjunction with reducing management costs to maximize efficiency.
- Reduce financial costs, including managing liquidity and financial risks to be at manageable levels.
- Risk mitigation throughout the organization under a good corporate governance policy and create flexibility for adaptation to keep pace with business disruption and prepare to move forward to continuously increase competitiveness.
- Create value for shareholders and investors with unwavering profit growth; generate high returns on investment with business expansion to grow sustainably.
- Conduct business responsibly and contribute to improving the quality of life for society, the community; manage business operations throughout the supply chain; manage relationships with business suppliers and customers; support the continuous development of personnel capabilities and ensure the quality of life of employees in the workplace comparable to other leading companies in the industry in order to create firm bonding within the organization.



## Value Chain of TPI Polene [2-6]

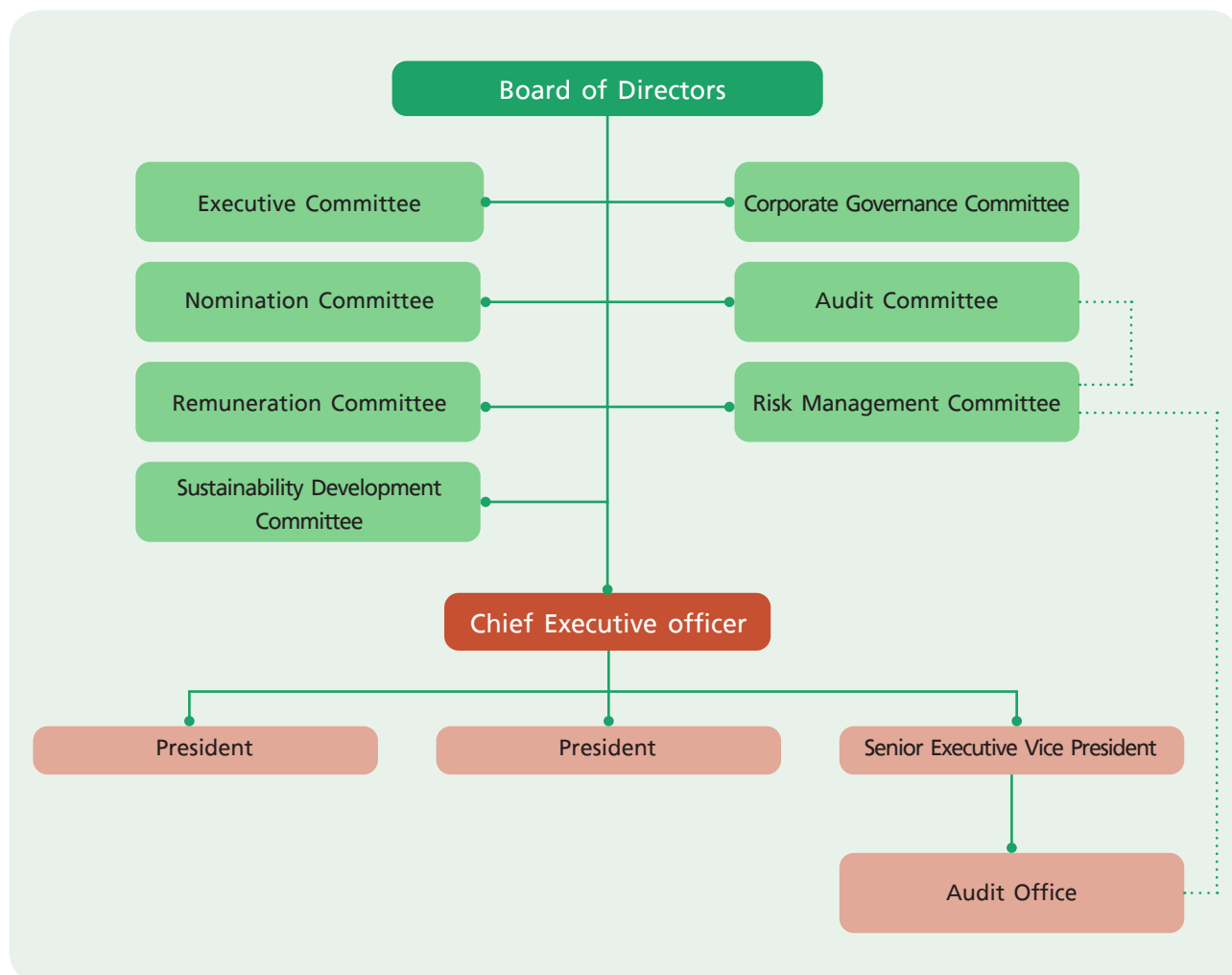


## Value at the Company delivered to stakeholders in the value chain of business as follows:

Value Chain	Source	Internal Stakeholders	External Stakeholders	The value that the Company provides to stakeholders
<b>1. Procurement of raw materials</b>	<ul style="list-style-type: none"> <li>- Coal</li> <li>- Local raw materials</li> <li>- Raw materials from offshores</li> </ul>	<ul style="list-style-type: none"> <li>- Purchasing Department</li> <li>- Financial Department</li> </ul>	<ul style="list-style-type: none"> <li>- Supplier</li> <li>- Contractors</li> <li>- Competitors</li> <li>- Community</li> </ul>	<ul style="list-style-type: none"> <li>- Take into account environmentally friendly raw materials to reduce greenhouse gases emission.</li> <li>- Green Purchasing</li> <li>- Local procurement that supports communities, reduces socioeconomic inequality</li> <li>- Have a quality and adequate source of raw materials.</li> <li>- Establish a trade framework with ethical suppliers and create good relationships and contribute to the sharing of benefit (Win-Win Situation)</li> </ul>
<b>2. Production</b>	Converting raw materials into quality-controlled and standardized cement products	<ul style="list-style-type: none"> <li>- Production Unit</li> <li>- R&amp;D Department</li> <li>- Technology and Innovation Department</li> <li>- Purchasing Department</li> <li>- Warehouse Agency</li> <li>- Occupational Health Department</li> </ul>	<ul style="list-style-type: none"> <li>- suppliers</li> <li>- Communities around the factory</li> <li>- Government Organizations</li> </ul>	<ul style="list-style-type: none"> <li>- Produce products under international standards</li> <li>- Qualified and reliable products, reliable to stakeholders</li> </ul>
<b>3. Distribution</b>	Ready to distribute products throughout network under safety standards	<ul style="list-style-type: none"> <li>- Logistics Center</li> <li>- Logistic Department</li> <li>- Domestic and Export sales Department</li> <li>- Distribution terminals and warehouse throughout the country</li> </ul>	<ul style="list-style-type: none"> <li>- Freight Contractor</li> <li>- Customers</li> <li>- Commercial Competitors</li> <li>- Communities around the distribution center</li> </ul>	<ul style="list-style-type: none"> <li>- Speed of delivery on timely basis</li> <li>- Wide range of distribution channels</li> </ul>
<b>4. Marketing &amp; Sales</b>	Incentivizing customers to buy the best products and services, covering local and international areas.	<ul style="list-style-type: none"> <li>- Domestic and international sales/marketing Department</li> <li>- Customer Service Department</li> <li>- Financial Department</li> <li>- Accounting Department</li> </ul>	<ul style="list-style-type: none"> <li>- Agents</li> <li>- Contractor</li> <li>- Customers</li> <li>- Commercial Competitors</li> </ul>	<ul style="list-style-type: none"> <li>- Create long- term relationships</li> <li>- Strengthen partner income, to grow together</li> <li>- Become a Business Partner</li> </ul>
<b>5. After-sale Service</b>	Provide technical services showing how to use the correct products and can help customers at the workplace.	<ul style="list-style-type: none"> <li>- Technical Department</li> <li>- Sales Department</li> <li>- Production Department</li> </ul>	<ul style="list-style-type: none"> <li>- Contractor</li> <li>- Customers</li> <li>- Commercial Competitors</li> </ul>	Create good impression on service that customers obtain before and after the sale.



## Corporate Governance Structure [2-9]



The Management Structure of the Company as of December 31, 2022, consists of the Board of Directors, and seven sub-committees consisting of: Executive Committee, Audit Committee, Remuneration Committee, and Nomination Committee, Corporate Governance Committee, Sustainability Development Committee, and Risk Management Committee.

As of December 31, 2022, the Board of Directors has a total of 15 Directors, divided into 12 males and 3 females and five Independent Directors, which representing 33.33 percent of the entire Board of Directors. The Chairman of the Board is an Independent Director in another role and is not the Chief Executive Officer or member of the sub-committee. According to the director structure, the Company has arranged a clear separation of roles between the Board of Directors and the Management. The person who holds the position of Chairman of the Board and Chief Executive Officer is in a separate position so that duties and responsibilities on the corporate governance and business administrative are clearly separated. [2-11]

## Roles and Responsibilities [2-12][2-13][2-24]

The Board of Directors plays an important role in corporate governance for the best benefits of the Company. Each Director acts as the representative of shareholders and participates in promoting the Company's good governance principles, as well as supervising the business in accordance with its vision and operational strategy, as well as the Company's core policies to preserve the rights and create benefits for shareholders and other relevant stakeholders.

**Roles of the Board of Directors**
<https://www.tpipolene.co.th/th/aboutus/org-tpi/board/board-1-2>
**Audit Committee**
<https://www.tpipolene.co.th/th/aboutus/org-tpi/audit-board>
**Remuneration Committee**
<https://www.tpipolene.co.th/th/aboutus/org-tpi/remuneration-board>
**Nomination Committee**
<https://www.tpipolene.co.th/th/aboutus/org-tpi/nominate-board>
**Corporate Governance Committee**
<https://www.tpipolene.co.th/th/aboutus/org-tpi/corporate-governance-committee>
**Risk Management Committee**
<https://www.tpipolene.co.th/th/aboutus/org-tpi/risk-management-committee>


In addition, in order to ensure the most efficient business management and reporting of sustainability of the business is the most efficient and effective, the Company has appointed an ESG Committee, which consists of four committees, namely: the Sustainability Development Committee, head office: Sustainability Development Committee, Saraburi Plant; the Sustainability Development Committee, Rayong Plant; and the Sustainable Development Committee, Concrete Roof Tiles Plant. The establishment of the role and responsibilities of the ESG Committee are as follows:

1. Set policies, strategies, frameworks, to implement strategies and to consider the selection of issues that promote the sustainable development of the organization, as well as set sustainable development goals to be in line with the implementation of the business operations in Economic, Society & Environment Dimensions to be proposed to the Chief Executive Officer for approval.
2. Supervise, review, and monitor the progress of the operation and evaluate the effectiveness of the implementation to comply with the Company's sustainability policy.
3. Encourage concrete implementation and participate in various projects within the framework of sustainable development with related departments, for both inside and outside the organization.
4. Provide advice, promote, and support of appropriate resources and the right personnel in order to implement sustainable development strategies throughout the organization and to be aligned in the same direction.
5. The Chairman of the ESG Committee has the authority to appoint sub-committees or working groups to be responsible for the implementation of sustainable development in each part in order to be comprehensive and in line with key aspects of the organization.
6. Report on the performance of the preparation of the sustainability report to the top management. The Sustainable Development Committee is required to hold meetings to regularly review operational efficiency and report performance summaries at least quarterly to the Chairman of the Sustainable Development Committee. In 2022, a total of three meetings were held and reported to the Board of Directors. The report can be summarized as follows: [2-16]

**1. The environmental dimension was carried out as follows:**

- 1.1 Towards a low-carbon society by setting a Net Zero Green House Gas Emission goal for net zero greenhouse gas emissions in TPI Polene Group by the year 2043 (or B.E. 2586) in accordance with the policy of the Greenhouse Gas Management Organization (from the waste to be used as alternative fuels in the Company's cement production process and in the power generation process of TPI Polene Power Public Company Limited's power plant).
- 1.2 TPI Polene Group has set measures to restore the natural environment and protect the ecosystem by cooperating with government agencies or private sectors in restoring forest areas.
- 1.3 Cement plants increase energy efficiency by setting targets for all energy consumption per production.
- 1.4 TPI Polene Group has a waste management policy using the 3R principle under the concept of making zero waste (Zero Waste) and executes Bio-Circular-Green (BCG) strategy.
- 1.5 TPI Polene Group has a policy to manage water use for maximum efficiency by not draining water outside the factory, including controlling wastewater quality to be valuable according to wastewater standards.
- 1.6 Reduce operational impacts throughout the value chain
- 1.7 TPI Polene Group joins in the disposal of waste infected with COVID-19 in 2022

**2. In the social dimension, the Company operates its business responsibly and gives importance to all groups of stakeholders in a balanced manner, which can be summarized as follows.**

- 2.1 Aiming to generate good returns for shareholders by continuously paying dividends and maintaining good performance continuously.
- 2.2 Consider human rights principles, respect personal data, protect labor rights, encourage youth in education, etc.
- 2.3 Have safety, occupational health, and create a good working environment.
- 2.4 Manage and develop the potential and skills of personnel continuously by setting a target number of training hours per person per year.
- 2.5 In 2022, the Company has measured employee satisfaction levels in many dimensions by using the employee opinion survey results to develop activities to continuously build good relationships with employees.
- 2.6 TPI Polene Group provides equal opportunities for employment without discrimination.
- 2.7 Give importance to customer satisfaction in the products and services of TPI Polene Group.
- 2.8 Give importance to the security of corporate information systems (IT Security).
- 2.9 Promote environmentally friendly procurement to reduce the risk of doing business with suppliers.
- 2.10 TPI Polene Group has created value and improved the quality of life for communities in all areas where TPI Polene Group's business operations are located.
- 2.11 TPI Polene Group has supported projects and public activities for communities, educational institutions, temples, hospitals, and various government agencies.

**3. Corporate Governance Dimension**

TPI Polene Group adheres to the principles of accuracy and compliance with relevant laws and regulations under the business ethics. There is an operating framework based on good corporate governance, transparent disclosure of information and operating results. The Company has all-round risk management and flexibility in management to cope with the challenges of business competition, which can be summarized as follows.

- 3.1 Promote the performance of the Board of Directors, executives, and employees in line with good corporate governance and business ethics in all areas of operation.
- 3.2 Provide guidelines for social enterprise operations, focusing on responding to the needs and improving the quality of life for communities in all areas where the Company's business operations are located, including social networking communities across the country.
- 3.3 Respond to the needs of all stakeholders in a balanced way for sustainable growth.

Additionally, in 2022, the Company created a sustainability report based on the GRI (Global Reporting Initiative) reporting standards (Materiality) in all three aspects (ESG), and it also promoted quarterly disclosure of sustainability performance to investors through the 56-1 One report, Sustainability Report, and on the TPI Polene website.



## Monitoring, Evaluating and Reporting on Sustainability Performance [2-14]

The Board of Directors participates in the consideration and review of Material Topics, including reviewing and approving the sustainability report information before it is disclosed to the public by requiring the Sustainable Development Committee (ESG Committee) and executives from relevant departments to monitor, evaluate, collect, and gather important sustainability performance data, analyze and compare results with the goals set, and report results to executive. Furthermore, the Company requires that the sustainability report be prepared in accordance with international standards according to the reporting standards of the Global Reporting Initiative (GRI) for communicating sustainability performance to the public and stakeholders annually.

## Assessment of the Board of Directors' Performance [2-18]

Self-assessment of the Board of Directors, sub-committees, and senior executives (CEO)/Chairman of the Management is an independent assessment at least once a year and in accordance with the principles of good corporate governance by taking into account the elements specified. The Company's ESG sustainability performance is one of the indicators used to assess the performance of the Board of Directors and executives and focuses on using the results to improve the performance of Board of Directors and Senior Executives (CEO)/Chairman of the Management Committee. The assessment form consists of

1. The Performance Assessment Form of the Board as a whole (Assessment as a whole) consists of 6 topics: Structure and Qualifications of the Board, Roles and Responsibilities of the Board, Board Meetings, Performance of the Board, Relationship with Management, Director's Self-Improvement and Executive Development.
2. The Performance Assessment Form for the Board of Directors as a whole consists of 3 topics: Structure and Qualifications of Directors, Sub-Committee Meetings, Roles, Duties, and Responsibilities of Sub-Committees.
3. The Performance Assessment Form for the Board of Directors as an individual (For Board/Sub-Committees) consists of 3 topics: Structure

and Qualifications of the Board/Sub-Committees, Meetings of the Board/Sub-Committees, Roles, Duties and Responsibilities of the Board of Directors/Sub-Committees

4. The Performance Assessment Form for the Chief Executive Officer (CEO)/Chairman of the Management Committee includes financial performance (e.g. revenue, company sales, Economic Value Add (EVA), other financial performance) and environmental, social, and/or governance (ESG) performance, such as employee/supplier/community satisfaction, especially with the aim of reducing greenhouse gas emissions, reducing the use of company resources for cost and environmental benefits, etc.). All of which are part of the performance evaluation indicators of top executives (CEO or equivalent) that consist of 10 topics:

1. Leadership
2. Strategy
3. Strategy Implementation
4. Planning and Financial Performance
5. Relationship with the Board
6. External Relations
7. Administration and Personnel Relations
8. Succession
9. Knowledge of Products and Services
10. Personal Attributes

### Summary of Performance Assessment of the Board of Directors

<https://www.tpipolene.co.th/th/aboutus/org-tpi/board-assessment-result>





## Environmental Conservation meets domestic and internationally recognized standards [2-23] [2-28]

The Company has adhered to the principles of good corporate governance under the Listed Companies Act, 2017, issued by the Securities and Exchange Commission (Code of Corporate Governance) Regulations and is committed to driving the Company's business and TPI Polene's subsidiaries to meet the needs of Bio-Circular Green Economy and to be in line with the country's economic development, taking into account Environmental, Social, and Governance (ESG) and a business model innovation. In addition, the Company adheres to the importance of conducting business operations by emphasizing process supervision, and that quality products and services meet internationally recognized standards

In addition, the Company has a competitive advantage in low production costs due to the fact that its machinery and equipment is located in a single area, adjacent to the Company's limestone quarry. The Company is also the first cement plant in the country that can use waste-based fuel as an alternative fuel for coal, which reduces the costs of cement production. TPI Polene was the first cement manufacturer in Thailand to be awarded ISO 9002 Certification from the International Standard Institute, for surpassing industrial and environmental protection standards. This has enabled the Company to export cement to the state of California, where surrounding communities are highly aware of environmental conservation. The Company is also the first cement manufacturer in Thailand to be approved to use carbon labels for cement and mortar products. The Carbon Label demonstrates that TPI Polene puts an emphasis on producing products to be environmentally friendly and helps to even out temperatures in the atmosphere. The Company has its own research and development team, which is a distinct competitive advantage over others. In addition, the Company has a pallet less cement packaging system to reduce the costs of product delivery and can increase the lifetime of the product even longer, and develop the technology of producing TPI red 299 (hydraulic cement) to replace Portland cement and help reduce greenhouse gases by 10-15%, receiving TIS standards certification.

During 2021 - 2022, the Company has implemented an investment project to improve 4 kilns of cement plant to reduce heat consumption and decrease repair and maintenance costs in the production process by using waste fuel instead of coal in the cement production process, which allowed the company to reduce energy costs and not to rely solely on coal. Compared to waste fuel coal is a highly priced fuel that fluctuates according to global market conditions. In addition, the project helped reduce greenhouse gas emissions, which were the cause of global warming, by allowing the company to replace waste fuel instead of coal in all 4 production lines in December 2022.

The Company is also the first cement producer in the country to receive ISO 9001:2015 international certification from international institutions and is certified for four international standards of management: Quality Management System Standard (ISO 9001:2015), Environmental Management System Standard (ISO 14001:2015), Occupational Health and Safety Management System Standard (ISO45001:2018), and Energy Management System Standard (ISO50001:2011) by the United States (ASTM) and the European Federation (EU) and cement plant laboratory standards are certified by the Office of Industry Standards in accordance with ISO/IEC 17025:2017 and TIS 17025:2018.

In the Polymer business, the Company successfully entered the technology market by transforming the Polymer business into Specialty Polymer products. It is environmentally friendly with added value and higher profit margins by improving production technology and machines to be more flexible which other large manufacturers cannot produce, allowing the company to create added value and profit margins that are higher than the general market. For this reason, it is necessary for the Company to research and develop such knowledge themselves. The company is the only producer in Asia with a unique Pilot Reactor that has been built and is capable of reacting at pressures up to 3,000 bar. It was built to produce samples for testing and evaluating new markets before developing the technology to be used in the actual production line in the future. The Company expects to be able to start producing new types of specialty products within 2024.



However, the Company has been certified to all three industry standards: Quality Management System (ISO 9001:2015), Occupational Health and Safety Management System Standard (TIS 18001-2011 and OHSAS 18001:2007) and Environmental Management System Standard (ISO 14001:2015), and has received certification by the Department of Industrial Works, Ministry of Industry, as a green industrial plant level 3: Green System with systematic environmental management with continuous monitoring and review for development. The product has also received a MiT certificate (Made in Thailand) from the Federation of Thai Industries.

In the EVA Emulsion and EVA Powder business, the Company is the first and only company in the country to have the technology to produce and sell EVA Emulsion water adhesive products and EVA Powder adhesives to the market, leveraging the infrastructure and core raw materials of the plastic pellet plant to reduce construction costs. Managing the greater volume of raw materials also increases the negotiating power of imported raw materials producers. The Company has adopted Ethylene and Vinyl Acetate that must be disposed of from the process of producing plastic pellets as raw materials, reducing production costs and reducing emissions to communities and the environment.

In 2022, the Company was able to develop new value-added products in the group of special liquid hot melt adhesives, which are high-margin value-added products, making the Company now have products covering all types of applications for customers in this group, which considered as a Niche Market of EVA resins. The Company is also the market leader in East Asia and Southeast Asia. The Company has imported and constructed a new glue powder manufacturing facility from Europe with a capacity of 5,000 tons per year in 2022 for the EVA Powder business. It is currently in trial production and is expected to be operational by 2023, which will enable the company to expand its presence in the growing regional adhesive powder market. The plant has been certified for quality management systems (ISO 9001:2015), occupational health and safety management standards (ISO45001:2018), and environmental management system standards (ISO 14001:2015), and the product also received a MiT certificate (Made in Thailand) from the Federation of Thai Industries.

Ammonium nitrate and nitric acid are manufactured and distributed by Thai Nitrate Co., Ltd. (99.99% owned-subsiary Company), the largest manufacturer of ammonium nitrate in Thailand. The Company's ammonium nitrate and nitric acid products have received industry standard (TIS) and international standards for quality management systems such as ISO9001:2015, ISO14001:2015, ISO45001:2018, ISO5001:2018, ISO17025-2017 and HALAL, and the product has received a MiT certificate (Made in Thailand) from the Federation of Thai Industries, as well as receiving certifications confirming them as a Green Industrial Level 3 Green System from the Department of Industrial Works, Ministry of Industry. Ammonium nitrate and nitric acid products are used in the cement industry, coal mines, quarries, industrial construction, and for nitrous oxide manufacturing used in medicine.

In addition, the Company joins as a member or has worked with both, public and private authorities to develop and upgrade the Company's operations as well as expand cooperation to deliver value to relevant stakeholders and society as a whole as follows:

#### Agency

##### 1. Federation of Thai Industries (FTI)

##### 2. Thai Cement Manufacturers Association (TCMA)

##### 3. ASEAN Federation of Cement Manufacturers (AFCM)

##### 4. Asian Cement Producers Amity Club (ACPAC)

##### 5. Sustainability Disclosure Community (SDC)

##### 6. Thai Listed Companies Association

##### 7. Investor Club Association





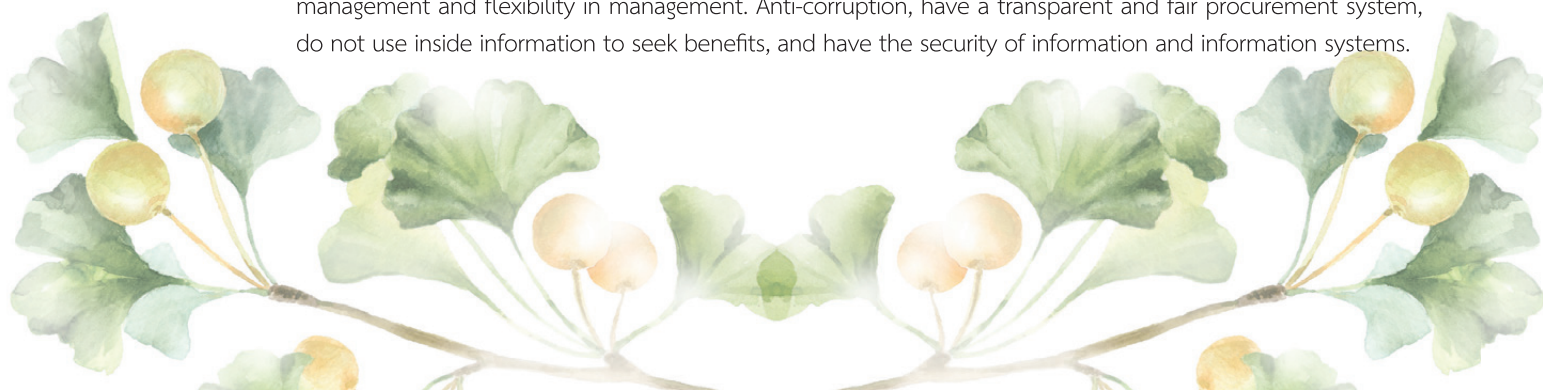
# 04

## TPI Polene and Sustainability

### Sustainability Policy Framework and Management [2-23][2-24][3-3]

The Board of Directors and the top management of TPI Polene have established sustainability policies with a focus on being instrumental in driving the organization to achieve its sustainability vision in line with the direction and strategy of business operations by supporting the Sustainable Development Goals (SDGs) of the United Nations in order to balance the economy, environment, and society under good corporate governance with a policy framework and sustainability management as follows:

1. **Economic Dimension:** With an emphasis on the adoption of technology and innovation in the production process of quality products and services with an effective management at every stage, and with R&D results to further constantly develop business models and create added value for products and services as well as seek investment opportunities that offer high returns on investment. In addition, the company has formulated a strategy for both short-term and long-term business growth, with the ability to adapt flexibly, taking into account all internal and external risk factors, being ready in terms of systems and production efficiency.
2. **Environmental Dimension:** Aiming to develop towards a low-carbon society by setting Net Zero GHG Emission goals to achieve net zero greenhouse gas emissions through the BCG Model. Focus on the Green Economy policy (Green Economy), use clean energy, produce environmentally friendly products, reduce the use of fossil fuels, increase energy efficiency and the ability to use renewable energy together with solving solid waste and waste problems. Emphasis on the Bio Economy policy (Bio Economy), promoting organic agriculture, promoting the use of biotechnology, reducing the use of chemicals in agriculture and livestock for good health and quality of life. The Company also promotes Circular Economy policy that maximizes resource utilization, reduce waste generation and utilize waste, care for biodiversity and soil degradation, and optimize water use, reduce the impact from operations throughout the value chain, and respond to all groups of stakeholders in a balanced way.
3. **Social Dimension:** Conducting the business with social responsibility, create balanced consideration for all stakeholders, create good returns on investment for shareholders, and take into account human rights principles, protect labor rights, safety, hygiene and create a good working environment, and continuously manage and develop talent and skills for personnel, respect privacy of information, promote youth in education and contribute to creating value and improving the quality of life of the community and society to grow sustainably. Protect labor rights, do not use child labor and illegal labor, respect human rights principles, provide diversity and equality, non-discrimination.
4. **Corporate Governance Dimension:** Adhering to the principles of accuracy and compliance with applicable laws and regulations under business ethics with an operating framework based on good corporate governance principles with transparent disclosure of information and performance with versatile risk management and flexibility in management. Anti-corruption, have a transparent and fair procurement system, do not use inside information to seek benefits, and have the security of information and information systems.



### Respecting Human Rights

The Company is committed to complying with the provisions set forth in the International Human Rights Principles and International Labor Standards, including the United Nations Universal Declaration of Human Rights and the International Labor Organization's Universal Declaration on Fundamental and Rights at Work, Thai Labor Protection Act B.E. 2560, and respect to the International Labor Organization (International Labor Organization : ILO)

The Company has set the policy in the TPI Polene Code of Conduct on treating each other with respect to human rights principles, privacy, respect for personal rights and protecting the information of customers, suppliers of employees, and those involved in the utmost compliance with the Personal Data Protection Act B.E. 2562. An independent and impartial commission of inquiry has been established, in which the accused has the right to defend themselves, for the purposes of ensuring equality in security, upholding and respecting the political rights of employees, fundamental rights to life, and right to defend allegations. In addition, the Company has carried out important operations related to human rights as follows:

1. Announcement on International Human Rights Policy No. 006/2559 establishes guidelines for business operations that are considerate of society and communities by requiring the Board of Directors, executives, and employees of the Company. Everyone must abide by the laws, customs, and local culture in the areas where the company has operated by following the guidelines below.
  - Employees shall treat any person on the premises of the plant with respect on the basis of human dignity, fairness, and mutual dignity, as well as complying with all applicable national laws.
  - The Company promotes diversity in employment and provides opportunities for employees to grow and advance in their careers without discrimination against any individual due to similarities or differences in race, nationality, religion, country, education, age, gender, status, and physical disability, etc.
  - Employees must carefully handle stakeholder information.
  - Employees will not disclose confidential information of stakeholders to those who do not have the right to know unless they have received written approval from the stakeholders themselves or from the authorized person assigned by the Company.
  - Employees must limit the disclosure, use, and access of stakeholder information to the extent necessary.
  - Employees are strictly prohibited from harassing, harassing, or causing sexual nuisance in the factory.
2. Determined in the Supplier Code of Conduct by defining human rights guidelines to prevent human rights violations in all business activities of the Company, which covers both labor issues and the use of illegal child labour. All business suppliers must strictly adhere to the policy.
3. Defined as a policy, ethics, TPI Polene Code of Conduct on treating each other with respect to human rights principles, equal treatment and promulgated within the Company.
4. Announcement on personal data protection policy (Personal Data Protection Policy) No. Bor Kor 0017/2564, which requires the Company to operate with respect for the privacy rights of customers, suppliers, employees, and those involved strictly.



TPI Polene Public Company Limited realizes the importance of human rights management, including customers and suppliers in the value chain (Supply Chain Management, SCM) that may be affected by human rights issues. The human rights policy has been established to apply to the Company's business groups with the purpose of reducing risks, preventing, and avoiding human rights abuses. Additionally, a human rights audit process has been established, consisting of risk identification, impact assessment, mitigation measures to mitigate human rights risks, including establishing channels for grievances and remedies for impacts when human rights violations occur, to push and ensure that TPI Polene Group's business operations are strictly committed to protecting human rights.

### Comprehensive Human Rights Review Process



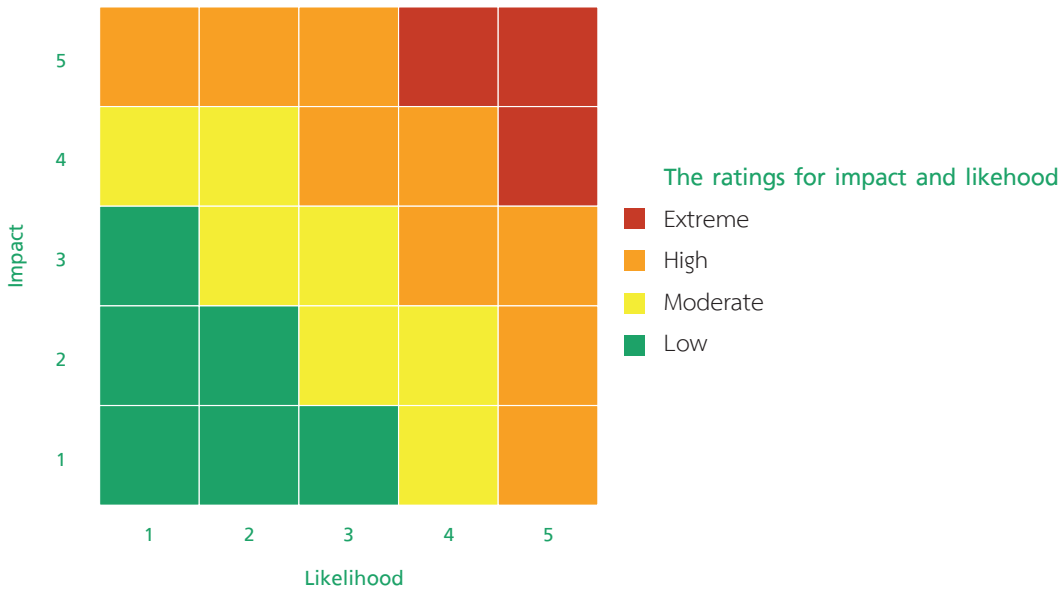
1. Policy announcement is a Policy Commitment.
2. The Company is committed to respecting human rights by defining it as an important policy of the organization and extending responsibility for human rights operations to its suppliers.
3. Human Rights Risk and Impact Assessment
  - 3.1 Identifying the scope of human rights issues, risk assessment covers 100% of TPIPL's operating areas, including the Bangkok office and distribution centers, Saraburi cement plant, Saraburi tile plant, and Rayong plant.

From the analysis, there are four areas of human rights issues identified:

Employees	Society and Community	Customers	Suppliers and Contractors
<ul style="list-style-type: none"> <li>- Employment Conditions</li> <li>- Safe Working Environment</li> <li>- Freedom to Negotiate</li> </ul>	<ul style="list-style-type: none"> <li>- Occupational health and safety in the community</li> <li>- Living standards and quality of life</li> <li>- Community involvement</li> </ul>	<ul style="list-style-type: none"> <li>- Data privacy</li> <li>- Consumer health and safety</li> <li>- Non-discrimination against customers</li> </ul>	<ul style="list-style-type: none"> <li>- Employment Conditions</li> <li>- Health and safety at work</li> <li>- Forced child labor</li> </ul>

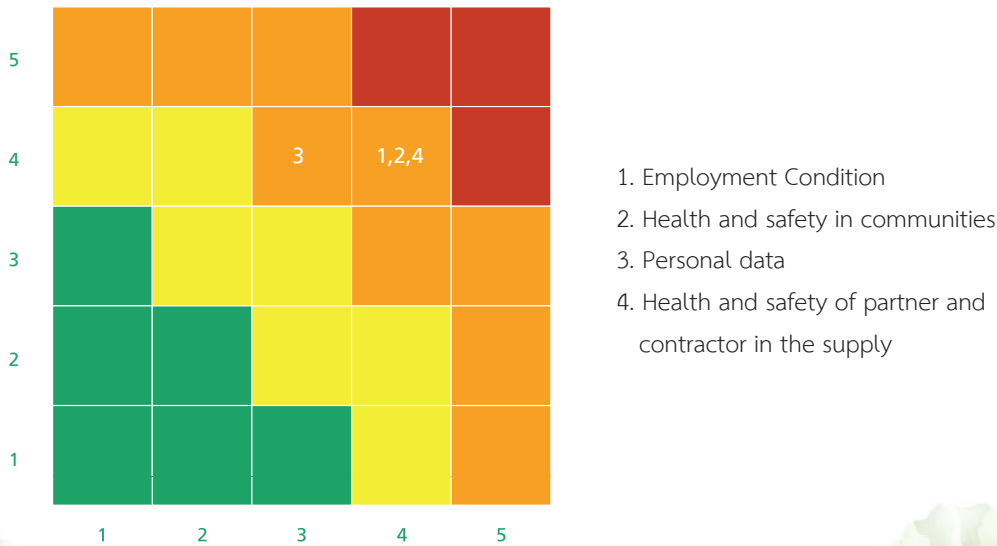


3.2 The Company assesses risks using the assessment table below to consider the level of Likelihood of the risk and the level of severity that occurs (Impact Level) in order to prioritize human rights risks.



