TPI POLENE Public Company Limited

WE BUILD
THE FUTURE

Sustainability Report 2021

TPI POLENE Public Company Limited

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."

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."

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."

TPIPL

Environmental Dimension

“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 Dimension

“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 Dimension

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

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Message from Board of Directors and Chief Executive Officer [102-14]

TPI Polene Public Company Limited adheres to a policy of driving the economy towards sustainable development by linking the three key areas of circular economy, green economy, and bio economy together, which is called Bio Circular-Green Economy (ESG and Bio Circular-Green Economy-BCG). We follow this policy to use at all stages of the value chain, making it an important strategy to drive the business of the TPI Polene Group to reduce the use of natural resources in procurement, production, distribution and transportation, and waste disposal, and to reuse limited energy and natural resources to maximize efficiency and reduce the environmental impact at the source.

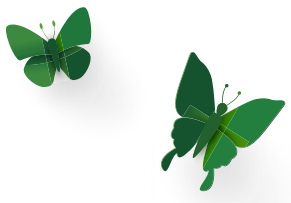
The Company has established a net zero greenhouse gas emission policy as part of its business operations for the TPI Polene Group to be based as a guideline for implementation, which is in line with environmental impact reduction policies to net zero GHG emissions which reduces the impact on global climate change, as well as to respond to government policies that have pledged internationally that Thailand will fully enhance its climate solutions so that Thailand meets its net zero emissions target by 2050. TPI Polene Group has set a target of zero net greenhouse gas emissions at cement plants and surrounding areas at Mauk Lek and Kaeng Khoi, Saraburi province by 2024 by using waste as fuel instead of coal in both, the cement and power plants production processes.

At year ended 2021, TPI Polene Group by TPI Polene Power Plc. was registered by the Greenhouse Gas Administration ("TOR") (from the project to convert community solid waste into waste fuel) and certified for a decrease in greenhouse gases (carbon credits) of 82,056 tons of carbon dioxide equivalent, with a remaining amount of 59,526 tons of carbon dioxide equivalent (after partial sale) and under the process of attaining a reduced greenhouse gas registration (carbon credit) for the period from May 1, 2017 to December 31, 2020, for another 709,752 tons of carbon dioxide equivalent.

Besides, in 2021, TPI Polene Group recycled total of approximately 2.19 million tons of all types of waste as a replacement fuel for coal in the electricity generation of TPI Polene Power Plc. and used in the Company's cement production process, which can reduce greenhouse gas (carbon retention) emissions from landfill by approximately 5.08 million tons of carbon dioxide equivalent. TPI Polene Group is in the process of attaining greenhouse gas registration (carbon credit) with the TOR to ensure the amount of greenhouse gases reduction.

Even though in recent times, the global outbreak of COVID-19 has inevitably affected the economic sector domestically and internationally and affected the health,

> **"The Company continues to operate its business by emphasizing a balanced responsibility in various issues such as creating good returns for shareholders"**



safety, and well-being of communities and society. This circumstance seems to be a serious challenge to the implementation of economic and business activities. However, the Company still has a commitment to the continuous development of products and services, based on good corporate governance principles, being ethical in business operations and aware of the difficulty of the community. The Company has continuously improved the technology and production efficiency of cement plants. As a result, heat consumption and repair costs can be reduced as well as developing technology to use 30-40% of renewable fuels instead of coal. Thus, TPI Polene is the first cement manufacturer in Thailand which uses waste as a substitute fuel for coal, enabling us to reduce production costs. The Company also focuses on research and development of technologies to produce cement paint products, such as road marking paint (a solvent free type), and the development of dry concrete products for the marine environment, as well as the development of platforms and the use of digital technology to increase online products distribution channels. TPI Polene Group has also adopted biotechnology and innovations in product development to further support the country's agricultural sector, and promote the bioeconomy and healthcare products, such as Bio Knox (Natural calcium and vitamin C dietary supplements), Micromknox Solution (used for spraying to reduce germs), TPI mouthwash (reduces germ accumulation). These products are tested and approved by the Faculty of Medicine, Siriraj Hospital and Chulalongkorn University's Academic Service Center and are effective in destroying viruses including SARS-CoV2, PRRS, PDCoV, PCV2 and RVA. The research and development of technology will result in the TPI Polene Group being ready to adapt to changing environmental factors, as well as developing competitiveness to meet new social lifestyles and business practices in a "New Normal" way.

In 2021, TPI Polene Group jointly helped to relieve the suffering of society, the community and employees from the COVID-19 pandemic and other social assistance projects, totaled approximately Baht 153.5 million to support " Breath-restoration Projects" for purchasing "high flow machines" for Siriraj Foundation, support mobile X-ray vehicles for Chana Hospital, Songkhla province, to get through to the villages of the south and oxygen machines with high flow rates, clean air supply respiratory protection

equipment (PAPR), isolator negative pressure crib, etc. to Public Health, Songkhla province, to be used in 6 hospitals, namely Chana Hospital, Somdej NaThavee Hospital Tepa Hospital, Sabayai Hospital Sadao Hospital, Padang Besar Hospital and support Excellent Mobile Vehicle for Prince of Songkla Hospital, Faculty of Medicine, Prince of Songkla University and donated healthcare products of TPI Polene Group to medical personnel, healthcare frontline officers and infected patients in Siriraj Hospital, and field hospitals in Saraburi province, for a total of 14 hospitals and the police hospital, supported TPI board to use to slab the shower rooms, to Busarakham Field Hospital (Muang Thong Thani), supported the construction of Lerdsin Hospital's field hospital, supported 31,000 rice boxes for healthcare staffs, at Bang Sue Central Vaccination Center, including dry food, rice and healthcare products of TPI Polene group to Songkhla Provincial Administration and people in NaTab, Taling Chan, Sakom and Chana, Songkhla province.

In addition, the TPI Polene Group has made it a priority to ensure that employees and their families are tested for infection and vaccinated, and provide health products to prevent and raise their immunity to COVID-19.

With the Company's commitment to management in all dimensions of business operations, covering the economy, environment, society, and good corporate governance, TPI Polene Public Company Limited has received the award of achievement and pride in 2021, for environmental, social and governance (ESG) assessments at the Gold Level by Thaipat Institute, a standard emblem of industrial waste management plants, 2021 Gold Medal Award from the Department of Industrial Works 2021 Green Industry Level 4 (Green Culture) Award for cement plants line 1, 2 and 3 and total waste improvement plants from the Ministry of Industry, etc.

On behalf of the Company, the Company's Board of Directors would like to take this opportunity to thank bondholders, financial institutions, employees of the Company, and all stakeholders for a well-coordinated effort and their ongoing trust in driving all work and activities and creating unswerving progress for the organization. All-important operational information has been summarized, compiled, and disclosed in this Sustainability Report, prepared in accordance with the GRI reporting standards of the Global Reporting Initiative (GRI). The Company realizes the importance of conducting business operations to achieve the goal of creating stability for the organization by emphasizing the balanced consideration of all related parties, and the fair treatment of all parties concerned through a policy of reducing emissions to solve global warming, to consistently protect the surrounding environment, and to further enhance the sustainable growth of the country.

Sincerely Yours,

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

(Mr. Prachai Leopairatana)
Chief Executive Officer

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:

1. 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.
2. Viriya : (Effort) or energy or will.
3. Citta : (Concentration) Consciousness or mind or thoughts, concentrate on work.
4. Vimansa : 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:

Metta : Mercy
Karuna : Kindness
Mudita : Sympathetic Joy
Upekkha : 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.

Brahma-vihara 4

หนทางสู่ความสำเร็จ (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.
  First, we need to explore ourselves for what kind of job we like or what areas of work we have faith in, and then go down that path. We can start easily by questioning ourselves and what we work for and whether we are happy if such a job is not a loving job. In case we have time to find and adjust ourselves or adapt our faith to our work.
- **Viriya** (EFFORTS) Diligence in our work.
  All work which can be done requires diligence. Viriya is another tool that can lead to success. The more we work hard, the more the rewards received. More importantly, Viriya can be achieved with the love of work, not just dedicating the work to life but virility is a self-practicing one.
- **Citta** (CONCENTRATION)
  The mind that focuses on work is completely good for the work that is done. Chitta is Thamma that represents consciousness, prudence, and responsibility and helps us to work without distractions. Once we have both Chanda and Viriya, Chitta can be considered as the fence of a path that does not distract us from success.
- **Vimansa** Contemplation and use of wisdom to monitor the work.
  The best way to get the job done is in this last element of the basis for success 4. Vimansa means contemplate, working with wisdom, and a rational brain, not just working on it. Reconsidering ourselves steadily and what we have done all day, summarizing the reasons why we have done all these things today, and we can be encouraged in the next following days that we're not going to repeat our mistakes, and can see a way to see which paths will actually lead to success.

Therefore, if Iddhipada 4 (BASIS FOR SUCCESS 4) is applied at work, we will love the work, we work hard, and we take responsibility for the work and know to contemplate carefully. The way of success is not beyond our reach (Source: Division of Planning, Office of the President, Maha Sarakham University), which is the main principle of Iddhipada 4 and is the way to success at work, a commitment to creating balanced happiness with a sustainable quality of life.

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. ❖

1. **Dukkha** (Suffering)
2. **Samudaya** (The Cause or Origin of Suffering)
3. **Nirodha** (The Cessation or Extinction of Suffering can be attained by the renouncement or letting go of Tanha)
4. **Marga** (The Path leading to the Cessation or Extinction of Suffering)

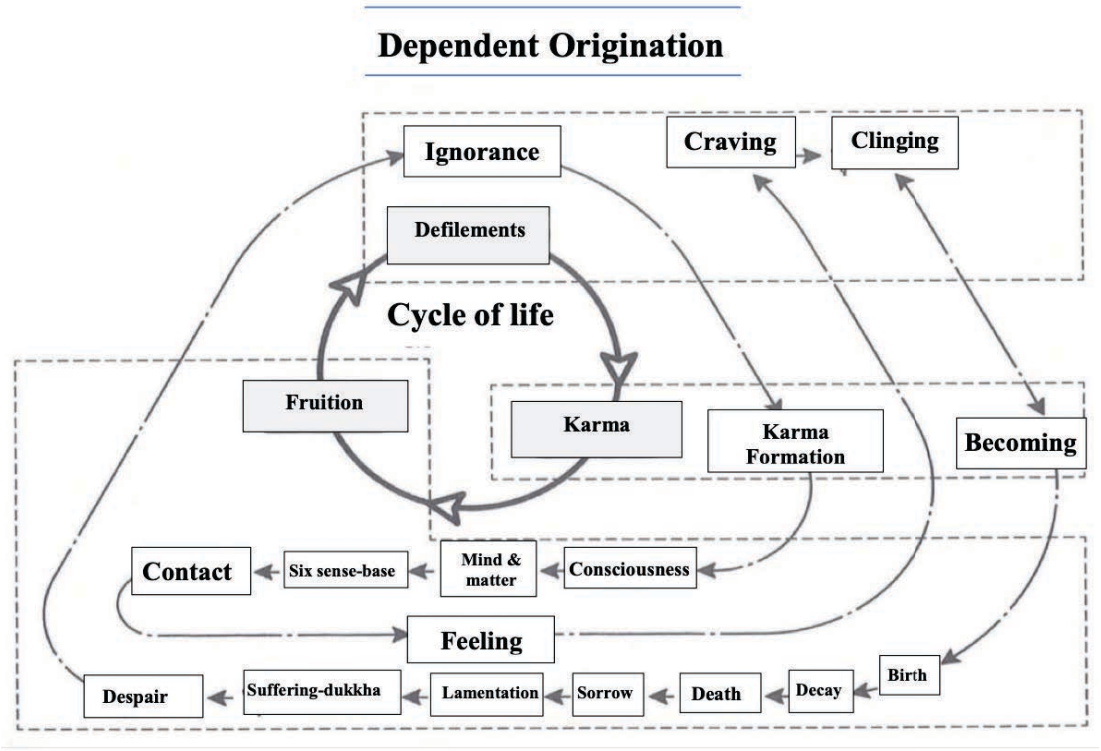
1. Dukkha

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 suffering Dukkha

Consideration of Patiicca-samuppada: Cause of Suffering. Paticca-samuppada or the Law of Dependent Origination is the Dhamma or natural law



3. Nirodha

The Cessation or Extinction of Suffering can be attained by the renouncement or letting go of Tanha.

4. Marga: The Noble Eightfold Paths

The Path leading to the Cessation or Extinction of Suffering

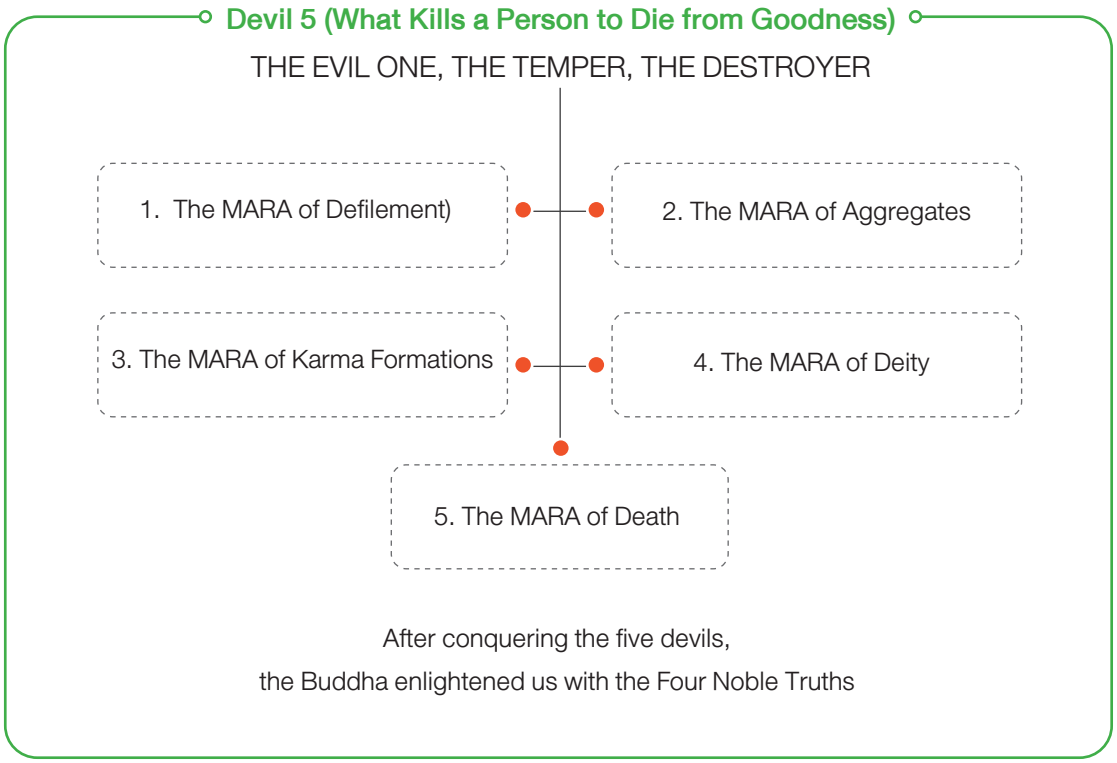
1. Right view
2. Right intention
3. Right speech
4. Right action
5. Right livelihood
6. Right effort
7. Right mindfulness
8. Right concentration

❖ Chants conquering Evil: Panmare Chino Na Tho ❖

Panmare Chino Natou Patto Sampothimuttaman

Chatur Satjung Pakasti Thammajakang Pawattayi

Etena Sajjavajchena Hotu Me Chayamankalang



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 (rũpa-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 (vedanã-kkhandha) is the aggregate of processing feelings such as happiness, suffering, or indifference.
   2.3 The perception group (saññã-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 (sankhãra-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 (viññãna-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 Punyaphisangkhara is a thought that enhances good karma (merit).
   3.2 Apunyaphisangkhara 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.
   ❖ Udhamphakiyasayojana 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 Vajisangkhara: verbal formation, verbal volition

5.3 Manosangkhara: mental formation, mental volition

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

1. Anicca: Impermanence
2. Duhkha: 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 Wisangkhara

Wisangkhara is Nirvana, which is eternal. It leads to nicca, sukhang, anatta (dharma).

Awards of Achievement and Pride in 2021

TPI Polene Award of Achievement

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

- **TPIPL received the symbol of the industrial waste management factory standard with a "Gold Medal"** Award 2021 from the Department of Industrial Works.

- **Awarded and received plaques and honors under the "Project to promote industrial factories to have social responsibility and sustainable communities"** in the category of CSR-DIW Award and CSR-DIW continuous award 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 establishments have received CSR-DIW awards, namely cement plant line 4, mortar plant 1, 2, 3, 4 and Light Weighted Concrete Plant including cement plant line 1, 2 and 3, which were certified three CSR-DIW continuous awards.

- **Received 2021 Green Industry Level 4** from the Ministry of Industry; Green culture award for cement line 1, 2, 3 and Waste Disposal Plant where green culture is the fact that everyone in the organization cooperates on working in environmentally friendly ways in all aspects of the business to become part of the corporate culture, which drives the green GDP of the country to be at higher value.

- **Received 2021 Green Industry Level 3** from the Ministry of Industry: Green System award for cement line 4, LDPE/EVA plants, EVA emulsion and EVA powder, certified as Green Industry Level 3 with the green system, which is systematic environmental management, monitored, evaluated and reviewed for continuous development, as well as receiving accepted environmental awards and certification of various environmental standards.

- **The Company has been certified** by the Federation of Thai Industries for the use of Made in Thailand (MiT) markings displayed on publications such as labels, brochures, backgrounds or events for cement and construction materials products and agricultural products, healthcare products, livestock, and fisheries.

Made in Thailand (MiT)

Made in Thailand

Affiliated Success Award

- **TPI Polene Power Public Company Limited** was evaluated in ESG in 2020 at the Gold Level by Thaipat Institute, which was evaluated through WFE ESG Metrics on 30 indicators of the World Federation of Exchanges.

- **TPI Polene Power Public Company Limited** receives plaques and honors for the project to promote industrial plants to have sustainable social and community responsibility under the category CSR-DIW Award and CSR-DIW Continuous Award 2021, from the Department of Industrial Works, Ministry of Industry, which has five TPIPP establishments, received the CSR-DIW Awards, such as TG4 (30MW), TG5 (60MW), TG6 (70MW), TG7 (40MW) and TG8 (150MW), and TG1-3 (60MW) received the CSR-DIW Continuous Award.

- **TPI Concrete Company Limited** is the first Thai ready-mix concrete manufacturer certified as a “Made in Thailand” (MiT) product by the Federation of Thai Industries, which emphasizes the use of raw materials for the production of ready-mixed concrete from local sources.

- **TPI Bio Pharmaceuticals Co., Ltd.** was listed as one of 10 Thai innovations from the National Science and Technology Development Agency (NSTDA) on October 29, 2021. The products that have been listed on Thai innovations account are TPI Probiotics, which is a biological enhancer, a bacillus subtilize in liquid and powder form for animals, etc.

- **The Company and TPI Polene Power Public Company Limited** received the “Sustainability Disclosure Acknowledgement” Award 2021, Sustainability Disclosure Awards, Thaipat Institute, to encourage listed companies and business organizations that are members of the Sustainability Disclosure Community (SDC) to recognize and focus on disseminating operational information, which covers economic operations, and ESG (Environmental, Social and Governance).

About TPI Polene

Corporate Overview

TPI Polene Public Company Limited, or TPIPL [102-1], 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. [102-5]

On April 5, 2017, the ordinary shares of TPI Polene Power Public Company Limited (a 70.24% owned-subsidiary 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, 2021, the Company had a registered capital of Baht 23,751,500,000 (23,751,500,000 shares) and paid-up capital of Baht 19,126,500,000 (19,126,500,000 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: [102-2]

1. Construction sector: manufacture & sale of cement, mortar, clinker, ready-mixed concrete, CRT/FCB, lightweight 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 [102-6]

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

TPIPL Products [102-2]

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

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. [102-4] 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. [102-6] 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 [102-3] [102-4] [102-6] [102-7] [102-10]

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

- **Cement Plant/ Power Plant/ Mortar Plant/ Lightweight**
- **Concrete Plant/ Pyrolysis and RDF Plants**
  299 Moo 5, Mittraparp Road, Tambol Tubkwang, Amphur Kangkhoy, Saraburi 18260
  Tel. Number: + 66 (0) 3633-9111
  Fax Number: +66 (0) 3633-9228-30
- **Concrete Roof Tiles and Fiber Cement Plants**
  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
  Tel. Number: + 66 (0) 3667-0370-5
  Fax Number: +66 (0) 3667-0377
- **Ammonium Nitrate and Nitric Acid Plant**
  140/7 Moo 4, Sukhumvit Road, Tambol Tapong, Amphur Muang, Rayong 21000
  Tel. Number: + 66 (0) 3866-4724-7
- **LDPE/EVA Plant / EVA Emulsion and EVA Powder**
  999 Moo 5 Sukhumvit Road, Tambol Chuengnoen, Amphur Muang, Rayong 21000
  Tel. Number: + 66 (0) 3880-3090-9
  Fax Number: +66 (0) 3880-3086
- **Solar Film Plant**
  49/1 Moo 1, Phichainarong Songkham Road, Tambol Nachong, Amphur Muang Saraburi, Saraburi 18260
  Tel. Number: + 66 (0) 3673-1724

Affiliates in which the Company directly holds shares of 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

Petrochemical Industry

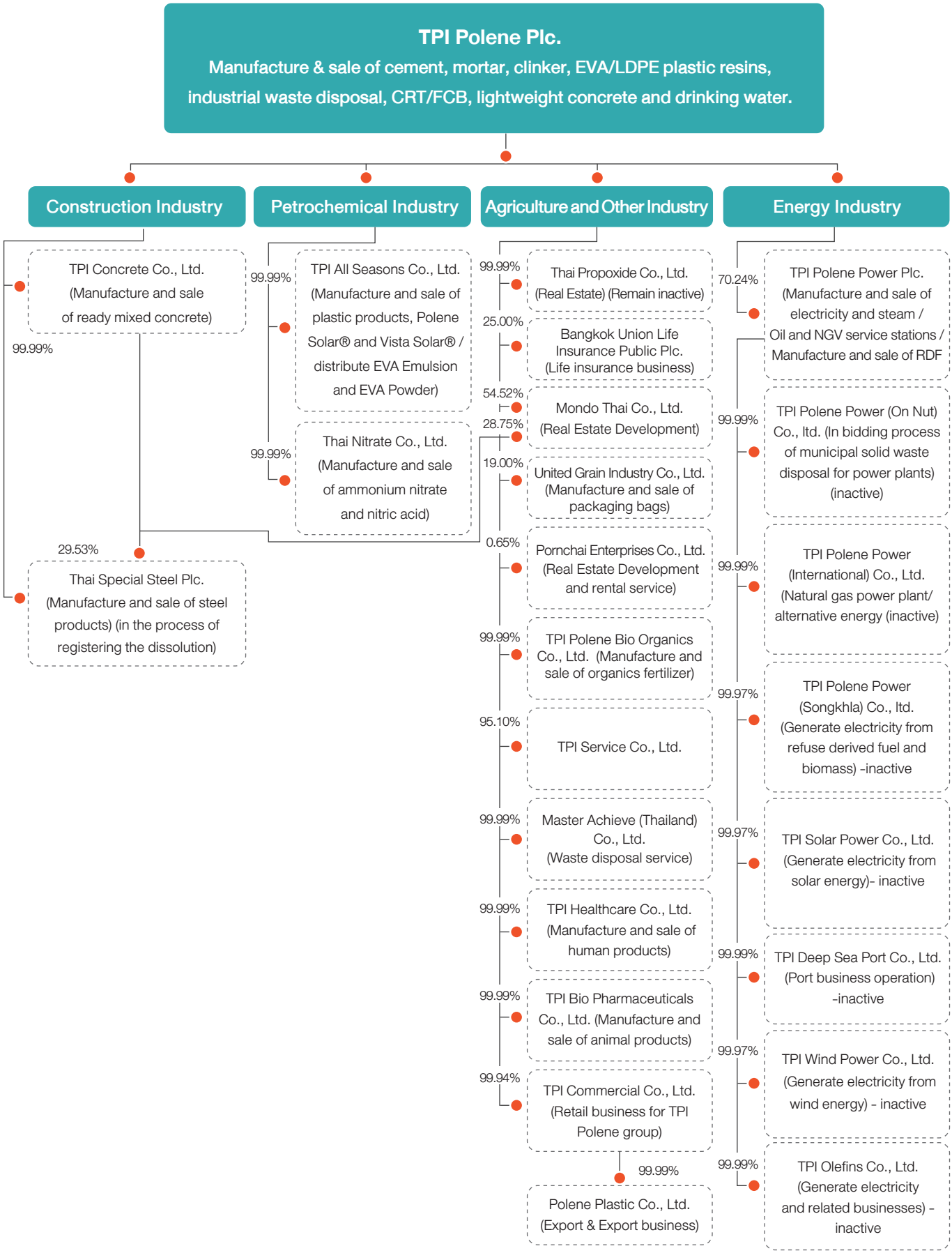
- **Thai Nitrate Co., Ltd.**
  26/56, 21st Floor, TPI Tower, Chan Tat Mai Rd., Thungmahamek, Sathorn, Bangkok 10120
  Tel: (02) 678-5450-2
  Fax: (02) 678-5484

- **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

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
- **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
- **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

Business Structure of the Group [102–5]



Overview of TPI Polene Public Company Limited

As of 31 December 2021
(excluding affiliates)

Company Name [102-1]	TPI Polene Public Company Limited or TPIPL
Nature of legal affairs [102-5]	Listed on the Stock Exchange of Thailand
Head Office Location [102-3]	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
Registered Capital	Baht 23,751,500,000 million
Paid-up capital	Baht 19,126,500,000 million
Total Assets	Baht 135,714 million
Total Liabilities [102-7]	Baht 78,152 million
Total Shareholders' Equity [102-7]	Baht 57,562 million
Net sales [102-7]	Baht 38,920 million
Business Unit [102-7] [102-10]	**Head Office Bangkok** **The 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. **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. Cement plant, Saraburi Province **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) **Concrete roof tile and fiber cement plants, LDPE/EVA plants,** Rayong Province

Employee Information [102-7] [102-8]

As of 31 December 2021

Employee details	Number (persons)	percent
Total number of employees	7,016	100
Classified by gender		
Male	5,962	84.98
Female	1,054	15.02
Classified by employment contract		
Full-time staff	6,220	88.65
Contract employee	796	11.35
Classified by place of operation		
Head office	1,392	19.84
Cement plant, Saraburi province	4,233	60.33
CRT and FCB plants, Saraburi province	812	11.58
LDPE/EVA plants, Rayong province	579	8.25

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

Vision, Mission and Operational Strategy [102-16]

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 partners and employees.