3.3 Human Rights Risk Prioritization

In 2022, the Company has prioritized human rights risks in four aspects as follows:



The Company has taken human rights risks in 5 issues to analyze the risks that may occur and mitigating the impact as follows.

Scope	Risk Issues	Effect	Mitigation Measures
Employment	Employees overtime exceeding 36 hours/week.	Legal protection rights Right for having a good quality of life	1. Hire contract workers to help with the work 2. Labor Protection Laws
Health, Safety, Society and Community	Accidents from high-speed delivery trucks and pollution from black smoke emitted by vehicles.	Rights, laws, occupational safety and health	1. Announcing the speed limit for cargo trucks 2. Schedule vehicle inspections and fix incorrect conditions
Personal Information	Storage of personal data of customers is pending the request for consent from customers.	Personal Data Protection Laws	Inquire about voluntary or consent to data collection
Health and Safety of Suppliers and Contractors	Wearing personal protective equipment	Occupational safety and health rights at work	1. Notify contractors to comply with occupational safety and health laws 2. Safety compliance training

#### 4. Remedies and Complaints Channels

Providing remedies in the event of human rights violations by having a process for accepting complaints, investigating/investigating complaints fairly, and determining measures to mitigate the impact that occur, including fair remedial measures.



#### 5. Tracking and Monitoring Operations

The Company has followed up on compliance with the human rights impact mitigation clauses, focusing on mitigating and mitigating negative impacts. However, agencies that have implemented mitigation measures must monitor and review the action plans to improve efficiency and should be re-evaluated to know the remaining impacts.



## Performance

### Human Rights Risk Assessment Progress Performance

The Company has assessed environmental, social, and governance (ESG Risk) arising from its business suppliers, such as human rights, forced and child labor, environmental impacts, and community and social impacts with the scope of labor employment, health and safety in the community, accidents from cargo trucks running at speed and pollution from black smoke from emitted vehicles, collecting personal information of employees and customers, health and safety of suppliers and contractors, e.g. wearing personal protective equipment.

- In 2022, 32 departments of the company were assessed from the head office and 21 departments of the Saraburi factory, and the assessment result found no ESG complaints.
- There are no complaints from suppliers regarding labor contractors.
- The collection of personal data of employees has been agreed upon by all employees in 2022.

## Prioritizing and engaging with stakeholders [2-29]

The Company recognizes the importance of stakeholder engagement by analyzing stakeholders both inside and outside the organization, and which are associated with the value chain of the business, with the belief that good relationships are based on trust. The Company also recognizes that the opinions and feedback of stakeholders towards the organization are extremely valuable, and help us achieve our goals and become a sustainability developed and growing organization. Stakeholder management also help organizations respond effectively to the needs of stakeholders. This includes reducing the risk of damaging the image and the likelihood of business disruption.

**TPI Polene Group** has adhered to the principle of value creation, cooperation between the Company and its stakeholders, as well as improving channels and continuously sending stakeholder feedback to responsible departments. TPI Polene Group has divided the group of stakeholders to cover all dimensions inside and outside the organization as follows:

- 1) Shareholders / Investors
- 2) Employees
- 3) Suppliers and contractors
- 4) Customers and Agents
- 5) Creditors
- 6) Governmental authorities
- 7) Community and society
- 8) Business competitors
- 9) Mass Media

### Corporate Social Responsibility [2-23]

<https://www.tpipolene.co.th/th/investment/social-responsibility-th>





The communication and engagement patterns of stakeholders are different, which can be summarized as follows:

Stakeholders	Guidelines for engaging with stakeholders	Stakeholder needs/ expectations	The Company's response guidelines
1. Shareholders/ Investors	<ul style="list-style-type: none"> <li>- Annual General Meeting of Shareholders</li> <li>- Giving shareholders the opportunity to have equal rights to attend the shareholders' meeting, such as questioning and voting.</li> <li>- Presentation of investment information through investor relations activities at least 4 times per year</li> <li>- Annual Report (56-1 One Report)</li> <li>- Provide channels for communication through media including websites, letters, emails, phones or others</li> <li>- Annual Sustainability Report</li> <li>- Financial report 4 times per year</li> </ul>	<ul style="list-style-type: none"> <li>- Good Performance, share price and dividends are at an appropriate level.</li> <li>- Continuous business expansion</li> <li>- Disclose important information of the Company in a timely, timely, transparent, reliable way through channels that are easily accessible to shareholders.</li> <li>- Provide shareholders equal rights to attend annual shareholders' meetings.</li> <li>- Organize building and healing activities Good relationship with shareholders</li> <li>- Conduct business with environmental considerations Corporate Governance Society or ESG</li> <li>- Financial stability</li> <li>- Transparency</li> <li>- Risk management system</li> </ul>	<ul style="list-style-type: none"> <li>- Sustainability Report</li> <li>- Proper risk management</li> <li>- All shareholders are entitled and treated equally.</li> <li>- Manage the organization in accordance with the Company's vision and corporate governance principles with integrity, caution, free from personal conflicts of interest.</li> <li>- Clarify details about the shareholders' meeting as well as all information related to matters that require shareholders to make decisions at the meeting in advance.</li> <li>- Business Ethics</li> <li>- Innovation and technology management</li> <li>- Research and development to further business</li> <li>- Have a strong policy of maintaining liquidity and financial stability.</li> </ul>



Stakeholders	Guidelines for engaging with stakeholders	Stakeholder needs/ expectations	The Company's response guidelines
2. Employee	<ul style="list-style-type: none"> <li>- Collect information from all channels, including complaints</li> <li>- In-house communication through channels such as Line Group, allowing senior executives to communicate with all employees via Line groups specific to related management, internal memo circulated to employees in each department, announcement in posters</li> <li>- Committee in The Establishment</li> <li>- Committee on Safety, Occupational Health, and Working Environment</li> <li>- Sustainability Report/Annual Report (56-1 One Report)</li> <li>- Executives meet employees at the factory once a week.</li> <li>- The level of satisfaction and engagement of employees towards the organization is measured once a year.</li> <li>- Provide clear in-house communications through various channels such as notices to various agencies within the Company and Application Line.</li> <li>- Comment box on Website, e-mail, Facebook</li> <li>- Performance appraisal 3 times a year</li> </ul>	<ul style="list-style-type: none"> <li>- Compensation Industry-aligned welfare</li> <li>- The organization has stability and progress in its work.</li> <li>- Developed potential</li> <li>- The organization has a good image.</li> <li>- Fair Evaluation System</li> <li>- Safety and quality of life at work</li> <li>- Allow comment</li> <li>- Equal Practice</li> <li>- Respect personal information</li> <li>- Respect human rights</li> </ul>	<ul style="list-style-type: none"> <li>- Strict employment regulations and strict practices, including career progress without limiting gender, age, social sources class Ethnicity, religion, educational institutions, by policy on employment and working conditions are standard.</li> <li>- There is a fair evaluation system.</li> <li>- Provide feedback and feedback channels</li> <li>- Provide returns comment and opinions</li> <li>- Occupational health and safety system</li> <li>- The Company shall not hire expatriates, which include contractors and sub-contractors.</li> <li>- Comply with human rights requirements and respect personal information</li> <li>- Provide opportunities and support the further education of employees.</li> <li>- Provide training to develop potential and career path</li> <li>- Savings cooperative.</li> <li>- Respect human rights and personal information</li> </ul>



Stakeholders	Guidelines for engaging with stakeholders	Stakeholder needs/ expectations	The Company's response guidelines
<b>3. Suppliers and Contractors</b>	<ul style="list-style-type: none"> <li>- Complaints and communication channels such as websites, e-mails, phones, letters, etc.</li> <li>- Various relationship activities with partners to create participation at least 2 times a year to exchange ideas and listen to suggestions.</li> <li>- Contact Phone : 02-285-5090 Website : www.tpipolene.co.th</li> </ul>	<ul style="list-style-type: none"> <li>- Transparent, fair, non-discriminatory, corruption-free purchasing system</li> <li>- Creating long term relationships to grow together</li> <li>- Comply with the established agreements and do not exploit customers, pay on timely basis.</li> <li>- Work safety</li> <li>- Respect human rights</li> <li>- Respect personal information</li> <li>- Payment on schedule</li> <li>- Occupational health and work safety</li> </ul>	<ul style="list-style-type: none"> <li>- Comply with Supplier Code of Conduct</li> <li>- The Company will not engage with trade suppliers who deal with businesses that act against the law.</li> <li>- Support ESG knowledge to enhance partner operations to reduce maturity in operation and reputation.</li> <li>- Establish measures to operate partners, including the use of digital and online technologies for safety under the COVID-19 pandemic crisis.</li> <li>- There is a procurement system that is transparent, verifiable, strictly complies with trade terms and contracts made with suppliers.</li> <li>- Take into account the mutual benefits of partners and business equity.</li> <li>- Employees in the group must not claim benefits in the procurement.</li> </ul>



Stakeholders	Guidelines for engaging with stakeholders	Stakeholder needs/ expectations	The Company's response guidelines
<b>4. Customers/Agents</b>	<ul style="list-style-type: none"> <li>- Complaints through communication channels such as websites, e-mails, phones, letters, etc.</li> <li>- Visit Customers/sales representatives at the customers office at least 12 times a year</li> <li>- Customers participate in suggesting the use of the product.</li> </ul>	<ul style="list-style-type: none"> <li>- Quality/safe products and services</li> <li>- Fair price.</li> <li>- Easy and convenient to purchase</li> <li>- Promotional campaigns.</li> <li>- Choose from a wide range of products</li> <li>- Customers receive products that meet standards and on time</li> <li>- In case of problems which are not caused by the customer's fault, the damage can be claimed immediately.</li> <li>- Providing good before- and after-sales service</li> <li>- Delivery on time</li> <li>- Respect personal information</li> <li>- Respect human rights</li> </ul>	<ul style="list-style-type: none"> <li>- Satisfy the needs of customers</li> <li>- Must not act in any way that is deceptive or oblivious to the quality of goods and services by producing safe products and services that are harmless for the health of consumers.</li> <li>- Create brand loyalty to products</li> <li>- Contains product information and application.</li> <li>- Systematic and secure storage of customer data and not misuse data</li> <li>- Set prices for products and services fairly</li> <li>- Provide representatives to be responsible for providing feedback, knowledge, products specification and services, as well as solutions and receive customer complaints.</li> <li>- Hold customer seminars to regularly educate information about products.</li> <li>- Respect human rights and personal information</li> <li>- Organize stucco art contests and social service events</li> <li>- The information that the customer suggests will be sent to the relevant departments to further develop the company's products.departments to further develop the</li> </ul>



Stakeholders	Guidelines for engaging with stakeholders	Stakeholder needs/ expectations	The Company's response guidelines
5. Creditor/Bondholder/ Analysts/Credit Rating Institute/Insurance Companies	<ul style="list-style-type: none"> <li>- Submit a quarterly financial statement report.</li> <li>- Annual Report/ Sustainability Report</li> <li>- Recommendations and complaints</li> </ul>	<ul style="list-style-type: none"> <li>- Good Corporate Governance</li> <li>- Business Administration with transparency</li> <li>- Careful risk mitigation</li> <li>- Full and on-time payment</li> <li>- Good performance and the potential to pay off debts</li> <li>- Comply with terms and conditions in the loan agreements</li> </ul>	<ul style="list-style-type: none"> <li>- Conduct business with transparency, auditable, under good corporate governance</li> <li>- Fully comply with the terms and conditions in loan agreements</li> <li>- Complete payment on timely basis</li> <li>- Provide complete financial information</li> <li>- Effective management, ensure confidence and maximum return on investment</li> </ul>
6. Government Agencies	<ul style="list-style-type: none"> <li>- Report business performance and performance to government agencies according to the period specified by the government, such as:               <ol style="list-style-type: none"> <li>1. Report on the performance of professional work safety officers every 3 months</li> <li>2. Report on compliance with the Company's EIA measures every 6 months</li> </ol> </li> <li>- Have company's visit 3 times in 2021 due to COVID-19 prevention measures..</li> <li>- Monitoring of policies, regulations, government requirements at least once a month</li> <li>- Supporting activities and responding to government policies according to the government's period of time, such as providing vaccines and vaccinations to employees and contractors within the Company, as well as complying with COVID-19 Control measures, such as VUCA and Thai Chana.</li> </ul>	<ul style="list-style-type: none"> <li>- Compliance Legal regulations, rules and policies of Supervisory Divisions</li> <li>- Social and environmental responsibility</li> <li>- Sustainable Coexistence</li> <li>- Having a good environmental management and safety system</li> <li>- Providing support and cooperation to government authorities</li> <li>- Concrete action to reduce climate change</li> <li>- Payment of taxes and other related fees</li> <li>- Enhance operational measures to achieve the Sustainable Development Goals (SDGs).</li> </ul>	<ul style="list-style-type: none"> <li>- The use of waste as a renewable fuel for coal in cement production process to reduce greenhouse gases to comply with the government's environmental policy.</li> <li>- Conduct transparent business</li> <li>- Preparation of Sustainability Reports</li> <li>- Social and environmental responsibility</li> <li>- Sustainable community coexistence</li> <li>- Compliance and cooperation, supporting projects of government authorities</li> </ul>



Stakeholders	Guidelines for engaging with stakeholders	Stakeholder needs/ expectations	The Company's response guidelines
<b>7. Community &amp; Society</b>	<ul style="list-style-type: none"> <li>- Complaints through communication channels such as websites, e-mails, phones, letters, etc.</li> <li>- Join community relations activities at least 28/ month</li> <li>- Organize community relations at least 2 times a month</li> </ul>	<ul style="list-style-type: none"> <li>- Develop surrounding communities</li> <li>- Preserving the surrounding environment</li> <li>- Create work and strengthen the economy for the community.</li> <li>- Operation of the establishment to ensure environmental safety and livelihoods</li> <li>- Support for community activities and ongoing participation</li> <li>- Educational Assistance</li> <li>- Focus on community feedback</li> </ul>	<ul style="list-style-type: none"> <li>- Community Visit and create acceptance</li> <li>- Support public activities that benefit the community</li> <li>- Educate and train employees at all levels as appropriate to create employees' awareness of the environment and community issues</li> <li>- Explore community needs and feedback</li> <li>- Organize mobile medical units to serve the community continuously for better quality of life.</li> <li>- Prepare a replacement forest plantation and rehabilitation project after mining</li> <li>- Promoting traditions in the community</li> <li>- Develop communities, encourage employment to improve the economy in the community</li> <li>- Provide budget for community development including education, career /job creation for the community</li> </ul>
<b>8. Business competitors</b>	<ul style="list-style-type: none"> <li>- Collect information from all channels such as websites, mail, phones, etc.</li> <li>- Become a member of the Thai Cement Producers Association (TCMA) and attend at least 4 meetings per year.</li> </ul>	<ul style="list-style-type: none"> <li>- Create fair competition conditions together</li> <li>- Maintain market share</li> </ul>	<ul style="list-style-type: none"> <li>- Conduct business within the rules of free and fair competition.</li> <li>- Do not slander to damage the reputation of the competitors.</li> <li>- Do not infringe intellectual property and copyrighted work of the competitors.</li> <li>- Not to violate identifiable information of the competitors</li> <li>- Behave in accordance with a good trade framework</li> <li>- Innovation and Technology Management</li> </ul>





Stakeholders	Guidelines for engaging with stakeholders	Stakeholder needs/ expectations	The Company's response guidelines
9. Mass Media	<ul style="list-style-type: none"> <li>- Occasional business visits and activities for the community and society</li> <li>- Support media activities in line with the Company's policies that benefit the community and society.</li> <li>- Regularly disseminate information and news that is beneficial to the Company.</li> <li>- Regularly disseminating business information through a variety of channels, such as the Company's quarterly earnings announcement, business press conferences, etc. Participating in the Opportunity Day of the Stock Exchange of Thailand</li> </ul>	<ul style="list-style-type: none"> <li>- To be a company that conducts business with a focus on sustainable ESG.</li> </ul>	<ul style="list-style-type: none"> <li>- Conduct business with a focus on community, society, and environment by appropriately and consistently disclosing and disseminating information that is beneficial to society.</li> </ul>



## Defining material sustainability issues

To determine the sustainability issues and content of the Company's Sustainability Report 2021, the Company's top management conducted a study of key factors and impacts of the business and identified relevant sustainability issues in the economic, environmental and social dimensions. In this regard, the Sustainability Report is prepared in accordance with the standards of the GRI Standards Global Reporting Initiative (GRI) to obtain material topics and boundaries and significant impacts that the Company should implement. The Company has a process for determining sustainability issues with significant and impactful areas, which consists of the four key steps as follows: [3-1]

- 1. Understand the organization's context:** The Sustainable Development Committee (ESG Committee) has conducted a review of relevant business activities and business relationships by considering the context of the company in economic dimensions, environment dimensions, people dimensions, and human rights dimensions which considers important information, including information from internal factors such as vision, mission, goals, policies, and directions of the Company's operations, as well as external factors such as the overall picture in the industry both nationally and internationally, interests and expectations of stakeholders in order to analyze those key data in the Sustainability Context.
- 2. Identify actual and potential impacts:** According to the Due principle, the Sustainable Development Committee (ESG Committee) and executives from pertinent departments who receive information, communicate with, or interact directly with stakeholders jointly consider and identify actual or potential impacts, the positive and negative impacts associated with operations, products, and services, as well as business relationships span economic, environmental, human rights, and people dimensions throughout the supply chain. This raises sustainability issues that are most pertinent to the Company's business environment and takes into account all stakeholder groups when evaluating material issues to make sure the Company considers all concerns of all stakeholder groups in all aspects. The issues related to the Sustainability Context have been identified of the company in the amount of 32 issues to lead to the process of assessing significant impacts and prioritizing significant impacts for reporting in the next step.
- 3. Assess the significance of the impacts:** The Sustainable Development Committee (ESG Committee) and executives from relevant departments have jointly assessed the significant impacts of business operations on all stakeholders through a prioritization process (Prioritization) with criteria for assessing the impact, consisting of the level of impact severity (Severity), level of probability (Likelihood), human rights assessment (Human rights), scale and scope of impact (Scale and scope), including operational policy framework and commitment to the Company's operations in that issue which brings about Material Topics for reporting.
- 4. Prioritize the most significant impacts for reporting:** The Sustainable Development Committee (ESG Committee) brings important sustainability issues before senior management for their consideration and verification of the accuracy of Material Topics identified for reporting that are consistent with the business context, significant impacts resulting from the Company's business processes across the supply chain, as well as in line with the significant impacts on all groups of stakeholders.



## Prioritization Results

High Significant Impact	Moderate Significant Impact	Low Significant Impact
<ol style="list-style-type: none"> <li>1. Economic Performance</li> <li>2. Anti Corruption</li> <li>3. Technology, innovation, and service</li> <li>4. Research and Development for Business Expansion</li> <li>5. Risk and Crisis Management</li> <li>6. Employment</li> <li>7. Labor Management and Labor Relations</li> <li>8. Occupational health and safety</li> <li>9. Training and Education</li> <li>10. Local Community</li> <li>11. Social Supplier Assessment</li> <li>12. Customer Health and Safety</li> <li>13. Product and Service Labeling</li> <li>14. Customer Privacy</li> <li>15. Customer Satisfaction</li> <li>16. Data Security</li> <li>17. Products and Services</li> <li>18. Material Consumption</li> <li>19. Energy</li> <li>20. Water and Effluents</li> <li>21. Emissions</li> <li>22. Waste</li> <li>23. Transportation</li> <li>24. Land Degradation, Contamination</li> </ol>	<ol style="list-style-type: none"> <li>25. Diversity and Equal Opportunity</li> <li>26. Nondiscrimination</li> <li>27. Freedom and Collective Bargaining</li> <li>28. Conscripted Labor and Forced Labor</li> <li>29. Market Role</li> <li>30. Indirect Economic Impact</li> <li>31. Procurement Practices</li> </ol>	<ol style="list-style-type: none"> <li>32. Safety Practices</li> </ol>

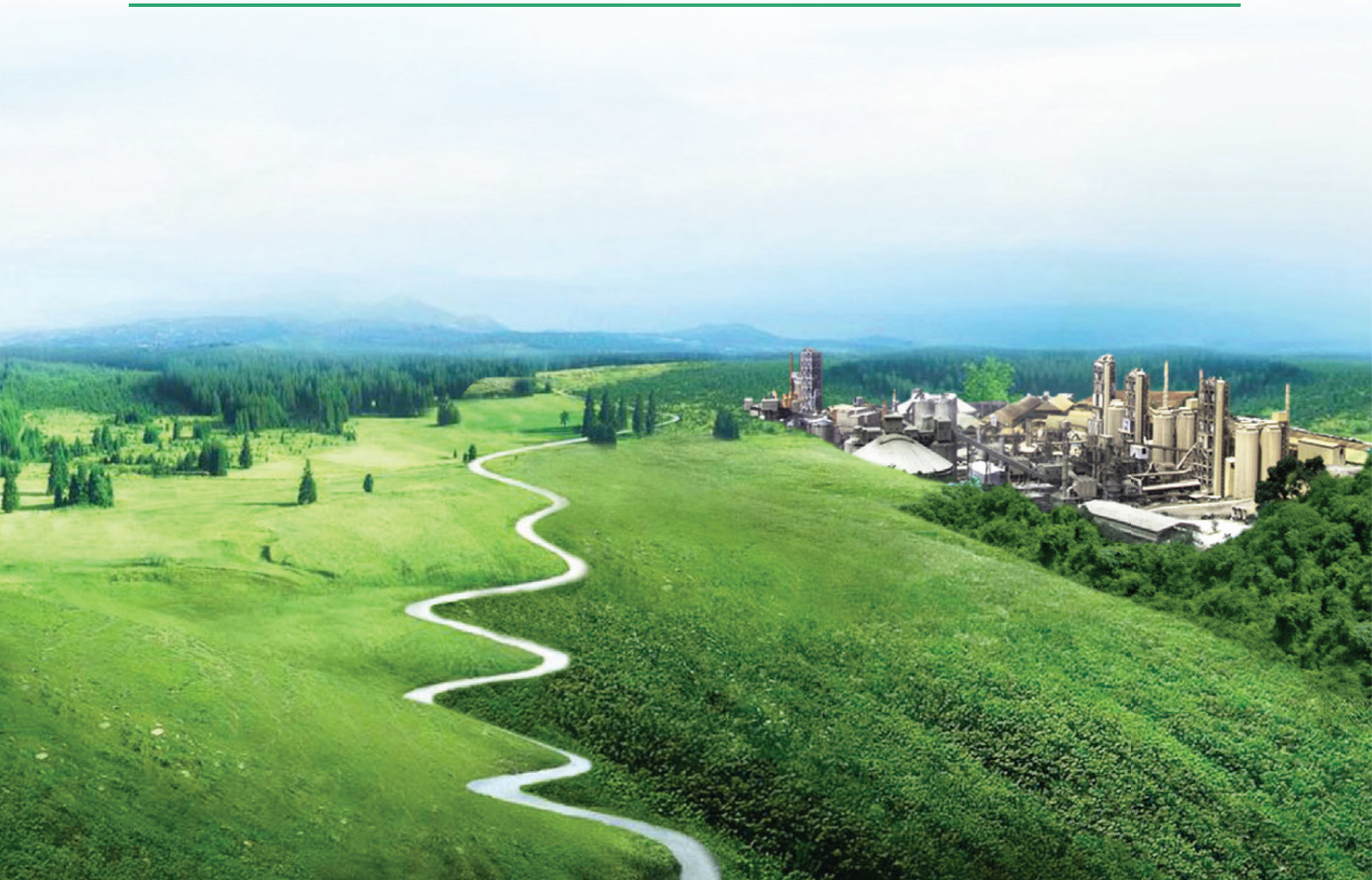


The Executive Board resolved to determine the Company's sustainability issues for the year 2022 with 24 issues, divided into 7 environmental aspects, 12 social aspects, and 5 economic and corporate aspects with details as follows [3-2]

Environmental aspect (7 issues)	Social aspect (12 issues)	Economic and Corporate Governance aspect (5 issues)
<ol style="list-style-type: none"> <li>1. Material Consumption</li> <li>2. Energy</li> <li>3. Water and Effluents</li> <li>4. Emissions</li> <li>5. Waste</li> <li>6. Transportation</li> <li>7. Land Degradation, Contamination and Remediation</li> </ol>	<ol style="list-style-type: none"> <li>1. Employment</li> <li>2. Labor Management and Labor Relations</li> <li>3. Occupational Health and Safety</li> <li>4. Training and Education</li> <li>5. Local Community</li> <li>6. Social Supplier Assessment</li> <li>7. Customer's Health and Safety</li> <li>8. Product and Service Labeling</li> <li>9. Customer Privacy</li> <li>10. Customer Satisfaction</li> <li>11. Data Security</li> <li>12. Products and Services</li> </ol>	<ol style="list-style-type: none"> <li>1. Economic Performance</li> <li>2. Anti-Corruption</li> <li>3. Innovation Technology and Service</li> <li>4. Research and Development</li> <li>5. Risk and Crisis Management</li> </ol>
Responsive Strategies	Responsive Strategies	Responsive Strategies
<ol style="list-style-type: none"> <li>1. Developing towards a low-carbon society by setting Net Zero GHG Emission goals by using waste fuel to replace coal in all four cement plants to reduce cement production costs and increase competitiveness</li> <li>2. Improve production efficiency to be highly efficient to save energy</li> <li>3. Manage the organization according to the BCG policy at every stage of the value chain to achieve efficient use of resources and increase competitiveness in terms of production costs</li> <li>4. Green Manufacturing technology and innovation</li> <li>5. Use Process Automation to control production and unloading of goods to be efficient</li> <li>6. Efficient distribution process with strong distribution channels covering all areas throughout Thailand. There is a coordination to manage inventory efficiently, reduce management costs, including a fuel consumption management system by replacing fossil fuel trucks with 100% electric</li> </ol>	<ol style="list-style-type: none"> <li>1. Comply with labor laws and labor relations and provide employment opportunities for people with disabilities to create a sustainable society</li> <li>2. Respect human rights principles and personal information for employees, business partners, contractors as well as not support child labor in work that is hazardous to health or in an environment that is hazardous to health and safety or is a job that prohibited by law</li> <li>3. There is a review of the cyber threat protection system regularly, including the development and improvement of the cyber protection system to keep up with the ever-evolving cyber threats, methods and severity of threats to information systems continuously</li> <li>4. Create a good working environment with appropriate occupational health and safety.</li> <li>5. Train and develop skills for personnel to provide opportunities for advancement without discrimination</li> <li>6. There is a survey of employees' satisfaction and commitment to the</li> </ol>	<ol style="list-style-type: none"> <li>1. To comply with the related legal regulations.</li> <li>2. Transparency with anti-corruption policy.</li> <li>3. Research and development to create innovations and technologies to develop products that meet customer needs and are environmentally friendly by emphasizing on the development of high value added products to meet customer needs.</li> <li>4. Seek investments that create high return on investment</li> <li>5. All-round risk management, including risk associated with climate change</li> </ol>



Responsive Strategies	Responsive Strategies	Responsive Strategies
<p>trucks reduce greenhouse gas emissions and use electric trucks instead of fossil fuels to transport rocks on the mine front</p> <p>7. Construct rainwater collecting ponds to replace natural water sources, including recycling wastewater for reuse and continuously monitoring water quality according to plans and EIA measures</p> <p>8. Conserve concession areas by planting forests to improve scenery</p> <p>9. Disposal of COVID-19 contamination waste</p>	<p>organization, a measure for receiving complaints, as well as conducting inspections, corrective actions, monitoring corrective actions, setting appropriate guidelines</p> <p>7. Provide scholarships to employees' children</p> <p>8. Evaluate customer satisfaction with the Company's products/services by using the information obtained from the assessment to develop and improve the Company's products/services/operating processes</p> <p>9. There is a plan to apply for CFP (Carbon Footprint of Products) of 10 products in 2023</p> <p>10. Deliver standard quality products with complete label display</p> <p>11. Doing business with partners according to the agreement in the supplier code of conduct</p>	



## 05

## Environmental Impact Management



## Environmental Performance in 2022

TPIPL aims to use 25% of waste fuel instead of coal in the cement production process by 2023. In 2022, cement plants use 360,675.09 tons of waste fuel, or 12.29% of waste fuel.

The investment project value of TPIPL to reduce environmental impacts is Baht 1,678 million.

TPIPL draws water from outside in 2022 in the amount of 10,737,481 cubic meters, a decrease of 13.83% from 2021.

The project of bringing a 60-ton EV MINING TRUCK instead of a diesel-powered quarry truck helps reduce greenhouse gases and PM 2.5 dust.

TPIPL recycles 775,631 tons of waste aggregate to be reused, representing 100% in 2022.

In 2022, TPIPL Group Reduces GHG Emissions from Landfills and reduces CO<sub>2</sub> by 6.34 million tonnes of CO<sub>2</sub> equivalentse.

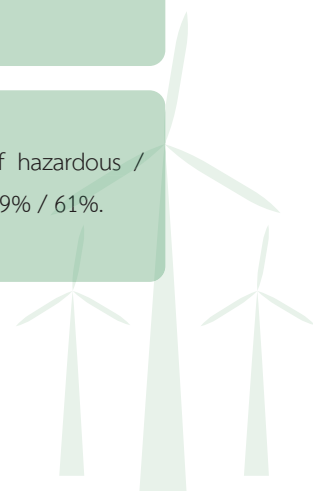
The Prepol-SC project is the installation of additional machinery in the cement kiln production line 1, reducing the use of heat energy and being able to use waste as fuel instead of coal by up to 25%.

TPIPL reduces waste emissions (Zero Waste) by 99.91% in 2022.

TPIPL reused water in 2022 at 967,395 cubic meters, a 21% decrease from 2021.

TPIPL has a proportion of hazardous / non-hazardous waste 39% / 61%.

Remark: (1) Only for TPI Polene Public Company Limited





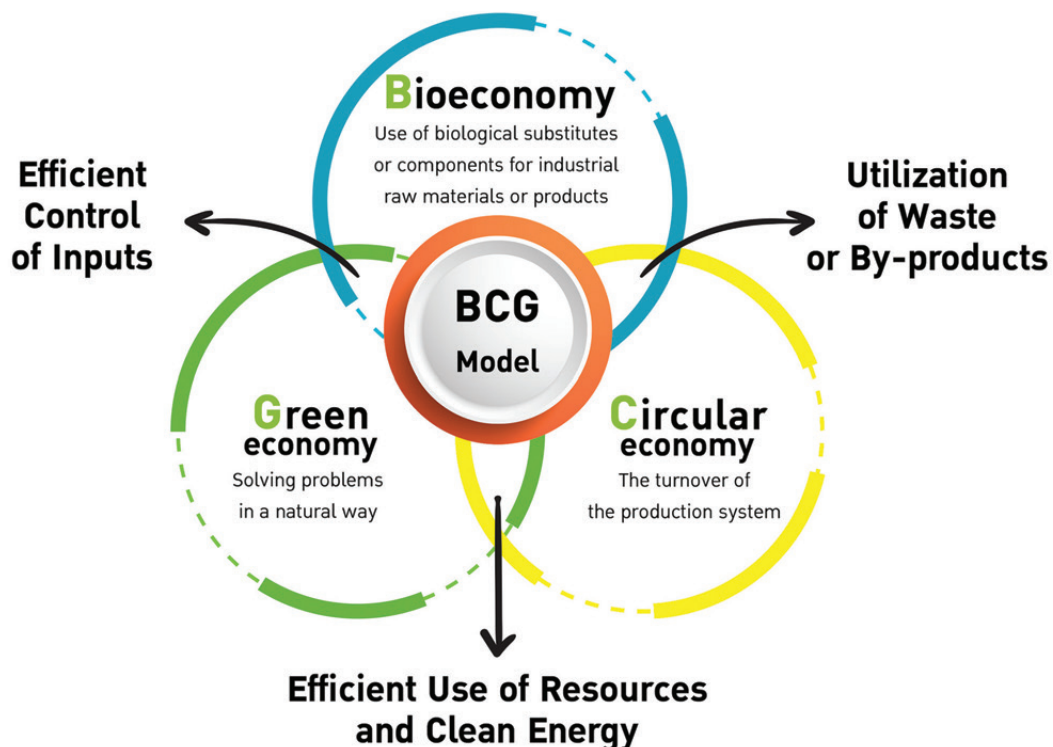
## Environmental Management [3-3]

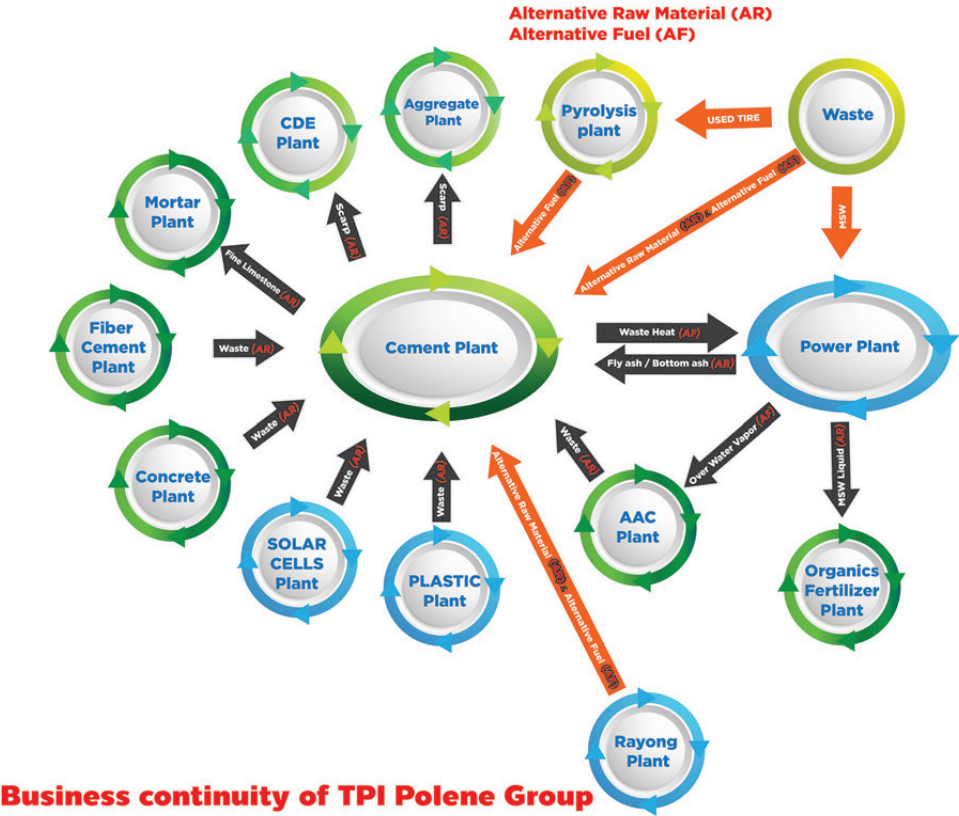
TPI Polene Group recognizes the importance of resource utilization amidst the accelerating growth rate of the world population. Meanwhile, the supply of limited natural resources and inefficient consumption lead to more waste and depletion of natural resources in economic cycles, which inevitably worsens the climate change problem. That, in turn, accelerates resource scarcity while greenhouse gas emissions result in global warming. This is primarily caused by waste from consumption, including energy consumption and water resources that are lavish; pollutants and effluents that cause health effects on both humans and aquatic animals; and the impacts on freshwater and seawater sources caused by waste and waste due to the consumption and production of industrial plants, etc.

For the most important reasons, “we are depleting the natural resources of our descendants’ generation”; TPI Polene Group is committed to playing a role in solving such problems for our planet with a commitment to the Circular Economy policy as a global sustainability concept. This will be implemented at all stages of business operations, from research and development planning, production processes and to the delivery of our products to consumers. The idea that “waste from one process is a raw material for another” will be used to maximize the benefits of resource utilization. In a bio-based economy, material cycles are efficient and sustainable in the supply chain in the business, the social and the community sectors and focuses on economic transformation with the greatest use of resources to implement the Green Economy and reduce our environmental impact at the source. This leads to Low Carbon Production and the reduction of greenhouse gas emissions that cause global warming by using waste fuel energy in the production process and using biotechnology to create value-added to the products. The joining of the three segments, Circular economy, Green economy and Bio economy represents the implementation of the economy towards sustainable development, and they are mutually supportive - this is called Bio-Circular-Green Economy (BCG), a business model innovation that will drive TPI Polene Group to grow with globally competitive advantages and to diversify income to communities by protecting the surrounding environment to further enhance sustainable growth.

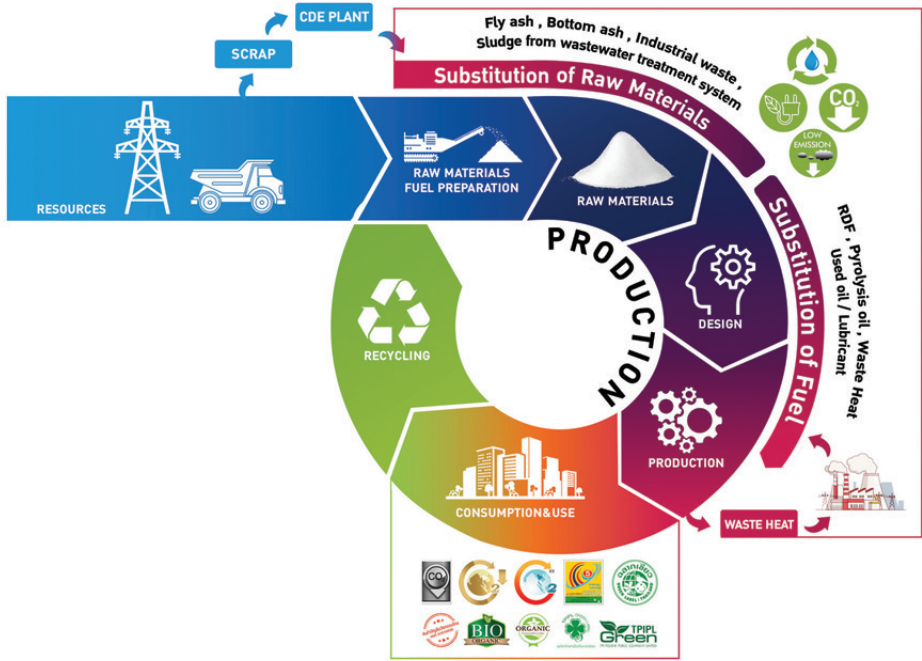
### Driving the Economy towards Sustainable Development (BCG)

<https://www.tpipolene.co.th/th/investment/bcg-th>





TPI Polene Group has taken every step in our business operations, from research and development, procurement of resources, raw materials and energy, and put them under circular systems by recycling and employing reuse methods and technologies to reduce environmental pollution. Our goal is to use highly efficient production processes in both resource consumption and environmental protection, with the key objective to manufacture green products that are environmentally friendly. Consumers of such products, including sales, logistics systems and after sales services, under the circular economy, are part of our aim to create a green world.



Under the above-mentioned environmental management guidelines, the Company strictly follows environmental legal regulations; the Environmental Impact Assessment (EIA) and Environmental Health Impact Assessment (EHIA) are prepared for the complete implementation of the Company's projects. The results of environmental compliance are reported in compliance with EIA and EHIA reports to related government authorities and communities. Environmental measurements and assessments are carried out in accordance with the plan, as well as delivering environmental compliance reports to related government authorities and communities in full in accordance with the specified time, in the past up to present (2022), and the Company has had no violations of environmental laws and regulations. [2-27]

In the event of a dispute in which the Company is accused of mining outside the concession certificate area in Saraburi province, which is a criminal case, the Company did not commit any wrongdoing as accused and has not committed any violations against the plaintiff in the criminal case. Therefore, the civil claim has no basis for the infringement because the Company did not commit any wrongdoing - it was not liable and has denied all charges; neither did the Company have grounds to mine outside the concession certificate area because the Company had approximately hundreds of million tons of industrial mineral rock in the concession certificate area. If many existing minerals are not used before the concession certificate expires, the Company is no longer eligible to use it. Therefore, the Company had no reason to smuggle or commit any illegal mining.

The case is currently under consideration by the Supreme Court; however, the trial and judgment are the jurisdiction of the court. The outcome of the above-mentioned cases is not final and uncertain. The Company, therefore, has not recorded a provision for liability of the lawsuits in the financial statements of the Company.

### Environmentally Friendly Products

The Company has a policy to support green products that are environmentally friendly by creating goods and services that meet consumer needs, including minimizing the use of natural resources and emissions over the course of their life cycles to lessen the impact on future generations.

The Company has brought new technologies or innovations into the process of developing products and services for the group of green products that are friendly to the environment. In addition, the production process of the Company's products and services must be controlled in every process to meet standards such as Quality Management System Standards (ISO 9001:2015), Environmental Management System Standards (ISO 14001:2015), Occupational Health and Safety Management System (ISO 45001:2018), and Energy Management System Standards (ISO50001:2011), etc. in order to provide the Company's products and services with quality, safety, environmental friendliness, and to meet consumer needs as follows:

1. Hydraulic cement, global warming cement, TPI 299, which is environmentally friendly and reduces greenhouse gases. The use of hydraulic cement as a raw material in the production of ready-mixed concrete or low-heat concrete helps reduce heat accumulation in large concrete structures and increases the durability of the concrete to be able to withstand various environmental conditions well. It is also a product for green building construction according to LEED and TREES standards.
2. Plant-related products such as bio-organic fertilizers and soil conditioners, etc., are non-toxic and free of heavy metals that are harmful to humans and the environment, allowing vegetables to be grown without the use of pesticides and sell products related to livestock and fisheries such as yellow powder and Bio-san etc.
3. Products for occupational health like Bio Knox, Microme Knox Solution, mouthwash, vegetable washing liquid, Provita drink, liquid soap, TPIPL drinking water, dishwashing liquid, stain remover, and Bio-san, among others, for which the company was recognized as the "Outstanding Product of the Year 2022" in the category of goods promoting bio economy and hygiene care by the Foundation for Thai Society.
4. Animal products, including biological enhancers for livestock and fisheries, etc., are useful and safe for animals. It can be applied to all kinds of poultry, terrestrial animals, and aquatic animals including pigs, shrimps, fish, chickens, and ducks. Animals' digestion and absorption are aided, and their immunity is strengthened, resulting in healthier, faster-growing animals that gain weight and use less antibiotics.

5. Products that reduce the environmental impact caused during use and are green industries, such as low emissions during use, reducing the use of consumables, reducing energy consumption and reduce the use of unnecessary parts, environmentally friendly, and help reduce deforestation, including fiber cement (ceiling boards, walls, floors, wood substitute materials and digital boards, door products, and roof tiles, etc.)
6. Solar panel production using technologies in various processes, linked from start to finish in order to increase growth and profitability, while aiming to develop a green society for the future and the use of Ethylene released from the EVA resin production process to produce water glue, etc.

Implementing each stage of product development reduces environmental impacts while benefitting businesses, communities, and the environment, leading to sustainable development. In 2022, the revenue from the sale of green products that are environmentally friendly was Baht 11,722.60 million, accounting for 24.35% of total sales revenue. Over the past 3 years, revenue from sales of biological products and green products has been increasing steadily. This illustrates that the more the benefits is added to the environment, making the market for bio-organic products worthwhile to grow because they can meet the needs of consumers in terms of safety and savings. Sales revenue of biological products and green products can be summarized as follows:-

Unit: million Baht

Product Type	2020	2021	2022
Biological Products	80.40	99.99	117.46
Green Products	10,549.86	11,983.24	11,722.60



## Materials [3-3]

Cement plants are considered to be an industry where raw materials such as limestone, and fuel such as coal and residual fuel are consumed in large quantities and these raw materials are from natural resources which are being depleted. In addition, the acquisition of such raw materials and fuels contributes to the direct and indirect impact on forest areas, communities, ecosystems, and other environments. Therefore, the efficient and cost-effective use of materials and raw materials in the production process is important to reduce environmental impacts as well as support the use of sustainable natural resources.

Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
<ul style="list-style-type: none"> <li>- Reuse waste fuel to replace coal by 25% in clinker production by 2024.</li> <li>- Bringing the leftover crushed stone from the construction stone production process to 100%.</li> <li>- 2,300,000 tons of recycled and renewable materials per year</li> </ul>	<ul style="list-style-type: none"> <li>- To take measures to reduce waste to zero or “Zero Waste” by utilizing waste products from consumption and utilizing the use of renewable waste products in accordance with the BCG criteria to drive business operation of TPI Polene Group as the followings:-               <ul style="list-style-type: none"> <li>• Utilize the great benefit of raw materials, for example, waste/by-product will be reused or recycled as raw material to other product production processes.</li> <li>• Reduce the use of non-renewable energy fuels and use renewable energy fuels such as waste-to-energy, Pyrolysis oil and used oil</li> <li>• Reduce the use of water from Pasak River by using water from reserve ponds (surface water) and factory effluence.</li> <li>• Use electricity generated from renewable energy as much as possible.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- The remaining amount of scrap soil from recycle process is 775,631 tons, representing 100% of the total remaining scrap soil.</li> <li>- The amount of waste fuel used to replace the use of coal in the clinker production process is waste fuel of 360,675.09 tons (machinery in the 1st production process has not yet started production), accounting for 12.29% of waste fuel.</li> <li>- 2,400,413.22 tons of recycled and renewable materials</li> </ul>	<ul style="list-style-type: none"> <li>- The Company has a daily follow-up meeting on the use of renewable materials/raw materials and renewable fuels in cement production and recorded the results in Production Report</li> <li>- The Company has invested in approximately Baht 400 million in machinery and equipment to process the Scrap soil from the stone production process back of 100% utilization; it is expected to be completed in 2023.</li> </ul>





## The use of materials in the manufacture and packaging of products and services [301-1]

List of materials used in the manufacture and packaging of products and services	The total weight (or volume) of the material.	Material type (✓)				Specify the source of the material (Purchased from an external supplier or obtain from the organization)
		Raw material	Materials involved in the process	Components	Package	
Non-renewable materials used						
Limestone used to produce cement	10,779,182.79 tons	✓				In-house supply
Limestone used to produce mortar	1,261,215.59 tons	✓				In-house supply
Shale	2,730,663.00 tons	✓				In-house supply
Coal	1,262,956.48 tons		✓			Purchased from an external suppliers
Fuel oil	1,084,464.00 litres		✓			Purchased from an external suppliers
Scrap soil	775,631.00 tons	✓				In-house supply
Used oil	717,213.00 litres		✓			In-house supply
Pyrolysis oil	2,327,480.00 litres		✓			In-house supply
Renewable material used						
Waste Fuel	360,675.09 tons		✓			Purchased from an external suppliers





## Imported materials in recycled form to be used in the production of products and services [301-2]

List of Imported materials in recycled form to be used in the manufacture of products and services Non-renewable material	Total weight (or volume) of recycled materials	Percentage of recycling material used
Recycled Limestone (as a substitute for limestone in mortar production)	802,645.38 tons	62.51
Recycled Limestone (as a substitute for limestone in cement production)	458,570.21 tons	4.05
Aggregate (as substitute for limestone in cement production)	76,660.00 tons	0.68 <sup>(1)</sup>
Aggregate (as a substitute for limestone in mortar production)	481,371.00 tons	37.49 <sup>(2)</sup>
Aggregate (as a substitute for shale stone)	78,943.00 tons	2.81 <sup>(3)</sup>
Aggregate (as a substitute for river sand)	138,657.00 tons	100 <sup>(4)</sup>
Used oil (as a substitute for fuel oil)	717,213.00 litre (681.13 tons)	17.37 <sup>(5)</sup>
Pyrolysis oil (as a substitute for fuel oil)	2,327,480.00 litre (2,210.41 tons)	56.37 <sup>(6)</sup>
Non-renewable material	2,039,738.13 tons	
Renewable material		
Waste-based fuel (substitute for coal)	360,675.09 tons	12.29 <sup>(7)</sup>
Renewable material	360,675.09 tons	
Non-renewable material and Renewable material	2,400,413.22 tons	

### Note:

- (1) Calculated based on the weight of scrap soil (substitute for limestone used to produce cement) compared to the total weight of scrap soil and limestone used to produce cement
- (2) Calculated based on the weight of scrap soil (substitute for limestone used to produce mortar) compared to the total weight of the mashed stones and limestone used to produce mortar.
- (3) Calculated based on the weight of scrap soil (substitute for shale stone) versus the total weight of the mashed stone and shale stone.
- (4) Calculated based on the weight of scrap soil (substitute) (River sand) compared to the total weight of the scrap soil and river sand.
- (5) Calculated based on used oil volume (fuel oil replacement) versus the total volume of used oil, furnace oil and Pyrolysis oil.
- (6) Calculated based on Pyrolysis oil volume (furnace oil replacement) versus the total volume of used oil, furnace oil and Pyrolysis oil.
- (7) Calculated based on the weight of waste fuel (coal substitute) versus the total weight of waste fuel and coal; consider the waste fuel ratio: coal is 2.25.



## Logistics System [3-3]

The Company recognizes that its logistics system is an important factor in the Company's business operations, in terms of delivery of goods to customers, transportation of raw materials and Spare parts, as well as the travel of employees to their workplaces. However, it's important to take into account the duration and continuity of the delivery of goods to the destination for a specified period of time in accordance with the purpose of the recipients; and the delivery of goods or raw materials on the return trip without running empty vehicles to reduce transportation costs and reduce pollution that might occur.

However, transportation requires resources in terms of human and vehicle transport vehicles, such as trucks and trains, for the distribution of goods or raw materials in large quantities to various destination points. In addition to focusing on the efficient use of such resources, it is necessary to take into account cost-effectiveness and reasonable expense costs in the management of transportation to achieve continuity, maximum efficiency with low costs, and minimal environmental impact.

Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
<ul style="list-style-type: none"> <li>- Distribute products to customers quickly and reduce complaints with a complaint goal of less than 0.25 % of delivery trips per year.</li> <li>- Replace fossil fuel trucks with 100% electric trucks to reduce greenhouse gas emissions by 2023.</li> <li>- Switch heavy machinery that uses fossil fuels to electricity to reduce greenhouse gas emissions by 70% by 2027.</li> </ul>	<ul style="list-style-type: none"> <li>- Manage distribution costs to be efficient in time manner to achieve the objectives of distribution to customers at reasonable transportation expense.</li> <li>- Organize the delivery to minimize the impact on the community and the environment, such as having customers cover the goods with the large canvas upon receipt of goods from the plan, coordinating for customers/contractors to inspect the vehicle's condition to be ready to pick up the goods and coordinate with the customers/contractors to inform the driver to plan and study the route before delivering the goods.</li> <li>- Provide rail transport that can increase the volume of goods for each trip to be delivered to distribution terminals and warehouses in strategic location for stock reserve and facilitate the distribution of more products to customers and in faster times.</li> <li>- Set up a network of transportation systems to prevent traffic disruption by arranging the mode of transport by truck, vessel and train transport.</li> </ul>	<ul style="list-style-type: none"> <li>- The average number of customer shipping complaints in 2022 was 0.058%.</li> <li>- Conveyor system Site A mine-front raw materials can generate electricity (Regenerative Downhill Conveyor) can generate electricity of 754,677 kWh/year of, reducing greenhouse gas emissions by 3,374.54 tons of carbon dioxide equivalent per year</li> <li>- Site C mine raw material conveyor system can generate 964,438 kWh of regenerative downhill conveyor/year, reducing greenhouse gas emissions by 4,312.48 tons of carbon dioxide equivalent per year.</li> <li>- In 2022, the Company transported cement more than 1.4 million tons by railways from cement plants, Saraburi province to the Company's distribution terminals, located all regions of the country. This reduces the number of trucks transport to provinces where the distribution terminals are located by more than 42,000 trips.</li> </ul>	<ul style="list-style-type: none"> <li>- Organize driver training to help them understand how to deliver products efficiently and reduce delivery issues.</li> <li>- At the CDE Plant (Site C), a conveyor belt system is being installed to reduce transportation costs, PM2.5 dust, and greenhouse gas emissions. It is scheduled to be finished in 2023.</li> </ul>



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<ul style="list-style-type: none"> <li>- Plan dispatch of goods and pick up on the return trip without loads in departure trip</li> <li>- Investment to purchase 12 units of diesel hydraulic shunting locomotives, operated by the Railway of Thailand and 577 units of cement containers wagons to transport bulk cement from cement plants in Saraburi province to 10 distribution terminal centers covering all regions of the country, such as Chiang Rak Noi distribution terminal, Pathum Thani province, Preng distribution terminal, Chachoengsao province Nasarn distribution terminal. Suratthani province, Khuan Niang distribution terminal, Songkhla province, Lam Chi distribution terminal, Surin province, Huai Kyung distribution terminal, Ubon Ratchathani province, Udon Thani distribution terminal, Bueng Phra distribution terminal, Phitsanulok province and Lamphun distribution terminal because rail transportation can save more energy compared to truck transport.</li> </ul>	<ul style="list-style-type: none"> <li>- In 2022, we have invested in a 60-ton EV MINING TRUCK instead of an engine-powered stone truck, making it possible to transport limestone using electricity instead of diesel to help reduce greenhouse gas emissions, saving the use of natural resources as well as helping to reduce the occurrence of PM 2.5 dust from the combustion of diesel engines.</li> <li>- In 2022, cargo/supplies/equipment was transported of the Company and its affiliates on the return trip to the plants approximately 100 trips/month.</li> </ul>	



## Energy Management [3-3]

The cement manufacturing business is considered the Company's core business, which uses energy consumption of both electricity and thermal energy in amounts of up to 65% of the cost of production. The Company therefore focuses on resource transformation with the greatest use of energy resources, starting from product design to production resources, designing and controlling production processes and machinery in a highly efficient manner to reduce energy consumption, including waste of energy such as waste heat recovery from the cement production process, Calorific Values, fuel energy, as well as promoting Renewable Energy such as waste fuel, pyrolysis oil. The Company supervises and manages business procedures to be in line with TPI Polene Group's policy of requiring cost-effective and efficient use of energy resources.

Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
<b>Cement Plant</b> <ul style="list-style-type: none"> <li>- All types of energy consumption per clinker production not more than 3,639.48 megajoules/ton (base year 2012)</li> <li>- All types of energy consumption per cement production not exceeding 175 megajoules /ton (base year 2012)</li> <li>- All kinds of energy consumption per mortar production not more than 60 megajoules/ton (base year 2012)</li> <li>- Reduce energy consumption from using fossil fuels in clinker production by 500 megajoules /ton</li> </ul>	<ul style="list-style-type: none"> <li>- To implement energy management policy and adopt ISO 50001 energy management system under international standards as the management policy.</li> <li>- The senior personnel in charge of electrical and calorific values has been appointed as well senior personnel in electrical to be responsible for power energy, including at the operational level, with the use of focus improvement pillar to search for the point of energy, loss control costs and then improve them by establishing a group to collaborate as a project team</li> </ul>	<p>In 2022, energy consumption in cement plants, LDPE/EVA plant, concrete tile factory and fiber cement plant was recorded at a total of 36,275,174.10 gigajoules [302-1], which is an increase of 6.29% from 2021. This can be broken down as follows:</p> <p><b>Cement plant</b></p> <ul style="list-style-type: none"> <li>• In 2022, the Company's energy consumption totaled 35,088,288.28 gigajoules- a 6% rise from the previous year. This was due to their increased focus on environmental issues and the introduction of waste fuel as an alternative to coal. While this fuel is known to emit fewer greenhouse gases than coal, its quality is lower which has caused an overall increase in energy consumption.</li> </ul>	<ol style="list-style-type: none"> <li>1. Carry out energy management in accordance with ISO 50001 for energy management system under international standards.</li> <li>2. Operating according to energy laws.</li> </ol>
<b>LDPE/EVA Plants</b> <ul style="list-style-type: none"> <li>- Energy consumption of all kinds per production of specialty grade not exceeding 4,571 MJ/ton</li> <li>- All energy consumption per production of water adhesives, powder adhesives not exceeding 1,162 MJ/ton</li> </ul>	<ul style="list-style-type: none"> <li>- Green Research and Development has been designed products to reduce energy consumption during the production process, such as super mixed cement (40 kg. container), which can be used in equivalent to mixed cement (50 kg. container) and hydraulic cement</li> </ul>	<p><b>LDPE/EVA Plants</b></p> <ul style="list-style-type: none"> <li>• Total energy consumption of 621,393 gigajoules decreased by 5.54% compared with 2021.</li> </ul>	
<b>CRT and FCB plants</b> <ul style="list-style-type: none"> <li>- Total energy consumption per board production(FB)/ Tile (FR) /Tile cover (FR)/ Synthetic wood (FW) not exceeding 1,645 MJ/ton</li> </ul>	<ul style="list-style-type: none"> <li>- Cost-effective use of all the ingredients by reuse and recycle, such as used lubricants is used as fuel.</li> </ul>	<p><b>CRT and FCB plants</b></p> <ul style="list-style-type: none"> <li>• Total energy consumption of 565,492.82 gigajoules, decreased by 15.96% compared with 2021.</li> </ul>	



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<ul style="list-style-type: none"> <li>- Renewable energy by generating electricity from alternative energy plants or waste fuel power plants and producing Pyrolysis oil from used tires from Pyrolysis plants.</li> <li>- Waste Heat Recovery by reusing heat from the production process to heat raw materials in raw meal grinding mills and coal grinding mills and waste heat from the steam production process is used to generate electricity and produce light weight concrete.</li> <li>- High-efficiency manufacturing processes and machinery using high energy-efficient machines such as inverters, modification of Clinker Cooler machines in clinker production and factory crater design by using vertex design to reduce energy consumption and the use of a belt conveyor to transport limestone from the quarry and being able to generate electricity back to the system instead of using trucks and the use of a mobile Crusher to reduce stone transportation, etc.</li> <li>- The use of a production control system that is an automatic process for precision in the production process by using a combustion control program to reduce fuel consumption, electric energy and also resulting in high quality clinker.</li> </ul>		



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<ul style="list-style-type: none"> <li>- Polytrack Grate is a new low pressure aeration technology that provides consistent aeration with low energy consumption (at least 1 kWh/ton of clinker) resulting in energy savings and reduced wear and tear on the machine due to reduced air velocity through the vents, thus reducing maintenance costs. Currently, the Company can reduce energy costs from using coal and can also save electricity.</li> <li>- Afforestation helps absorb greenhouse gases released into the atmosphere. TPI Polene Group has been operating continuously since 1992 until now and will continue to do so that the country has more forests to absorb greenhouse gases.</li> <li>- Carbon capture &amp; utilization/storage (CCUS) by studying the technology of capture, utilization, and storage of carbon dioxide by capturing carbon dioxide from high-pitched smokestacks at power plants and storing it underground or under the ocean without releasing CO<sub>2</sub> into the atmosphere. It is a plan to make further investments in the future if existing greenhouse gas emissions reduction processes are insufficient and the technology is worth investing in the future.</li> <li>- Ethylene discharged from the EVA production process is reused for the production of water glue, etc., thus reducing costs and reducing pollution to the community and the environment. In addition, there are ways to improve machinery that can reduce energy consumption and reduce some types of waste from production. If any waste occurs, the Company has improved and sent it as fuel to generate electricity at Saraburi plant as well. The Company has been transferring water glue production technology from Japan and has continued research and development.</li> </ul>		





**Total oil and fuel consumption of TPI Polene**  
(only cement plant, LDPE/EVA plants, CRT and FCB plants)

On-premises energy consumption	oil and fuel consumption		
	2020	2021	2022
<b>Cement plant</b>			
Coal (Ton)	1,270,281.23	1,236,314.20	1,262,956.48
Fuel oil (Litre)	3,154,813.43	4,094,606.49	4,004,492.00
Diesel oil (Litre)	11,290,929.98	15,502,492.86	13,387,484.00
Natural Gas (Cubic feet)	16,665,090.31	14,133,387.07	14,973,932.25
Steam (Ton)	54,458.37	52,317.03	53,805.70
Waste Fuel (Ton)	-	105,995.55	360,675.09
<b>LDPE and EVA Plants</b>			
Steam (Ton)	36,976.49	29,773.82	35,324.75
<b>CRT and FCB Plants</b>			
Steam (Ton)	117,160.00	101,905.00	125,523.00

**Electricity Consumption Information of TPI Polene**  
(only at Cement Plants, LDPE plant, CRT and FCB Plants)

Electricity Consumption	2020	2021	2022
Target of Electricity Consumption (kWh)	1,238,384,275 kWh (137.5 kWh/Ton)	1,211,239,308 kWh (135 kWh/Ton)	1,224,234,235 kWh (130 kWh/Ton)
<b>Electricity Consumption (kWh)</b>			
- Cement Plant	1,110,015,681.67	1,195,546,685.00	1,197,794,950.00
- LDPE and EVA Plants	161,459,657.00	160,910,399.00	154,341,103.00
- CRT and FCB Plants	52,289,447.10	58,446,497.36	61,717,642.01
<b>Total Electricity Consumption</b>	<b>1,323,764,785.77</b>	<b>1,414,903,581.36</b>	<b>1,413,853,695.01</b>
<b>Electricity Cost (Baht)</b>			
- Cement Plant	3,243,411,570.87	3,493,328,982.37	4,194,468,135.08
- LDPE and EVA Plants	507,823,948.18	500,206,544.66	564,591,008.24
- CRT and FCB Plants	132,396,685.84	161,463,824.12	227,367,915.01
<b>Total Cost of Electricity Usage</b>	<b>3,883,632,204.89</b>	<b>4,154,999,351.15</b>	<b>4,986,427,058.33</b>

**Note:** Electricity usage expenses are collected from the actual electricity bill payment each year.

**Total Energy Consumption of TPIPL**  
(only at Cement Plant, LDPE/EVA plants, CRT and FCB Plants) [302-1]

Unit : Gigajoules

On-premises energy consumption	Energy consumption		
	2020	2021	2022
<b>Cement plant</b>			
<b>Heat Energy (Non-Renewable Energy)</b>			
Coal	27,692,130.85	26,951,649.59	26,416,602.82
Fuel Oil	125,466.93	162,842.50	126,608.77
Diesel Oil	411,215.67	564,600.79	528,111.31
Natural Gas	16,998.39	14,416.05	15,273.41
Steam	65,425.11	62,852.56	64,641.01
<b>Heat Energy (Renewable Energy)</b>			
Waste Fuel	-	1,013,101.79	3,704,291.69
<b>Electric Energy</b>	3,996,056.49	4,303,968.07	4,312,061.82
<b>Total</b>	32,307,293.44	33,073,431.35	35,167,590.83
<b>LDPE and EVA Plants</b>			
<b>Heat Energy (Non-Renewable Energy)</b>			
Steam	100,245.96	80,719.00	95,765.00
<b>Electric Energy</b>	581,254.76	579,277.44	555,627.97
<b>Total</b>	681,500.72	659,996.44	651,392.97
<b>CRT and FCB Plants</b>			
<b>Heat Energy (Non-Renewable Energy)</b>			
Steam	317,629.31	276,271.89	340,302.02
<b>Electric Energy</b>	194,983.20	210,407.39	225,183.51
<b>Total</b>	512,612.51	486,679.28	565,485.53
<b>Total Energy Consumption</b>	33,501,406.67	34,220,107.07	36,384,469.33

**Note:**

- Calorific Values of 1 kWh is equal to 0.00360 gigajoules, 1 kg of coal is equal to 0.0218 gigajoules, 1 liter of furnace oil is equal to 0.03977 gigajoules, 1 liter of fuel (diesel) is equal 0.03642, gigajoules, natural gas (dry) 1 cubic feet is equal to 0.0367 gigajoules, 1 kg of waste is equal to 0.00486 gigajoules based on information from The Department of Alternative Energy Development and Conservation, Ministry of Energy
- 1 ton of Calorific Values from steam is calculated based on the amount of heat passing in or out of the system in the process of constant pressure (Enthalpy) at 25 bar of pressure steam, which is equal to 2.711073 gigajoules.

## Energy Concentration

(only at Cement Plants, LDPE/EVA plants and CRT and FCB Plants) [302-3]

Unit: Megajoule per ton

Energy consumption	Types of energy used		Energy consumption		
	Electricity	Heat	2020	2021	2022
<i><b>Cement plant</b></i>					
SEC of Clinker	•	•	3,412.82	3,417.22	3,567.79
SEC of Cement	•		155.13	169.46	153.30
SEC of Mortar	•		44.86	44.63	57.28
<i><b>LDPE and EVA plants</b></i>					
SEC of LDPE & EVA Plastic Resins	•	•	4,485.45	4,355.58	4,571.26
SEC of EVA Emulsion and EVA Powder	•	•	1,045.95	1,086.84	1,162.06
<i><b>CRT and FCB plants</b></i>					
SEC of Board (FCB)/Tile (FR)/Tile Cover (FR)/Fiber Wood (FW)	•	•	1,417.13	1,402.12	1,644.78

**Note:** SEC is specific energy consumption

## Energy Reduction Initiatives [302-4]

Energy Reduction Initiatives	Operation details	Decreased energy supply
The project of using electric powered stone trucks (EV mining truck) size 60 tons instead of diesel trucks that use engines	- The 60-ton electric-powered (EV mining truck) replaces the engine-powered quarries in transporting limestone by trucks using electricity instead of diesel fuel to reduce greenhouse gas emissions, saving the use of natural resources as well as helping to reduce the occurrence of PM 2.5 dust from the combustion of diesel engines.	105,300,682.24 MJ/year
The Prepol-SC project is the installation of additional machinery for cement kilns of production line 1, 2, 3 and 4.	- Install machinery to use waste as fuel to replace coal by up to 25% and change the thermal energy from coal to heat from waste fuel (renewable energy), which will reduce fuel costs.	8,334,038,916.51 MJ/year

## Water and Effluents Management [3-3]

Water resources are an important resource to be used in the Company's production processes and are essential for all living beings. It is important for humans for consumption as well as being a resource that provides benefits and is an important factor in driving economic and social activities, including natural ecosystems. The Company is highly aware of the need for the efficient use of water resources for the greatest value and benefit for its business operations, as well as the need to focus on the management of water and effluents to reduce the impact of water resources from the Company's activities on society and the environment and to embrace Bio-Circular-Green Economy (BCG) policy to contribute to sustainable development.

Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
<ul style="list-style-type: none"> <li>- Reduce the use of water resources from the Pasak River by recycling surface water and used water.</li> <li>- Control the amount of water from the Pasak River not exceeding 12,000,000 cubic meters/year.</li> <li>- Reduce the amount of water from the Pasak River by one million cubic meters/year in 2025 by storing rainwater in reserve ponds for use in the production process.</li> <li>- Control the quality of effluents discharged into the drainage system of the industrial zone to have a value according to the effluents standard according to the regulations of the Department of Industrial Works.</li> </ul>	<ul style="list-style-type: none"> <li>- The Company has two main sources of water: (1) Pasak River, where water is pumped to the water quality adjustment plant of cement plant, which is a water supply system, to be used in cement plants and power plants and (2) Surface water reservoir and effluence reservoirs within the plant total of 3 ponds, consisting of 180,000 cubic meter well, which reserve rainwater in the factory area. The 1,500,000 cubic meter well, which reserve rainwater that falls in mines and neighborhoods, and a 1,000,000 cubic meter well to provide the Company's reserves as well as to prevent the impact on community's water use in nearby areas. Water from these surface ponds will be pumped together with water from the Pasak River to improve quality before being used in cement plant and power plants, and also as a reservoir for use in drought period if the amount of water from the Pasak River is not sufficient for industrial use. [303-1]</li> <li>- Pumping water from Pasak River of the Company is under control of the Irrigation Project Office, Saraburi province. The office will issue a license for the Company to pump water of not more than 1,000,000 cubic meters per month. The Company must prepare a summary report on the volume of pumping from Pasak River and send it to the Irrigation Project Office in Saraburi province on monthly basis. The Bureau will also provide staff to inspect the meter to check the volume of water pumping from Pasak River on a monthly basis. [303-1]</li> </ul>	<ul style="list-style-type: none"> <li>- The use of water resources from significant sources affects the environment (only for cement plants, LDPE and EVA plants, CRT and FCB plants).               <ul style="list-style-type: none"> <li>• In 2022, 5,291,742 cubic meters of water from the Pa Sak River were brought in.</li> <li>• Total amount of water to be used of 10,737,481 cubic meters, classified as water with a total amount of solids dissolved in water <math>\leq 1,000</math> mg/litre of 10,489,737 cubic meters whereas water and total amounts of soluble solids <math>&gt; 1,000</math> mg/l of 247,744 cubic meters, representing an increase of 13.83% compared to 2021. [303-3]</li> <li>• Total sewage volume of 12,884 cubic meters, classified as water with a total amount of solids dissolved in water <math>\leq 1,000</math> mg/litre of 12,844 cubic meters of water and total amount of soluble solids <math>&gt; 1,000</math> mg/litre of 0 cubic meters, representing a 29.70 percent increase compared to 2021. [303-4]</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- The Company plans to manage the water by developing additional surface water reservoirs and under the process of the excavation of a well of 1,000,000 cubic meters for use as a water reserve to prevent and reduce the impact on the use of water in the community.</li> <li>- LDPE/EVA plants in Rayong province continuously monitor water quality according to the plan and EIA measures.</li> </ul>



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<ul style="list-style-type: none"> <li>- Since water source from Pasak River is used by many sectors, such as agriculture, industrial sector commercial sector and household, etc. Therefore, water use must be controlled and allocated by the Saraburi Irrigation Project Office to control and allocate water consumption so that all sectors are properly and fairly allocated. [303-1]</li> <li>- The Company does not drain the effluents outside the plants but have a sewage ponds to reuse effluents within the plants. [303-2]</li> <li>- LDPE/EVA plants, where an effluent from production process is drained into the effluents treatment system and water quality is analyzed to meet the benchmark before drainage via drainage trough of the plants. Water quality is tracked to meet the benchmark before draining into the sewerage of the operating zone according to the EIA standards of Rayong plant, and the results of the EIA follow-up are reported to the relevant government authority continuously. For the operating area, water quality is monitored according to the EHIA standard of the IRPC operator zone before drainage out of the plants. [303-2]</li> </ul>	<ul style="list-style-type: none"> <li>• Total water consumption of 2,645,155 cubic meters represents an increase of 6.30% compared to 2021.</li> <li>• Total reusable water content of 967,395 cubic meters, representing a decrease of 21% compared to 2021.</li> <li>- The Company has drained effluent outside the plant, where the results of the analysis of the quality of the drainage effluences in 2022 are on all under standards. [303-4]</li> </ul>	



**Volume of Water Utilization**  
(only for Cement plant, LDPE/EVA plants, CRT plant, and FCB plant) [303-3]

Unit: Cubic meters

Water sources	Volume of water in particular areas			Water content in areas with water stress		
	2020	2021	2022	2020	2021	2022
<b>Cement plant</b>						
<b>Surface water (Pasak River and rainwater)</b>						
Water with a total volume of soluble solids ≤1,000 mg/litre	9,789,325	10,704,011	9,068,317	0	0	0
Water with a total volume of soluble solids >1,000 mg/litre	0	0	0	0	0	0
<b>Underground water</b>						
Water with a total volume of soluble solids ≤1,000 mg/litre	380,470	351,638	361,236	0	0	0
Water with a total volume of soluble solids >1,000 mg/litre	0	0	0	0	0	0
<b>Seawater</b>						
Water with a total volume of soluble solids ≤1,000 mg/litre	0	0	0	0	0	0
Water with a total volume of soluble solids >1,000 mg/litre	0	0	0	0	0	0
<b>Water from the production process</b>						
Water with a total volume of soluble solids ≤1,000 mg/litre	534,074	422,394	396,322	0	0	0
Water with a total volume of soluble solids >1,000 mg/litre	0	0	0	0	0	0
<b>Water from external sources</b>						
Water with a total volume of soluble solids ≤1,000 mg/litre	0	0	0	0	0	0
Water with a total volume of soluble solids >1,000 mg/litre	0	0	0	0	0	0



Water sources	Volume of water in particular areas			Water content in areas with water stress		
	2020	2021	2022	2020	2021	2022
<i>LDPE/EVA plants</i>						
<b>Surface Water</b>						
Water with a total volume of soluble solids $\leq 1,000$ mg/litre	0	0	0	0	0	0
Water with a total volume of soluble solids $> 1,000$ mg/litre	0	0	0	0	0	0
<b>Underground water</b>						
Water with a total volume of soluble solids $\leq 1,000$ mg/litre	0	0	0	0	0	0
Water with a total volume of soluble solids $> 1,000$ mg/litre	0	0	0	0	0	0
<b>seawater</b>						
Water with a total volume of soluble solids $\leq 1,000$ mg/litre	0	0	0	0	0	0
Water with a total volume of soluble solids $> 1,000$ mg/litre	0	0	0	0	0	0
<b>Water from the production process</b>						
Water with a total volume of soluble solids $\leq 1,000$ mg/litre	51,108	94,757	95,141	0	0	0
Water with a total volume of soluble solids $> 1,000$ mg/litre	0	0	0	0	0	0
<b>External water (tap water)</b>						
Water with a total volume of soluble solids $\leq 1,000$ mg/litre	443,523	594,181	568,721	0	0	0
Water with a total volume of soluble solids $> 1,000$ mg/litre	0	0	0	0	0	0

Water sources	Volume of water in particular areas			Water content in areas with water stress		
	2020	2021	2022	2020	2021	2022
<b>CRT and FCB plants</b>						
<b>Surface water</b>						
Water with a total volume of soluble solids ≤1,000 mg/litre	0	0	0	0	0	0
Water with a total volume of soluble solids >1,000 mg/litre	0	0	0	0	0	0
<b>Underground water</b>						
Water with a total volume of soluble solids ≤1,000 mg/litre	0	0	0	0	0	0
Water with a total volume of soluble solids >1,000 mg/litre	326,927	293,297	247,744	0	0	0
<b>Seawater</b>						
Water with a total volume of soluble solids ≤1,000 mg/litre	0	0	0	0	0	0
Water with a total volume of soluble solids >1,000 mg/litre	0	0	0	0	0	0
<b>Water from the production process</b>						
Water with a total volume of soluble solids ≤1,000 mg/litre	0	0	0	0	0	0
Water with a total volume of soluble solids >1,000 mg/litre	0	0	0	0	0	0
<b>External water (tap water)</b>						
Water with a total volume of soluble solids ≤1,000 mg/litre	0	0	0	0	0	0
Water with a total volume of soluble solids >1,000 mg/litre	0	0	0	0	0	0
<b>Total volume of water to be utilized</b>						
Water with a total volume of soluble solids ≤1,000 mg/l	11,198,500	12,166,981	10,489,737	0	0	0
Water with a total volume of soluble solids >1,000 mg/l	326,927	293,297	247,744	0	0	0

**Note:** No water is from areas of water stress.

Volume of sewage water  
(only for Cement plant, LDPE/EVA plants, CRT plant, and FCB plants) [303-4]

Unit: Cubic meters

Drainage of sewage water to the discharged sources.	Volume of water in the area			Water content in areas with water stress		
	2020	2021	2022	2020	2021	2022
<i>Cement plant</i>						
<b>Surface water</b>						
Water with a total volume of soluble solids ≤1,000 mg/l	0	0	0	0	0	0
Water with a total volume of soluble solids >1,000 mg/l	0	0	0	0	0	0
<b>Underground water</b>						
Water with a total volume of soluble solids ≤1,000 mg/l	0	0	0	0	0	0
Water with a total volume of soluble solids >1,000 mg/l	0	0	0	0	0	0
<b>Seawater</b>						
Water with a total volume of soluble solids ≤1,000 mg/l	0	0	0	0	0	0
Water with a total volume of soluble solids >1,000 mg/l	0	0	0	0	0	0
<b>Transferred to another external organizations</b>						
Water with a total volume of soluble solids ≤1,000 mg/l	0	0	0	0	0	0
Water with a total volume of soluble solids >1,000 mg/l	0	0	0	0	0	0
<i>LDPE plant</i>						
<b>Surface Water</b>						
Water with a total volume of soluble solids ≤1,000 mg/l	0	0	0	0	0	0
Water with a total volume of soluble solids >1,000 mg/l	0	0	0	0	0	0
<b>Groundwater</b>						
Water with a total volume of soluble solids ≤1,000 mg/l	0	0	0	0	0	0
Water with a total volume of soluble solids >1,000 mg/l	0	0	0	0	0	0

Drainage of sewage water to the discharged sources.	Volume of water in the area			Water content in areas with water stress		
	2020	2021	2022	2020	2021	2022
<b>Seawater</b>						
Water with a total volume of soluble solids ≤1,000 mg/l	0	0	0	0	0	0
Water with a total volume of soluble solids >1,000 mg/l	0	0	0	0	0	0
<b>Send to another external organization</b>						
Water with a total volume of soluble solids ≤1,000 mg/l	11,605	18,328	12,884	0	0	0
Water with a total volume of soluble solids >1,000 mg/l	0	0	0	0	0	0
<b>CRT and FCB plants</b>						
<b>Surface water</b>						
Water with a total volume of soluble solids ≤1,000 mg/l	0	0	0	0	0	0
Water with a total volume of soluble solids >1,000 mg/l	0	0	0	0	0	0
<b>Underground water</b>						
Water with a total volume of soluble solids ≤1,000 mg/l	0	0	0	0	0	0
Water with a total volume of soluble solids >1,000 mg/l	0	0	0	0	0	0
<b>Seawater</b>						
Water with a total volume of soluble solids ≤1,000 mg/l	0	0	0	0	0	0
Water with a total volume of soluble solids >1,000 mg/l	0	0	0	0	0	0
<b>Send to external organization</b>						
Water with a total volume of soluble solids ≤1,000 mg/l	0	0	0	0	0	0
Water with a total volume of soluble solids >1,000 mg/l	0	0	0	0	0	0
<b>Total sewage volume</b>						
Water with a total volume of soluble solids ≤1,000 mg/l	11,605	18,328	12,884	0	0	0
Water with a total volume of soluble solids >1,000 mg/l	0	0	0	0	0	0

**Note:** No water is from areas of water stress.

Assessment of Substances as having an environmental impact,  
which requires water treatment [303-4]

Substances assessed were rated as having an impact on the environment, which requires the water treatment.	Measured values		
	2020	2021	2022
<b>Cement Plant (No substances to be treated in the effluent)</b>			
pH	8.0	8.0	8.2
TDS	759	899	516
SS	17.9	19.0	22.4
BOD	2.6	5.1	3.7
COD	52.2	50.3	ND
Oil and Grease	0.1	ND*	ND
<i>LDPE/EVA plants</i>			
pH	7.52	7.22	7.03
BOD	3.06	3.41	4.93
COD	49.67	58.63	51.98
TKN	1.69	0.93	1.11
Oil and Grease	2.26	2.57	2.72
<i>CRT and FCB plants</i>			
pH	0	0	0
TDS	0	0	0
SS	0	0	0
BOD	0	0	0
COD	0	0	0
Oil and Grease	0	0	0

**Remark:** Standard measurement rate based on the Ministry of Industry Announcement on determining standards for Controlling Factory Drainage 2017

\* ND : No Detected means unable to detect.



## Water consumption

(only for Cement plant, LDPE/EVA plants, CRT plant, and FCB plants) [303-5]

Unit: Cubic meters

The use of water in material sources.	Volume of water in particular areas			Water content in areas with water stress		
	2020	2021	2022	2020	2021	2022
<i>Cement Plant</i>						
Water consumption	1,541,131	1,701,669	1,733,862	0	0	0
Water reserved in the reservoirs	1,680,000	2,680,000	2,680,000	0	0	0
Recycle Water	850,509	1,217,537	960,495	0	0	0
<i>LDPE/EVA Plants</i>						
Water consumption	494,631	688,938	663,549	0	0	0
Water contained in the reservoirs	0	0	0	0	0	0
Recycle water	0	0	0	0	0	0
<i>CRT and FCB Plants</i>						
Water consumption	330,807	432,330	247,744	0	0	0
Water contained in the reservoirs	104,474	260,166	290,369	0	0	0
Recycle Water	6,900	6,900	6,900	0	0	0
<b>Total Water consumption</b>	<b>2,366,569</b>	<b>2,822,937</b>	<b>2,645,155</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total volume of water contained in the reservoirs</b>	<b>1,784,474</b>	<b>2,940,166</b>	<b>2,970,369</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total volume of recycle water</b>	<b>857,409</b>	<b>1,224,437</b>	<b>967,395</b>	<b>0</b>	<b>0</b>	<b>0</b>

**Note:** No water is drawn from areas of water stress.



**TPI Polene's tap water consumption information**  
(only for Cement plant, LDPE/EVA plants, CRT plant, and FCB plants)

Tap Water Consumption Information	2020	2021	2022
Target of tap water consumption (cubic meter)	460,000	600,000	580,000
<b>Tap water consumption (cubic meters)</b>			
- Cement Plant	0	0	0
- LDPE/EVA Plants	443,523	594,181	568,408
- CRT and FCB Plants	0	0	0
<b>Total tap water consumption</b>	<b>443,523</b>	<b>594,181</b>	<b>568,408</b>
<b>Cost of tap water consumption (Baht)</b>			
- Cement Plant	0	0	0
- LDPE/EVA Plants	8,658,898.50	11,596,729.50	11,094,156.00
- CRT and FCB Plants	0	0	0
<b>Total cost of tap water consumption</b>	<b>8,658,898.50</b>	<b>11,596,729.50</b>	<b>11,094,156.00</b>

**Note:** Water supply expenses are collected from the actual water supply payment amount in each year.

## Emission Management [3-3]

Cement manufacturing is the Company's core business and coal is used as fuel in the production process, as well as the burning of limestone in kiln plants (calcination reaction), which is the primary factor in the release of greenhouse gas emissions into the atmosphere. The Company is committed to conducting its business with a focus on reducing greenhouse gas emissions that are a major cause of global warming, which is in line with government policy that requires tackling climate change and includes the adoption of environmental measures, particularly regarding the climate change issue, which is likely to be more intense. The Company has a policy and vision to become an environmentally friendly cement manufacturer, focusing on energy and renewable fuels to replace fossil fuels, while energy and natural resources are used in production processes efficiently, as well as an advancement of research and development of the Company's products, aiming to reduce greenhouse gas emissions.



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
<ul style="list-style-type: none"> <li>- Set a target for the cement plant and the area around Muak Lek District and Kaeng Khoi District in Saraburi Province to reduce net greenhouse gas emissions by 39% from the base year (Year 2020) by 2030 (B.E. 2573) and to achieve net zero GHG emissions by 2043 (B.E. 2568) by using waste as fuel instead of coal at cement plants by 25–30% and instead of coal in power plants by 90–100%, which can reduce landfill waste and therefore greenhouse.</li> <li>- Reduce emissions by using waste fuel instead of coal by 25% by 2024.</li> </ul>	<ul style="list-style-type: none"> <li>- Participate in projects/activities to reduce greenhouse gases, such as attaining registration and receiving carbon credits (T-VER), participating in the Low Emission Support Scheme (LESS), the registration of carbon footprint labels to demonstrate that the product has passed the carbon footprint assessment and can reduce greenhouse gas emissions according to the specified criteria, etc.</li> <li>- Generate electricity from renewable energy, including the use of alternative fuels in 40-megawatt waste heat recovery power plant and to use waste heat recovery from cement production process to generate electricity, reduce energy consumption and using waste through the production process of waste fuel plants as renewable fuels for replacement of coal use in cement plants/ and Prepol-SC project, by installing additional machinery in the cement kiln to reduce heat consumption and replace waste fuel as a substitute for coal by up to 30-40%, and Polene solar film production project supports solar electricity consumption.</li> </ul>	<ul style="list-style-type: none"> <li>- The amount of waste fuel that can be used to replace coal in the clinker production process is 360,675.09 tons in 2022, resulting in a reduction of greenhouse gas emissions by 0.18 million tons of carbon dioxide or equivalent.</li> <li>- Production of hydraulic cement can help reduce greenhouse gas emissions by 0.25 million tons of carbon dioxide equivalent.</li> <li>- The results of the air quality measurement showed that the air quality, noise, and lighting were within normal limits as required by law and there were no cases of chemical leakage from business operations.</li> <li>- Received CFP (Carbon Footprint of Product) registration for 20 cement products in 2022.</li> <li>- Install machinery so that waste fuel can be used instead of coal by about 25-30%.</li> </ul>	<ul style="list-style-type: none"> <li>- There is a plan to apply for CFP (Carbon Footprint of Product) of 10 products in 2023.</li> <li>- Use clean electricity from TPIPP</li> <li>- Use electric trucks instead of fossil fuels to transport rocks on the mine front.</li> </ul>



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<ul style="list-style-type: none"> <li>- Increase energy efficiency with tree planting and forest restoration, such as the installation of raw material conveyor belts from the site-A (Regenerative downhill conveyor) to the cement plant's shale crushers, and the installation of raw material conveyor belts and mobile crusher at the mine, which crush limestone and shale from the front of the mine, delivered directly into the plant through a replacement conveyor belt instead of transport by truck, reducing the use of diesel fuel. It can also generate electricity, and fiber cement plants that do not use asbestos are environmentally friendly, wood substitute and reduce deforestation.</li> <li>- Cost-effective use of natural resources, continuously create new innovations both production and products, such as the classification plant project, by removing scraps from aggregate production process, which cannot be utilized through the recycle process to be used as raw materials for the production of cement. The development of TPI197 mortar production technology to replace TPI green mortar (mixed cement), which reduce greenhouse gas emissions by 10-15%, under industrial standards (TIS) and the development of TPI 299 (hydraulic cement) production technology to replace Portland cement, reducing greenhouse gas emissions by 10-15%.</li> </ul>		



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<ul style="list-style-type: none"> <li>- Improves the efficiency of Electrostatic Precipitators systems at the Clinker Cooler</li> <li>- The measurement of atmospheric dust up to 2.5 microns is scheduled for 8 stations around the project area for a period of 5 years consecutive (2019-2023) by external environmental consulting firm (Third Party)</li> <li>- Install 5 permanent air quality monitoring stations to monitor air quality in the atmosphere around the plant stations and conduct additional 2 stations for atmospheric air quality monitoring at Mauk Lek Wittaya School Station and Mittraphap District Administrative Station, which has continuously implemented every year.</li> </ul>		

**Greenhouse gas emissions (Cement plant only)**  
[305-1][305-2][305-3][305-4]

Unit: Carbon Dioxide Equivalent

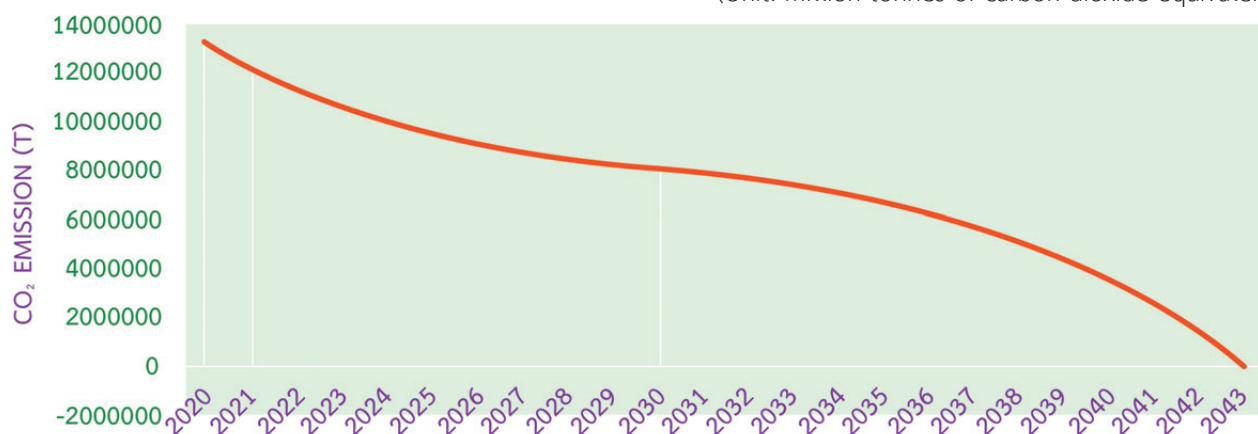
Greenhouse gas emissions	Cement plant		
Critical greenhouse gas emissions in accordance with operational control approach	2020	2021	2022
Direct Greenhouse Gas Emissions (Scope 1)	7,691,320.06	7,561,509.47	8,092,914.00
Indirect greenhouse gas emissions from energy (Scope 2)	1,439,399.02	1,193,594.53	1,206,472.00
Other indirect greenhouse gas emissions (Scope 3)	215,299.23	220,068.07	223,463.15
<b>Total (scopes 1, 2, and 3)</b>	<b>9,346,018.31</b>	<b>8,975,172.07</b>	<b>9,522,849.15</b>
<b>Concentration of greenhouse gas emissions per production output (per ton of output)</b>	<b>1.0377</b>	<b>1.0456</b>	<b>1.0112</b>

**Note:**

- Designated 2019 as base year as there was no significant changes in plant activity and data was consistent with the calculation method of the Greenhouse Gas Management Organization (TGO) no. 5, January 2021, with a total greenhouse gas emissions in the base year totaling 9,546,545.33 tons of carbon dioxide equivalent.
- Global Warming Potential (GWP) is calculated based on the Greenhouse Gas Management Organization (TSB) standard.
- Gases included in the calculation of greenhouse gas emissions (scopes 1, 2 and 3) include CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and SF<sub>6</sub>.

TPI Polene Group (the Company and TPI Polene Power Public Company Limited) have set targets and action plans for the TPI Polene Group Pathway to reduce net greenhouse gas emissions by 39% from the base year (2020) within 2030 (B.E. 2573) and stepping into net zero by 2043 (B.E. 2586)

(Unit: million tonnes of carbon dioxide equivalent)



TPI Polene Group places importance on reducing greenhouse gas emissions into the atmosphere as an urgent agenda. In the past, TPI Polene Group has released 13.22 million tons of CO<sub>2</sub> worth of greenhouse gases into the atmosphere in the year 2020. With TPI Polene Group's commitment to reducing these emissions, year 2021 can reduce greenhouse gas emissions by 0.99 million tons of carbon dioxide equivalent or 7.5% compared to the base year (Year 2020), which is a lower rate than other companies in the same industry. In 2022, greenhouse gas emissions can be reduced by 1.91 million tons of carbon dioxide equivalent or 14.44% reduction compared to the base year (Year 2020).

TPI Polene Group has laid out a road map towards net zero by the year 2043 (B.E. 2568) through various businesses within the group as follows:

1. **Saving in cement & binders** developing new innovations to reduce the use of clinker, increase the use of substitute materials, promote the use of low carbon cement, such as developing hydraulic cement to replace Type 1 Portland cement etc.
2. **Savings in clinker production** Reducing the use of fossil fuels in clinker burning and increasing the use of biomass fuels, fuels from industrial waste, or municipal waste, has been implemented since 2021 and will be completed by 2023.
3. **RE100 – Electricity Energy use Renewable Energy 100%** TPI Polene Group has planned and implemented 100% renewable fuel power generation as follows:
  - a. Waste heat recovery is used to generate electricity
  - b. The use of biomass fuel, fuel from industrial waste, or municipal waste instead of using coal fuel (coal replacement by renewable fuel of power plant) with the following projects:
    - i. The 70 MW power plant and the 150 MW power plant were converted from coal to municipal waste fuel by using renewable fuel from municipal waste. The 70 MW power plant has completed Phase 1 in 2022 and Phase 2 will be completed in April 2023. The 150 MW power plant will be gradually completed and will be able to replace 10% of coal with waste fuel by the end of 2022 and will be gradually completed and fully replace coal by 2025.
    - ii. There is a plan to convert the use of coal to biomass fuel in 6 MW power plants by 2023.
  - c. A power plant with solar panels installed on the ground (Solar Farm) is a power plant that uses solar energy without raw material costs as the main energy and uses durable, long-life solar panels to generate electricity. The project will commence in 2023 and will start generating electricity in 2024 (B.E. 2567).
  - d. A solar rooftop project is a solar power generation system installed on the roof by using solar module installed on the roof of the factory to absorb energy from the sun and generate electric charge. It moves in response to the electric field within the cell, producing direct current before sending it to the Inverter,



which converts direct current to alternating current and then uses the resulting electric energy. The project will begin in 2023, with production beginning in 2024 (B.E. 2567).

- e. Wind power generation projects that make use of wind energy which is dependent on significant machinery, namely “Wind Turbines,” to convert kinetic energy from wind movement into mechanical energy. The wind spins the wind turbine blades around a rotor, which spins the generator to generate electricity before it can be used. More importantly, as long as there is wind, wind energy can be used to generate electricity, and the wind power generation process is clean, with no greenhouse gas emissions and no environmental harm. The project will begin in 2023 and will go into production in 2024 (B.E. 2567).
  - f. The use of electricity from completely renewable clean energy (RE100 – Electricity Energy use Renewable Energy 100%) by producing electricity for use within TPI Polene Group in cement production and procurement of REC (Renewable Energy Certificate) to make cement production use 100% renewable energy.
4. **EV Mining Truck** TPI Polene Group has changed the way of transporting limestone from stone trucks that use fuel engines and NGV to EV mining truck with a capacity of 60 tons, totaling 31 vehicles, to transport limestone to the cement plant by 2022.
  5. **Energy efficiency program** Projects for reducing total energy consumption as follows:-
    - a. Regenerative Downhill Conveyor project seeks to revolutionize the transportation of raw materials by replacing trucks with conveyor belts. This transformation has enabled energy saving, reduced transportation and maintenance costs, as well as generated electricity from the down hill conveyor. The conveyor belts carry limestone down from the quarry at the top, providing a unique opportunity to generate electricity that can be fed back into the Company’s power supply. By doing so, it will eliminate the need for diesel fuel to transport raw materials and reduce energy costs significantly.
    - b. Polytrack Grate is a new aeration technology with reduced pressure that offers consistent aeration with low energy consumption (at least 1 kWh/ton of clinker), leading to energy savings and reduced wear and tear on the machine due to reduced air velocity through the vents, resulting in energy savings and reduced wear and tear on the machine, thus reducing maintenance costs. Currently, the Company can reduce energy costs from using coal and can also save electricity.
  6. **Recycle Raw Materials** With the installation of the CDE Plant, a washing recycle plant, dirt and stone fragments from mining can be turned into stones that can be used as raw materials for cement production. This allows the Company to reduce mining waste and the cost of producing raw materials, bringing the remaining resources from production to be useful.
  7. **Afforestation** helps absorb greenhouse gases released into the atmosphere. TPI Polene Group has been operating continuously since 1992 until now and will continue to make the country have more forests to absorb greenhouse gases.
  8. **Carbon capture & utilization/ storage (CCUS)** A study on carbon capture, utilization, and storage technologies using methods to capture carbon dioxide from high-power plant smokestacks and store it underground or beneath the ocean without releasing CO<sub>2</sub> into the atmosphere. It is a plan to make further investments in the future if existing greenhouse gas emissions reduction processes are insufficient and the technology is worth investing in the future.

In 2022, TPI Polene Group has implemented a waste fuel production project for the benefit of the public by bringing community waste to be sorted into alternative fuels instead of bringing community waste to landfill in the amount of more than 2.73 million tons. As a result, the country can reduce greenhouse gas emissions from landfills into the atmosphere by up to 6.34 million tons of CO<sub>2</sub>

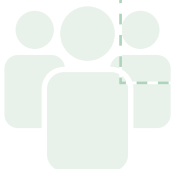




## Prevention of land degradation and contamination of land [3-3]

In the manufacturing of cement, which is the Company's core business, it is necessary to use the greatest benefit of land for ongoing business by utilizing the land area, mainly for the construction of factories, quarries, and raw material assortment, so the land is considered as a very important factor in the business operations of the enterprise. With a strong recognition of the importance of soil resources, the Company operates under the concept of zero waste, so the Company commits to a policy of not releasing waste, effluents, used oil, chemicals, or other waste substances into the ground, which are the primary causes of land degradation.

Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
Zero Waste - No waste, waste water, used oil, or chemicals and other contaminants are released to the ground.	<ul style="list-style-type: none"> <li>- The Company does not release waste, effluents, used oils, chemical substances and other contaminants into the ground, which will cause land degradation, according to the Announcement of the Ministry of Industry, regarding the Control of contamination substances in soil and underground water within the factory area B.E. 2556 (2016), the Company is required to install observation ponds to monitor and assess soil quality every three years by monitoring and evaluating contaminants TPH (C5-C8), TPH(C8-C16), TPH(C16-C35). The results of the analysis meet the required standards.</li> <li>- TPI Polene Group has established measures to restore the natural environment and protect the ecosystem through collaboration with public or private sectors in restoring forest areas in the nearby limestone mountains or other areas with forest planting activities, which will support a budget of Baht 3,000 per rai or not less than 100 rai per year. Additionally, join the effort to plant trees to maintain at least 322 rai of green space inside the factory.</li> </ul>	<ul style="list-style-type: none"> <li>- No negative consequences of chemical and contaminant waste, leading to land degradation [CRE5]</li> </ul>	<ul style="list-style-type: none"> <li>- The Company will strictly implement the Ministry of Industry's announcement on controlling soil and groundwater contamination within the factory area B.E. 2559 (2016).</li> </ul>



## Scrap and Waste Management [3-3]

The Company places an emphasis on scrap and waste management because it contributes significantly to the production process, causes a large amount of industrial waste, and without proper methods of disposal of this kind of industrial waste, can cause environmental and community impacts. Therefore, industrial waste management requires taking into account proper storage and disposal, to be in compliance with the rules and relevant legal regulations.

Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
Utilize the greatest benefit of industrial waste $\geq$ 95% of the amount of industrial waste generated each year.	<ul style="list-style-type: none"> <li>- Implement Zero Waste to Landfill policy by disposal of waste without harmful the environment with the method of co-fired together with the main fuel at the rotary kiln at temperatures above 1,800 degrees Celsius in the closed system, it is considered a modern and technological advancement and environmentally friendly compared to the conventional landfill waste that causes problems for communities and the environment. For this reason, the Company's business operations will not release carcinogens such as methane, nitrogen oxide (<math>\text{NO}_x</math>) and sulfur dioxide (<math>\text{SO}_2</math>) and fly ash into the atmosphere, making it an effective and sustainable way to manage waste or industrial waste. [306-1] [306-2]</li> <li>- Implement the BCG strategy to ensure the cost-effective use of raw material resources, such as the use of excess of waste from sorting process to produce fuel, through the production process to produce organic fertilizer under fertilizer projects. This increases productivity and reduces costs of using chemical fertilizers for agriculturalists and does not cause residues in the soil.</li> </ul>	<ul style="list-style-type: none"> <li>- Total amount of industrial waste to be exploited was 10,033.92 tons, representing 99.91% of the amount of industrial waste generated in 2022.</li> <li>- Landfill waste equal to zero</li> </ul>	Strictly comply with the Ministry of Industry Announcement on The Disposal of Sewage or Disused Materials B.E. 2548 (2005)



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<p>The waste concrete tile scraps of the production process are used as new raw materials in the production process. The use of raw materials waste caused by recycling water filtration in the fiber cement board production process is used through stirring and wet grinding to be recycled as new raw materials. The use of dust caused by dry bending process and scrap fiber cement boards that are waste from the production process through a fine grinding process to be used as a new raw material, such as cement, pulp and sand as well as supporting renewable energy consumption and increasing energy efficiency by using waste to produce coal renewable fuels in cement plants, which reduces environmental problems, caused by the disposal of conventional waste using landfill methods, causing air pollution and Waste Gas. By-products from EVA production process is used as raw material in the production of EVA Emulsion and EVA Powder.</p> <p>[306-2]</p> <ul style="list-style-type: none"> <li>- The Company has a procedure for information collection and assessment in relation to waste as follows:</li> </ul> <ol style="list-style-type: none"> <li>1. Industrial waste management must comply with the Ministry of Industry Announcement on the Disposal of Sewage or Disused Materials B.E. 2548 (2005)</li> </ol>		



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<p>2. Exploiting industrial waste, such as renewable fuels, renewable materials, recycle or disposable must obtain permission with the Department of Industrial Works at all times and provide details of waste, disposal method, weight and waste disposal recipient</p> <p>3. To exploit industrial waste, such as renewable fuel, as a renewable material, recycle or dispose of it, transportation documents must be issued at all times they are transported for legal evidence.</p> <p>4. Accounting for collecting data and controlling the weight of industrial waste that has been exploited, such as renewable fuels, renewable materials, recycle or disposable. [306-2]</p>		



**Scrap quantity and waste management**  
**(only cement plant, LDPE/EVA plants and CRT and FCB plants) [306-3][306-4][306-5]**

Unit: Tons

Scrap and Waste Management	2020	2021	2022
<b>1. Total waste content classified by type of waste</b>			
- Hazardous waste	2,371.75	3,207.80	3,906.77
- Non- hazardous waste	7,805.06	9,536.91	6,136.51
<b>Total quantity of waste</b>	<b>10,176.81</b>	<b>12,744.71</b>	<b>10,043.28</b>
<b>2. Exploitation</b>			
<b>Hazardous waste</b>			
- Substitute fuel	2,139.71	2,794.27	3,426.53
- Substitute material	163.24	312.02	267.64
- To be recycled	58.69	90.45	203.38
<b>Non- hazardous waste</b>			
- Renewable fuel	662.17	521.56	513.53
- Substitute material	2,634.39	5,087.73	2,886.18
- To be recycled	4,508.50	3,927.62	2,736.66
<b>Total utilized waste content</b>	<b>10,166.70</b>	<b>12,733.65</b>	<b>10,033.92</b>
<b>3. Disposal of waste</b>			
<b>Hazardous waste</b>			
- Safe landfill	10.11	11.06	9.22
Non- hazardous waste	0	0	0.14
<b>Total disposal waste content</b>	<b>10.11</b>	<b>11.06</b>	<b>9.36</b>





## Development of projects to mitigate key environmental impacts in 2022

The Company is committed to improving and developing various procedures to mitigate environmental impacts, representing the investment value in projects related to environmental impact mitigation in 2022, totaling Baht 1,678,000,000 as follows:-

Project	Advantage	Investment Value (Baht)
The project to bring a 60-ton EV MINING TRUCK instead of a motor-driven stone truck.	<ol style="list-style-type: none"> <li>1. Reduce greenhouse gas emissions</li> <li>2. Save the use of natural resources</li> <li>3. Reduce the occurrence of PM 2.5 dust from the combustion of diesel engines</li> </ol>	378,000,000
The Prepol-SC project is the installation of additional machinery in the cement kiln production line 1.	Reduce Heat Consumption, repair costs and can use waste as fuel to replace coal by up to 25%, which will reduce fuel costs.	1,300,000,000
Total		1,678,000,000





## 06



## Community and Social Development

Community and Social Development  
Performance in 2022

Investment in community and  
social assistance  
Baht 18.81 million

Injury Frequency Rate (IFR)  
of employees and contractors  
0.131<sup>(1)</sup> and 0.185<sup>(1)</sup>

No lost time injury  
22,237,755 hours<sup>(1)</sup>  
(Increased by 7.82% compared to 2021)

Death and injury rates from  
work of employees and contractors<sup>(1)</sup>  
0

Average number of training hours  
to employees  
23.72 hours/person/year<sup>(1)</sup>

Overall customer satisfaction/  
Customer's problem-solving satisfaction  
86.66%<sup>(1)</sup> and 95.05%<sup>(1)</sup>

**Remark:** (1) Only for TPI Polene Public Company Limited

## Human Resource Management [3-3]

In 2022, the world is still facing the outbreak of COVID-19, although its severity has decreased, but still affects society and the economy. In this regard, the Company has planned to adjust the human resource management model to prepare employees by recruiting employees to have an appropriate number, sufficient, fairly without discrimination and providing equal opportunities. A learning model has been added to the e-Learning system by training development so that employees can self-learn and review their knowledge according to the time that they have available. Other improvements include fostering positive workplace relationships by allowing employees to voice their opinions through a variety of channels, conducting ongoing joint internal and external activities with executives, and maintaining information security. The Company has developed a software system to support storage usage, giving employees' confidence in information security. Doing so will help create bonds and pride in being a part of the organization to drive the Company for achieving business goals together.