Business Strategy

1. 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.
2. Have the Company's own product research and development team use technology and innovation to manage business continuity in a comprehensive and fast manner.
3. 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.
4. 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.
5. 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.
6. Develop work procedures in conjunction with reducing management costs to maximize efficiency.
7. Reduce financial costs, including managing liquidity and financial risks to be at manageable levels.
8. 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.
9. Create value for shareholders and investors with unwavering profit growth; generate high returns on investment with business expansion to grow sustainably.
10. 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 partners 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 [102–9]

TPI Polene Group manages the sustainability of business activities throughout the value chain of business from upstream, such as, input management, procurement of raw materials and main fuels, the transportation of raw materials, to midstream business activities, such as product manufacturing processes and downstream business activities, such as, distribution, marketing and sales, and after-sales services to respond to the needs and expectations of all stakeholders and create balance of the value (emotional benefits) and value of business operations (functional benefits) for all stakeholders, and form relationships and confidence in conducting business activities together, which can be summarized as follows:

Key activities

1. Management of inbound logistics

The cement production process starts with the supply of the main input, limestone, in which the Company had a limestone concession and coal is the main fuel for cement production. The Company imports coal from Indonesia and Australia, where it enters into short-term and long-term coal procurement agreements in quantitative and quality ways with several domestic and international partner companies without relying on any of them to provide a source of quality and adequate raw materials. TPI Polene Group has always created long term relationships with our coal partners. The Code of Conduct with business partners was created based on transparency, equality and fairness, covering ethical issues, non-child labor, human rights, environment, health, and safety and anti-corruption, etc. to reduce the risk of business operations and is a value that the Company provides to business partners and stakeholders in the value chain.

In raw material transport process, the Company uses a conveyor belt system, reducing energy consumption to unload limestone raw materials. In addition, a conveyor belt system can generate reusable electricity, which is efficient energy.

From 2020 to present, the Company has improved the production process of cement plants to enable them to use 30-40% of waste-based fuel instead of coal, allowing the Company to reduce its reliance on coal fuel. At the same time, the Company purchased waste-based fuel from TPIPP under a win-win situation within the group of companies, enabling it to meet the net zero greenhouse gas emissions target with waste used to produce waste fuel, which are from the surrounding local areas of more than 16 provinces. TPIPP purchases the waste from local producers who sort out waste, thus creating careers in the communities, reducing socioeconomic inequality, and increasing economic value, which is the value that the Company provides to more than communities in 16 provinces, and it is the correct method of waste disposal instead of using conventional landfills, which causes pollution.

2. Production

TPI Polene cement plants use the most advanced machinery and production technologies, the production process of which starts with the explosion of limestone from the mountains and then is transported into the crusher to digest it to a smaller size. Then it's delivered to mixing beds and transported to the RM Feed Bin to send each raw material into a raw mill at a specified ratio, grinding it until it becomes raw meal, is then delivered to Raw Meal Silo, and then sent to the preheater before being transported into the kiln until it becomes clinker. This is then delivered to a clinker silo for further distribution. The Company's cement products have been certified by the management system in accordance with all four international standards: quality management system (ISO 9001:2015), environmental management system standard (ISO14001: 2015), occupational health and safety management system standard (TIS18001:2011 and OHSAS 18001:2007), and energy management system standard (ISO50001:2011), in the United States (ASTM) and the European Federation (EU). Thus, the Company can obtain quality manufactured goods which are reliable, and meet the expectations and respond to the demands of customers, considered as the stakeholders, who have conflicts of interest.

The Company has a cement packing system using an automatic palletized sorting robot or Robotic Palletizer, reducing the time it takes to place the product into the pallet. It's agile, flexible, and able to support heavy goods in high quantities, and is fast and precise, thus improving productivity and safety, with consistent quality. The process helps save employees from performing monotonous and heavy lifting tasks by turning material handling work into automation with mechanical arms. The automation system helps cope with the higher cost of packaging and shorter product life. This enables the product to meet the expectations of buyers who have conflicts of interest.

3. Distribution of goods and services or outbound logistics

The Company realizes the continuous availability of goods to customers with efficient freight system deliveries, which are managed at low cost and can meet the needs of customers quickly. Distribution terminals are located in key strategic locations across the country, with good coordination to manage inventory effectively, and minimize impact on communities and the environment. In addition, the Company has imported locomotives from abroad to transport cement to develop rail transport systems, which have lower transportation costs than transportation by trucks. In addition, the Company has adopted digital technology to optimize delivery management, and this enables customers to receive goods in a timely manner.

4. Marketing and Sales

The Company focuses on marketing and sales communication channels by visiting customers, holding partner seminars, and organizing marketing activities, etc., to explore perspectives to meet customer needs and collaborate in the value chain, and create trust and good relationships to develop the potential and efficiency of long-term joint business operations, as well as create innovation sand trade patterns in line with the changing times.

The COVID-19 pandemic has brought change on a global scale. The business environment has changed, with the Company developing an online platform to sell products on the Company's website in a way that presents information as two-way communication, where digital technology advances are rapid. It affects business models, consumer behavior, market conditions and higher competition. TPI Polene Group is preparing to develop the organization so as not to lose its competitiveness and so it can fit the lives of the younger generation as well as prepare employees to meet the needs of customers.

5. After Sales Customer Services

Customer relations is a priority for TPI Polene Group to enhance long-term customer satisfaction and engagement. It has developed a more efficient approach to customer relationship management through processes including complaint channels and communications between the Group of companies and customers, through websites, email, telephone calls, and letters. Customer relationship activities are held to maintain and form strong relationships with customers on an ongoing basis, as well as using annual customer satisfaction surveys to analyze and find ways to manage the issues that customer's value, as well as educate customers about business and sustainability management.

Supportive Activities

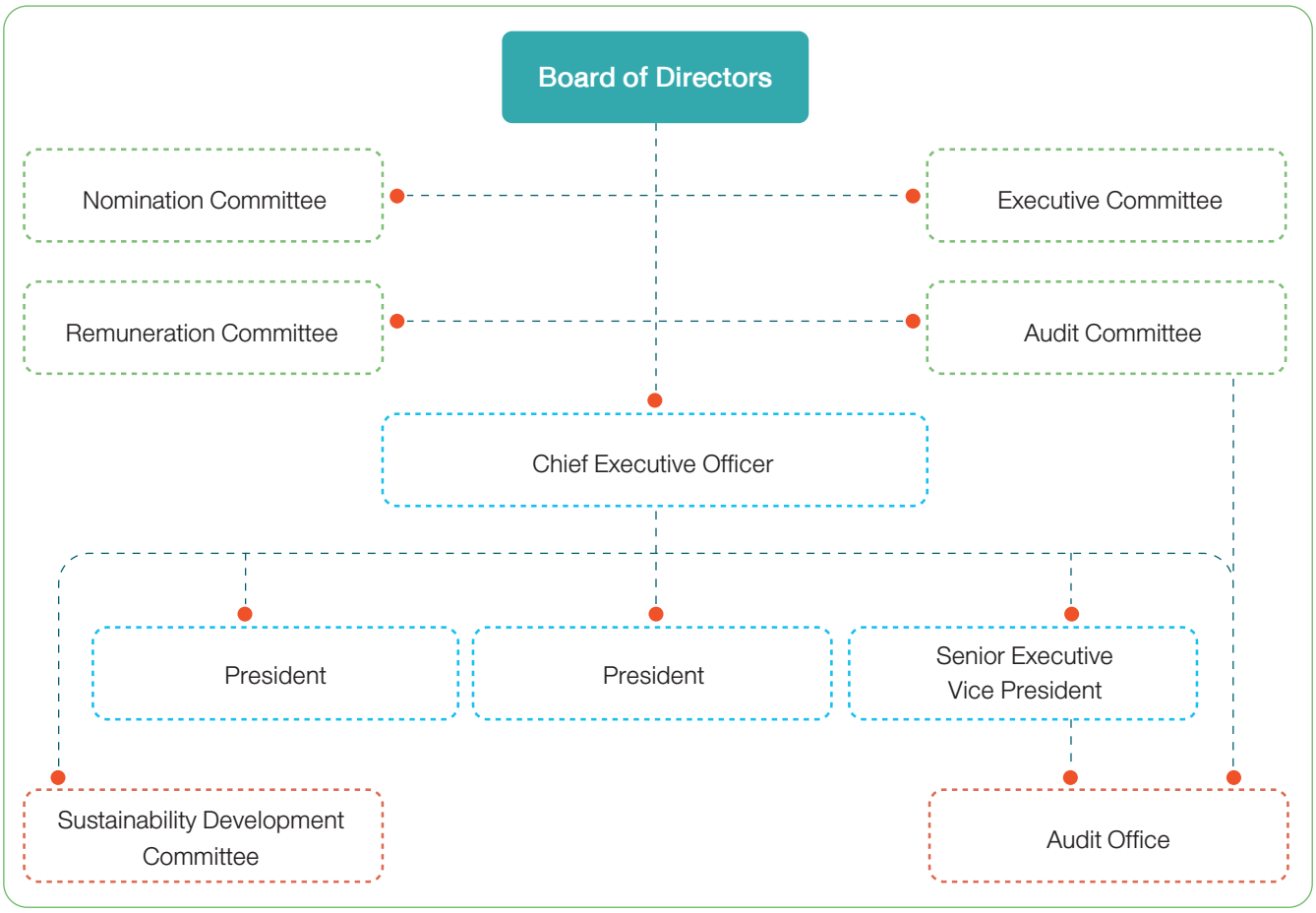
In addition to the construction materials group, which is the main business, TPI Polene Group has a petrochemical business, power plant business, and others such as producing bio-organic fertilizers and bio-pesticides, which are harmless to humans, allowing them to grow crops, vegetables and fruit without the use of chemical pesticides. These products are innovative, environmentally friendly and benefit consumers at affordable prices. TPI Polene Group has supported farmers and communities that produce consumer products such as crops, vegetables, and fruit to use bio-organic fertilizers that are safe and chemical-free for the quality of life of both consumers and farmers themselves. In addition, bio-organic fertilizers do not destroy the soil, which will have long-term benefits for the Thai agricultural sector.

TPI Polene Group has further expanded its innovations in chemical-free biological hygiene products such as Bio Knox, Micromnock solutions and mouthwash to combat bacteria and viruses, which have been tested and approved by the Faculty of Medicine, Siriraj Hospital and the Academic Service Center of Chulalongkorn University as being effective in destroying viruses including SARS-CoV2, PRRS, PDCoV, PCV2 and RVA, etc. These products are environmentally friendly and in line with the "New Normal" era, where consumers are all paying attention to healthcare products.

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
1. Procurement of raw materials	- Coal - Local raw materials - Raw materials from offshores	- Purchasing Department - Financial Department	- Supplier - Contractors - Competitors - Community	- Take into account environmentally friendly raw materials to reduce greenhouse gases emission. - Green Purchasing - Local procurement that supports communities, reduces socioeconomic inequality - Have a quality and adequate source of raw materials. - Establish a trade framework with ethical partners and create good relationships and contribute to the sharing of benefit (Win-Win Situation)
2. Production	Converting raw materials into quality-controlled and standardized cement products	- Production Unit - R&D Department - Technology and Innovation Department - Purchasing Department - Warehouse Agency - Occupational Health Department	- suppliers - Communities around the factory - Government Organizations	- Produce products under international standards - Qualified and reliable products, reliable to stakeholders
3. Distribution	Ready to distribute products throughout network under safety standards	- Logistics Center - Logistic Department - Domestic and Export sales Department - Distribution terminals and warehouse throughout the country	- Freight Contractor - Customers - Commercial Competitors - Communities around the distribution center	- Speed of delivery on timely basis - Wide range of distribution channels
4. Marketing & Sales	Incentivizing customers to buy the best products and services, covering local and international areas.	- Domestic and international sales/ marketing Department - Customer Service Department - Financial Department - Accounting Department	- Agents - Contractor - Customers - Commercial Competitors	- Create long- term relationships - Strengthen partner income, to grow together - Become a Business Partner
5. After-sales service	Provide technical services showing how to use the correct products and can help customers at the workplace.	- Technical Department - Sales Department - Production Department	- Contractor - Customers - Commercial Competitors	Create good impression on service that customers obtain before and after the sale.

Corporate Governance Structure [102-18]



The Management Structure of the Company as of December 31, 2021, consists of the Board of Directors, and four sub-committees consisting of: Executive Committee, Audit Committee, Remuneration Committee, and Nomination Committee.

As of December 31, 2021, the Board of Directors has a total of 14 Directors, divided into 11 males and 3 females and five Independent Directors, which exceeds one-third 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.

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/en/aboutus-en/board-en

Executive Committee

https://www.tpipolene.co.th/en/aboutus-en/board-en

Audit Committee

https://www.tpipolene.co.th/en/aboutus-en/board-en

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.

Environmental Conservation meets domestic and internationally recognized standards [102-12] [102-13] [102-16]

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 such as all cement products of the Company.

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. 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.

TPI Polene is the sole producer of EVA in Thailand and one of the few producers of high quality EVA in the world that can develop proprietary EVA production technology for all applications using tubular production technology, a continuous process that is twice as efficient as the competitors' autoclave systems, resulting in lower production costs per ton. The Company is regularly developing machine efficiency and production technology so that it can continuously produce high-priced special grade EVA to be sold in niche markets. 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 film business, EVA is manufactured and distributed by TPI All Seasons Co., Ltd. (99.99% owned subsidiary Company), and is certified quality management system in accordance with ISO 9001:2015, ISO14001:2015 and ISO 45001:2018.

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. It has been certified as a quality management system (ISO 9001:2015), occupational health and safety management system standard (ISO45001) and environmental management system standards (ISO 14001:2015), and the product has received a MiT (Made in Thailand) certificate from the Federation of Thai Industries.