### Employment

The Company is aware that running a business in an environment where society, the economy, the environment, and technology are constantly changing calls for employees who are knowledgeable, competent, and high potential as well as adaptable enough to support the Company's operations and achieve success in line with its objectives. Therefore, the Company has planned manpower, recruitment process, and attracted high-potential targeted employees from both internal and external personnel who are qualified in accordance with the corporate culture to be a part in driving the Company.

### Labor Management and Labor Relation

The Company has policies and practices of the Company that focus on treating employees equally and fairly to all employees in terms of compensation, training, safety and occupational health, and further growth in work including allowing employees to express their opinions and participate in activities. Organize a survey of employee satisfaction and engagement with the organization, with the results obtained from the survey to improve, develop and promote employees in various fields, which will help employees feel satisfied and attached to the organization.

### Training and Education

The Company is well aware that training, educating, and emphasizing building skills for employees is an important strategy for enhancing the caliber of the organization by aiming to provide staff with knowledge, experience, and the capacity to work effectively. As a result, the Company is focused on confidently increasing skills and knowledge continuously by using technology to support employee learning in the E-Learning system. Employees can set aside learning time or assess their own learning as necessary, and take courses on crucial work-related administrative skills like production, maintenance, safety, and occupational health, among others.

#### Code of Conduct [2-23]

<https://www.tpipolene.co.th/th/aboutus/code-of-conduct-th>



#### Human Rights Policy [2-23]

<https://www.tpipolene.co.th/th/investment/social-responsibility-th>



#### Employee Manual [2-23]

<https://www.tpipolene.co.th/th/aboutus/employeehandbook>



#### Privacy Policy [2-23]

<https://www.tpipolene.co.th/th/aboutus/pdpda>



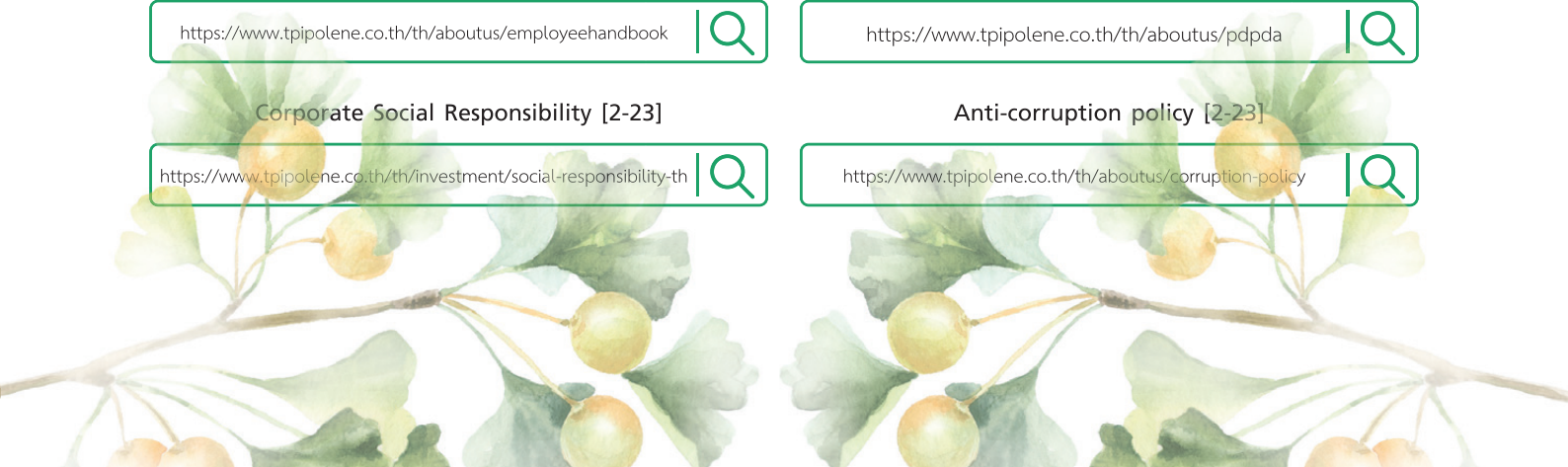
#### Corporate Social Responsibility [2-23]

<https://www.tpipolene.co.th/th/investment/social-responsibility-th>



#### Anti-corruption policy [2-23]

<https://www.tpipolene.co.th/th/aboutus/corruption-policy>



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
<ul style="list-style-type: none"> <li>- Maintaining the level of manpower so that the turnover rate of employees is at an appropriate level not exceeding 3.50%.</li> <li>- Hiring employees with compensation and wage adjustments above the average in the labor market.</li> <li>- The rate of employment of personnel in the factory area each year is more than 50 percent.</li> <li>- Senior executives have visited the area to visit executives and employees every month.</li> <li>- Maintaining employee satisfaction and organizational engagement was at a good level with an average score of 3.41 or higher out of a full score of 5.00 in all opinion points.</li> <li>- The average number of training hours for all courses is not less than 20 hours per person per year.</li> </ul>	<ul style="list-style-type: none"> <li>- There is an appropriate manpower plan and recruiting employees to meet the needs and have a sufficient number to perform the job.</li> <li>- In order to introduce and publicize job openings in the Company's business group, conduct Proactive recruitment by meeting applicants from universities with desired fields of study. In addition, introduce products and various working techniques from company experts, such as techniques in agricultural areas, construction engineering techniques, etc., to inspire and attract employees.</li> <li>- Use technology to reach target groups, convenient, in line with the way of working in the New Normal era, which focuses on using online media as a tool for recruitment and job interviews. Participating in the Virtual Job Fair 2022 project, which is a virtual job meeting event with leading educational institutions</li> </ul>	<ul style="list-style-type: none"> <li>- Maintaining the level of manpower to keep the turnover rate of employees at 2.93% (an appropriate level not exceeding 3.50%)</li> <li>- The rate of employment of personnel in the factory area each year is more than 50%.</li> <li>- Employee satisfaction survey results in work have an average score of 3.91 out of 5 in all opinion points (or 78.35%).</li> <li>- Survey of employee engagement towards the Company with an average score of 4.05 out of 5 in all opinion points (or 89.33 percent) with a total average of 81.09.</li> <li>- The Company has improved the form of training development through electronic systems (e-Learning) so that employees can learn the knowledge of each department from orientation to various production processes by making teaching materials in the form of One Point Lesson (OPL) and videos for convenience and understanding in learning.</li> </ul>	<ul style="list-style-type: none"> <li>- The rate of employment of personnel in the factory area each year is more than 65%.</li> <li>- Organizing training/development to prepare a development plan to increase the potential of employees to support the replacement of employees at the supervisor level and above.</li> <li>- The level of employee satisfaction and engagement with the organization is very good.</li> <li>- The Company will continue to improve and develop the training development model through electronic systems (e-Learning) so that employees can learn the knowledge of each department from orientation to various production processes by making teaching materials in the form of One Point Lesson (OPL) and videos for convenience and understanding in learning.</li> </ul>



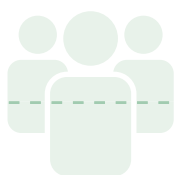
Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<ul style="list-style-type: none"> <li>- Maintaining the level of manpower to keep the turnover rate of employees (Turnover Rat) at an appropriate level, with welfare provision in line with the current cost of living, such as housing benefits for employees working in factories in the provinces to retain and motivate employees.</li> <li>- Promoting diversity in employment, promoting equal employment, non-discrimination, setting employment rates in factory areas, providing employment opportunities for people with disabilities to create social sustainability, hiring people with potential disabilities to work in suitable positions. Currently, there are 26 people with disabilities currently employed under Section 23 of the Persons with Disabilities Empowerment Act B.E. 2550.</li> <li>- Provision of a potential assessment test (Psychometric Test) in important job positions to support the decision of the committee in job interviews to obtain qualified employees that are in line with the organizational culture.</li> </ul>	<ul style="list-style-type: none"> <li>- The average number of training hours for all courses is 23.72 hours/person/year [404-1]</li> <li>- Satisfaction of the training evaluation was 90% (measured by the evaluation form after the training was completed, scored 4.5 out of a full score of 5).</li> <li>- Statistics of new employees of the organization at 11.11% and employees leaving the organization at 6.10% [401-1]</li> <li>- The return to work statistics and the employee retention rate after taking parental leave was 100% and 76.47%, respectively.</li> </ul>	



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<ul style="list-style-type: none"> <li>- Hiring employees with compensation and wage adjustments above the average in the labor market.</li> <li>- Comply with Thai labor standards and labor laws, as well as human rights priorities and committed to complying with provisions set out in international human rights principles and international labor standards, including the U.N. Universal Declaration of Human Rights and the International Declaration on Basic Rights and The Right to Work of the International Labor Organization. Thai Labor Protection Act B.E. 2560 (2017) and Respect for the International Labor Organization (ILO).</li> <li>- Establish Code of Conduct policy of TPI Polene, which covers the practice of each other with respect to human rights principles, taking into account benefits and equality, discrimination, fair labor, security, support and respect for the political rights of employees, etc., and provide monitoring, evaluation and review systems for all employees to adhere to.</li> <li>- Establish regulations and treat work labors fairly with no irrelevant employment and does not support for</li> </ul>		



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<p>the use of child labor under the age of 18 and informal workers who are not protected by law as well as providing or never encouraging child labor to perform tasks that are harmful to hygiene or in environments that are harmful to hygiene and safety, or any tasks that are prohibited by law.</p> <ul style="list-style-type: none"> <li>- Senior executives have visited the area to visit executives and employees every month.</li> <li>- The Company has conducted a survey to determine how satisfied and committed its employees towards the Company. Based on the survey's findings, the Company will take care of, develop, and advance its employees in a variety of ways, which will help them feel satisfied and committed to the Company and make them happy and devoted. A very high degree of employee satisfaction and organizational dedication is the outcome of their reaching their full potential.</li> <li>- The Company provides measures for receiving complaints, as well as conducting investigations, corrective actions, monitoring corrective actions, and determining appropriate guidelines as instructed until completion.</li> </ul>		





Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<ul style="list-style-type: none"> <li>- An independent and fair committee has been established in the investigation in case of non-compliance with the policy and established regulations whereby the accused have the right to resolve the allegations for them.</li> <li>- The Company has activities to build good relations with employees during festivals to create good relations between executives and employees, such as New Year's greetings on the New Year's Eve festival, pouring water on the heads of the executives to ask for blessings on the Songkran festival, joint work to donate clothes, leftover items, and medicine to the underprivileged, etc.</li> <li>- Preparing and increasing the potential of employees to be able to immediately replace those at the supervisor level and above, this will result in the employees' willingness to work with dedication.</li> <li>- A welfare committee is formed, made up of employer and employee representatives (Election of employees) as required by law to take care of issues related to employment conditions, where the employees supervised under the agreement concluded at the meeting make up 100% of the total number of employees [2-30].</li> </ul>		



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<ul style="list-style-type: none"> <li>- An independent and fair committee has been established in the investigation in case of non-compliance with the policy and established regulations whereby the accused have the right to resolve the allegations for them.</li> <li>- Training on human rights processes or policies such as the Personal Data Protection Act (Practical) and the Personal Data Protection Act (Processes and Practices)</li> <li>- Formulate personnel development and training policies, as well as treating employees by striving to develop the organization into a learning organization, enhancing culture and work atmosphere, promoting teamwork, providing fair returns, retaining safety and maintaining the work environment, as well as focusing on the development, transfer of knowledge, and capability of employee, listen to comments and suggestions from employees at all levels equally and equitably.</li> <li>- Annual necessary course training survey with annual training plans, including satisfaction surveys for training assessments by summarizing the evaluation of the training in the subject content in the field of objectives achievement, lecturer, and training operations.</li> </ul>		



### Summary of Employee Satisfaction and Engagement Survey

No.	Opinion Point	Average	Percent	Level of Satisfaction/Engagement
Opinions on Job Satisfaction				
1.	The Management	3.95	78.99	Very satisfied
2.	The Commander	3.88	77.55	Very satisfied
3.	The Process	4.14	82.77	Very satisfied
4.	Working Environment	3.77	76.25	Very satisfied
5.	Personnel Development	3.84	76.76	Very satisfied
6.	Welfare and Compensation	3.89	77.78	Very satisfied
Average Score on Job Satisfaction		3.91	78.35	Very satisfied
Opinions on Employee Engagement				
1.	Operations to Achieve the Company's Objectives	4.39	87.82	Most satisfied
2.	Pride and Loyalty to the Company	4.54	90.83	Most satisfied
Average Score on Employee Engagement		4.47	89.33	Most satisfied
Total Average Score		4.05	81.09	Very satisfied



## Employee Turnover Rate [401-1]

Information as of December 31, 2022

Personnel Composition Criteria		New employees of the organization						Employees leave the organization					
		2020		2021		2022		2020		2021		2022	
		(Number people)	Percent	(Number people)	Percent	(Number people)	Percent	(Number people)	Percent	(Number people)	Percent	(Number people)	Percent
Total		378	5.40%	479	6.83%	803	11.11%	442	6.31%	461	6.57%	559	7.74%
Gender	Male	278	3.97%	367	5.23%	650	80.95%	370	5.28%	382	5.44%	453	6.27%
	Female	100	1.43%	112	1.60%	153	8.99%	72	1.03%	79	1.13%	106	1.47%
Age Range	Age < 30 years	207	2.95%	313	4.46%	521	7.21%	175	2.51%	182	2.59%	226	3.13%
	Age 30 – 50 years	167	2.38%	164	2.34%	276	3.82%	191	2.73%	216	3.08%	250	3.46%
	Age > 50 years	4	0.06%	2	0.03%	6	0.08%	76	1.09%	63	0.90%	83	1.15%
Work Area	Head office	183	2.61%	173	2.47%	181	2.50%	146	2.08%	164	2.34%	185	2.56%
	Saraburi Cement Plant	153	2.18%	235	3.35%	458	6.34%	263	3.75%	221	3.15%	293	4.05%
	Concrete Tile and FCB Plant, Saraburi Province	31	0.44%	52	0.74%	145	2.01%	15	0.21%	51	0.73%	57	0.79%
	LDPE Plant, Rayong Province	11	0.16%	19	0.27%	19	0.26%	18	0.26%	25	0.36%	24	0.33%

**Note:** The percentages shown in the table are calculated in relation to the total number of employees in each year (Total number of employees in 2020, 2021, and 2022 are 7,004 persons, 7,016 persons, and 7,226 persons respectively)



## Benefits Allocated to Employees [401-2]

Rights / Welfare / Benefits	Full Time	Part Time
Life insurance	✓	✓
Accident insurance	✓	-
Medical expenses (Self)	✓	✓
Medical expenses (father, mother, spouse, child)	✓	✓
Medical treatment in a corporate medical facility	✓	✓
Entitlement to paternity leave	✓	✓
Child tuition	✓	✓
Maternity allowance	✓	-
Rights to use the organization's nursery and child development	✓	-
Severance pay or retirement	✓	✓
Stock ownership	✓	-
Payment of contributions to the provident fund	✓	-
Professional fee increase	✓	-
Ordination allowance	✓	-
Loan	✓	-
Funeral Cremation	✓	✓
Employee shuttle service	✓	✓
Special area (fixed house rent)	✓	-
Overtime pay and holiday pay	✓	✓
Expenses for traveling to work in the country and abroad	✓	✓



## Turnover rate statistics and employee retention rates after special maternity leave [401-3]

Case of Leave	Number of Employees (Person)		
	2020	2021	2022
Number of employees who are eligible for maternity leave	1,050	1,058	1,100
Number of employees taking maternity leave	26	30	20
Number of employees returning after the end of the maternity leave period	23	30	20
Number of employees who returned after the end of the maternity leave period and continued to work for the next 12 months	28	21	27
Return to work rate (1) who returned to work after the leave period ended (%)	88.46	100.00	100.00
Retention rate (1) who returned to work after the leave period ended (%)	93.33	91.30	90.00

### Note :

- (1) Return to Work Rate = (Number of employees returning to work after the end of maternity leave period/Number of employees who have taken maternity leave) x 100
- (2) Retention Rate = (Number of employees returning to work after the end of the maternity leave period and continuing to work for the next 12 months/Number of employees returning to work after the end of maternity leave period in the previous reporting period) x 100





## Number of training hours [404-1]

Unit: Hour/Person/Year

Employee Training Information	2020	2021	2022
Average number of training hours	21.45	22.62	23.72
Average number of training hours classified by gender			
Male	23.03	25.06	24.40
Female	11.53	8.78	8.88
Average number of training hours classified by employee group			
Top Executive	-	-	45.75
Executive Level (AVP/VP/SVP)	2.59	6.02	10.19
Manage level (ASST.DEPT.MGR. – DEPT.MGR.)	8.07	5.93	5.19
Command level (ASST.SUP. – SECTION MGR.)	16.56	14.48	16.34
Operating level (OFFICER)	23.13	25.08	25.56

**Remark:** The Company's employees do not include employees in subsidiary companies.



## Human Resource Development Program total 997 courses as follows: [404-2]

Course Type*	Number of courses	Objective
1. Business Administration and Leadership	121	Boost leadership skills, such as driving human resource within the organization to accomplish their task as targeted.
2. Occupational Health and Safety and Environment	197	Organize safety work to reduce the risk of illness, injury or death and care for the quality of lives of personnel within the organization.
3. Technical aspect	629	Focus on improving skills, employee efficiency with learning, especially professionals, to encourage employees to show their full potential.
4. Technology & Engineering	19	In order to adapt the organization to keep pace with the digital transformation in technology advancement and engineering innovation
5. Supportive, delivering of work and preparing for retirement	11	To prepare for employees' retirement and delivering jobs smoothly.

**Remark:** \* The above-mentioned courses include hard skill courses, which required specialized skills for the profession, and soft skill courses, which requires performance skills that allow individuals to work

The Company evaluates the performance of employees three times a year in April, August, and December, in order for employees to develop and improve their operational performance regularly. All employees at all levels (100%) receive performance evaluations from supervisors according to the Performance Assessment Form of the Company. [404-3]



## Safety, Occupational Health and Environment in the Workplace [3-3]

The Company realizes the importance of an occupational health and safety management system as part of its business operations with a commitment to improving and preventing all existing hazards, including injuries and illnesses, stemming from work for employees, suppliers, contractors and all stakeholders who are involved in the operation on all operating areas of the Company.

The Company has a strong commitment to adhering to and strictly complying with occupational safety and health requirements as well as assessing work risks in all business processes, and continuously cultivates and raises awareness of the safety of the work of employees and those involved to create a culture of work safety, and to prevent and minimize potential losses to life, property, as well as potential impact on surrounding communities and the environment.

Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
<ul style="list-style-type: none"> <li>- A Zero Accident Organization</li> <li>1. The number of fatalities at work is zero.</li> <li>2. The rate of high-impact work-related injuries is zero.</li> <li>3. The morbidity rate from occupational diseases is zero.</li> </ul>	<ul style="list-style-type: none"> <li>- Establish occupational health, safety and environmental policies to safeguard occupational safety and work environment for workers, contractors and subcontractors, including communities and stakeholders involved in the Company's operational activities, as well as establish operational safety manuals and supervise operations to comply with the manuals and procedures to ensure safety in the workplace. Accident and incident investigations are reported to determine solutions and be aware of preventing repeat accidents. Duties and responsibilities of employees are defined at all levels of safety work, where employees can refuse jobs at risk of accidents and illnesses and must reduce risk before performing in accordance with the requirements of the ISO45001 Occupational Safety and Health System Standard [403-1] [403-2] [403-7]</li> </ul>	<ul style="list-style-type: none"> <li>- The work-related death rate was zero.</li> <li>- The rate of high-impact work-related injuries was zero.</li> <li>- Injury Frequency Rate (IFR) was 0.131, which decreased by 0.038 compared to 2021.</li> <li>- Rate of illness from high impact work was zero.</li> <li>- No lost time injury hours, an ncrease was 22,237,755 hrs., increased of 1,612,608 hours or an increase of 7.82% compared with 2021.</li> </ul>	<ul style="list-style-type: none"> <li>- Review knowledge about safety to employees and contractors, who perform their work in the Company to raise awareness of the prevention of accidents and occupational diseases.</li> <li>- Strictly comply with safety laws and requirements of ISO45001-2018 occupational safety system standards.</li> </ul>



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<ul style="list-style-type: none"> <li>- Establish the Occupational Safety and Work Environment Committee to achieve collaboration between administrative representatives and employee representatives, consisting of representatives from employees at operating level at least 50% of the entire Committee, the representatives of the operating level are elected from each department, which requires at least one meeting per month as a platform to receive information from each department and communication through channels such as E-mail and public relations boards and follow up the progress of operations and future operational plans, etc. [403-4]</li> <li>- Provide services and support workers to access medical services such as primary medical treatment and emergency treatment at the Company's medical rooms, providing regular nurses and doctors every business day to employees and contractors with free of charge, and provide influenza vaccinations and COVID-19 vaccines to the Company's employees. The Company also focuses on the health of individuals around the plant, with mobile medical units being issued for public health check-ups. [403-6]</li> </ul>		



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<ul style="list-style-type: none"> <li>- Provide occupational safety and health training for all employees and contractors before starting to work with total of 8 training courses: (1) Security Occupational health and work environment for general staff and new employees (2) Safety for driving forklifts for operating work, (3) Reviewing work safety in confined space (4) Initial firefighting, (5) Occupational Safety, Health and Work Environment Committee (OECD) (6) Work Safety Officers at Executive Level (7), Work Safety Officers at Supervisor Level, and (8) Review knowledge for crane supervisor, signaler and controllers of crane (stationary). [403-5]</li> <li>- Provide emergency response plan as well as performing annual rehearsal of emergency response plans, such as in the event of a fire, chemical leakage, explosives, radioactivity leaks, and training course of advanced Firefighting, Chemical leak stoppage, emergency management training, etc. [403-5]</li> </ul>		



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<ul style="list-style-type: none"> <li>- Hazards are indicated as well as safety risk assessments in compliance with the Occupational Health and Safety Management System (ISO 45001), the risk-owned workers analyze their own characteristics of the work operation and others involved, such as third parties and contractors in all processes, to identify potential hazards from operations and to assess potential opportunities and impacts to prioritize risk management, starting from Elimination, Substitution, Engineering Control, Management Control, use of personal protective equipment (PPE) to acceptable risky tasks, as well as ensure safety supervision and monitor risk management operations in accordance with plans and goals. [403-1] [403-2]</li> <li>- Preparation for work response by providing personal safety protective equipment for employees to use in operations and other safety protective equipment as required by law to prevent injuries and work accidents, which covers emergency response preparation, as well as business continuity management. [403-4]</li> </ul>		





Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<ul style="list-style-type: none"> <li>- The working environment is controlled by wearing personal safety protective equipment to prevent injury and accidents from work. The work environment is regularly measured and evaluated as required by law, such as air quality measurement, volume monitoring and light intensity Measurement, etc. [403-2] [403-4]</li> <li>- Provide nursery room with nurses and full-time doctors to give advice on illness. First aid service from injuries is provided to employees and contractors, as well as monitoring health risks of employees, health check-ups are provided from the start of work, Health check-ups based on risk factors such as hearing fitness test and pulmonary checkup, Electrocardiogram Examination (EKG), in case of working in a place of confined air, etc., annual health check-ups, both general health check-ups and health check-ups based on occupational health risk factors, are provided with the Company's occupational medicine doctors and occupational</li> </ul>		



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<p>health professionals, jointly determining the list of health check-ups of workers based on factors inside and outside the workplace. If the employees have abnormal health check-up results, they must visit the doctor and receive ongoing healthcare advice, as well as providing medical benefits (OPD) for employees, parents, spouses and legal offspring. [403-3]</p> <ul style="list-style-type: none"> <li>- Supervise the performance of workers, outsiders and stakeholders in the operating area to strictly comply with the rules, safety regulations and regulations. [403-1]</li> <li>- Communicate safety, occupational health and work environment policies, cultivate awareness and create a safe work culture, develop knowledge skills and organize activities in the areas of continuous promotion of health, safety, occupational health and work environments. [403-4]</li> </ul>		



## Management Structure of Safety, Occupational Health, and Environmental

The Company has set up a Safety Operations Committee for safeguard of Occupational Health and Environment, which consists of the management team and professional safety officers of the Company, to perform their duties and responsibilities for management of Safety, Occupational health, and Work Environment in compliance with the requirements of the Occupational Health and Safety Management System (ISO 45001:2018) and safety laws. The Company's objective is no occupational accidents and no occupational illnesses or occupational illnesses from work.



## Risk Assessment and Risk Management Procedures Safety, occupational health and work environment [403-2]

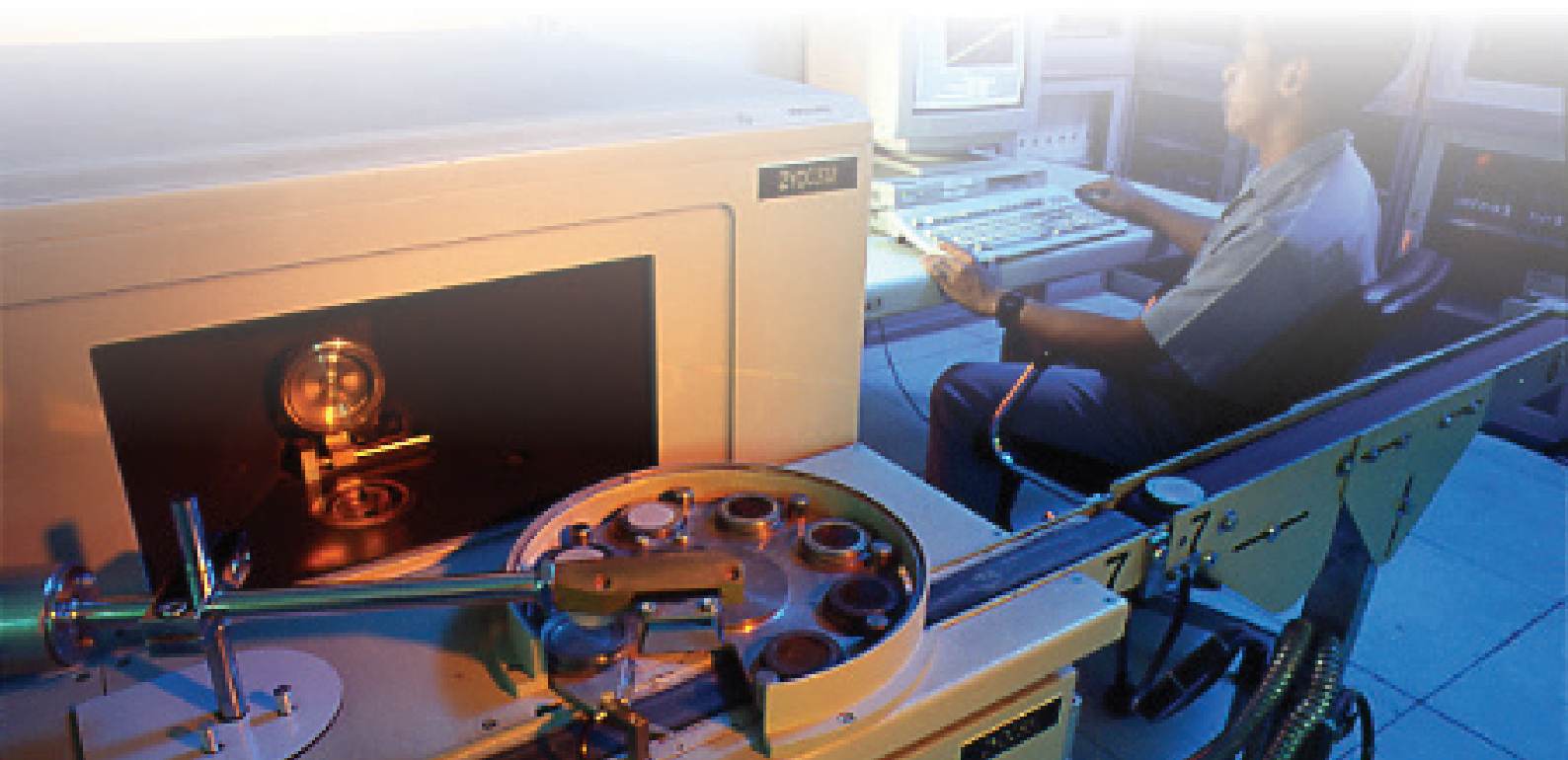


## Comprehensive workforce under occupational health and safety management system [403-8]

	Number (persons)	Percent
Employees and workers in the establishments controlled or supervised by the organization		
employees	6,877	100
workers	941	100
Employees and workers in the establishments controlled or supervised by the organization (and audited by the organization)		
employees	1,921	27.93
workers	213	22.63
Employees and workers in the establishments controlled or supervised by the organization (and audited by external organizations)		
employees	395	5.74
workers	42	4.46

**Remarks:** Employee refers to the Company's personnel (not including those in subsidiary companies).

Worker refers to personnel of other establishments, controlled or supervised by the Company to be in compliance with ISO 45001:2018 standards.



## Job-related injuries [403-9]

Statistical data on deaths and injuries of employees and employees who are not considered employees but jobs and/or establishments are regulated by the organization.	Injury Type (/)									Number of working hours	Number (persons)	Mortality/ injury rate (calculated based on 200,000 working hours)	
	Back and spine injuries	Bone fractures	Burns	Ear injuries (including tinnitus)	Facial injuries (eye, nose, and jaw)	Loss of digits and limbs	Repetitive stress injuries	Sprains, strains, and tears (soft tissue injuries)	Toxic exposure				Traumatic brain injuries (TBI)
Deaths and injuries of employees													
Death from work-related injuries	0	0	0	0	0	0	0	0	0	0	0	0	0
High-impact work-related injuries (excluding deaths)	0	0	0	0	0	0	0	0	0	0	16,846,515.00	0	0
Work-related injuries, which can be recorded.	0	4	3	0	1	0	0	3	0	0		11	0.131
Deaths and injuries of employees who are not employees but their work and/or establishments are regulated by the organization													
Death from work-related injuries	0	0	0	0	0	0	0	0	0	0		0	0
High-impact work-related injuries (excluding deaths)	0	0	0	0	0	0	0	0	0	0	2,168,272.00	0	0
Job-related injuries, which can be recorded.	1	0	1	0	0	0	0	0	0	0		2	0.185

**Remark:** Injuries related to high-impact tasks means work injuries that result in death or injury, caused by workers being unable to or unable to perform or unpredictable to fully recover until their health condition prior to injury within 6 months.

Work-related injuries, which can be recorded means, work injury, which results in any of the following cases: death, case of work stoppage, work restriction or transfer to another job, medical care in addition to first aid, loss of consciousness, serious injury diagnosed by a licensed doctor or licensed medical professionals.

Health Problems from Related Work [403-10]

	Types of health problems that arise (number)			Number (persons)	Rate of death (percent)
	Stress, depression or anxiety	Musculoskeletal disorders	Occupational lung disease		
Deaths and health problems related to the work of <u>employees</u>					
Death from work-related health problems	0	0	0	0	0
Work-related health problems (number)	0	0	0	0	0
Deaths and health problems related to the work of <u>non-employees</u> , but their work and/or establishments are regulated by the organization					
Death from work-related health problems	0	0	0	0	0
Work-related health problems (number)	0	0	0	0	0

**NOTE:** A recordable work-related health issue is defined as poor health resulting in any of the following: death, absence from work, work restriction or transfer, non-medical treatment from first aid, loss of consciousness, serious injury diagnosed by a physician or licensed medical practitioner.



## COVID-19 Pandemic Measurements

The Company is well-prepared for the COVID-19 pandemic that has severely affected society and operations by having implemented a Business Continuity Plan, which has resulted in a low level of disruption to business operations. However, the Company is closely monitoring the situation and mitigates risk appropriately with measures taken to ensure confidence as follows:-

- The Company encourages employees and their families to be vaccinated against COVID-19 as quickly and comprehensively as possible; vaccination appointments are coordinated in the vaccination program free of charge by the public sector social Security Office, with shuttles for employee vaccination trips. The Company also purchased ATK testing kits (both nasal swab and saliva tests) to use for screening for the prevention of illness among vulnerable employees and visitors. If positive results are found, they will be sent through the RT-PCR system for further treatment. The Company also encourages employees who need to contact third parties to test with ATK testing kits before meetings, such as salespeople, freight workers, employees, or who need to meet with customers outside the premises to reassure the safety of these third parties.
- Support the cost of COVID-19 detection, both RT-PCR and Rapid Antigen tests, for at-risk employees to help quickly isolate infected people from non-infected people. Infected people can enter the care system and non-infected persons can operate in the workplace safely.
- Arrange working hours to create social distancing by allowing toggle- work time, and shifting arrangements to keep space between individuals, reduce employee congestion, and prohibiting having lunch together to reduce direct communication and to reduce the risk and likelihood of spreading pathogens.
- For employees who reside in a severe outbreak areas or are at risk of infection during a round trip by bus, the Company provides temporary accommodation to employees within the Company grounds and controls the employee's outings in accordance with "Bubble and Seal" principles.
- The Company distributed Bio Knox solution to employees to prevent infection with COVID-19 and purchased Andrographis Paniculata for employees with fever, cough, sore throat, or early stage COVID-19 infection. It helps to relieve mild symptoms and is used in low-risk people to reduce the chance of the disease spreading to the lungs.

The Company recognizes that human resources are valuable and a force in driving the organization by focusing on developing people to be qualified, moral, ethical, and who have integrity and responsibility toward the organization and society. The Company also encourages employees to participate in Corporate Social Responsibility activities, which the Company believes helps develop employees to be good and talented and to further encourage sustainable growth in the organization.

## Community and Social Development Participation [3-3]

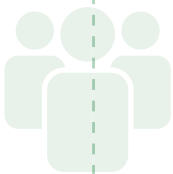
The Company aims to pursue its business operations under well-managed administration practices with an adherence to creating a corporate culture with good corporate governance in parallel with social conservation and environmental preservation in terms of safety, quality of life and conservation of natural resources. The Company also promotes energy efficiency and focuses on participating in the continuous development of communities and society to improve the quality of life of local people in the communities and society to be strong and grow sustainably.



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
Create value and upgrade the quality of life of local people in the communities and society to grow sustainably.	<ul style="list-style-type: none"> <li>- Improve the production process of cement plants to use waste fuel up to 15.33% of coal substitutes. TPIPP purchase community waste from local producers who sort waste and to help reduce waste in the community, promote and create careers in the community, help reduce socioeconomic inequality, increase employment, increase economic value by purchasing waste from the communities in more than 16 provinces nearby the plants.</li> <li>- Conduct Community Relations: The Company has a production facility located in various community areas and has a proactive policy for all production units to provide assistance to support hygiene and reduce the impact of the pandemic without any request from the community, it supports surrounding communities and important societies as follows:-               <ol style="list-style-type: none"> <li>1. Strengthen communities to be healthy, provide mobile medical services in a wellness program with TPI Polene to monitor</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>- 360,675.09 million tons of community waste used to replace coal</li> <li>- Repaired/constructed 27 homes for people with disabilities, and chronic illness patients, who are in need of housing, in Kaeng Khoi District, Saraburi Province, etc. [413-2]</li> <li>- The results of the Community Satisfaction Survey in 2022 showed that the scholarship program is a CSR activity of the Group that the community knows and is very satisfied with. [413-2]</li> <li>- TPI Polene Group assembled to relieve the difficulties of society, communities &amp; employees from the COVID-19 pandemic in 2022, which can be summarized as follows:- [413-2]               <ol style="list-style-type: none"> <li>1. Strengthened the community to be healthy by providing mobile medical units in the TPI Health Project to monitor illnesses, health examination services, health education, benefits of lung screening at Surrounding communities in Kaeng Khoi District and Muak Lek District, Saraburi Province.</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>- Continuously coordinate with the community to accept feedback, opinion and expectations to improve the Company's operations, including its affiliates, as well as to expand the efficiency of community and society development and improve quality of life, promote sustainable growth in communities and society.</li> </ul>




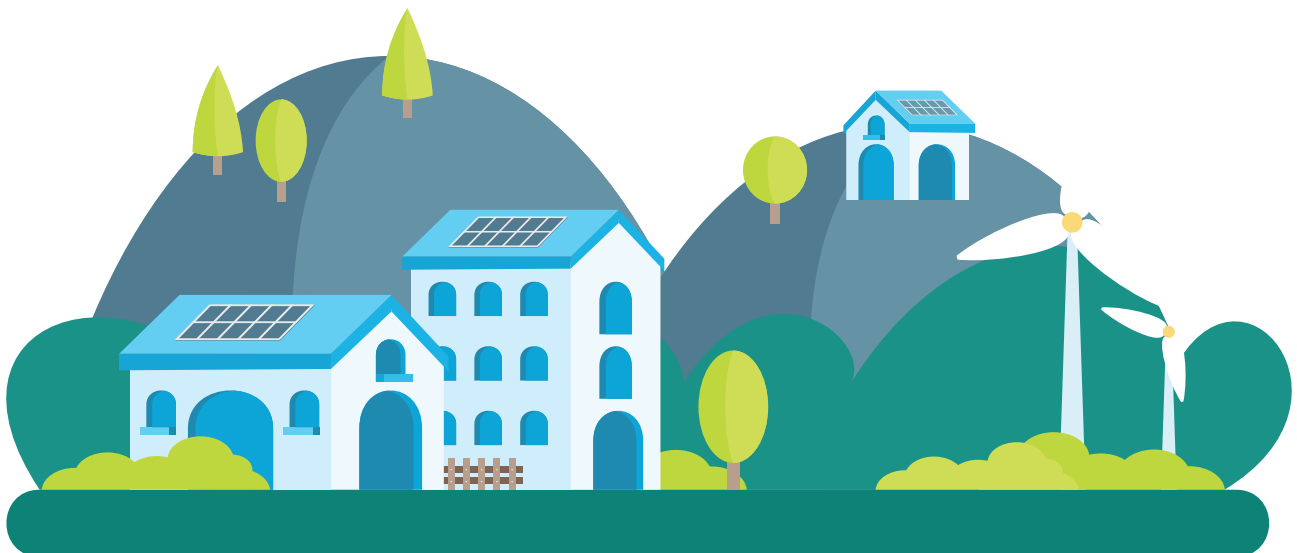
Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<p>illnesses Health Check-up Service To Educate Health Benefits of lung examination at surrounding communities in Kaeng Khoi District, Mauk Lek, Saraburi</p> <p>2. The potential risk associated with the outbreak of COVID-19 in the community. In the event that the Company's employees live in infected areas, the Company has established response measurements such as supporting self-defense equipment such as hand alcohol gel to nearby community, government authority and local hospitals in Saraburi province.</p> <p>3. Supported COVID-19 virus with publicity signs for public relations information and measures are taken to prevent and monitor the outbreak of the COVID-19 virus as well as giving advices regarding operating market or public spaces to Charoen Community, Kaeng Khoi, Saraburi province.</p>	<p>2. Co-supported the housing renovation project in collaboration with the Kaeng District Quality of Life Development Fund to help 5 people and repair and build houses for the fortunate, the disabled, the chronically ill who lack housing in the area of Muak Lek Subdistrict Administrative Organization (1 house), Kaeng Khoi District Office (4 houses), Saraburi Province, etc.</p> <p>3. Supported TPI health care products (Bionox, hand sanitizer gel, mouthwash) and drinking water for Wat Sub Bon Waiting Center and Tao Poon Subdistrict Administrative Organization, Saraburi Province, to support patients infected with the Corona Virus 2019, at the level of an increasing number of mild sub-districts</p>	



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<p>4. Supported residential renovation projects in conjunction with Kaeng Khoi District Quality of Life Development Fund and help repair/build homes for disabilities and chronic illnesses patients who are shortage of housing in the area of Kaeng Khoi District. Saraburi, etc.</p> <ul style="list-style-type: none"> <li>- Conduct corporate social responsibility (Corporate CSR)</li> <li>- According to the 2022 Community Satisfaction Survey, the CSR activities of TPI Polene Group, mostly satisfied to the community, including scholarship programs. TPI Polene Group has implemented educational opportunities for well-educated youth, who are wellbehaved, but disadvantaged, aiming to share the burden of parents. The scholarships are awarded to schoolchildren in the community area adjacent to the Saraburi province from kindergarten to undergraduate level, starting in 201 and upon graduation, they are employed to work in TPI Polene Group, creating a strong bond with the community as a single family. In addition,</li> </ul>	<ul style="list-style-type: none"> <li>- Donated 37.5 cubic feet of TPI dry concrete and 10.1 tons of TPIPL cement, TPI Super Armor Nano Paint, TPI tiles, lightweight blocks, wood substitute products and TPI boards, etc. in repairing and repairing school buildings, roofs, building paints, and pavements for 20 schools across the country</li> <li>- Donated 2,700 bottles of liquid soap products (to help alleviate water bites) along with 50 boxes of clothes from executives and employees to help flood victims.</li> <li>- Donated blankets for the year 2022, with the northern region, donating total of 9,500 blankets to patients and victims of cold in the northern and northeastern regions.</li> <li>- Supported the construction of a 9-storey Ban Phaeo Eye Hospital building, Phase 2, to support medical services for the public and donate TPI cement products, TPI dry concrete, TPI roof tiles, Nano Super Armor TPI painting, and other products to help repair and renovate buildings, build check dams for various government agencies, including people with shortages of</li> </ul>	



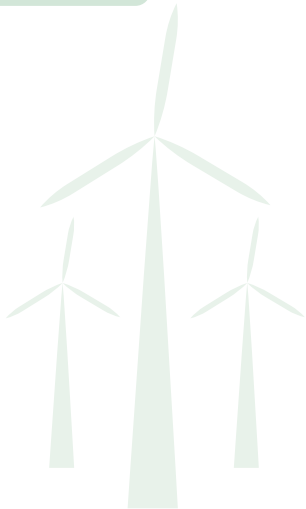
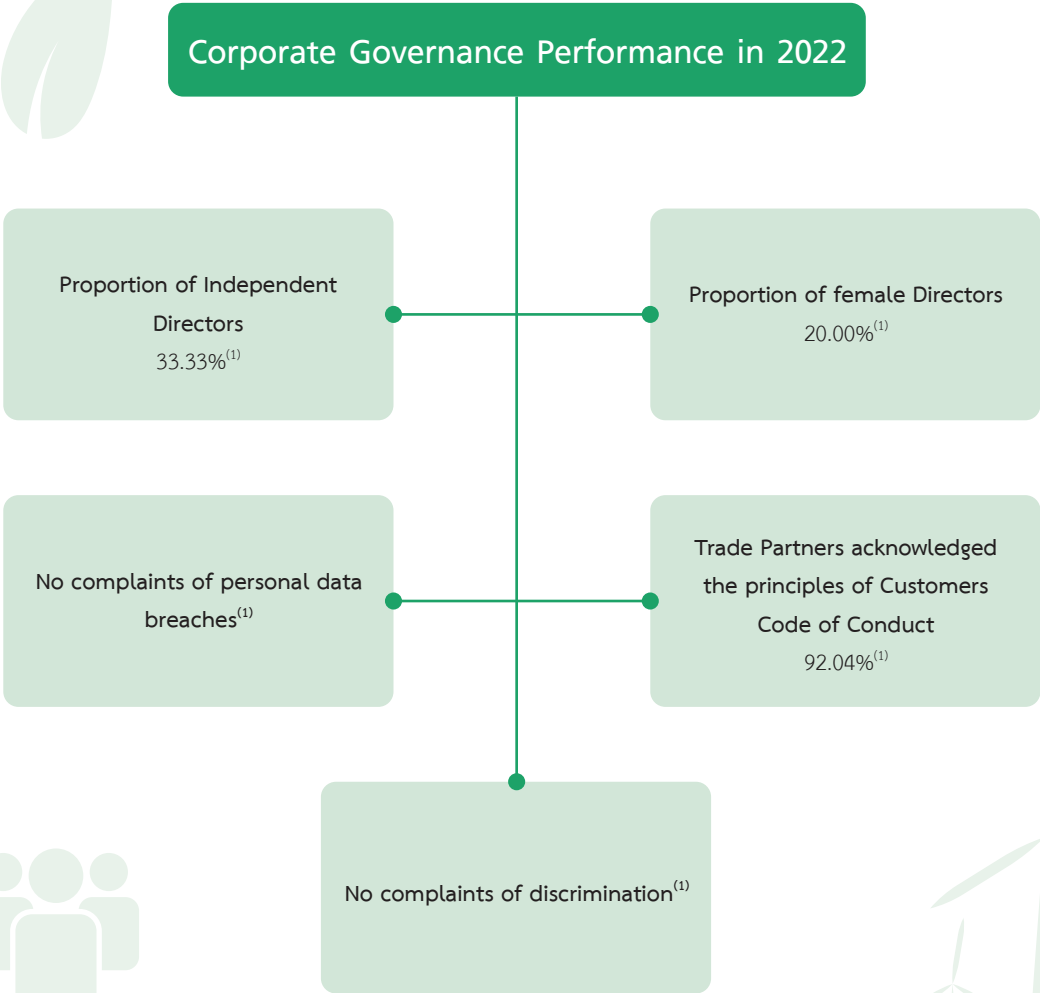
เป้าหมาย	การบริหารจัดการ	ผลการดำเนินงานที่สำคัญ ในปี 2565	แนวทางสำหรับปรับปรุงการดำเนินงานในอนาคต
	<p>there are scholarships worth Baht 295,000 per year for 6 schools from kindergarten to junior high school for the 29th consecutive year.</p> <ul style="list-style-type: none"> <li>- Supporting the chemical-free agriculture project for lunch with the objective of               <ol style="list-style-type: none"> <li>1. To provide students at Ban Subbon School with the knowledge and skills in chemical-free vegetable farming.</li> <li>2. To have a learning resource for growing vegetables using chemical-free agriculture in community schools.</li> <li>3. To enable Ban Sub Bon School students to consume and promote good nutrition.</li> <li>4. To increase income for Ban Sub Bon School students by selling leftover vegetables from cooking to the Company's employees.</li> </ol> </li> </ul>	<p>funds for temples, schools across the country, including foundations and organizations that benefit society.</p> <ul style="list-style-type: none"> <li>- Participated in the preservation of Thai culture and traditions, such as the alms giving ceremony, the Buddhist Lent Offering Ceremony, the Songkran Festival, the Loi Krathong Festival, etc., and participating in activities on important religious days such as the Buddhist Lent Day, the end of the Buddhist Lent, participating in local traditions such as the New Year's Day, the ordination ceremony, Wedding, Funeral.</li> </ul>	



07



Conduct the Business Operation under Good Corporate Governance Policy



Remark: (1) Only TPI Polene Public Company Limited



## Corporate Governance and Anti-Corruption Policy [3-3]

The Company recognizes the importance of good corporate governance in order to contribute to sustainable development, and the Company has established corporate governance policies and codes of conduct of the Company and is determined to promote the firm to be an organization that does business with transparency, ethics, and responsibility for shareholders, stakeholders, customers, employees, society and other stakeholders. The Company is determined to be an effective organization under an administration that complies with **“Transparent Thailand where all citizens live happily”**. The Company’s Board of Directors specifies principles of Good Corporate Governance for the Board, Management, and all employees of the Company to follow as a guideline practices.

Conducting business operation in accordance with a good corporate governance policy and business ethics, as well as developing operational standards to be at an international level, the Company has monitored an assessment of operational performance to ensure effective implementation, which covers investments, joint planning, defining a clear roadmap, following up operating results, reporting on the progress of operations on a regular basis, as well as establishing long-term strategies and long-term goals for sustainable growth development.

### Good Corporate Governance Policy [2-23]

<https://www.tpipolene.co.th/th/aboutus/corporate-governance-th>



### Company Code of Conduct [2-23]

<https://www.tpipolene.co.th/th/aboutus/code-of-conduct-th>



### Employee Handbook [2-23]

<https://www.tpipolene.co.th/th/aboutus/employeehandbook>



In addition, the Company has established anti-corruption policies and a Supplier Code of Conduct to promote transparency, prevent fraud and anti-corruption, and prevent conflicts of interest in order to ensure that the Group’s business operations are transparent, fair, take into account equality and integrity in business operations, as well as to strengthen good relationships with partners and related stakeholders to be in line with good corporate governance principles, the Company’s Code of Conduct, and provisions and relevant governing laws to further develop into a sustainability organizations.

### Anti-Corruption Policy [2-23]

<https://www.tpipolene.co.th/th/aboutus/corruption-policy>



### Supplier Code of Conduct [2-23]

<https://www.tpipolene.co.th/th/aboutus/supplier-code-of-conduct-th>



### Privacy Policy [2-23]

<https://www.tpipolene.co.th/th/aboutus/pdpda>



### International Human Rights Policy [2-23]

<https://www.tpipolene.co.th/th/investment/social-responsibility-th>



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
<ul style="list-style-type: none"> <li>- Follow good corporate governance principles without corruption</li> <li>- Employees are trained in anti-corruption courses on an ongoing basis every year.</li> <li>- Business partners are constantly increasing their corporate anti-corruption policies and practices every year.</li> <li>- Suppliers acknowledged the Supplier Code of Conduct continually increasing every year.</li> <li>- Assessment of ESG suppliers at production sites (Onsite ESG Audit)</li> </ul>	<ul style="list-style-type: none"> <li>- Set out key good corporate governance principles for Directors, the Management and employees of the Company to adhere as a guideline for operations, such as international corporate governance practices and striving to continuously improve good corporate governance in accordance with international standards. The adoption of Creation shared value, Responsibility, Equitable treatment, Accountability, Transparency and Ethics (CREATE) principles is used as a guideline for business operations, as well as strictly to fulfill its duties in accordance with the laws and requirements in all countries in which they invest. Monitoring/Measuring Performance and Risk Management are conducted effectively, independently and responsible for the consequences of performing their duties in accordance with the principles of good corporate governance, etc.</li> <li>- Established responsibilities to ensure that the Company's business operations are transparent, ethical and responsible to shareholders, customers, employees</li> </ul>	<ul style="list-style-type: none"> <li>- Requiring all departments, especially those dealing with external parties, to have risk assessments linked to fraud and/or corruption. There are 53 agencies assessed for risks linked to fraud, representing 100%. [205-1]</li> <li>- The proportion of employees who have received anti-corruption training courses is 5.40% of total 7,226 employees, with all employees 100% acknowledging the anti-corruption policy.</li> <li>- There are no lawsuits in which the organization has been sued for fraud and there are no corrupt incidents with suppliers, suppliers, or cooperation partners, including fraud incidents that occur within the organization. [205-3]</li> <li>- 100% of all new business partners of the Company that were screened using social criteria. [414-1]</li> <li>- 25 suppliers assessed for social impact. [414-2]</li> </ul>	<ul style="list-style-type: none"> <li>- Organized special lectures by expert speakers on anti-corruption through online classrooms</li> <li>- Organize anti-corruption activities through electronic media, etc.</li> <li>- Regularly review the fraud risk assessment of all departments every year, including objective setting, identifying risks, risk assessment, and responding to risks (Risk Response) that may occur from new events/factors that change.</li> <li>- Conduct a survey and assessment of ESG suppliers across all of the Company's suppliers to identify potential and potential negative social impacts in order to improve and enhance suppliers to comply with the Supplier Code of Conduct.</li> </ul>



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<p>society and other stakeholders in accordance with the Company's policies and corporate governance as follows:</p> <ul style="list-style-type: none"> <li>• The Board of Directors are responsible for setting policies and supervising an effective anti-corruption system to ensure that the Management recognizes and values anti-corruption and cultivates it as a corporate culture.</li> <li>• The Chief Executive Officer and the Executive Committee are responsible for establishing the system to promote and support anti-corruption policies to communicate to employees and stakeholders, including reviewing appropriately in accordance with changing circumstances, such as business conditions, rules and regulations and provisions of laws, etc.</li> <li>• Audit Committee is responsible for reviewing financial and accounting reporting systems, Internal control system, internal audit system and risk management system, to ensure compliance with international standards, to be concise, suitable, modern and efficient</li> <li>• Head of Internal Audit is responsible for proper</li> </ul>	<ul style="list-style-type: none"> <li>- In 2022, there were a total of 1,394 procurement suppliers and 1,250 suppliers acknowledged the Code of Conduct, representing 89.67 percent of the total, with an increase of 1.38% from 2021.</li> <li>- No complaints from procurement suppliers.</li> <li>- The Company has analyzed key suppliers that sell raw materials, products, and services for the Company's production process using the criteria of order value ≥ Baht 50 million/year in 2022, 25 key ESG suppliers were assessed (1.79% of the total number of suppliers and accounted for 61% of total purchase value) and 25 suppliers responded to the ESG supplier assessment questionnaire was 92% of major trading suppliers. [414-2]</li> <li>- No supplier identified as having real and potential significant negative social impacts in 2022. [414-2]</li> </ul>	



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<p>inspection and review of operations to meet policies, guidelines, operating power, regulations and laws to ensure that there is a proper and adequate control system for potential corruption risks and report to the Audit Committee.</p> <ul style="list-style-type: none"> <li>- Assigned to all departments of the organization to assess risk associated with corruption in consideration of the CO-SO-ERM risk assessment principles, which the Company has identified significant fraud risks, such as risks related to corruption/purchasing corruption, from which the purchasing authorities demand bribes or commission fees from sellers, etc. The result of the risk assessment will be developed and improved the relevant practices and internal control measures of the Company. [205-1]</li> <li>- Established anti-corruption practices for employees, including anti-corruption and anti-corruption measures (business dealings with partners and third parties) in order for all employees to adhere to and strictly comply.</li> <li>- Assigned the purchasing department or related parties to compare prices or auctions (as the case may be) in case of procurement.</li> <li>- Required channels for whistleblowing and complaints</li> </ul>		



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<p>in the event of corrupt conduct involving the organization directly or indirectly, including those that are in breach of the organization's protocols or affecting the internal control of the organization. It is doubtful that it may be a way to corrupt and illegal, immoral, business ethics, such as reporting complaints to responsible persons/entities or the Internal Audit Supervisor/ Head of Legal Affairs/ Head of Human Resources Department (Head Office) or Human Resources and Administration (Plants), with comment boxes and electronic mail (Email: orapin@tpipolen.co.th)</p> <ul style="list-style-type: none"> <li>- Formulated a systematic fraud investigation guideline when receiving whistleblowing, Executive Directors, the Management and Audit Committees will act as the justice to investigate the facts. During the investigation, Executive Directors, the Management and Audit Committee may assign representatives (executives) to inform the whistleblower of progress or complaint. If facts finding or evidence available, there are reasonable grounds to believe that those accused of committing fraud or actual corruption, the Company will give the alleged person the right to be informed of the allegations and give the</li> </ul>		



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<p>alleged perpetrator the right to prove her/himself by seeking further information or evidence that she/he has nothing to do with the alleged corrupt acts, he has not been able to do so as accused. If the complainant has committed actual fraud, such action is considered as an anti-corruption policy offense. Disciplinary action must be considered in accordance with the regulations set by the Company and if the fraud is illegal. Offenders may face legal penalties and disciplinary action in accordance with the Company's regulations. Decisions of the Board of Directors (Executives) are final.</p> <ul style="list-style-type: none"> <li>- The protection of complainants and confidentiality is required. When acting in good faith, complainants, testimony, information providers, fact-finders, or witnesses are guaranteed and protected from difficulties being caused to them or being used as justification for dismissal, punishment, or other actions that could have serious repercussions for those employees. For anonymity and confidentiality, employees or outside whistleblowers may choose to remain anonymous when reporting misconduct by other employees. However the Company encourages employees to identify themselves when reporting,</li> </ul>		





Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<p>to make it easier to contact and investigate. Once an employee or external complainant makes a report, the Company will take appropriate safeguards and safeguards to ensure effective investigation and prevent harassment or unfair treatment of an employee or external complainant.</p> <ul style="list-style-type: none"> <li>- Set measures to promote transparency and prevent corruption within the organization, such as public information distribution measures, fraud complaint management measures, anti-graft measures as well as measures to prevent conflicts of interest between self-interest and the public interest Propagate practices throughout the organization.</li> <li>- Established a Supplier Code of Conduct that includes crucial principles like procurement ethics, business ethics, safety and occupational health, labor and human rights, environmental impact, and community and social impact. This will help to achieve transparency and fairness, taking into account equality and honesty in business operations, as well as business partners having a way to manage social and environmental impacts continuously, efficiently, and appropriately.</li> <li>- Set regulations and guidelines for recruiting and evaluating current and new suppliers</li> </ul>		



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<p>based on the Supplier Code of Conduct, with important operational procedures as follows:-</p> <p>1) Recruitment and selection of current and new vendors must be approved as acceptable vendors. Therefore, the list is included in the list of certified sellers (Approved Vender List: AVL) with the following steps:</p> <p>1.1 Recruiting new vendors can be done by searching for information from quotation documents, Brochure Catalog, yellow pages phone book, basic information from buyers, information in the market for that type of service, etc.</p> <p>1.2 The new vendors will be recruited in accordance with specified criteria as follows:-</p> <ul style="list-style-type: none"> <li>- Standard details of the desired goods or services</li> <li>- Business details</li> <li>- Terms of payment or delivery</li> <li>- Convenience and speed in coordinating</li> <li>- Supplier/subcontractor survey at production site</li> <li>- Environmental and social issues in terms of human rights, no illegal labor such as child labor, slave labor, etc.</li> <li>- Others as appropriate, such as raw materials that are environmentally friendly or reduce greenhouse gas emissions</li> </ul>		



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<p>The vendor selection information is attached with the price filter for the approval authority to consider and when approved as an acceptable seller will be recorded and included in the AVL.</p> <p>2) Vendor Placement in the AVL Approved current and new vendors will be listed in the AVL separately for the type of goods or services provided: (1) An Acceptable List of Vendors/Subcontractor (F15-113 or F03-118) (2), Acceptable Supplier/Subcontractor List (General), and (3) Acceptable Supplier/Subcontractor List (Special) by AVL. All will be reviewed upon change or on a regular basis at least every 6 months.</p> <p>3) Vendors listed in the AVL will be retained in the AVL once the results of the assessments are met, which are divided into (1) assessments are divided into (1) assessments in terms of delivery timing and product condition at the initial inspection, (2) assessments in terms of product or service quality including the vendor's cooperation, and (3) assessments of service and cooperation on issues related to purchase or price. The Purchasing Department will collect assessment results from relevant parties to summarize the results of delivery/subcontracting by sellers who score below 60 for 2 consecutive times. The assessment will be considered withdrawn from the</p>		



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<p>AVL if performance improvement is not possible.</p> <p>4) Determine the assessment cycle of vendors in the AVL divided by vendor groups. Vendors who have contacted purchase orders through the head office procurement will be evaluated annually.</p> <ul style="list-style-type: none"> <li>- Manage suppliers according to the Supplier Code of Conduct by setting the criteria for selecting suppliers who must undergo ESG assessment at the production site (Onsite ESG Audit) as follows:-             <ul style="list-style-type: none"> <li>• Major trading suppliers mean trading partners with high order value or a group of trading suppliers who sell products that are hard to find or important in production by procurement, will be inspected and assessed every year (On-site), such as doing supplier evaluation form, visiting the office/ manufacturer, or interviewing with the manager/employee of the supplier company, and signing the Supplier Code of Conduct for acknowledgment.</li> <li>• Secondary suppliers mean suppliers with medium or low purchase value or a suppliers' group who can find replacement products by purchasing, will conduct a supplier assessment form and sign an acknowledgment in the Supplier Code of Conduct.</li> </ul> </li> </ul>		

## Information of the Board of Directors, Employees and Business Partners who have received communication of anti-corruption policies and Guideline Practices [205-2]

Category	Number of people receiving communications on corporate anti-corruption policies and practices (people)	Percent
1. The Board of Directors of the Company	14	100
2. Employees of the Company excluding subsidiaries		
<u>Classified by employee group</u>		
- Senior Executives (Top Management)	4	100
- Management Level (AVP/VP/SVP)	59	100
- Manager level (Asst.Dept.Mgr. – Dept.Mgr.)	161	100
- Supervisor level (Asst.Sup. – Section Mgr.)	1,272	100
- Operating level (Officers)	<u>5,730</u>	<u>100</u>
Total	7,226	100
<u>Classified by Location</u>		
- Head office	1,388	100
- Cement plant, Saraburi province	4,235	100
- CRT & FCB plant, Saraburi province	900	100
- LDPE & EVA plant, Rayong province	<u>574</u>	<u>100</u>
Total	7,226	100
3. Business Partners		
- Suppliers/ Business Partners	1,250	89.67



### Information of the Board of Directors and employees who have been trained in anti-corruption courses [205-2]

Category	Number of trainees Anti-corruption-related courses (person)	percent
The Board of Directors of the Company	14	100
Employees of the Company (7,016) (excluding subsidiaries)		
<u>Classified by employee group</u>		
- Management Level (AVP/VP/SVP)	6	0.09
- Manager level (Asst Dept Mgr. – Dept Mgr)	55	0.78
- Supervisor level (Asst Sup – Section Mgr.)	312	4.44
- Operating level (Officers)	70	1.00
Total	443	6.31
<u>Classified by Location</u>		
Head office	157	2.24
Cement plant, Saraburi Province	114	1.62
CRT & FCB plants, Saraburi Province	123	1.75
LDPE & EVA plants, Rayong Province	49	0.70
Total	443	6.31

**Note :** Those who have been trained in anti-corruption courses are selected according to their roles and responsibilities that are important to the management and auditing of operations associated with risks or incidents of corruption in the corporation.





## Social Supplier Assessment

Supplier impact assessment based on social criteria	Number/Proportion of Business Partners
Percentage of total new suppliers of the Company screened using social criteria [414-1]	100%
Number of partners assessed for social impact [414-2]	25 people
Number of suppliers identified as having actual and potential significant negative social impacts [414-2]	0 people
Percentage of all the Company's suppliers identified as having real and potential significant negative social impacts for which improvements were approved as a result of the assessment [414-2]	0%
Percentage of all the Company's suppliers identified as having actual and potential significant negative social impacts whose relationship was terminated as a result of the assessment [414-2]	0%

### Complaints, Suggestions and Whistleblowing [2-25] [2-26]

The Company has a policy for handling complaints and suggestions, which was published as Company Policy No. 114/2014 on receiving complaints, complaints, suggestions, and whistleblower channels that harm the Company. This will serve as a medium for the corporation to effectively monitor its interests and quickly address any issues. Additionally, in the case that stakeholders have concerns or observe acts that can be considered to be improper, in violation of laws, rules, or business ethics, in order to urge stakeholders to participate in the corporate governance process.

TPIPL has published complaints and feedback policies through email, the Company's website, annual reports, etc. to ensure that suppliers, customers, and stakeholders acknowledge and ensure that all complaints and recommendations are handled in a clear process through channels that cover issues towards anti-corruption. Whistleblowing or complaints are summarized as follows:-

1. A complaint if encountering any acts that is considered corruption, direct or indirect.
2. Any act that is considered corruption and/or has a direct effect on the internal controls of the Company; the individual must cooperate in the fact-finding investigation stipulated by the Company's regulations.
3. Any act that has a direct impact on the Company's reputation and benefits.
4. Any misconduct that is against the law, morals and/or business ethics.

### Channels for receiving complaints, suggestions, and whistleblowing from customers

All employees are responsible for reporting complaints through suitable report channels when they face or suspect any act that might be considered corruption, and are to notify supervisors or responsible persons through suitable report channels, while external comment mechanisms (external complaints) can handled by contacting the following:

1. Letters: Mrs. Orapin Leophairatana Senior Executive Vice President TPI Polene Public Company Limited  
26/56 Chan Tat Mai Road, Thungmahamek, Sathorn, Bangkok 10120
2. E-Mail: orapinr@tpipolene.co.th
3. Letters: The Audit Committee TPI Polene Public Company Limited 26/56 Chan Tat Mai Road,  
Thungmahamek, Sathorn, Bangkok 10120
4. Tel. no. 02-285-5090 or 02-213-1039 Internal Audit Department

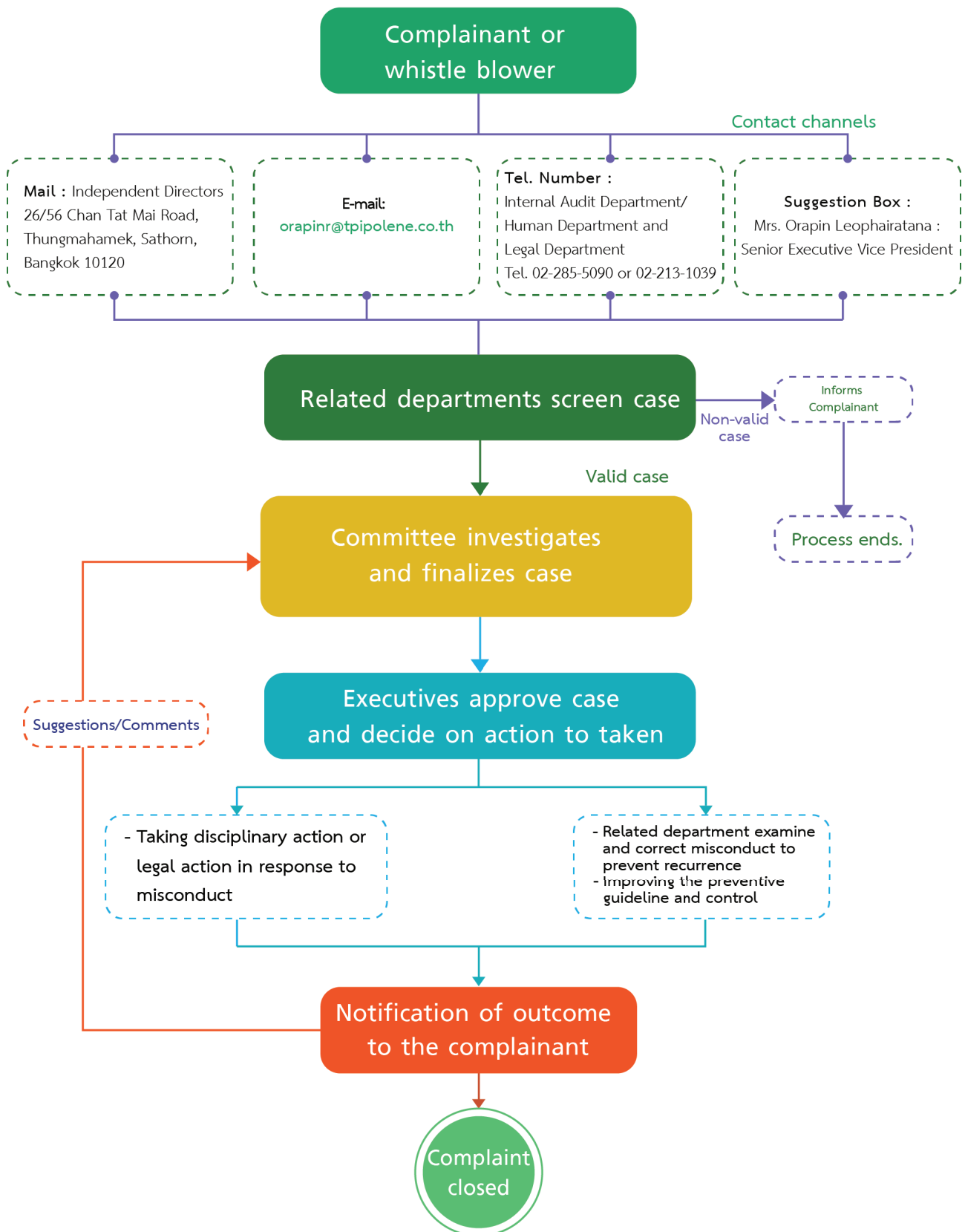
The Company provides measures for whistleblowing in response to complaints from external agencies or stakeholders. When complaints come through various channels, there will be a preliminary investigation unit to know the cause whether it is from the actions of the Company or not. When the cause is found, the complaint will be taken to the fact-finding process, along with proposing solutions to deficiencies, complaints, and preventing problems from occurring. Relevant agencies will take corrective action and preventive actions with a specified time frame or may issue a letter to notify the results when the problem has been solved.