Ammonium nitrate and nitric acid are manufactured and distributed by Thai Nitrate Co., Ltd. (99.99% owned-subsidiary 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

TPI Polene and Sustainability

Sustainability Policy Framework and Management [102–16] [102–12] [103–2]

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 to create balance for the Economy, Environment and Society under good corporate governance with a framework for sustainability policy and 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.
2. **Environmental Dimension:** Aiming to develop into a low-carbon society by targeting net zero greenhouse gas emissions at cement plants and surrounding areas of Mauk Lek and Kaeng Khoi, Saraburi province within 2024, with the implementation of the Green Manufacturing production process under the circular economy policy to increase energy efficiency, increase the capacity to use renewable energy while tack ling solid waste, waste, and proper water consumption and further reduce the impact of operations throughout the value chain and respond to all 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.
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.

Sustainability Management Policies and Goals

The Board of Directors and Senior Executives have a policy to adhere to the Sustainable Development Goals (SDGs) of the U.N. and have also selected 10 of the 17 main sustainable development goals as follows:

1. Health and well-being by complying with occupational safety and/or health policies in the global context and provide safety and a work environment for employees and stakeholders to perform their duties safely. (Goal 3)
2. Promote youth in education and develop youth knowledge as social quality individuals. (Goal 4)
3. Water and hygiene sustainable management by using water resources in a cost-effective manner and ensure that water is reused concretely. (Goal 6)
4. Access to clean energy by investing in clean energy sources (Goal 7)
5. Strive to create sustainable economic growth to achieve higher levels of production goals and products that are produced through technological innovations. (Goal 8)
6. Develop technology and innovation, which is the key to solving sustainable problems for economic and environmental challenges. (Goal 9)
7. Business operations are growing alongside a sustainable society by creating value and responsibility to stakeholders and society as a whole, under a good corporate governance policy. (Goal 11)
8. Manage the effective sharing of natural resources and methods to dispose of toxic waste and pollution by encouraging the recycling and reduction of solid waste in the industry. (Goal 12)
9. Aim to reduce greenhouse gas emissions and global warming, which causes climate change. (Goal 13)
10. Aim to promote a peaceful society and communities for sustainable development, allowing all parties to access justice and create an effective organization and be responsible and comprehensive at all levels. (Goal 16)

Key Sustainable Development Performance of TPI Polene Group in 2021

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

Prioritizing and engaging with stakeholders

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. [102-42], 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: [102-40]

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

Corporate Social Responsibility

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

The communication and engagement patterns of stakeholders are different, which can be summarized as follows: [102-40]

Stakeholders [102-40]	Guidelines for engaging with stakeholders [102-43]	Stakeholder needs/ expectations [102-44]	The Company's response guidelines
● Shareholders/Investors	- Annual General Meeting of Shareholders - Giving shareholders the opportunity to have equal rights to attend the shareholders' meeting, such as questioning and voting. - Presentation of investment information through investor relations activities at least 4 times a year - Annual Report - Provide channels for communication through media including websites, letters, emails, phones or others - Annual Sustainability Report - Financial report 4 times per year	- Good Performance, share price and dividends are at an appropriate level. - Consistent business expansion - Disclose important information of the Company in a timely basis, transparent and reliable way through channels that are easily accessible to shareholders. - Provide shareholders equal rights to attend annual shareholders' meetings. - Organize activities to create and to keep relationship with shareholders - Conduct business with environmental, Society and Corporate Governance considerations, or ESG - Financial stability - Transparency - Risk management system	- Sustainability Report - Proper risk mitigation - All shareholders are entitled and treated equally. - Manage the organization in accordance with the Company's vision and corporate governance principles with integrity, caution, free from personal conflicts of interest. - 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. - Business Ethics - Innovation and technology management - Research and development to further top up the business operation - Have a strong policy of maintaining liquidity and financial stability. - Emergency operations manual and regular emergency preparations (Fire Incident)
● Employee	- Collect information from all channels, including complaints - 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 - Welfare Committee in the establishment - Sustainability Report/Annual Report - Executives meet employees at the plant once a week. - Provide clear in-house communications through various channels such as notices to various agencies within the Company and Application Line. - Comment box on Website, e-mail, Facebook	- Compensation Industry-aligned welfare - The organization has stability and progress in its work. - Developed potential - The organization has a good image. - Fair Evaluation System - Safety and quality of life at work - Allow comment - Equal Practice - Respect personal information - Respect human rights	- 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. - There is a fair evaluation system. - Provide feedback and feedback channels - Provide returns comment and opinions - Offer welfare and benefits comparable to other companies in the same industry. - Occupational health and safety system - The Company shall not hire expatriates, which include contractors and sub-contractors. - Comply with human rights requirements and respect personal information - Provide opportunities and support the further education of employees. - Provide training to develop potential and career path - Savings cooperative. - Respect human rights and personal information

Stakeholders [102-40]	Guidelines for engaging with stakeholders [102-43]	Stakeholder needs/ expectations [102-44]	The Company's response guidelines
● Suppliers and Contractors	- Complaints and communication channels such as websites, e-mails, phones, letters, etc. - Activities with suppliers to encourage participation at least once a year - Visit contractors at the office at least twice a year	- Transparent, fair, non-discriminatory, corruption-free purchasing system - Creating long term relationships to grow together - Comply with the established agreements and do not exploit customers, pay on timely basis. - Work safety - Respect human rights - Respect personal information - Payment on schedule - Occupational health and work safety	- Transparent and verifiable procurement system - Strictly comply with the terms of trade and compliance with the contract with the suppliers. - Take into account the mutual benefits of trade partners and business equity. - Employees in affiliated group must not claim the benefits from procurement and must be counterbalanced. - The Company will not engage with trade partners who deal with businesses that act against the law. - Support ESG knowledge to enhance trade partner operations to mitigate risk associated from operation and reputation. - Establish measures to operate partners, including the use of digital and online technologies for safety under the COVID-19 pandemic crisis. - Respect human rights and respect personal information - Occupational health and safety system
● Customers/Agents	- Complaints through communication channels such as websites, e-mails, phones, letters, etc. - visit Customers /sales representatives at the customer's office at least 12 times a year	- Quality/safe products and services - Fair price - Easy and convenient to purchase - Promotional campaigns - Choose from a wide range of products - In case of problems which are not caused by the customer's fault, the damage can be claimed immediately - Providing good before- and after-sales service - Delivery on time - Respect personal information - Respect human rights	- Satisfy the needs of customers - 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. - Create brand loyalty to products - Contains product information and application. - Systematic and secure storage of customer data and not misuse data - Set prices for products and services fairly - Provide representatives to be responsible for providing feed back, knowledge, products specification and services, as well as solutions and receive customer complaints. - Hold customer seminars to regularly educate information about products. - Respect human rights and personal information

Stakeholders [102-40]	Guidelines for engaging with stakeholders [102-43]	Stakeholder needs/ expectations [102-44]	The Company's response guidelines
● Creditor/Bondholder/ Analysts/ Credit Rating Institute/Insurance Companies	- Submit a quarterly financial statement report - Annual Report/Standing Report - Recommendations and complaints	- Good Corporate Governance - Business Administration with transparency - Careful risk mitigation - Full and on-time payment - Good performance and the potential to pay off debts - Comply with terms and conditions in the loan agreements	- Conduct business with transparency, auditable, under good corporate governance - Fully comply with the terms and conditions in loan agreements - Complete payment on timely basis - Provide complete financial information - Effective management, ensure confidence and maximum return on investment
● Government Agencies	- Report business performance and operating performance to government authorities according to the period specified by the government, such as: 1. Report on the performance of professional work safety officers every 3 months 2. Report on compliance with the Company's EIA measures every 6 months - Have company's visit 3 times in 2021due to COVID-19 prevention measures. - Monitoring of policies, regulations, government requirements at least once a month - 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.	- Compliance Legal regulations, rules and policies of Supervisory Divisions - Social and environmental responsibility - Sustainable Coexistence - Having a good environmental management and safety system - Providing support and cooperation to government authorities - Concrete action to reduce climate change - Payment of taxes and other related fees	- 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. - Conduct transparent business - Preparation of Sustainability Reports - Social and environmental responsibility - Sustainable community coexistence - Compliance and cooperation, supporting projects of government authorities
● Community & Society	- Complaints through communication channels such as websites, e-mails, phones, letters, etc. - Join community relations activities at least 28/ month - Organize community relations at least 2 times a month	- Develop surrounding communities - Preserving the surrounding environment - Create work and strengthen the economy for the community. - Operation of the establishment to ensure environmental safety and livelihoods - Support for community activities and ongoing participation - Educational Assistance - Focus on community feedback	- Community Visit and create acceptance - Support public activities that benefit the community - Educate and train employees at all levels as appropriate to create employees' awareness of the environment and community issues - Explore community needs and feedback - Organize mobile medical units to serve the community continuously for better quality of life. - Prepare a replacement forest plantation and rehabilitation project after mining - Promoting traditions in the community - Develop communities, encourage employment to improve the economy in the community - Provide budget for community development including education, career /job creation for the community

Stakeholders [102-40]	Guidelines for engaging with stakeholders [102-43]	Stakeholder needs/ expectations [102-44]	The Company's response guidelines
● Business competitors	- Collect information from all channels such as websites, mail, phones, etc. - Become a member of the Thai Cement Producers Association (TCMA) and attend at least 4 meetings per year.	- Create fair competition conditions together - Maintain market share	- Conduct business within the rules of free and fair competition. - Do not slander to damage the reputation of the competitors. - Do not infringe intellectual property and copyrighted work of the competitors. - Not to violate identifiable information of the competitors - Behave in accordance with a good trade framework - Innovation and Technology Management

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: [102-46]

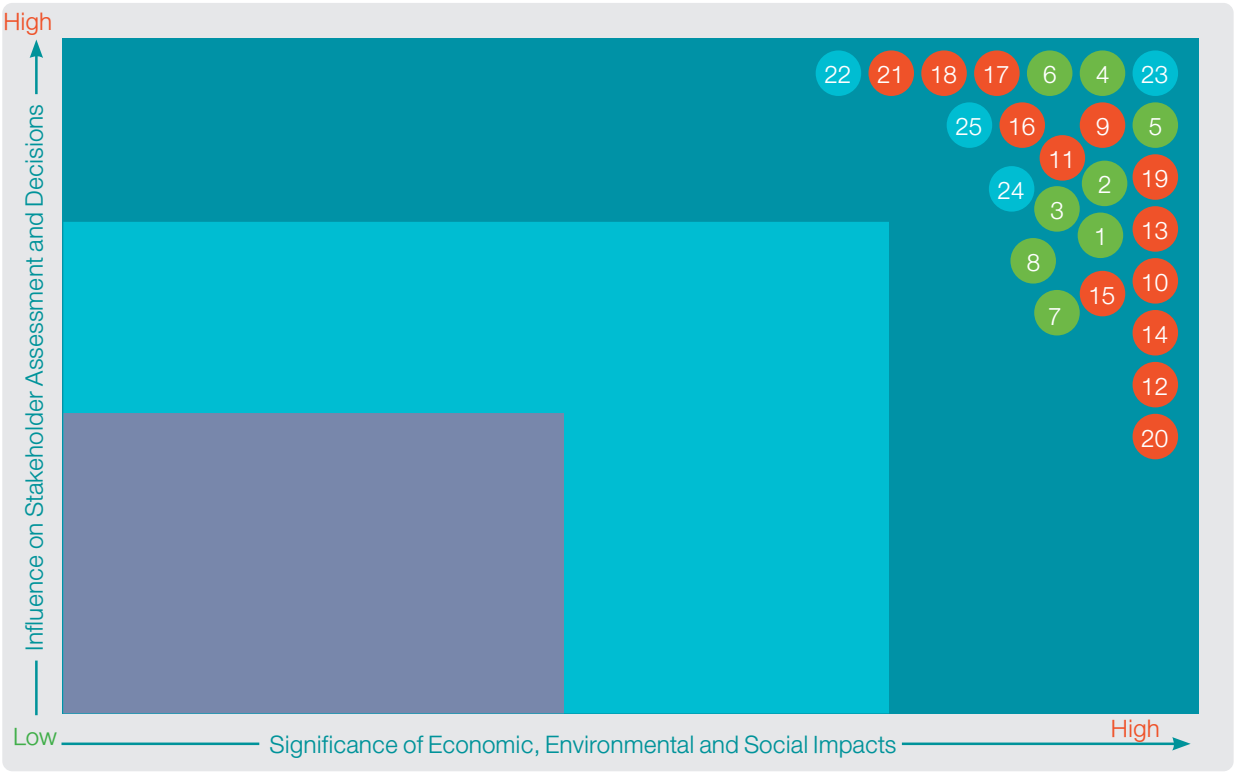
1. Identification of issues related to the sustainability of the organization and the scope of impact, considering the extent of the positive and negative impacts that can occur both inside and outside the organization. This is based on important information, including information from internal factors such as vision, mission, goals, policies, and the operational direction of the Company, as well as external factors such as interests and expectations of stakeholders to conduct an analysis of this important information on the principles of stakeholder inclusiveness and sustainability context.

2. Prioritization of significant sustainability issues, considering the level of influence on stakeholder assessments and decisions and the significant level of economic, environmental and social Impacts, and the significance of the organization's economic, environmental and social impacts in accordance with the Materiality Principle through participation in discussions and considerations of priorities from the Company's management and related departments.

3. Validation, content integrity, disclosure coverage, and processing of required performance data by reviewing the completeness of material sustainability issues selected by the Company to be implemented and reported on completeness principles from the top management to collect performance data according to the plan, with a defined project or activity as organized.