In order to systematically process complaints, suggestions, and notifications from stakeholders or the public, the Company has set up a grievance mechanism with details as process (Flow diagram/ Process) in handling complaints from receiving complaints to taking corrective actions and reporting back to relevant stakeholders as follows:-

1. **Receiving Complaints** Complainants, stakeholders, or the public can file complaints, suggestion, and report clues through the four channels specified by the Company, namely (1) Letter to the Senior Executive Vice President (2) Electronic mailbox (E-mail: [orapinr@tpipolene.co.th](mailto:orapinr@tpipolene.co.th)) (3) Telephone to Head of Internal Audit Department, Head of Legal Department, Head of Human Resources (Head Office), or Head of Human Resources and Administration (Factory) and (4) Opinion Box.
2. **Moderation of Complaints** Once the Company receives the complaint, it will have the Human Resources Department, the Internal Audit Department, or the relevant departments consider and screen the complaint. The details of clues or complaints must be examined. They must be true, clear, or sufficient to ascertain the facts for further action. In the event that there is no evidence, the complaint will be returned to the complainant or request for additional documents within 10 days.
3. **Fact Checking** In case the complaint is received clearly or can be ascertained, the Company will consider appointing executives from the internal audit department, the human resources department, and executives from other relevant departments to be the fact-finding committee. They will be appointed from time to time by the President or Executive Vice President.
4. **Fact Checking Committee** The Company will proceed with the process of collecting facts, processing, and screening information to determine the appropriate handling method for each matter, with disciplinary action or legal action if wrongdoing is found, advise, and prevent recurrence
5. **Audit Report** The Investigation Committee has a duty to report the results to the President or Executive Vice President in order to proceed as the Board proposes or orders as it deems appropriate.
6. **Implementation of Audit Results and Notify the Whistleblower** When the relevant departments have corrected, improved, performed as instructed by the Company, they must notify the audit committee to follow up on corrective actions, improvements, and determine the operational guidelines that have been instructed until completion and notify the whistleblowers of the results of the action and provide comments or suggestions to improve the work ordering mechanism.

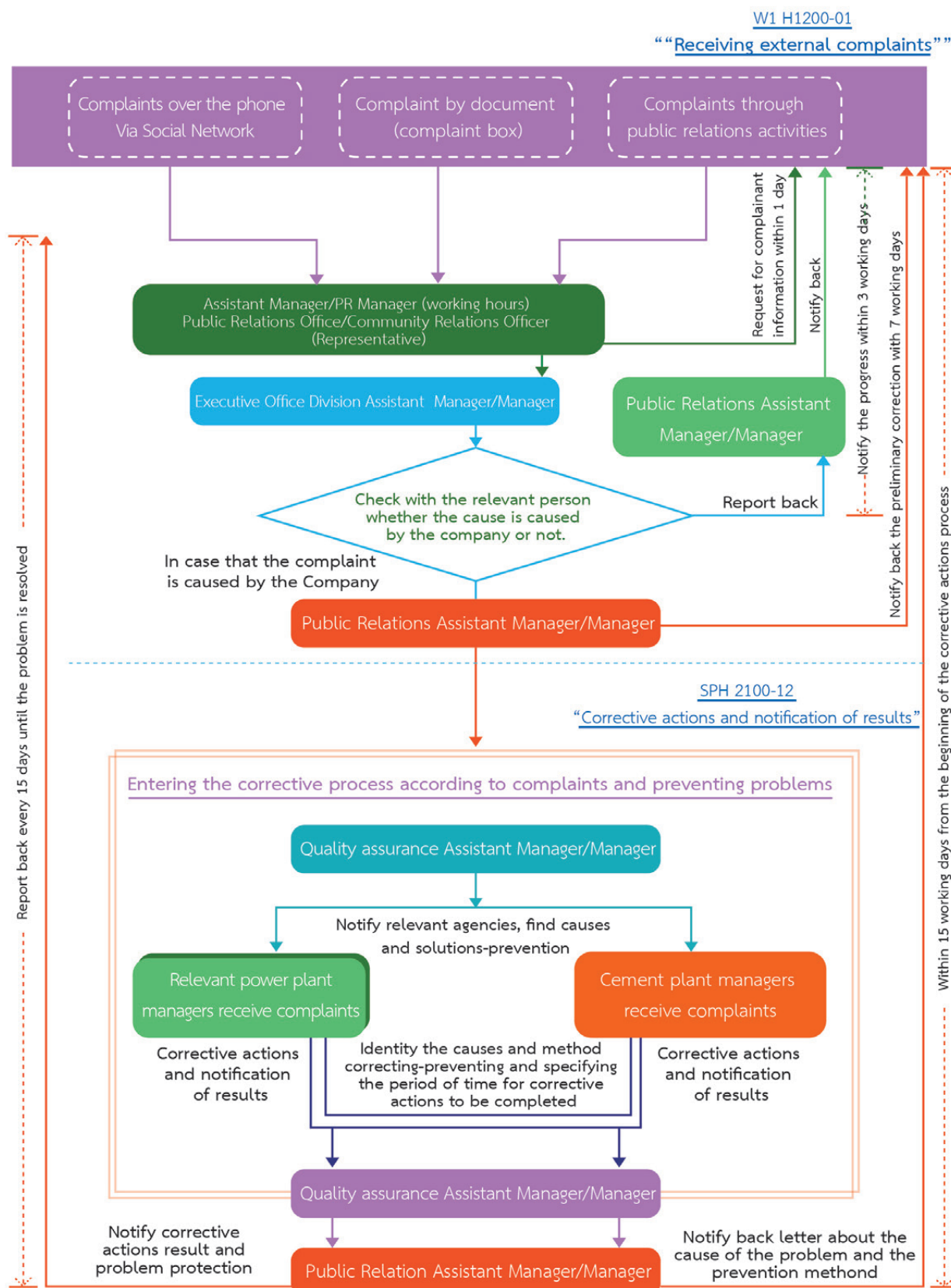


## Flowchart of the complaint and whistleblowing process In handling cases of business ethics, code of conduct and corruption



In addition, the Company has organized CSR activities for communities in the areas where the factories are located to listen to problems and take care of solving the effects continuously and consistently, with the process of accepting complaints and responding to complaints as follows:-

## Order of response to complaints from external agencies



An official letter will be issued once the problem has been resolved.

In the process of whistleblowing complaints process, when the relevant departments of the Company have made corrections and actions as instructed by the Company, they must notify the fact-finding committee for investigation and follow up on the results of operations, including improving the efficiency of operations and preventing recurrence, and reporting the results to the Senior Executive Vice President. However, when the fact-finding committee has notified the result of the action to the whistleblowers, satisfaction inquiries, suggestions, and useful suggestions will be taken to improve and determine guidelines for making the operation more efficient.

#### Social Responsibility [2-23]

<https://www.tpipolene.co.th/investment/social-responsibility-th>



### Risk and Crisis Management [3-3]

The Company realizes the importance of risk management as it considers risk management to be the cornerstone of business management. The risk management process, including risk identification, risk assessment, as well as monitoring and reviewing risks on a regular basis, is a proactive approach that companies must undertake and implement. Risk management is an essential component of every business process. There must be linkages at all levels and must be integrated into key work processes to promote effective risk management and compliance with the Company's mission.

In addition, the Company also emphasizes on promoting risk management culture throughout the organization by focusing on laying down a systematic risk management foundation for short-term and long-term, cultivating risk management awareness among all employees, as well as creates an atmosphere and a culture of risk management.

Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
<ul style="list-style-type: none"> <li>- To conduct business in accordance with the sustainable development goals</li> <li>- To reduce the cause of the possibility of damage to the Company by keeping the level and magnitude of damage at an acceptable, assessable, controllable, and systematically verifiable level with regard to achieving objectives or organization's goals as important</li> </ul>	<ul style="list-style-type: none"> <li>- The Board of Directors has established a Risk Management Committee to supervise and be responsible for the development and monitoring of the Group's risk management policy and requires that the results be regularly reported to the Board of Directors.</li> <li>- There is a risk management process under the Company's policy and has also applied the criteria of The Committee of Sponsoring Organizations of the Treadway Commission - Enterprise Risk Management (COSO-ERM) as a framework for managing the Company's risks in order to conduct business in accordance with the sustainable development goals.</li> </ul>	<p>In 2022, the Company has reviewed key risks by categorizing the risks into 6 categories as follows:-</p> <p><b>1. Strategic Risk</b> Risks arising from inability to operate the business as planned, for example, the risk of delaying the project's implementation, the project's investment cost is higher than the set budget, etc. The Company regularly monitors and analyzes the implementation of investment projects, manages production costs, improves performance, and reviews investment plans for maximum benefit and efficiency.</p>	<ul style="list-style-type: none"> <li>- Review and supervise the risk to be at an acceptable level (Risk Appetite).</li> <li>- To ensure that the Group has an efficient risk management system and that it is constantly followed throughout the organization, oversee the Company in addition to developing substantial risk management and monitoring compliance with policies and risk management frameworks on a regular basis.</li> </ul>



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<ul style="list-style-type: none"> <li>Promote a risk management culture throughout the organization by providing risk management training to employees to build knowledge, understanding, participation, and systematic risk management. There will be training every year at least twice a year.</li> </ul>	<p><b>2. Operational Risk</b> Risks arising from internal operational processes or external causes that affect operations. In this regard, the Company has controlled both internal and external factors to be at an acceptable level.</p> <p><b>3. Financial Risk</b> Risk from lack of liquidity or source of funds for business operations or investment in various projects, or interest rate/ exchange rate risk The Company has implemented a conservative financial policy by planning and controlling cash flow sufficient for business operations, seeking appropriate funding sources, including financial control in line with interest rate trends, exchange rates, money markets, and capital markets change.</p> <p><b>4. Compliance Risk</b> Risk from inability to comply with government regulations and policies, including corruption. The Company has a unit that monitors changes in government policies, laws, rules, and regulations related to business operations, including strictly preventing corruption.</p>	





Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
		<p><b>5. Environment Risk</b> Risk of emissions from the production process affecting the environment. The Company implements the Net Zero Greenhouse Gas Emission policy with a policy to control sulfur dioxide emissions, including measures to control the quality of exhaust gases, dust particles, and effluents generated from the production process.</p> <p><b>6. Social Risk</b> Risks in human resource management, safety, occupational health, work environment, and human rights violations. The Company has a policy to enhance knowledge, understanding and skills as well as provide appropriate responses to employees. A welfare committee has been set up to oversee the safety, occupational health of employees, including a policy to respect human rights principles.</p>	



## Economic Performance [3-3]

The COVID-19 pandemic has widely affected the business sector in the country, as well as inevitably affected the Company's business operations, both in terms of supply and declining housing demand and the costs of production. The pandemic has also affected consumer behavior that emphasizes a safe life, and making access to products faster and more convenient. Therefore, the Company must adapt and develop the organization to be ready for each situation and increase its competitiveness to create value for the business, as well as deliver value to all relevant stakeholders continuously with sustainable growth.

### Economic Performance (based on consolidated financial statements)

Unit: Million Baht

Total Revenue	Employee wages and welfares	Tax expense	EBITDA	Net profit	Dividend per share
50,963	6,749	174.92	13,371	7,845	Baht 0.10 / share

Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
<ul style="list-style-type: none"> <li>Create growth potential and high return on investment for the organization in the long run and continue to deliver value to shareholders and related stakeholders under good corporate governance policy.</li> </ul>	<ul style="list-style-type: none"> <li>Comply with the Group's good corporate governance policy and business ethics, as well as promote a culture of good corporate governance, take responsibility for relevant stakeholders, and encourage the implementation and conduct of business with human rights principles, consumer rights and fair labor</li> <li>Focus on developing innovation with application of technology to create value added to the products, with their own research and development team of TPI Polene Group.</li> <li>Focus on managing the organization by embracing BCG criteria at all stages of the value chain to achieve efficient resource utilization and increase the advantage in production costs.</li> <li>Continuous development of waste fuel replacement</li> </ul>	<ul style="list-style-type: none"> <li>The only manufacturer in Thailand that can manufacture and distribute EVA Emulsion and EVA Powder to market under the brand Polene®</li> <li>In 2022, the Company was also the first Thai manufacturer of ready-mixed concrete to receive the Made in Thailand (MIT) product certification by the Federation of Thai Industries and announced to apply to government projects continuously from the year 2021 that was announced. In addition, TPI Concrete also has new innovations to be used in the development of production processes and concrete product designs, in order to continuously obtain a wide variety of products, able to meet the concrete needs of customers, project owners, both public and private sectors.</li> </ul>	<ul style="list-style-type: none"> <li>Develop products and services as well as produce products to respond to market demand, which demand consumption for the Company's products in the country, expand consistently due to the COVID-19 outbreak that can be controlled in many areas, including exports that are expected to increase demand. It also underpinned investment in the construction of utilities, mass transit and transportation networks in the central and regional sectors of the public and private sectors to support the country's growth and entry to the ASEAN Economics Community (AEC). This includes policies that are directly beneficial to property developers, such as the policy of lessening the LTV ceiling (mortgage-to-house ratio) to 100% for new mortgages. Additional refinancing and loans, which has fueled a recovery in domestic purchase demand.</li> </ul>



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<p>for coal in all four cement plants to reduce cement production costs and increase competitiveness.</p> <ul style="list-style-type: none"> <li>- Saving in cement &amp; binders: Development of new innovations to reduce the use of clinker, increase the use of substitute materials, promote the use of Low Carbon Cement (Low Carbon Cement), such as the development of hydraulic cement to be used as a replacement for portland cement type 1 etc.</li> <li>- Savings in clinker production: Reduce the use of fossil fuels in burning clinker, increase the use of biomass fuel, fuel from industrial waste, or municipal waste, which has been implemented since 2021 and will be completed in 2023.</li> <li>- The use of electricity from completely renewable clean energy (RE100 – Electricity Energy use Renewable Energy 100%) by producing electricity for use within TPI Polene Group in cement production and procurement of REC (Renewable Energy Certificate) to make cement production use 100% renewable energy.</li> </ul>	<ul style="list-style-type: none"> <li>- Develop concrete by using coal ash, a waste material from power plants, to replace cement by 50% and using hydraulic cement to replace Portland cement. Therefore, ready-mixed concrete is produced to reduce global warming by using hydraulic cement as a raw material for the production of ready-mixed concrete or low-heat concrete that helps reduce heat accumulation in large structural concrete and increases the durability of the concrete to be able to withstand various environments well. It is also a product for green building construction according to LEED and TREES standards, in line with the aforementioned trend.</li> <li>- Transform the Polymer business into environmentally friendly Specialty Polymer products with added value and higher profit margins. The improvement of machine performance and production technology to be more flexible has enabled the production of special grade EVA that has a high price in the Niche Market.</li> </ul>	<ul style="list-style-type: none"> <li>- Installation of the conveyors belt system and construction of CDE Plant (Site C) to recycle the scrap to increase revenue and profit for the cement business.</li> <li>- The Company has a policy to change its products to Specialty Polymers, which are plastic resins with more complex compositions and chemical structures, by improving production technology and machinery to be more flexible. The product has better features, higher prices, and limited production in Europe and America. None of these production technologies can be sold by any company like other basic petrochemical products. Due to this, the Company must first conduct research and develop such know-how using a specialized pilot reactor it has already built that can react at pressures of up to 3,000 bar in order to produce samples for testing and testing new markets before developing the technology to be used in the actual production line in the future. The Company expects to be able to start producing new types of specialty products within 2024.</li> </ul>



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<ul style="list-style-type: none"> <li>- Focus on niche market for EVA resin products with high profit margins and increase the production capacity of EVA emulsion and EVA powder.</li> <li>- Develop the production process of raw materials to produce quality products with modern technology, expand new product lines with valuable different designs at competitive prices, and organize transportation and deliver goods to customers as needed and accurately.</li> <li>- Install machinery in the rotary kilns to reduce Heat Consumption, reduce repair costs and thereby can reduce the cost of cement production.</li> <li>- Increase the range of mortar, fiber cement, concrete tiles and lightweight concrete that meet market demand</li> <li>- Expand the channels of sale in Modern Trade in Bangkok and metropolitan areas and main cities, as well as add retail channels that are suitable for the New Normal and online sales channels to make orders for products more conveniently.</li> </ul>	<p>Additionally, through internal technological advancement, the utilization of staff with over 40 years of manufacturing expertise, Enterprise Resources Planning (ERP) software technology, and data analysis using artificial intelligence, the Company consistently improves the efficiency of its machines (Artificial Intelligence). The Company has implemented an asset management system (EAM: Enterprise Asset Management) to increase efficiency and gradually lower the cost of maintenance of the machine, as well as to reduce the risk of production stoppages caused by equipment damage. By doing so, the Company plans to increase the production rate without having to make large investments in buying all new machines. This will significantly increase the Company's overall resin production rate.</p> <ul style="list-style-type: none"> <li>- The Company has revenue from sales of Baht 35,277 million, an increase of Baht 8,886 million (or increased by 33.67%) as the revenues of the petrochemical and chemicals business increased, primarily due to hike of product price</li> </ul>	



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<ul style="list-style-type: none"> <li>- Develop a logistic system to deliver products and services to customers rapidly, accurately, and with safety standards in the transportation of goods. There are distribution centers for products and raw materials scattered in strategic locations across the country with a network for inventory management. There are also retail stores to support sales to customers for easier access to products.</li> </ul>	<ul style="list-style-type: none"> <li>- The Company realized net profit from operations (excluding gains (losses) from exchange rates and corporate income tax) of Baht 7,573 million, an increase of Baht 507 million (or increased by 7.17%) from 2021</li> <li>- In 2022, no grounds for prosecution, fines or other penalties, and no disputes must be carried out through dispute resolution mechanisms adhering to other socioeconomic or regulatory laws or regulations. [2-27]</li> </ul>	



In 2022, the Company distributed economic value directly to various stakeholders, generating a cumulative economic value of Baht 9,497 million, with details as follows:-

Direct Economic Value Generated and Distributed [201-1]	2022* (Million Baht)
<b>(1) Direct Economic Value Generated</b>	
Revenues	39,902
<b>(2) Economic Value Distributed</b>	
Operating Costs	20,275
Employee Wages and Benefits	5,210
Payments to Providers of Capital	3,569
Payments to Government	-
Community Investment	19
<b>Total</b>	<b>29,073</b>
Retained Economic Value (2) – (1)	10,829

**Remark:** \* Based on the Company's Separate Financial Statements

## Information Security [3-3]

The Company recognizes the importance of personal data so the personal data of customers, suppliers of employees and or related parties (visitors or all related parties concerned) to the business of TPI Polene Group is stored securely and the data is used for the purposes as agreed by the data possessors in accordance with the Personal Data Protection Act B.E. 2562. The Company has established a privacy policy which can be found in more detail on the Company's website [www.tpipolene.co.th](http://www.tpipolene.co.th)

As for customer information, the Company recognizes the importance of protecting the personal data of customers which has been stored, collected, and used with the objective of offering products and services to meet the needs of customers in the most efficient way.

In 2022, TPI Polene Group received no complaints of personal data breaches. [418-1]

### Privacy Policy [2-23]

<https://www.tpipolene.co.th/th/aboutus/pdpda>





Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
<ul style="list-style-type: none"> <li>- Prevent the leakage of trade information, customers, suppliers, employees and/or stakeholders, which will affect the trading strategy and related stakeholders of the Company and its subsidiaries.</li> <li>- Raise awareness of cyber threats (Cyber Security Awareness) to employees at all levels to promote knowledge to keep up with various forms of cyber threats and reduce the risk of cyber threats in the operations under the Company's information systems and the daily lives of employees.</li> </ul>	<ul style="list-style-type: none"> <li>- Implement the Privacy Policy correctly and efficiently with an establishment of the Working Group to establish a personal data management system, and to manage personal data of those involved in accordance with the Company's personal data protection policy and the provisions of the law.</li> <li>- Provide training to the Management and employees, as well as communicate through channels such as emails, websites, to employees to build knowledge and understanding, as well as to realize the importance of maintaining the security of personal information, and to plan operations with other relevant agencies to manage the Company's personal data.</li> <li>- Provide information system security protection equipment and review information systems from external auditors annually.</li> <li>- Set a communication channel for inquiries in case of doubts regarding the protection of personal data. Collecting, using or disclosing information, exercising rights or having any complaints by contacting HR, 8th Floor, TPI Tower,</li> </ul>	<ul style="list-style-type: none"> <li>- All employees have been communicated and acknowledged the Personal Data Protection Policy and consented to the collection of personal data.</li> <li>- In 2022, no complaints of personal data breaches, including complaints from third parties and regulators arising from leaks, theft or loss of customer data and important corporate information.</li> </ul>	<ul style="list-style-type: none"> <li>- Provide training to employees with more knowledge and understanding than they are today.</li> <li>- Provide additional programs or tools to control and prevent access to data.</li> <li>- Add information system security equipment</li> <li>- Hire additional information security experts and have regular IT Security Assessments to perform preventive IT Security Protection.</li> </ul>



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<p>26/56 Chantad Mai Road, Tungmahamek, Sathorn, Bangkok 10120 Tel. +66 (0) 2213-1039, 2285-5090 email: DPO@tpipolene.net</p> <ul style="list-style-type: none"> <li>- Implement prevention and surveillance of cyber threats in various aspects, which can be summarized as follows.</li> </ul> <ol style="list-style-type: none"> <li>1. Communication systems and networks outside the Company and its affiliate: Install the Firewall to separate the scope of the network system outside and within the Company and its affiliates to prevent attacks from malicious people or hackers on the information systems of the Company and its affiliates from outside the Company.</li> <li>2. Host computer and client computer               <ol style="list-style-type: none"> <li>2.1 Cyber Security                   <ul style="list-style-type: none"> <li>Patching for Computer Operating System</li> </ul> </li> <li>2.2 Install Endpoint Security to protect against computer viruses and malicious programs.</li> </ol> </li> </ol>		



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<p>3. A virtual private network, or VPN, is necessary to connect to the systems of the Company and its affiliates from branch offices of the Company and its affiliates or external agencies in order to send and receive information securely between branch offices or external agencies and the information system of the Company and its affiliates.</p> <p>4. Knowledge Base</p> <p>4.1 The information management team regularly conducts cybersecurity studies</p> <p>4.2 Basic Cyber Security Awareness Training (Basic Cyber Security Awareness Training) is a guideline for working and using information systems to be safe from cyber threats.</p> <p>5. Information System Review by External Auditor: Conduct an annual information system review by an external auditor in accordance with standards or information system review frameworks like ITIL, ISO27001, etc. and make improvements to fix any flaws discovered during the review of the information system to ensure that it is secure.</p>		

Tracking and preventing data leaks

Types of Data Leaks	Management methods and solutions	The number of times the information was leaked		
		2020	2021	2022
Unauthorized access to data in information systems by people who do not have rights to it.	Information systems are regularly reviewed by external auditors every year.	0	0	0
Access to information in the information system by malicious persons (Hacker)	It is protected by Firewall/IPS and Endpoint Security information devices on the server and user machines, and the service contract is renewed regularly.	0	0	0

Products and Service Development with Responsibilities [3-3]

Researching, developing, and improving the Company’s products and services is considered a critical process for researching, developing and improving products and services each time, so the Company must truly understand consumer needs or satisfaction with products. This is done by surveying current consumer demands, budgets used, duration, and implementation of new technologies or innovations in the process of product and service development. Also, the Company’s production processes of goods and services must be controlled to meet the Quality Management System Standard (ISO 9001:2015), environmental management system standard (ISO 14001:2015), and management system standard, Occupational Health and Safety (ISO 45001:2018) and Energy Management System Standards (ISO50001:2011), to provide quality, safety, standardized products through modern, environmentally friendly means and that are versatile to meet consumers’ needs.

Quality Policy [2-23]

<https://www.tpipolene.co.th/th/aboutus/about-tpi/policy>



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
<ul style="list-style-type: none"> <li>- Seeking to gather knowledge that is useful for the organization, both in terms of products, services and operating methods</li> <li>- Complete research of new products or improve the quality of at least 5 products within 3 years</li> <li>- Research and development of technology and innovation in at least 5 projects within 3 years</li> <li>- Customers are satisfied with the Company in all aspects to the highest, and the satisfaction level must not be lower than 4.10 out of 5 points.</li> <li>- Customer satisfaction level in solving the Company's problems not less than 82%</li> </ul>	<ul style="list-style-type: none"> <li>- Provide R&amp;D department to conduct basic research activities of product research and development to be the main team in the development of the organization in terms of knowledge. New product research, product improvements and new knowledge pursuits to be used in corporate development</li> <li>- Improve existing products to better meet customer needs and application. It takes into account environmental friendliness and safety for users.</li> <li>- Develop new products, which are various innovations to market to increase alternatives and meet the best uses of consumers.</li> <li>- Research and development of Alternative Raw Material, including the reuse of waste from the production process to reduce the use of raw materials which are natural resources.</li> <li>- Continuous implementation of standard management system such as Quality Management System (ISO 9001:2008, API Specification Q1), Environmental Management System (ISO 14001:2004), Occupational Health and Safety Management (ISO 45001:2018), as well as quality management system on the competency of the TEST LABORATORY, ISO/IEC 17025:2005, etc.</li> </ul>	<ul style="list-style-type: none"> <li>- The innovative and service technology development projects, in which 35 products are successfully produced and launched in 2019-2022 as the following:               <ol style="list-style-type: none"> <li>1. New products for 2020 include TPI All Season Paint (NP104).</li> <li>2. New products for 2021 are TPI sulfate-resistant marine dry concrete mortar (M401S, M402S, M403S, and M404S), special primer paints (NP301P and NP304), probiotic products for animals (TPI - Probiotic liquid 5 formulas, powder 4 formulas. Number of product research and development projects After completion of the year 2020-2022, there were 7 projects;                   <ol style="list-style-type: none"> <li>1. For the year 2021, such as education, to use the steel fibers that are gemstone products from the replacement fuel production process.</li> <li>2. In concrete production, separation and selection of probiotics bacteria to produce food</li> <li>3. Economic animal animals, research and development of Porbioic microbes, lactic acid, bacteria for the production of powder probiotics, the development of healthy beverage products, healthy vitamins (Vitamin Water) and Probiotics</li> </ol> </li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>- The Company has a policy to change its products to Specialty Polymers, which are plastic resins with more complex compositions and chemical structures, by improving production technology and machinery to be more flexible. The product has better features, higher prices, and limited production in Europe and America. None of these production technologies can be sold by any company like other basic petrochemical products. Due to this, the Company must first conduct research and develop such know-how using a specialized pilot reactor it has already built that can react at pressures of up to 3,000 bar in order to produce samples for testing and testing new markets before developing the technology to be used in the actual production line in the future. The Company expects to be able to start producing new types of specialty products within 2024.</li> <li>- Develop products to have higher value Some products will focus on Niche Market to be able to increase sales and increase profitability, such as glue, water and glue, etc., as well as expanding the business to the New Normal product market, focusing on producing products for new lifestyles</li> </ul>



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<ul style="list-style-type: none"> <li>- All of the Company's products are researched and developed under the control of ISO 9001:2015, API Specification Q1, API Specification 10A and ISO/IEC 17025:2005, as well as prepare and review the Company's quality goals objectives at least once a year.</li> <li>- Administration in accordance with the Company's policies under the Code of Ethics and Good Corporate Governance to ensure that customers who purchase products and services from the Company receive the highest benefits and satisfaction by producing and selling products at a fair price, with high quality and to be responsible for customers and consumers by providing with fast service to maintain a long lasting relationship based on the following principles: (1) Strive to develop quality products and services that are inclusive and deliver products on timely manner (2) Must not act in deceptively or oblivious to product quality by delivering safe, reliable products and services and does not harm the health of consumers and provide caution advice in labels or product documentation in accordance with the International Standard Quality Management System, (3) Store customer data systematically, securely and without misuse of information, and (4) Provide</li> </ul>	<p>suitable for consumers of each age</p> <p>New products for 2022 include Liquid Hardener, Polyurethane foam for crack repair (PU Foam Injection), Acid-resistant mortar products from waste power plant fly ash together with silicone reinforced material, heat-resistant paint used for metal pipe structures and plant chimneys with high heat, mortar anti-alkali primer – anti-mold – NP111, Probiotic products for animals (6 formulas of TPI-Synbiotics, 6 formulas of powder type)</p> <p>1. For the year 2022, including concrete block products from heavy ash and fly ash from waste power plants, further development of TPI Biosan effluents treatment products to have features to increase the elimination of nuisance larvae, anopheles larvae, research and develop products from natural minerals for potted plants (Soil Booster).</p> <ul style="list-style-type: none"> <li>- The total amount of expenditure on research and development in 2022 amounted to Baht 166,551,389.</li> <li>- The total amount of spending on innovation technology and service in 2022 amounted to Baht 58,640,282.</li> </ul>	<p>that Different from the past Including Bio Knox and Micromknox products and various cleaning products, etc. For the EVA film business, the Company has developed new products to enter the safety glass market to replace the traditional plastic used in such industry, which has a high price.</p> <ul style="list-style-type: none"> <li>- Leading solar panel manufacturers have accepted the development of solar film for the production of high-quality solar panels, which is used in the generation of electricity from solar energy to reduce CO<sub>2</sub>. This includes the film development project for tempered glass, which is a product that requires high technology in production and takes a long time to develop, but has a high margin and a small number of manufacturers.</li> <li>- Regarding the sales promotion guidelines for 2023, the department believes that ideas from the customer satisfaction assessment report and suggestions from customers should be used as a framework for the Company's promotional activities, with a particular focus on organizing in the form of free giveaways, particularly the organic agricultural products group will organize a free giveaway item in the form of a T-shirt. As for other product categories, free gifts will be arranged in line with the market and competitive conditions,</li> </ul>





Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<p>the responsible departments for providing feedback, providing knowledge about the Company's products and services.</p> <ul style="list-style-type: none"> <li>- Collect information from customers who have purchased the Company's products to assess customer satisfaction levels in various areas, such as TPIPL product satisfaction, service satisfaction before, during and after-sales service, the Company's communications Satisfaction with sales support services and overall satisfaction with 2 annual assessment survey with a period of 6 months apart from the target groups, such as registered agents and registered product end-users. For assessments in the first 6 months of the year, the data collection of the year uses data of customers whose purchase sales volume in December prior to the assessment year. The second data collection for assessments in the last 6 months of the year uses customer data that has purchased goods in June of the year of assessment. The results of the satisfaction assessment of the year (based on the total average of both assessments) are taken into consideration according to ISO:9001 and formulate guidelines based on significant recommendations to the relevant authorities.</li> </ul>	<ul style="list-style-type: none"> <li>- Overall product satisfaction with an average TPI of 4.35 points out of 5.</li> <li>- Overall satisfaction with pre-sales services averaged 4.33 points out of 5 points.</li> <li>- Overall satisfaction with the service during the sale average 4.34 points out of 5 points.</li> <li>- Overall satisfaction with after-sales service averaged 4.36 points out of 5 points.</li> <li>- Overall satisfaction with communications of the Company averaged 4.33 points out of a full score of 5.</li> <li>- Overall satisfaction with sales support services averaged 4.31 points out of 5.</li> <li>- Overall satisfaction in various aspects averaged 4.35 points out of a full score of 5 points or equal to 86.40%.</li> <li>- Satisfaction level of solving customer problems is 95.05%.</li> <li>- No cases of non-compliance with regulations related to health and safety effects of products and services were found [416-2].</li> <li>- No cases of non-compliance with rules, regulations and/or codes of conduct regarding product and service information and labeling were found [417-2].</li> <li>- No cases of non-compliance with rules and regulations and/or rules and regulations regarding marketing communications were found [417-3].</li> </ul>	<p>including more products will be added to join the list. Additionally, the department aims to increase/create awareness of the Company's new products by using such products as promotional products. For example, the department might purchase paint and ceiling paint or fertilizer products and new fertilizer products in an effort to increase awareness and encourage more trials. The department will also put emphasis on promoting awareness through other marketing initiatives, such as setting up trade show booths, hosting seminars, etc., to suggest to management that they take into consideration as a policy to meet customer needs and to maintain customer satisfaction in order to be in compliance with the next standard.</p>



Target	Action Plan	Key Performance in 2022	Guidelines for improving future operations
	<ul style="list-style-type: none"> <li>- Giving importance to product development in accordance with standards, regulations, and market expectations with risk management measures by monitoring the market and customers, setting product inspection procedures, having Quality Assurance, Quality Control, obtaining product certification quickly, including setting clear and concise quality according to the specified standards.</li> <li>- Develop products to add higher value, with some products focusing on the niche market in order to increase sales and increase profitability, such as EVA liquid and powder, etc. including expanding the business into the New Normal product market by focusing on producing products for new lifestyles that are different from the past, such as Bio Knox and Microm Knox products and various cleaning products, etc.</li> <li>- As for the promotional guidelines for the year 2023, the Company has advertised various types of TPI products as suggested by customers as follows:-</li> <li>- Digital Advertising Channels, MGR Online website (www.manager.co.th)</li> <li>- Media types, both visual and sound, are TV, Suvarnabhumi Channel, TNN2, MCOT HD Channel 9, Sudla Fah Khiao Program, Channel 3, Nation TV 22, TOPNEWS 77, TGN and NEWS1 Channel.</li> <li>- Brochures, which are brochures, use high-quality paper with beautiful colors to distribute to customers.</li> <li>- Listening radio broadcasting through radio receivers, agricultural radio stations, Adisorn sound radio stations.</li> <li>- Print media such as Naew Na newspaper, 360 Degree Daily Manager newspaper.</li> </ul>	<ul style="list-style-type: none"> <li>- The Company has used information obtained from customer satisfaction assessments to develop and improve products/ services/business processes of the Company.</li> <li>- Customers have given suggestions for the promotion in the future, and requested that the Company organize a promotional campaign in the form of ordering products, giving away t-shirts and advertisements for various types of TPI products via TV. The Company has advertised various types of TPI products as suggested by customers as follows:-</li> <li>- Digital Advertising Channels, MGR Online website (www.manager.co.th)</li> <li>- Media types, both visual and sound, are TV, Suvarnabhumi Channel, TNN2, MCOT HD Channel 9, Sudla Fah Khiao Program, Channel 3, Nation TV 22, TOPNEWS 77, TGN and NEWS1 Channel.</li> </ul>	