4. Review of key issues, including the content and recommendations specified in the Sustainability Report of the Company, that will be used to improve and develop business management and in preparation for the next report.

Global Reporting Initiative (GRI Standards), with the Company's highly substantive sustainability issues for 2021, is composed of the following 25 issues:



Environmental	Social	Economy and Corporate Governance
1. Material consumption	9. Occupational Health and Safety	22. Economic Performance
2. Energy	10. Training and Education	23. Anti-Corruption
3. Water and Effluents	11. Non-Discrimination	24. Innovation Technology and Service
4. Emissions	12. Child Labor	25. Research and development
5. Waste	13. Forced or Compulsory Labor	
6. Environmental Compliance	14. Safety Practices	
7. Transportation	15. Human Rights Assessment	
8. Land degradation, Contamination and remediation	16. Customer Health & Safety	
	17. Customer Satisfaction	
	18. Product and Service Label Display	
	19. Data Security	
	20. Socioeconomic Compliance	
	21. Products & Services	

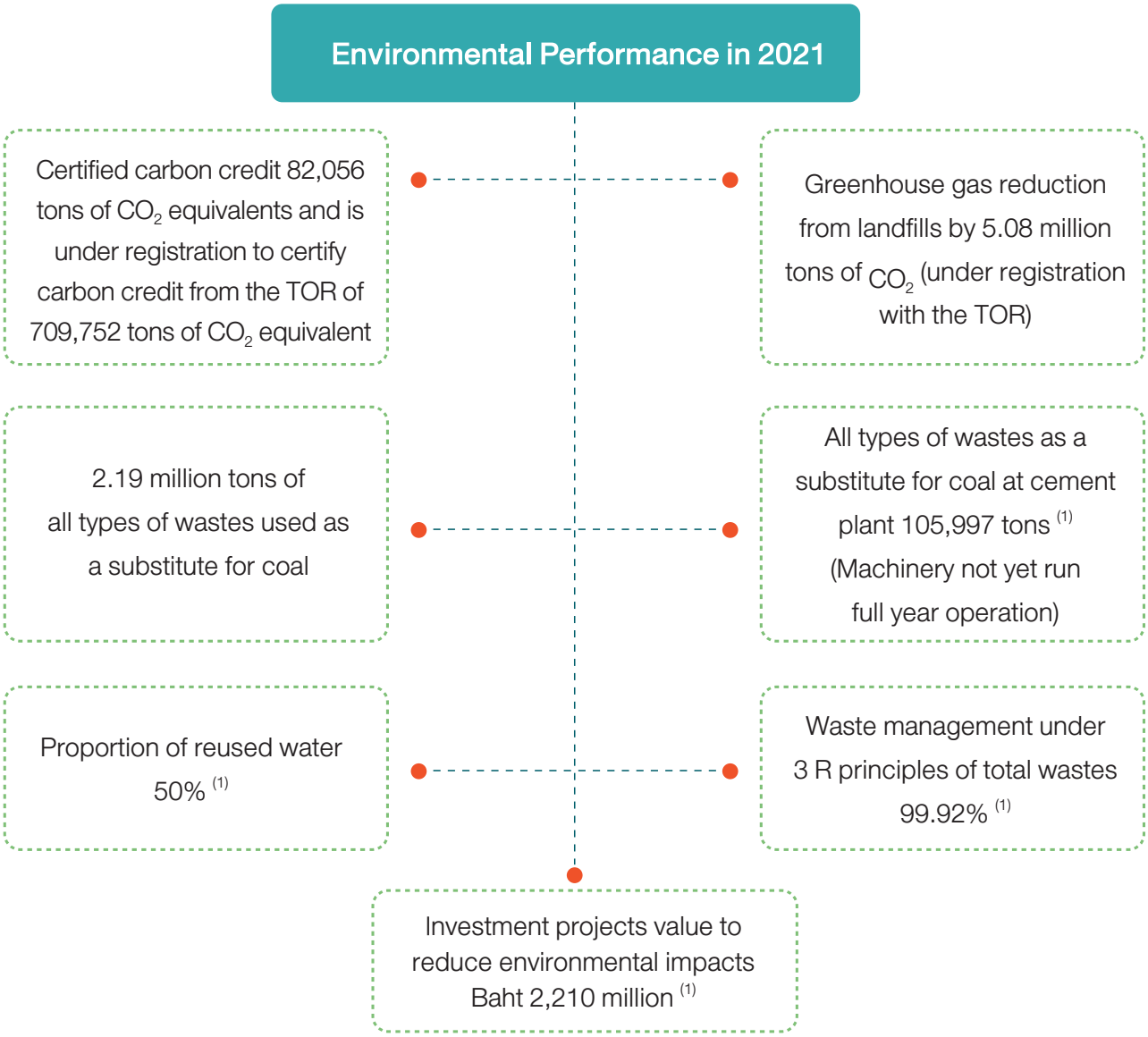
Environmental aspect (8 issues)	Social aspect (13 issues)	Economic and Corporate Governance aspect (4 issues)
1. Material consumption 2. Energy 3. Water and Effluents 4. Emissions 5. Waste 6. Environmental Compliance 7. Transportation 8. Land degradation, Contamination and remediation	1. Occupational Health and Safety 2. Training and Education 3. Non-discrimination 4. Child Labor 5. Forced or Compulsory Labor 6. Safety Practices 7. Human Rights Assessment 8. Customer's health and safety 9. Customer Satisfaction 10. Marketing and labeling 11. Data Security 12. Socioeconomic Compliance 13. Products and services	1. Economic Performance 2. Anti-Corruption 3. Innovation Technology and Service 4. Research and development
Responsive Strategies	**Responsive Strategies**	**Responsive Strategies**
1. Develop into a low-carbon society by targeting Net Zero GHG Emission using waste-based fuel instead of coal. 2. Improve production efficiency to be highly efficient to save energy. 3. Embrace circular economy, recycle waste from one plant as raw materials or fuel of another plant towards Zero Waste policy 4. Develop Green Manufacturing technology and innovation 5. Use Process Automation to control production and unloading of goods to be efficient. 6. Construct rainwater reservoirs to replace natural water sources, including recycling wastewater for reuse. 7. Conserve concession areas by planting forests to improve scenery 8. Disposal of COVID-19 contamination waste	1. Comply with labor laws and labor relations 2. Respect human rights principles and personal information of employees, partners and contractors 3. Create a good environment in workplace with appropriate safety and hygiene 4. Training and skills development for personnel, providing opportunities for progress with indiscriminate. 5. Award scholarships to children of employees 6. Conduct customer service activities 7. Focus on green products 8. Deliver quality products of standard quality on complete label display 9. Establish a Partner Code of Conduct	1. To comply with the related legal regulations 2. transparency with anti- corruption policy 3. Technology and innovation to drive the organization with an emphasis on effective management policy 4. Extend R&D results to create value added to products 5. Seek investments that create high return on investment 6. All-round risk management, including risk associated with climate change

The Company's material sustainability issues [102-47]	Scope of impact [102-46] [103-1]								Page
	Shareholders/ Investors	Employees	Suppliers/ Contractors	Customers/Agents	creditor	Governmental Authority	Community & Society	Competitors	
Material consumption	●					●	●		44-45
Transportation (1)		●	●	●					46
Energy	●					●			47-49
Water & Effluents	●	●	●	●	●	●	●		50-54
Emission	●	●				●	●		55-57
Land degradation, contamination and remediation (1)		●				●	●		58
Waste	●	●		●		●	●		58-60
Environmental compliance	●	●	●	●	●	●	●		42-44
Training & Education		●							62-64
Non-discrimination		●		●					62-63
Child labor		●	●						62-63
Child labor		●	●						62-63
Forced or Compulsory labor		●	●	●		●	●	●	62-63
Security Practices		●							62-63
Human Rights Assessment		●		●			●		65-71
Occupational Health and Safety	●	●	●	●	●	●	●		78-79
Socioeconomic Compliance		●	●	●	●			●	80-81
Data Security (2)	●	●		●	●	●	●	●	81-83
Customer Health & Safety	●	●	●	●	●	●	●	●	81-83
Customers Satisfaction		●		●					81-86
Products & Services (1)	●	●	●	●	●	●	●	●	81-86
Anti-corruption		●	●	●		●	●		74-78
Economic Performance	●	●			●	●			78-80
Innovation technology, and services. (2)	●	●	●	●	●	●	●	●	81-85
Research and development (2)	●	●	●	●	●	●	●		81-84

Remarks: (1) Sustainability issues related to Construction and Real Estate Business Sector.

(2) Sustainability issues other than GRI

Environmental Impact Management



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

Environmental Management

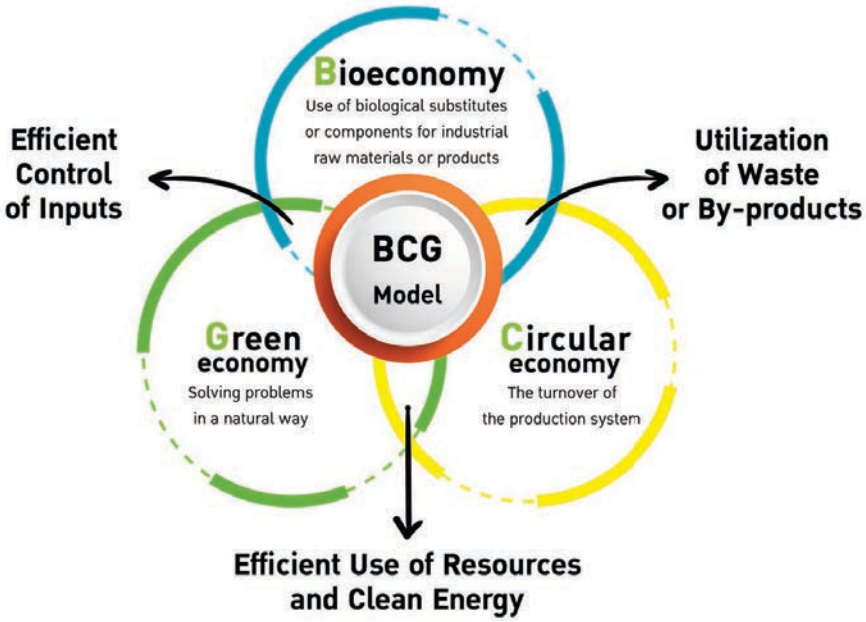
TPI Polene Group recognizes the importance of resource utilization amidst the accelerating growth rate of the world population. Meanwhile, the supply of limited natural resources and inefficient consumption lead to more waste and depletion of natural resources in economic cycles, which inevitably worsens 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 wastewater 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. [103-1]

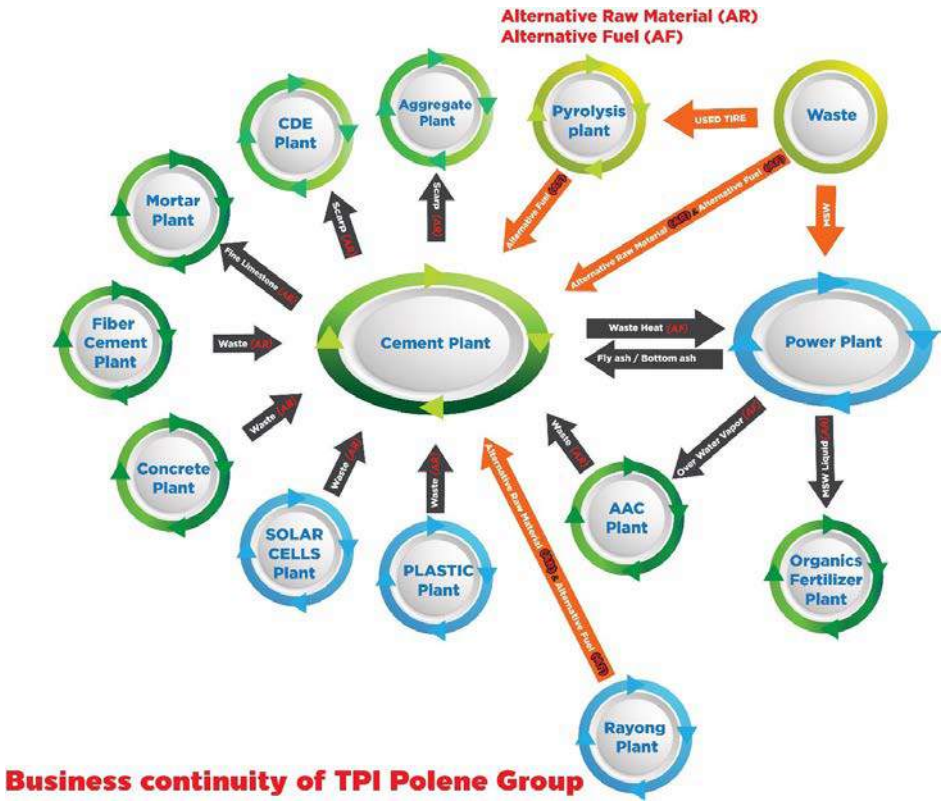
For the most important reasons, "we are depleting the natural resources of our descendants' generation"; TPI Polene Group is committed to playing a role in solving such problems for our planet with a commitment to a "Circular Economy" policy as a global sustainability concept. This will be implemented 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. [102-11] [103-2]

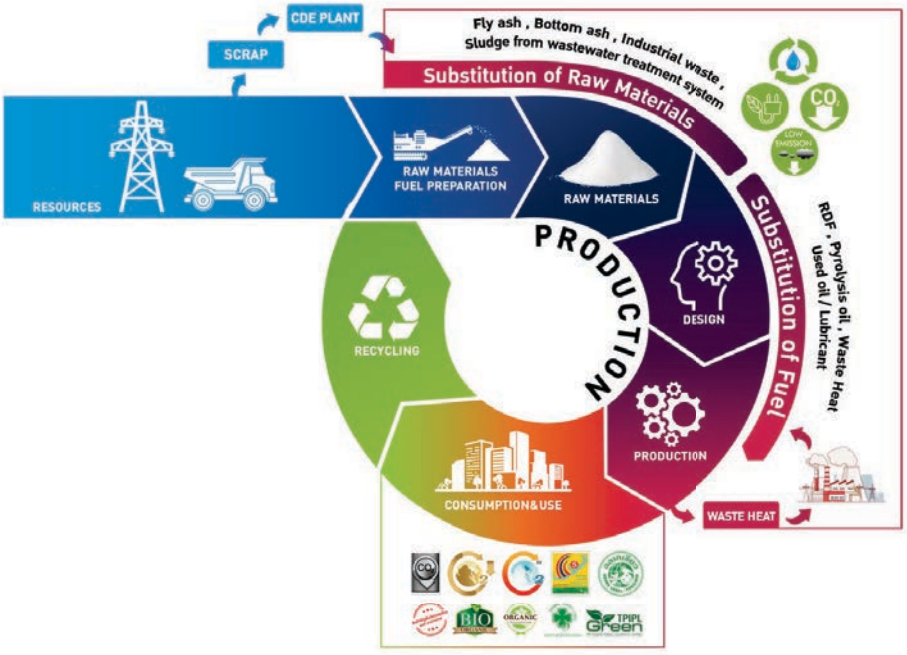
Driving the economy towards sustainable development (BCG)

https://www.tpipolene.co.th/en/investment-en/bio-circular-green-economy-bcg





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. [103-2]



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 [103-2] [103-3], in the past up to present (2021), and the Company has had no violations of environmental laws and regulations. [307-1]

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.

Material Consumption

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. [103-1]

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
- Use waste fuel to replace 30-40% coal in clinker production process - Scrap soil excess from stones production process is 100% disposable	- 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 strategy to drive the TPI Polene group, such as: • 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. • Reduce the use of non-renewable energy fuels and use renewable energy fuels such as waste-to –energy, pyrolysis oil and used oil • Reduce the use of water from Pasak River by using water from reserve ponds (surface water) and factory effluence. • Use electricity generated from renewable energy as much as possible.	- The remaining amount of Scrap soil from recycle process is 802,455.08 tons, representing 100% of the total remaining scrap soil. - The amount of waste fuel used to replace coal in the clinker production process is 105,890.69 tons of waste fuel, representing to 3.68% of total coal quantity.	- 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. - The Company has invested approximately Baht 2.3 billion in machinery and equipment to be able to replace waste fuel as a substitute for coal in cement production. All production lines are expected to be completed in 2022. - 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 2022.

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	2,308,265.00 ton	✓				In-house supply
Limestone used to produce mortar	548,414.00 ton	✓				In-house supply
Shale	1,669,826.00 ton	✓				In-house supply
Coal	1,231,620.99 ton		✓			Purchased from an external suppliers
Fuel oil	2,712,416.00 litre		✓			Purchased from an external suppliers
Scrap soil	802,455.08 ton	✓				In-house supply
USED OIL	856,660.00 litre		✓			In-house supply
Pyrolysis oil	2,384,770.00 litre		✓			In-house supply
Renewable material used						
Waste Fuel	105,997 ton (the machinery has not yet run full year operation)		✓			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	Total weight (or volume) of recycled materials	Percentage of recycling material used
Non-renewable material		
Scrap (substitute for limestone used to produce cement)	46,435.00 tons	1.97 (1)
Scrap (substitute for limestone used to produce mortar.)	481,911.00 tons	46.77 (2)
Scrap (substitute for shale)	137,310.00 tons	7.60 (3)
Scrap (substitute for river sand)	136,799.08 tons	100 (4)
Used oil (substitute for asphalt)	856,660.00 litres	14.39 (5)
Pyrolysis oil (substitute for asphalt)	2,384,770.00 litres	40.05 (6)
Renewable material		
Waste-based fuel (substitute for coal)	105,997 tons (the machinery has not yet run full year operation)	3.68 (7)

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

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. [103-1]

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
- Quickly distribute products to customers and reduce complaints with a target of filing complaints below 0.25% of delivery trips per year. - Raw material transportation system Use the conveyance system at CDE Plant (Site C) to reduce transportation costs, reduce PM2.5 dust, and reduce greenhouse gases.	- Manage distribution costs to be efficient in time manner to achieve the objectives of distribution to customers at reasonable transportation expense - 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. - 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. - Set up a network of transportation systems to prevent traffic disruption by arranging the mode of transport by truck, vessel and train transport. - Plan dispatch of goods and pick up on the return trip without loads in departure trip - 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. - Install conveyor belts to transport raw materials instead of by truck, which reduces diesel consumption, reduce transportation cost and reduce greenhouse gas emissions. Installation has covered the front of site A mine for a round trip distance of 12 kilometers. The conveyor belt system can generate electricity from transportation of raw material (This project was awarded the Thailand Energy Award in 2016 in the category of outstanding award for creative energy from the Department of Alternative Energy Development and Energy Conservation, the Ministry of Energy) and at Site C, the replacement truck transport is 19 kilometers round trip, with a 10-kilometer round-trip conveyor belt capable of generating electricity as well.	- The average number complaints from customers in terms of shipment of goods is 0.071%. - Conveyor system Site A mine-front raw materials can generate electricity (Regenerative Downhill Conveyor) can generate electricity of 928, 868 kWh/ year of, reducing greenhouse gas emissions by 4,153.43 tons of carbon dioxide equivalent per year. - Site C mine raw material conveyor system can generate 1,071,509 kWh of regenerative downhill conveyor/year, reducing greenhouse gas emissions by 4,791.25 tons of carbon dioxide equivalent per year. - In 2021, the Company transported cement more than 1.8 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 60,000 trips. - In 2021, cargo/supplies/ equipment was transported of the Company and its affiliates on the return trip to the plants approximately 100 trips/ month.	- Provide truck-drivers training courses to understand how to effective delivery of goods and reduce transportation problems. - The Company plans to transport more than 2 million tons via railroads in 2022, which will reduce the number of truck transports to provinces where the distribution terminals are located by more than 70,000 trips. - In the installation process of belt conveyor system at CDE Plant (Site C), which will reduce transportation costs, PM2.5 dust and reduce greenhouse gases. It is expected to be completed in 2022.

Energy Management

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 the TPI Polene Group's policy of requiring cost-effective and efficient use of energy resources. [103-1]

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
Cement plant - All kinds of energy consumption to clinker production not exceeding 3,450 megajoules/ton - All kinds of energy consumption to cement production not exceeding 175 megajoules/ton - All kinds of energy consumption to mortar production not exceeding 45 megajoules/ton LDPE and EVA plants - All kinds of energy consumption to LDPE&EVA plastic resin production not exceeding 4,450 megajoules/ton - All kinds of energy consumption to EVA emulsion and EVA powder production, not exceeding 1,150 megajoules/ton CRT & FCB plants All kinds of energy consumption to sheets board production (FCB)/ Tile /Tile Cover (FR)/ Fiber Wood, not exceeding 1,607 megajoules/ton	- To implement energy management policy and adopt ISO 50001 energy management system under international standards as the management policy. - 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 - Green Research and Development has been designed for products design 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 (weight 50 kg. container) and Hydraulic Cement - Cost-effective use of all the ingredients by reuse and recycle, such as used lubricants are used as fuel. - Community waste are used as renewable fuels in power plants and cement plants. Adoption of lubricants Tires or used tires or scraps from the production processes are used as fuel. - Renewable Energy by generating electricity from alternative energy plants or waste fuel power plants and producing pyrolysis oil from used tires from pyrolysis plants. - Waste heat recovery by reusing heat from the production process to heat raw materials in raw meal grinding mill and coal grinding mill and waste heat from the steam production process is used to generate electricity and produce light weight concrete. - 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. - The use of process automation production control system for accuracy in production process to control production from the central control room with combustion control program for fuel and power consumption reduction to obtain high quality clinker.	- Result of measurement for energy consumption (only cement plants, LDPE/ EVA Plants, CRT and FCB plants) totaled 34,127,661.23 gigajoules [302-1], representing a 1.87% increase compared to 2020 as per details as follows:- Cement plant • Total energy consumption of 32,982,130.54 gigajoules, increased by 2.09% compared to 2020 as the Company recognizes the environmental importance of controlling, reducing the amount of greenhouse gas emissions from coal usage. Therefore, the Company uses waste-based fuel, which release less greenhouse gas emission with lower quality than coal whereby overall energy increases. LDPE and EVA plants • Total energy consumption of 657,856 gigajoules decreased by 3.47% compared to 2020. CRT and FCB plants • Total energy consumption of 487,673.97 gigajoules, decreased by 4.86% compared to 2020.	1. Carry out energy management in accordance with ISO 50001 for energy management system under international standards. 2. Operating according to energy laws

Total energy consumption of TPI Polene (only cement plant, LDPE plant and CRT and FCB plants) [302-1]

Unit: gigajoules

On-premises energy consumption	Energy consumption		
	2019	2020	2021
Cement plant			
Calorific Values (Non-Renewable Energy)			
Coal	28,972,988.00	27,692,130.85	26,951,649.59
Fuel oil	103,530.97	125,466.93	162,842.50
Diesel oil	331,812.44	411,215.67	564,600.79
natural gas	28,627.42	16,998.39	14,416.05
steam	73,420.84	65,425.11	62,852.56
Calorific Values (Renewable Energy)			
Waste Fuel	-	-	1,013,101.79
Electric energy	3,964,900.51	3,996,056.49	4,212,667.26
Total	33,475,280.18	32,307,293.44	32,982,130.54
LDPE and EVA plants			
Calorific Values (Non-Renewable Energy)			
steam	72,579.35	100,245.96	80,719
Calorific Values	573,546.28	581,254.76	577,137
Total	646,125.63	681,500.72	657,856
CRT and FCB plants			
Calorific Values (Non-Renewable Energy)			
steam	475,310.74	317,629.31	276,271.89
Calorific Values	192,999.60	194,983.20	211,402.80
Total	668,310.34	512,612.51	487,674.69
Total power consumption	**34,789,716.15**	**33,501,406.67**	**34,127,661.23**

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. Equals 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, 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 plant and CRT and FCB Plants) [302-3]

Unit: Megajoule per ton

Energy consumption	Types of energy used		Energy consumption per output unit		
	Electricity	Heat	2019	2020	2021
Cement plant					
SEC of Clinker	●	●	3,525.83	3,412.82	3,417.22
SEC of Cement	●		152.62	155.13	169.46
SEC of Mortar	●		43.83	44.86	44.63
LDPE and EVA plants					
SEC of LDPE & EVA Plastic Resins	●	●	4,472.90	4,485.45	4,355.58
SEC of EVA Emulsion and EVA Powder	●	●	1,924.94	1,045.95	1,086.84
CRT and FCB plants					
SEC of Board (FCB)/Tile (FR)/Tile	●	●	1,891.65	1,417.13	1,402.12
Cover (FR)/Fiber Wood (FW)					

Note: SEC is specific energy consumption

Energy Reduction Initiatives [302-4]

Energy Reduction Initiatives	Operation details	Decreased energy supply
1. Reduce the electric consumption of limestone crusher 4 by increasing capacity SBM 1,2 from 609 to 700 T/hrs.	- Reduce the waiting time for the transportation of raw materials from the mining department. - Increase working hours of machines by more than 15.00 hrs/day/body (total 30 hrs/day)	614,755.00 kWh/year
2. Reduce electricity consumption by changing spare parts in Sepol drive coal mill 2&4 from 42.29 kw (2019) and 67.47 kw (2019) to 20.02 kw.	- Change Sepol drive unit from hydraulic motor to Gear motor	239,990.41 kWh/year
3. Modify and install Vortex at Stack EP Cooler Kiln 1,2,3,4	- Install black hole energy saving machine and reduce fan power consumption by 3-5%	2,136,506.40 kWh/year
4. Reduce the average full-year Power Consumption value of cement production (type mixed M 4500) by 0.5 kwh/T	- Improve Slot Plate, Griding Ball Quantity - Improved internal Sepol separator and material condition	488,801.00 kWh/year
5. Improve capacity of Roto Packer (Packing Plant)	- Use Roto packer speed adjustment unit to automatically control lap speed. - Use motor impeller drive kit (proboscises feed kit) to work faster.	30,522.48 kWh/year
6. Modify Polytrack in Rotary Kilns 1,2,3 and 4	- Install Polytrack around Clinker cooler to reduce energy consumption.	115,872,952.85 kWh/year

Water and Effluents Management

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. [103-1]

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
- Reduce the use of water resources from the Pasak River by reusing surface water and reused water. - Control the amount of water from Pasak River to be used within the plant not exceeding 930,000 cubic meters/month. - Control the quality of drainage effluences in the sewerage system in the plant to be valued according to the effluences standards in accordance with the legal regulations of the Department of Industrial Works.	- 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. (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 1,5000,000 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] - 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. [303-1] The Bureau will also provide staff to inspect the meter to check the volume of water pumping from Pasak River on a monthly basis. - 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. - The Company does not drain the wastewater outside the plants but have a sewage ponds to reuse wastewater within the plants. However, the Company provides monthly analysis of effluent quality in accordance with factory drainage control standards EHIA. (303-2] - LDPE/EVA plants, where wastewater from production process is drained into the wastewater 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.	- The use of water resources from significant sources affects the environment (only for cement plants, LDPE and EVA plants, CRT and FCB plants). • Total amount of water to be used of 12,152,655 cubic meters, classified as water with a total amount of solids dissolved in water ≤ 1,000 mg/litre of 11,850,636 cubic meters whereas water and total amounts of soluble solids > 1,000 mg/l of 302,019 cubic meters, representing an increase of 8.70% compared to 2020. [303-3] • Total sewage volume of 18,328 cubic meters, classified as water with a total amount of solids dissolved in water ≤ 1,000 mg/litre of 18,328 cubic meters of water and total amount of soluble solids > 1,000 mg/litre of 0 cubic meters, representing a 57.93 percent increase compared to 2020. • Total water consumption of 1,254,953 cubic meters represents an increase of 8.62% compared to 2020. • Total reusable water content of 627,556 cubic meters, representing a decrease of 1.72% compared to 2020 - The Company has drained effluent outside the plant, where the results of the analysis of the quality of the drainage effluences in 2021 are on all under standards.	- 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. - LDPE/EVA plants in Rayong province continuously monitor water quality according to the plan and EIA measures.