**R&D projects undertaken in 2022**  
**(Including ongoing projects carried out in the previous year)**  
**totaling Baht 166,551,389 are as follows:-**

R&D Projects	Description	Investment value
A research study to use steel fibers that are byproducts from the production process of renewable fuels to be used in ready-mixed concrete production.	Development of mortar and concrete properties in tensile and bending forces using steel fibers derived from used tires, by-products from renewable fuel production through modifying and selecting the proper size compared to steel fibers, bending ends type of 0.75 x 60 mm, by researching on the tensile and bending properties of mortar and concrete with different proportion ratio of large steel lines.	THB 5,960,673
A research study of methods to reduce gas emissions CO2 caused by truck exhaust fumes by absorbing to ready-mixed concrete mixture.	Reducing CO2 gas emission caused by truck exhaust fumes, which are considered useless waste and a toxic polluting gas by absorbing to ready-mixed concrete mixture. The results of the test showing that CO2 gas can be used in concrete mixture whereas compressive strength is not inferior.	THB 3,420,716
A research study AHA extracts from lactic acid bacteria for cosmetic ingredients	AHA, an acidic compound is a natural extract, such as citric acid from lemon, orange and grapefruit, malic acid from apples, glycolic acid from sugarcane, lactic acid from sour milk, tartaric acid from tamarind, which is commonly used in dermatology, is used to treat acne, blemishes, dark spots, wrinkles and small polyps around the face and neck. It plays an important role in helping exfoliate old skin cells. The project then studied AHA extracts from natural raw materials, such as sugarcane juice, tamarind juice and lactobacillus spp. food left over from cell harvesting to compare the effectiveness and quantity obtained from extraction and make a mixture of cosmetic products (skin creams).	THB 2,280,000

R&D Projects	Description	Investment value
A research and development project of soil conditioners from scrap excess in the dolomitic limestone production process.	Soil is one of the fundamental factors that are important to production in the agricultural sector. Planting requires fertile soils with enough food minerals for plants, which will result in good growth, high yields and good quality, but the problem conditions currently encountered in most agricultural areas are lacking in fertility due to the prolonged use of agricultural land, and the use of chemical fertilizers alone causes soil degradation problems such as acid soil formation, thus developing soil nourishment agents from the remaining raw materials used in the dolomitic limestone production process, which solves the problem of soil degradation, improving the soil to raise soil pH. Increase the balance of various nutrients, adjust the soil to be fertile, suitable for growing crops.	THB 1,820,000
A research and development project on the effectiveness of hand wash liquid soap mixed with herbal extracts in destroying pathogenic bacteria.	As a result of the COVID-19 pandemic, consumers have changed their lifestyle to a “NEW NORMAL” that pays more attention to their personal hygiene to reduce the spread of the COVID -19 virus and skincare. Therefore, in this research, hand sanitizer soap products have been developed to reduce the accumulation of bacteria to help reduce the spread of harmful pathogens.	THB 3,500,000
The development of liquid organic fertilizers with the ability to decompose stubble or leaf residues that are difficult to decompose	Utilization of cellulosic microorganisms of liquid organic fertilizers on the decomposition of stubble and rice straw to reduce stubble burning and greenhouse gas emissions.	THB 2,770,000



R&D Projects	Description	Investment value
Producing modern medicines for people (in powder and pill form)	<p>It is the development of modern drug research for humans by using raw materials that are active ingredients listed in modern pharmaceutical formulations under clean, modern, and safe production processes for consumers to treat minor illnesses. that may occur in everyday life, reducing the importation of expensive medicines from abroad, for example</p> <ol style="list-style-type: none"> <li>1. Group of drugs to relieve stomach pain and flatulence</li> <li>2. Sore throat lozenges</li> <li>3. Antiseptic mouthwash</li> <li>4. Muscle relaxants</li> </ol>	THB 146,780,000
Total		THB 166,531,389

**Innovation Technology and service projects in 2022**  
**(Including ongoing projects carried out in the previous year)**  
**totaling Baht 58,640,282.71 are as follows:-**

Innovation Technology and Service Projects	Detail	Investment value
Development of Road Marking Paint Product with solvent free- ready to use type	<p>Innovations in ready-to-use traffic paint products do not rely on heat to warm the melting before using; it can be used to combine with paintbrushes, paint rollers or sprayers. It is convenient for users and does not have to mix other solutions and study to improve traffic paint products to enhance qualification. It is able to adhere well to a wide range of surface conditions, durable and resistant to abrasion of vehicle wheels. It can withstand good environmental conditions such as heat resistance, sun resistance, rain resistance, access to other climatic conditions, and develop into color products that can be easily self-cleaned and good anti-slip performance to reduce/prevent traffic hazards.</p>	THB 7,730,825.14

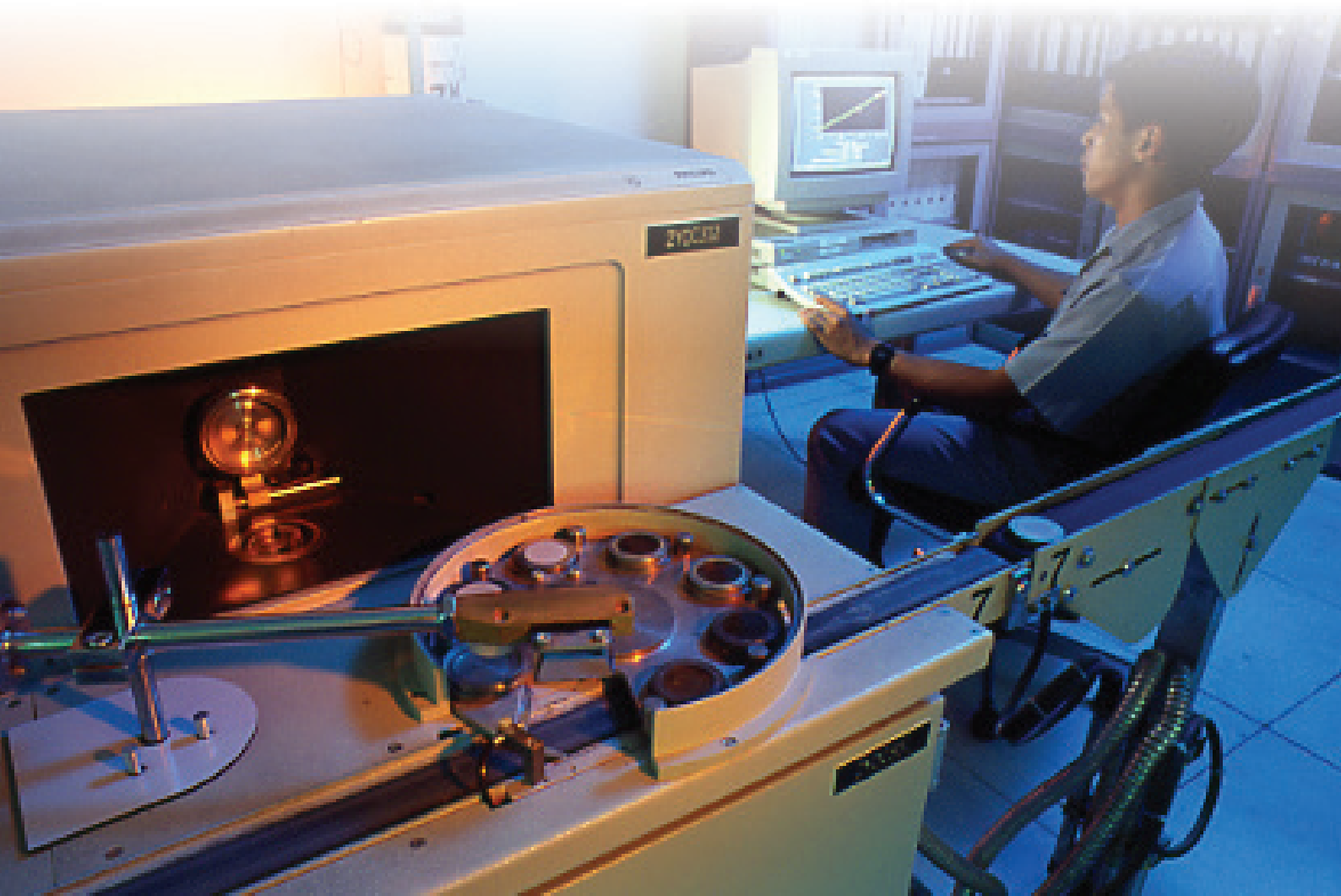
Innovation Technology and Service Projects	Detail	Investment value
Development of dry ready-mixed concrete products and dry ready-mixed concrete for the aquatic and marine environment	This project is an innovative new product of ready-mixed concrete and dry concrete for the marine environment by using fly ash, a byproduct from coal in Power plants. It is used as a concrete mixture material in order to meet industry standards in applying for a TIS license and also reduces waste caused by the power generation industry and reduces pollution that affects the environment.	THB 4,010,640.61
Research and development of solar heat reduction emulsion paint products	Innovative solar heat reduction emulsion paint for external paints with good heat reflection efficiency, UV resistant and maintains good surface adhesion properties. It can be used in a wide range of new and plaster walls, including plaster walls, fiber cement panels and decks, making the house cool, brightly colored and long-lasting. In addition, the products obtained from this research must pass according to industry standards. Solar Heat Reduction Emulsion Color according to TIS 2514-2553	THB 3,264,711.85
Research and development of natural mineral (Soil Booster) products for potted plants	Nowadays, due to the COVID-19 pandemic, which has changed people's lives longer stays at home or rooms, so many people have turned to plant trees, including ornamental flowers or kitchen garden vegetables, but as a novice to planting, and don't have any understanding of fertilizers, and nowadays fertilizers, planting soils or additives that help grow crops have different properties. For convenience for those who want to grow novice or professional crops, the Company has researched Soil Booster products, which are soil additives, the composition of the material makes it highly porous, helps carry water, retain moisture and nutrients for plants.	THB 2,750,000.00



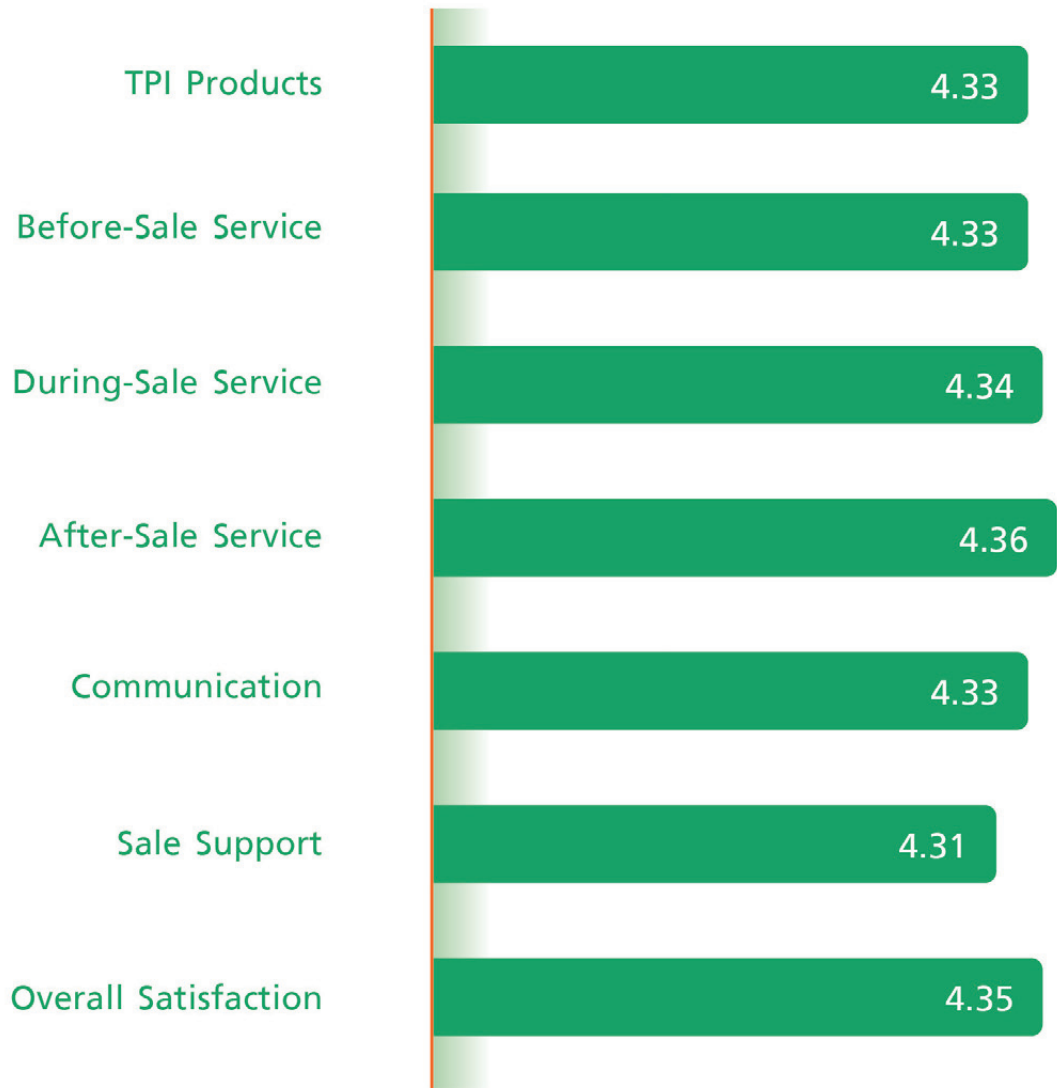
Innovation Technology and Service Projects	Detail	Investment value
Provita beverages are 20 % combined juice drinks (18% white grape juice and 2% orange juice) from concentrated white grape juice and concentrated orange juice, mixed with multivitamins (vitamin B3, B5, B6 and vitamin C) and Probiotics.	Provita beverages are 20% mixed juice drinks (18% white grape juice and 2% orange juice) from concentrated white grape juice and concentrated orange juice, mixed with multivitamins (vitamin B3, B5, B6 and vitamin C), Lactobacillus Paracasei microorganisms that have been pinned to the form of Microencapsulated bead capsules with microencapsulated bead techniques allow provita products to be stored at room temperature without refrigeration for up to 3 months.	THB 4,602,234.06
Development of calcium and vitamin C supplements powder	Calcium and vitamin C are essential minerals for the body. Each day, the body needs to get the right portion of calcium and vitamin C in order to strengthen bones and teeth. It also strengthens the body's immunity, but from the consumption of meat. Fruits and vegetables may not have enough calcium and vitamin C to meet the needs of the body, and in the current situation, the body also faces many different pathogens that may mix with what we eat.	THB 2,350,000.00
Use of waste materials from Fiber Cement products	Remove scraps that are waste from the production process to be used as a production ingredient and used fly ashes a by-product of the power plant as a raw material for the production of fiber cement.	THB 2,000,000.00
Lightweight Fiber-Reinforce Cement Material Project	Use scrap from the production of plastic resins process to create new composite materials so as to obtain similar properties to furniture materials, but they are water-resistant, fireproof, termite and insect resistant, and do not contain volatiles, environmentally and user-friendly; an innovative product that is in the process of applying for invention patents in the country and abroad.	THB 5,000,000.00

Innovation Technology and Service Projects	Detail	Investment value
Use in-line quality inspection technology at sheet machine.	Install cameras to detect contaminants on fiber cement surface while producing at sheet machine to control quality as well as reduce production waste.	THB 15,000,000.00
Development of Liquid Hardener	It is a concrete polishing system that strengthens the surface with a liquid hardener. There is a work process after polishing the concrete surface with Floor Hardener (TPI M99) and then by polishing it to get a smooth concrete surface, with a gloss similar to varnishing with enamel paint or epoxy. It can be used as an industrial floor, warehouse floor, parking facility floor, etc. since it is more durable and resistant to abrasion than polished concrete or concrete covered with polyurethane.	THB 2,824,788.05
Development of polyurethane foam products for repairing cracks (PU Foam Injection)	It is a product developed for polyurethane foam (PU Foam Injection) for repairing cracks in concrete with high pressure. The foam will swell in the cracks, closing the water seepage to stop water seeping into the concrete structure at the beginning, reducing future damage to the structure.	THB 2,341,107
Development of acid-resistant mortar products from waste power plant fly ash in combination with silica-reinforced materials	It is fly ash obtained from electricity generation from waste fuel used in organic polymers of acid-resistant mortar products. It is simple to react with alkalis while retaining the same mechanical properties and quality of the inorganic polymer, or better, because of its high amorphous silica and alumina content and spherical form.	THB 2,384,892.00
Development of heat-resistant paint products for metal pipe structures and factory chimneys with high heat	It is the development of heat-resistant paint products using silicone resin as a binder for protecting and heat-resistant of metal pipe structure and factory chimneys with high temperatures of 400 to 800 degrees Celsius.	THB 2,334,217.00

Innovation Technology and Service Projects	Detail	Investment value
Product development of anti-alkali primer paint - anti-fungus	This is the development of alkali-proof cementitious primer paint products - anti-fungus by using Pozzolan Material to remove alkali from calcium hydroxide group which is a product of hydration reaction between cement and water which is one of the causes of white stains (Efflorescence) together with the use of good quality polymers that are highly resistant to alkalis, providing good adhesion to the surface along with the use of anti-mold agents and containing Silver nanoparticles together.	THB 2,046,867
Total		THB 58,640,282.71



Level of customer satisfaction in various fields for the year 2022  
(full score 5 points)



**Note :** The results of the customer satisfaction rating based on a full score of 5 points, showing the total average of both assessments by collecting data 1, use customer data with purchases in December the previous year of the year assessed for assessment in the first 6 months of the year, and the second data collection of the year. For assessments in the last 6 months of the year, the satisfaction benchmark of each assessment must not be lower than 4.1 out of 5 points.



# 08

## About this report



### Source of Information [2-3]

The 2022 Sustainability Report of TPI Polene Public Company Limited has been prepared as the first report in accordance with the GRI International Reporting Standards to disclose the Company's annual performance in Economic, Social and Environmental dimensions, including good corporate governance, with annual reporting from January 1 to December 31, 2022, using the guidelines of GRI Standards for the Construction and Real Estate group of the Global Reporting Initiative (GRI), based on primary disclosure levels on core option criteria.

In addition, in order to demonstrate its commitment to sustainable development, the Company has linked its sustainable development goals (SDGs) in line with United Nations (UN) Sustainable Development Goals as shown in this report.

For the year 2022, there was no significant change, correction, or revision of information relating to changes or errors in information previously reported. [2-4]

### Scope of the report [2-2]

The disclosure of information in this report presents the 2021 performance data of TPI Polene Public Company Limited with a scope of reporting covering head office, Cement Plant, Saraburi Province, Concrete Roof tile and Fiber Cement Plants, Saraburi province, LDE/EVA Plants, Rayong province, as well as all related stakeholders.

### Creditability and Reliability of the report [2-5]

The ESG Committee and the top management of the Company plays an important role in monitoring, advising, giving grant approvals and verifying the accuracy of essential information in this report so that the contents of the report are complete, accurate, and reliable to be able to respond to relevant stakeholders and in line with GRI's international reporting guidelines. The Company has no policy to procure a Third Party for External Assurance.

### Upgrading the quality of report preparation

The Company allows all stakeholders to comment or express their opinion on the Annual Sustainability Report through the reader survey (as per the attachment to this report). The Company will use it as information on the development and enhancement of the preparation of the next Sustainability Report of the Company in order to further meet the needs and expectations of the relevant stakeholders.

### More information about the report [2-3]

For further questions or suggestions, please contact:

- |                           |                          |                               |
|---------------------------|--------------------------|-------------------------------|
| 1. Miss Oratai Jiaranai   | Assistant Vice President | Finance Management Department |
| 2. Mr. Chayutd Suphapodok | Department Manager       | Finance Management Department |

#### TPI Polene Public Company Limited

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Sustainability Report 2021  
On the website of TPI Polene Public Company Limited  
[www.tpipolene.co.th](http://www.tpipolene.co.th)



# 09

## GRI Content Index

Statement of use	TPI POLENE Public Company Limited has reported in accordance with the GRI Standards for the period from 1 January 2022 to 31 December 2022.
GRI 1 used	GRI 1: Foundation 2021
Applicable GRI Sector Standard(s)	-

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			GRI SECTOR STANDARD REF. NO.	SDG LINKAGE TO DISCLOSURE
			REQUIREMENT(S) OMITTED	REASON	EXPLANATION		
General disclosures							
GRI 2: General Disclosures 2021	2-1: Organizational details	SR 18-23	An orange cell indicates that reasons for omission are not permitted for the disclosure or that a GRI Sector Standard reference number is not available.				
	2-2: Entities included in the organization's sustainability reporting	SR 158					
	2-3: Reporting period, frequency and contact point	SR 158					
	2-4: Restatements of information	SR 158					
	2-5: External assurance	SR 158					
	2-6: Activities, value chain and other business relationships	SR 18-21, 23, 26-27					
	2-7: Employees	SR 24				SDG 8, SDG 10	
	2-8: Workers who are not employees	SR 24				SDG 8	
	2-9: Governance structure and composition	SR 28				SDG 5, SDG 16	
	2-10: Nomination and selection of the highest governance body	AR: Clause 7.2.4 Nomination and appointment of directors and sub-directors and Presidents; Clause 8.1.1 Nomination, Development and Training of Directors				SDG 5, SDG 16	
	2-11: Chair of the highest governance body	SR 28				SDG 16	
	2-12: Role of the highest governance body in overseeing the management of impacts	SR 28-30				SDG 16	



	2-13: Delegation of responsibility for managing impacts	SR 28-30					
	2-14: Role of the highest governance body in sustainability reporting	SR 31					
	2-15: Conflicts of interest	AR: Clause 8.1.4 Monitoring compliance with corporate governance policies and practices; Clause 9.2 Inter-Company Transactions					SDG 16
	2-16: Communication of critical concerns	SR 29-30					
	2-17: Collective knowledge of the highest governance body	AR: Clause 8.1.1 Nomination, Development and Training of Directors					
	2-18: Evaluation of the performance of the highest governance body	SR 31					
	2-19: Remuneration policies	AR: Clause 7.4.2 Remuneration policy of directors and the Management; Clause 7.4.3 Remuneration of the Directors; Clause 8.1.2 Attendance and remuneration of the Board of Directors and audit committees of the Company individually	b. describe how the remuneration policies for members of the highest governance body and senior executives relate to their objectives and performance in relation to the management of the organization's impacts on the economy, environment, and people.	Information unavailable/incomplete	It is under consideration to proceed in the next reporting cycle.		
	2-20: Process to determine remuneration	AR: Clause 7.3.4 Remuneration Committee as at 31 December 2022					
	2-21: Annual total compensation ratio	-	a. report the ratio of the annual total compensation for the organization's highest-paid individual to the median annual total compensation for all employees (excluding the highest-paid individual); b. report the ratio of the percentage increase in annual total compensation for the organization's highest-paid individual to the median percentage increase in annual total compensation for all employees (excluding the highest-paid individual); c. report contextual information necessary to understand the data and how the data has been compiled.	Information unavailable/incomplete	It is under consideration to proceed in the next reporting cycle.		

	2-22: Statement on sustainable development strategy	SR 6-8					
	2-23: Policy commitments	SR 24-25, 32-39, 89, 118, 134, 141, 145	a. describe its policy commitments for responsible business conduct, including: i. the authoritative intergovernmental instruments that the commitments reference; ii. whether the commitments stipulate conducting due diligence	Information unavailable/incomplete	It is in the process of considering the OECD Due Diligence Guidance for Responsible Business Conduct to be applied in the organization		SDG 16
	2-24: Embedding policy commitments	SR 28-29, 32-39	a. describe how it embeds each of its policy commitments for responsible business conduct throughout its activities and business relationships.	Information unavailable/incomplete	It is in the process of considering the OECD Due Diligence Guidance for Responsible Business Conduct to be applied in the organization		
	2-25: Processes to remediate negative impacts	SR 130-134					
	2-26: Mechanisms for seeking advice and raising concerns	SR 130-134	a. describe the mechanisms for individuals to: i. seek advice on implementing the organization's policies and practices for responsible business conduct; ii. raise concerns about the organization's business conduct	Information unavailable/incomplete	It is in the process of considering the OECD Due Diligence Guidance for Responsible Business Conduct to be applied in the organization		SDG 16
	2-27: Compliance with laws and regulations	SR 54, 140					
	2-28: Membership associations	SR 32-33					
	2-29: Approach to stakeholder engagement	SR 39-46					
	2-30: Collective bargaining agreements	SR 94					SDG 8
Material topics							
GRI 3: Material Topics 2021	3-1: Process to determine material topics	SR 47-48	An orange cell indicates that reasons for omission are not permitted for the disclosure or that a GRI Sector Standard reference number is not available				
	3-2: List of material topics	SR 49-50					
Economic performance							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 52-55, 137-141					
GRI 201: Economic Performance 2016	201-1: Direct economic value generated and distributed	SR 141					SDG 8, SDG 9

Anti-Corruption							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 118-129					
GRI 205: Anti-Corruption 2016	205-1: Operations assessed for risks related to corruption	SR 119, 121					SDG 16
	205-2: Communication and training about anti-corruption policies and procedures	SR 128-129					SDG 16
	205-3: Confirmed incidents of corruption and actions taken	SR 119					SDG 16
Materials							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 52-58					
GRI 301: Materials 2016	301-1: Materials used by weight or volume	SR 57					SDG 8, SDG 12
	301-2: Recycled input materials used	SR 58					SDG 8, SDG 12
Energy							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 52-55, 61-66					
GRI 302: Energy 2016	302-1: Energy consumption within the organization	SR 61, 65					SDG 7, SDG 8, SDG 12, SDG 13
	302-3: Energy intensity	SR 66					SDG 7, SDG 8, SDG 12, SDG 13
	302-4: Reduction of energy consumption	SR 66					SDG 7, SDG 8, SDG 12, SDG 13
Water and Effluents							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 52-55, 67-76					
GRI 303: Water and Effluents 2018	303-1: Interactions with water as a shared resource	SR 67-68					SDG 6, SDG 12
	303-2: Management of water discharge-related impacts	SR 68					SDG 6
	303-3: Water withdrawal	SR 67, 69-71					SDG 6
	303-4: Water discharge	SR 67-68, 72-74					SDG 6
	303-5: Water consumption	SR 75					SDG 6
Emission							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 52-55, 76-81					
GRI 305: Emissions 2016	305-1: Direct (Scope 1) GHG emissions	SR 79					SDG 3, SDG 12, SDG 13, SDG 14, SDG 15
	305-2: Energy indirect (Scope 2) GHG emissions	SR 79					SDG 3, SDG 12, SDG 13, SDG 14, SDG 15
	305-3: Other indirect (Scope 3) GHG emissions	SR 79					SDG 3, SDG 12, SDG 13, SDG 14, SDG 15

	305-4: GHG emissions intensity	SR 79					SDG 13, SDG 14, SDG 15
<b>Waste</b>							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 52-55, 83-87					
GRI 306: Waste 2020	306-1: Waste generation and significant waste-related impacts	SR 83					SDG 3, SDG 6, SDG 11, SDG 12
	306-2: Management of significant waste-related impacts	SR 83-85					SDG 3, SDG 6, SDG 8, SDG 11, SDG 12
	306-3: Waste generated	SR 86					SDG 3, SDG 6, SDG 11, SDG 12, SDG 15
	306-4: Waste diverted from disposal	SR 86					SDG 3, SDG 11, SDG 12
	306-5: Waste directed to disposal	SR 86					SDG 3, SDG 6, SDG 11, SDG 12, SDG 15
<b>Employment</b>							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 89-99					
GRI 401: Employment 2016	401-1: New employee hires and employee turnover	SR 91,97					SDG 5, SDG 8, SDG 10,
	401-2: Benefits provided to full-time employees that are not provided to temporary or part-time employees	SR 98					SDG 3, SDG 5, SDG 8
	401-3: Parental leave	SR 99					SDG 5, SDG 8
<b>Labor/Management Relations</b>							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 89					
GRI 402: Labor/Management Relations 2016	402-1: Minimum notice periods regarding operational changes	-	a. Minimum number of weeks' notice typically provided to employees and their representatives prior to the implementation of significant operational changes that could substantially affect them. b. For organizations with collective bargaining agreements, report whether the notice period and provisions for consultation and negotiation are specified in collective agreements.	Not Applicable	The Company does not have a policy to set a minimum notice period. However, the notifications depend on incidents of significant operational changes which are considered appropriate by the Company.		SDG 8
<b>Occupational health and safety</b>							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 102-112					
GRI 403: Occupational Health and Safety 2018	403-1: Occupational health and safety management system	SR 102, 105, 107					SDG 8

	403-2: Hazard identification, risk assessment, and incident investigation	SR 102, 105-106, 108					SDG 8
	403-3: Occupational health services	SR 106-107					SDG 8
	403-4: Worker participation, consultation, and communication on occupational health and safety	SR 103, 105-107					SDG 8, SDG 16
	403-5: Worker training on occupational health and safety	SR 104					SDG 8
	403-6: Promotion of worker health	SR 103					SDG 3
	403-7: Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	SR 102					SDG 8
	403-8: Workers covered by an occupational health and safety management system	SR 109					SDG 8
	403-9: Work-related injuries	SR 110					SDG 3, SDG 8, SDG 16
	403-10: Work-related ill health	SR 111					SDG 3, SDG 8, SDG 16
Training and education							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 89-96, 100					
GRI 404: Training and Education 2016	404-1: Average hours of training per year per employee	SR 91, 100					SDG 4, SDG 5, SDG 8, SDG 10
	404-2: Programs for upgrading employee skills and transition assistance programs	SR 101					SDG 8
	404-3: Percentage of employees receiving regular performance and career development reviews	SR 101					SDG 5, SDG 8, SDG 10
Local communities							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 112-116					
GRI 413: Local Communities 2016	413-2: Operations with significant actual and potential negative impacts on local communities	SR 113-114					SDG 1, SDG 2
Supplier Social Assessment							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 118-127, 130					
GRI 414: Supplier Social Assessment 2016	414-1: New suppliers that were screened using social criteria	SR 119, 130					SDG 5, SDG 8, SDG 16
	414-2: Negative social impacts in the supply chain and actions taken	SR 119-120, 130					SDG 5, SDG 8, SDG 16

Customer health and safety							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 145-149					
GRI 416: Customer Health and Safety 2016	416-2: Incidents of non-compliance concerning the health and safety impacts of products and services	SR 148					SDG 16
Marketing and Labeling							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 145-149					
GRI 417: Marketing and labeling 2016	417-2: Incidents of non-compliance concerning product and service information and labeling	SR 148					SDG 16
	417-3: Incidents of non-compliance concerning marketing communications	SR 148					SDG 16
Customer privacy							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 141-145					
GRI 418: Customer Privacy 2016	418-1: Substantiated complaints concerning breaches of customer privacy and losses of customer data	SR 141					SDG 16
Innovative Technology and Service							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 145-149, 152-156					
Research and Development							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 145-152					
Transport							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 59-60					
Land Degradation, Contamination and Remediation							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 82					
Construction and Real Estate (CRE)-Specific Information Disclosure of Construction and Real Estate Sector according to GRI	CRE 5: Land remediated and in need of remediation for the existing or intended land use, according to applicable legal designations 1	SR 82					SDG 3, SDG 6, SDG 12, SDG 14, SDG 15
Customer Satisfaction							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 145-149, 157					
Products and Services							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 145-149					
Information Security							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 141-145					
Risk and Crisis Management							
GRI 3: Material Topics 2021	3-3: Management of material topics	SR 32-39, 134-136					

**Remarks:** AR – TPIPL Annual Registration Statement/Annual Report 2022 56-1 One Report 2022

SR – TPIPL Sustainability Report 2022



10

Request for your kind cooperation in responding to reader surveys by scanning QR Codes and sending this survey form back to TPI Polene Plc, at the address that appears at the end of this report or by email to: [orataij@tpipolene.co.th](mailto:orataij@tpipolene.co.th) / [chayutd@tpipolene.co.th](mailto:chayutd@tpipolene.co.th)

## Reader Survey Form

### 1. Personal data

Gender ☐ Male ☐ Female  
 Age ☐ Under 30 years old ☐ 30-50 years ☐ More than 50 years  
 Occupation, please specify .....

### 2. As a reader/data user, please specify that you read/relate to the uses of information from which point of view:

☐ Customer ☐ Employee ☐ Regulatory Authority ☐ Educational Institutions/Research Agencies ☐ General public  
☐ Entrepreneur ☐ Government agency ☐ Financial Institutions ☐ Others, please specify.....

### 3. From what sources did you receive/read the Company's Sustainability Report?

☐ [www.tpipolene.co.th](http://www.tpipolene.co.th) ☐ Employees of TPI Polene Public Company Limited  
☐ Office/Factory/Subsidiary ☐ Others please specify .....

### 4. The purpose of reading this Sustainability Report:

☐ To get to know the Company ☐ To find out about the decision to use the Company's products/services.  
☐ To study projects that benefit society and the environment. ☐ For research and study of sustainability practices.  
☐ Others, please specify .....

### 5. What is your opinion about this Sustainability Report of TPI Polene Public Company Limited?

The completeness of the report covers important issues of interest to you. ☐ Much ☐ Moderate ☐ Low  
 The beauty of the design of the booklet ☐ Much ☐ Moderate ☐ Low  
 The appeal of the content, the reports, and the presentation style ☐ Much ☐ Moderate ☐ Low  
 Content clarity, easy to understand and not confusing. ☐ Much ☐ Moderate ☐ Low  
 Overall reporting satisfaction ☐ Much ☐ Moderate ☐ Low

### 6. What part of the content of this sustainability report interests you the most?

☐ About TPI Polene ☐ TPI Polene and its Sustainability ☐ Environmental Impact Management  
☐ Community and Social Development ☐ Business Operation under Good Corporate Governance

### 7. Do you think the contents of this report contain all the issues of interest to you?

☐ Complete  
☐ Not complete, need more information

(Please identify the issues that are of your interest and would like to disclose more in the Company's subsequent Sustainability Report)

### 8. What additional matters do you think TPI Polene Public Company Limited should develop or improve in its sustainability performance?

### 9. Comments or other additional suggestions to further improve the Company's Sustainability Report.

TPI Polene Public Company Limited would like to thank you for your kind cooperation and response in this survey form. Information from your answers about this Sustainability Report will be used to improve the preparation of future Sustainability Reports of the Company.





## บริษัท ทีพีโอ โพลีน จำกัด (มหาชน) TPI POLENE Public Company Limited

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