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		
	2019	2020	2021	2019	2020	2021
Cement plant						
Surface water (river, Pasak River and rainwater)						
Water with a total volume of soluble solids ≤1,000 mg/litre	8,460,097	9,789,325	10,704,011	0	0	0
Water with a total volume of soluble solids >1,000 mg/litre	0	0	0	0	0	0
Underground water						
Water with a total volume of soluble solids ≤1,000 mg/litre	12,360 (Aug- Dec)	35,285	35,293	0	0	0
Water with a total volume of soluble solids >1,000 mg/litre	0	0	0	0	0	0
Seawater						
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 from the production process						
Water with a total volume of soluble solids ≤1,000 mg/litre	312,132	534,074	422,394	0	0	0
Water with a total volume of soluble solids >1,000 mg/litre	0	0	0	0	0	0
Water from external sources						
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
LDPE/EVA plants						
Surface Water						
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
Underground water						
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
Seawater						
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 from the production process						
Water with a total volume of soluble solids ≤1,000 mg/litre	52,219	51,108	94,757	0	0	0
Water with a total volume of soluble solids >1,000 mg/litre	0	0	0	0	0	0
External water (tap water)						
Water with a total volume of soluble solids ≤1,000 mg/litre	396,070	443,523	594,181	0	0	0
Water with a total volume of soluble solids >1,000 mg/litre	0	0	0	0	0	0

CRT and FCB plants						
Surface water						
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	379,399	326,926	302,019	0	0	0
Underground water						
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
Seawater						
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 from the production process						
Water with a total volume of soluble solids ≤1,000 mg/litre	52,219	51,108	94,757	0	0	0
Water with a total volume of soluble solids >1,000 mg/litre	0	0	0	0	0	0
External water (tap water)						
Water with a total volume of soluble solids ≤1,000 mg/litre	396,070	443,523	594,181	0	0	0
Water with a total volume of soluble solids >1,000 mg/litre	0	0	0	0	0	0
Total volume of water to be utilized						
Water with a total volume of soluble solids ≤1,000 mg/l	9,232,878	10,853,315	11,850,636	0	0	0
Water with a total volume of soluble solids >1,000 mg/l	379,399	326,926	302,019	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 plant) [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		
	2019	2020	2021	2019	2020	2021
Cement plant						
Surface water						
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
Underground water						
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
Seawater						
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

Transferred to another external organizations						
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
LDPE plant						
Surface Water						
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
Groundwater						
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
Seawater						
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
Send to another external organization						
Water with a total volume of soluble solids ≤1,000 mg/l	12,128	11,605	18,328	0	0	0
Water with a total volume of soluble solids >1,000 mg/l	0	0	0	0	0	0
Total volume of water to be utilized						
Water with a total volume of soluble solids ≤1,000 mg/l	12,128	11,605	18,328	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		
	2019	2020	2021
Cement plant			
pH	8.2	8.0	8.0
TDS	826.3	759	899
SS	26.1	17.9	19.0
BOD	5.8	2.6	5.1
COD	32.9	52.2	50.3
Oil and Grease	0.8	0.1	ND*
LDPE/EVA plants			
pH	7.58	7.52	7.22
BOD	3.33	3.06	3.41
COD	59.58	49.67	58.63

TKN	0.84	1.69	0.93
Oil and Grease	1.77	2.26	2.57
CRT and FCB plants			
pH	8.7	8.9	8.8
TDS	702	820	962
SS	14	12.6	16
BOD	1	4.6	9.9
COD	37	25.4	31.8
Oil and Grease	0.7	ND*	ND

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 plant) [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		
	2019	2020	2021	2019	2020	2021
Cement Plant						
Water consumption	195,083	333,796	263,996	0	0	0
Water reserved in the reservoirs	1,680,000	1,680,000	2,680,000	0	0	0
Recycle Water	312,132	534,074	422,394	0	0	0
LDPE/EVA Plants						
Water consumption	448,289	494,631	688,938	0	0	0
Water contained in the reservoirs	0	0	0	0	0	0
Recycle water	0	0	0	0	0	0
CRT and FCB Plants						
Water consumption	379,399	326,926	302,019	0	0	0
Water contained in the reservoirs	6,900	6,900	6,900	0	0	0
Recycle Water	N/A	104,474	205,163	0	0	0
Total Water consumption	1,022,771	1,155,353	1,254,953	0	0	0
Total volume of water contained in the reservoirs	1,686,900	1,686,900	2,686,900	0	0	0
Total volume of recycle water	312,132	638,548	627,557	0	0	0

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

Emission Management

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. [103-1]

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
- Set the target of TPI Polene group to reduce greenhouse gas emissions to zero (Net Zero GHG Emission) at cement plants and surrounding areas at Mauk Lek and Kaeng Khoi,Saraburi province, for waste is used as fuel in substitute for coal at cement plants by 30-40% and st replaces coal in power plants by 90-100%, where reducing landfill waste can reduce greenhouse gases.	- 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. - 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. - 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 substitutes and reduce deforestation. - Cost-effective use of natural resources, continuously create new innovation 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 red 299 (hydraulic cement) production technology to replace Portland cement,	- Reduced greenhouse gas emissions in 2021 from the use of 0.1 million tons of waste fuel to replace coal. - Hydraulic cement production volume can reduce greenhouse gases by 0.25 million tons of carbon dioxide equivalent. - Air quality measurements showed that air quality, sound and lighting were in the normal criteria required by law and no chemical leaks from business operations were found.	- Plans implementation to attaining CFP for 7 cement products in 2022. - In the process of investing in machinery to use waste fuel can be used as a replacement for coal by 30-40%. The project is expected to be completed in 2022.

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
	reducing greenhouse gas emissions by 10-15%. - Improves the efficiency of Electrostatic Precipitators systems at the Clinker Cooler - The measurement of atmospheric dust up to 2.5 microns is scheduled for 8 stations around the project area for a period of 5 consecutive periods (2019-2023) by External Environmental Consulting Firm (Third Party) - 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.		

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	2019	2020	2021
Direct Greenhouse Gas Emissions (Scope 1)	7,866,437.45	7,691,320.06	7,561,509.47
Indirect greenhouse gas emissions from energy (Scope 2)	1,438,958.97	1,439,399.02	1,193,594.53
Other indirect greenhouse gas emissions (Scope 3)	241,148.90	215,299.23	220,068.07
Total (scopes 1, 2, and 3)	9,546,545.33	9,346,018.31	8,975,172.07
Concentration of greenhouse gas emissions per production output (per ton of output)	1.0517	1.0377	1.0003

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 Worming 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_2 , CH_4 , N_2O, HFCs, PFCs and SF_6

Strong commitment to achieve net zero GHG emissions

TPI Polene Group has set a target to reduce net GHG emissions to zero, mainly through the use of waste as a renewable fuel for coal by 30-40% in cement production, and in the electricity production process by 90-100%.

At the end of 2021, TPI Polene Group by TPI Polene Power had registered and certified carbon credits from its community waste utilization project as fuel of 82,056 tons carbon dioxide equivalent and is attaining registration from the Greenhouse Gas Management Organization (TGO) to ensure a decrease in the amount of greenhouse gases (Carbon Credit) of 709,752 tons of carbon dioxide equivalent.

In addition, in 2021, TPI Polene Power sourced a total of 2.19 million tons of all types of waste as fuel in power plants of TPI Polene Power and in the company's cement plant, which could reduce carbon reduction from landfills by approximately 5.08 million tons of carbon dioxide equivalent. As for new projects, TPI Polene Power is in the process of attaining registration with the TOR to ensure a decrease in greenhouse gas content.

Table demonstrating carbon reductions, aiming to lower greenhouse gases for TPI Polene Group

Related execution/process source	2021	2022	2023	2024	2025	2026
1. TPI Polene Plc.- TPIPL						
1.1 Clinker Production (1)	(7.56)	(7.56)	(7.47)	(7.3)	(7.3)	(7.3)
1.2 Other Activities (1)	(1.41)	(1.30)	(1.2)	(1.05)	(1.00)	(1.00)
1.3 Hydraulic Cement Manufacturing (2)	0.25	0.26	0.27	0.27	0.27	0.27
Net TPIPL	**(8.72)**	**(8.60)**	**(8.40)**	**(8.08)**	**(8.03)**	**(8.03)**
2. TPI Polene Power Plc.- TPIPP						
2.1 Reduce community waste landfill by producing it as waste fuel.(3)	(7.56)	(7.56)	(7.47)	(7.3)	(7.3)	(7.3)
2.2 Production of waste-based fuel, steam and electricity.(1)	(1.41)	(1.30)	(1.2)	(1.05)	(1.00)	(1.00)
NET TPIPP	**(8.72)**	**(8.60)**	**(8.40)**	**(8.08)**	**(8.03)**	**(8.03)**
3. Landfill Waste Reduction (million tons)	**0.25**	**0.26**	**0.27**	**0.27**	**0.27**	**0.27**

Remark : (1) Greenhouse gas emissions of the clinker production process are calculated according to "Requirements for calculating and reporting carbon footprint by Greenhouse Gas Management Organization no. 5, January 2021 Greenhouse Gas Management Organization. (TOR)
(2) Calculation of greenhouse gases using T-VER-METH-OTH-03 method by TOR
(3) Emission Factor is calculated, based on the case of emissions to landfill waste, 2.32 tons of greenhouse gases / 1 ton of landfill waste are generated.

To achieve TPI Polene Group's mutual target of reducing net carbon dioxide emissions to zero alongside the disposal of solid waste instead of putting it in landfills, which causes pollution problems, the Group will enhance environmental impact management, deliver value to public society, and strengthen business immunity to the risks associated with climate change, and increase competitiveness, which is a continuous and sustainable response to the expectations and satisfaction of stakeholders of TPI Polene Group, and to pass on sustainability to Thailand.

Prevention of land degradation and contamination of land

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. [103-1]

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
Zero Waste	- The Company does not release waste, wastewater, 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. - Proceed to plant forests as green spaces within the plant for total of 343 Rai and cooperated with the Environment for Life Foundation to plant 18 plots of forest outside the Company's land to 1,915 rai, including mangrove planting to create a balanced ecosystem and prevent coastal erosion from seawater, which creates overall interests of the public and the public sector.	- No waste affects from chemicals and contaminants that result in land degradation. [CRE5]	- 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).

Scrap and Waste Management

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, [103-1], to be in compliance with the rules and relevant legal regulations. [103-1]

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
Utilize the greatest benefit of industrial waste ≥ 95% of the amount of industrial waste generated each year.	- 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 environmentallyfriendly 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 (NOx) and sulfur dioxide (SO2) and fly ash into the atmosphere, making it an effective and sustainable way to manage waste or industrial waste. [306-1] [306-2] - 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. The waste concrete tile scraps of the production process are used as new	- Total amount of industrial waste to be exploited was 12,421.25 tons, representing 99.92% of the amount of industrial waste generated in 2021. - Landfill waste equal to zero	Strictly comply with the Ministry of Industry Announcement on The Disposal of Sewage or Disused Materials B.E. 2548 (2005)

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
	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 [306-2] waste gas. By- products from EVA production process is used as raw material in the production of EVA Emulsion and EVA Powder. - The Company has a procedure for information collection and assessment in relation to waste as follows: - 1. Industrial waste management must comply with the Ministry of Industry Announcement on the Disposal of Sewage or Disused Materials B.E. 2548 (2005) 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. 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. 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. [306-3]		

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

Unit: Tons

Scrap and waste Management	2019	2020	2021
1. Total waste content classified by type of waste			
- Hazardous waste	1,709.51	2,371.75	2,929.09
- Non- hazardous waste	3,532.76	7,805.06	9,503.22
Total quantity of waste	5,242.27	10,176.81	12,432.31
2. Exploitation			
Hazardous waste			
- Substitute fuel	1,329.07	2,139.71	2,515.56
- Substitute material	159.87	163.24	312.02
- To be recycled	215.99	58.69	90.45

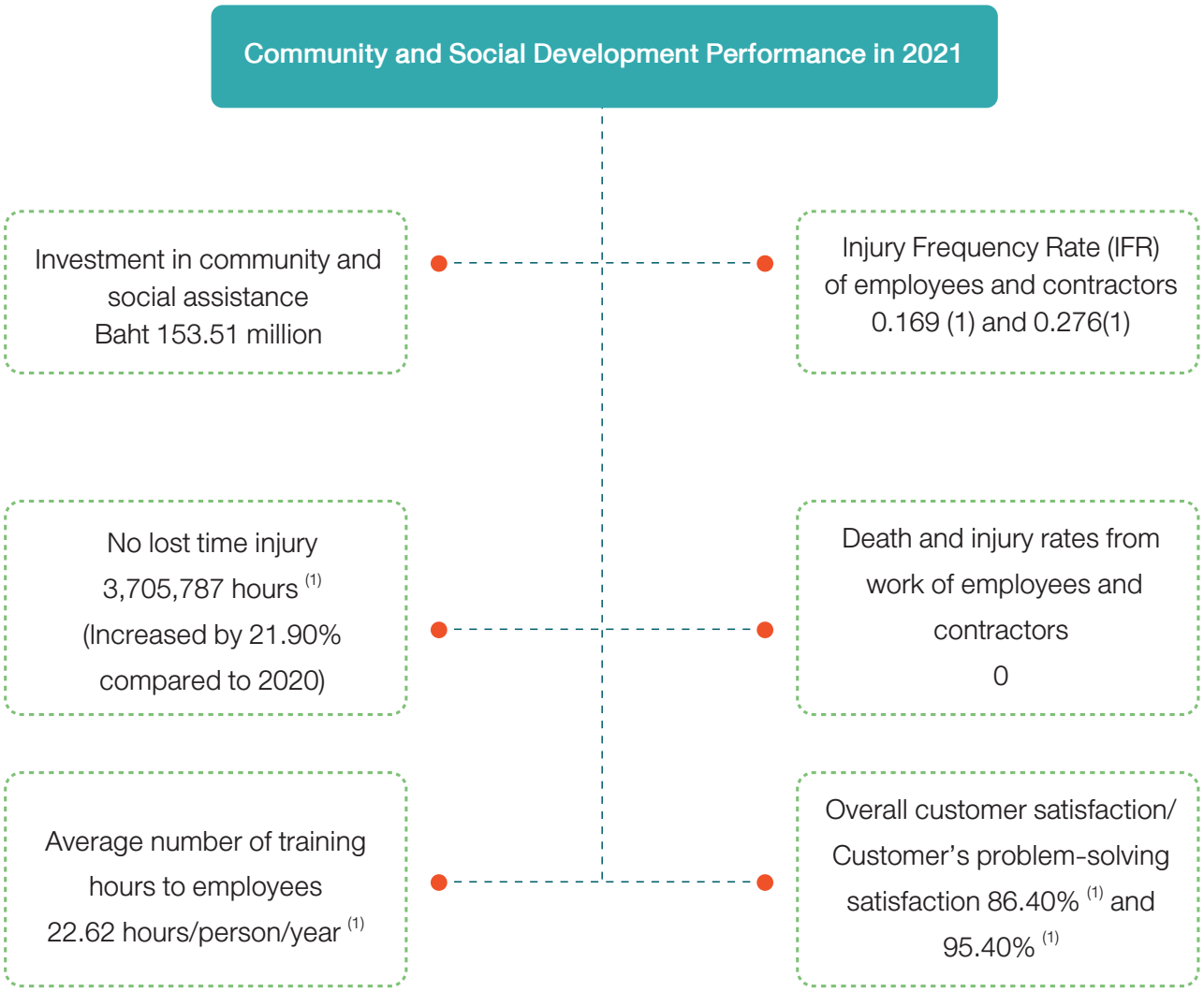
Non- hazardous waste			
- Renewable fuel	162.20	662.17	521.56
- Substitute material	1,487.25	2,634.39	5,087.73
- To be recycled	1,883.31	4,508.50	3,893.93
Total utilized waste content	5,237.69	10,166.70	12,421.25
3. Disposal of waste			
Hazardous waste			
- Safe landfill	4.58	10.11	11.06
Non- hazardous waste	0	0	0
Total disposal waste content	4.58	10.11	11.06

Development of projects to mitigate key environmental impacts in 2021

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 2021, totaling Baht 2,210,000,000 as follows:

Project	Advantage	Investment Value (Baht)
Continuous Emission Monitoring System (CEMs) of Cement line 4	1. Safeguard and monitor carbon emissions continuously for 24 hours and identify the results immediately. 2. Apply the measurement results to solve the problem immediately.	30,000,000
Prepol SC project: Installation of additional machinery in 3 rotary kilns	Reduce heat consumption, repair costs, and use waste as renewable fuels as a substitute for coal by up to 30-40%, which will reduce fuel costs.	2,180,000,000
Total		**2,210,000,000**

Community and Social Development



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

Human Resource Management

The Company places a great emphasis on human resource management in terms of training, developing skills, and knowledge organization, and takes into consideration human rights, with no discrimination and fair treatment to stakeholders. This covers the control, protection, and safeguarding of the lives and assets of those involved in the organization, which must be done in compliance with the related governing laws, local traditions, norms, cultures, and human rights principles, to ensure that the Company complies with such practices; an example is that all security guards must treat third parties in accordance with the correct practices as well as focus on eliminating child labor, forced and compulsory labor. The Company is aware that under dynamic circumstances in economic, social, and environmental dimensions as well as technological changes, development of employees' potential to be aware of and understand such changes, as well as regulations, practices and guidelines, will help support business operations of the Company to be in line with the Company's strategy and reinforce trust, confidence and support strong relationships with relevant stakeholders as well as create engagement between employees and the Company. This will also enhance the pride of employees who are successful in their career and will be an integral part of driving the Company to achieve the goals together. [103-1]

Code of Conduct

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

Human Rights Policy

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

Employee Manual

https://www.tpipolene.co.th/en/aboutus-en/employee-handbook 

Privacy Policy

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

Corporate Social Responsibility

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

Anti-corruption policy

https://www.tpipolene.co.th/en/aboutus-en/anti-corruption-policy 

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
- Average number of training hours for every course is not less than 18 hours per person per year. - The Company and contractors and subcontractors do not hire child laborers, forced or compulsory labor - Treat stakeholders with respect on the basis of human dignity, fairness, no-discrimination against any particular persons. - All security guards (100%) must be trained to know techniques and the procedures for searching people/ vehicles in accordance with human rights principles and maintain a regular review.	- 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. - 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. - 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	- Average number of training hours for all courses was 22.62 hours/person/year [404-1] - Satisfaction of training evaluation presenting 90% (evaluation after the training, scored 4.5 out of the full score of 5). - No complaints regarding discrimination were found in 2021 [406-1] - No complaints and no incidents related to child labor, employment of child laborers, forced or compulsory labor in the Company, the contractors and the subcontractors were	- Due to COVID-19 affecting training, the Company has improved the form and training channels by providing more online training. This makes it possible to provide training from any location and agency.

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
	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) - 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. - Establish regulations and treat work labors fairly with no irrelevant employment and does not support for 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. - 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 themselves. - Training on human rights processes or policies such as the Personal Data Protection Act (Practical) and the Personal Data Protection Act (Processes and Practices) - Training to educate security staffs in terms of human rights-based, human rights search courses on monthly basis. [410-1] The training requirements apply to third-party organizations that provide security guard services. - Welfare committees' representatives from employer and employee (from the election of employees) are established as required by law to monitor and supervise issues related to employment conditions, in which employees who are supervised under the agreements concluded by the meeting, account for 100% of the total number of employees [102-41].	found [408-1] [409-1] - Total 973 hours of training on human rights procedures or policies with 187trained employees (2.66% of total 7,016 employees) [412-2] - Level of satisfaction towards the performance of security guards (security guards) equal to 85.07% - Complaints about human rights violations of security guards equal to 0. - Security guards have been trained procedures and procedures for searching persons/vehicles in accordance with human rights principles presenting 100% and reviewed at least once a year. [410-1]	

Number of training hours [404-1]

Unit: Hour/Person/Year

Employee Training Information	2019	2020	2021
Average number of training hours	27.41	21.45	22.62
Average number of training hours classified by gender			
Male	29.24	23.03	25.06
Female	15.75	11.53	8.78
Average number of training hours classified by employee group			
Executive Level (AVP/VP/SVP)	2.58	2.59	6.02
Manage level (ASST.DEPT.MGR. – DEPT.MGR.)	9.05	8.07	5.93
Command level (ASST.SUP. – SECTION MGR.)	20.03	16.56	14.48
Operating level (OFFICER)	29.86	23.13	25.08

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

Human Resource Development Program total 884 courses as follows: [404-2]

Course Type*	Number of courses	Objective
1. Business Administration and Leadership	18	Boost leadership skills, such as driving human resource within the organization to accomplish their task as targeted.
2. Occupational Health and Safety and Environment	130	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	718	Focus on improving skills, employee efficiency with learning, especially professionals, to encourage employees to show their full potential.
4. Technology & Engineering	16	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	2	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 and communicate effectively with others.

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

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.

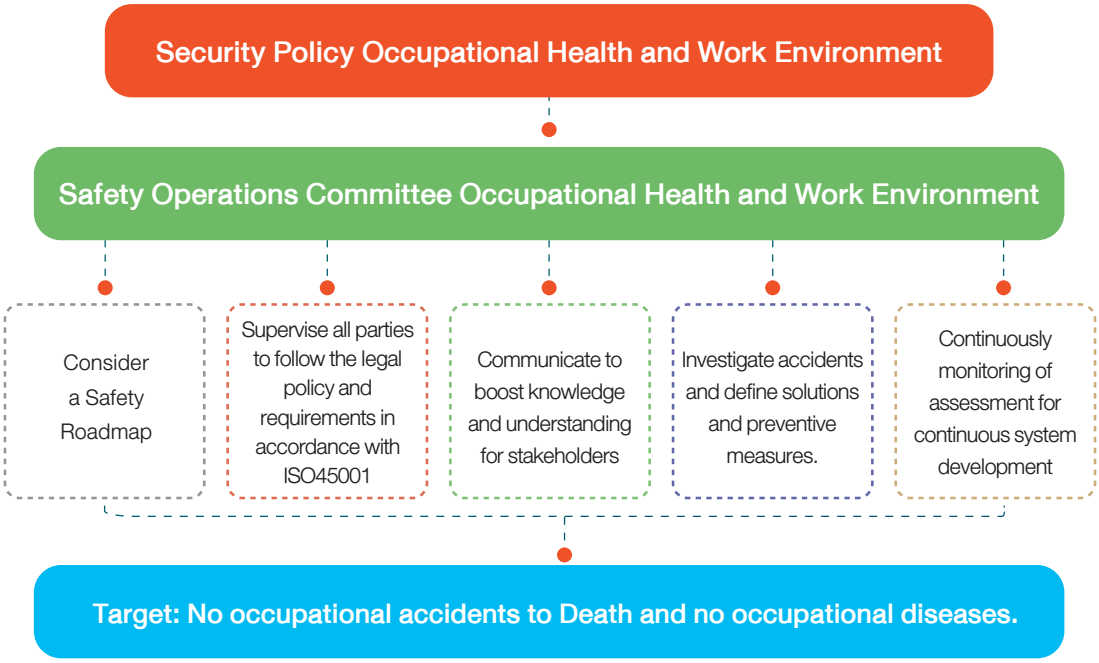
Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
- A Zero Accident Organization	- Establish occupational health, safety and environmental policies to safeguard occupational safety and work environment for workers, contractors and subcontractors, 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]. - 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]. - 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] - Provide occupational safety and health training for all employees and contractors before starting to work with	- Mortality rate rates of employees and contractors equal to 0 - Injury Frequency Rate (IFR) was 0.169, which decreased by 0.087 compared to 2020. - Rate of illness from high impact work was zero. - no lost time injury hours, an increase was 20,625,147 hrs., increased of 3,705,787 hours compared to 2020	- 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. - Strictly comply with safety laws and requirements of ISO45001-2018 occupational safety system standards.

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
	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] - 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] - 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] - 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] - 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] - 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		

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
	occupational medicine doctors and occupational 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. - Supervise the performance of workers, outsiders and stakeholders in the operating area to strictly comply with the rules, safety regulations and regulations [403-1] - 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]		

Management Structure of Safety, Occupational Health, and Environmental [103-2]

The Company has set up a Safety Operations Committee for 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	7,030	100
workers	887	100
Employees and workers in the establishments controlled or supervised by the organization (and audited by the organization)		
employees	1,846	26.25
workers	194	21.87
Employees and workers in the establishments controlled or supervised by the organization (and audited by external organizations)		
employees	313	4.45
workers	28	3.16

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 under 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	16,556,695.00	0	0
High-impact work-related injuries (excluding deaths)	0	0	0	0	0	0	0	0	0	0		0	0
Work-related injuries, which can be recorded.	0	3	0	0	1	1	0	9	0	0		14	0.169
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	2,171,440.00	0	0
High-impact work-related injuries (excluding deaths)	0	0	0	0	0	0	0	0	0	0		0	0
Job-related injuries, which can be recorded.	0	0	0	0	0	0	0	3	0	0		3	0.276

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 employees					
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 non-employees, 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

(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 provides RT-PCR screening form for COVID-19 to employees, contractors, and related employees who work in the same workplace, and for infected groups, the Company coordinates to access an immediate treatment system.
- 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 the "Sinopharm" option vaccine for employees in the provinces who do not have access to the vaccine, allowing for rapid injections and covering the total number of employees. As of December 31, 2021, the rate of the 1st dose of the vaccine of TPI Polene Group employees was 99.74% of total employees, and the 2nd dose of the vaccine was 99.38% of all employees. The 3rd dose of the vaccine has been administered to 56.12% of all employees.

  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 purchased and reserved "Andrographis" for employees who have fever, cough, sore throats, or COVID -19 infections. It helps to relieve mild symptoms and is used in low-risk people to reduce the likelihood of pathogens 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.

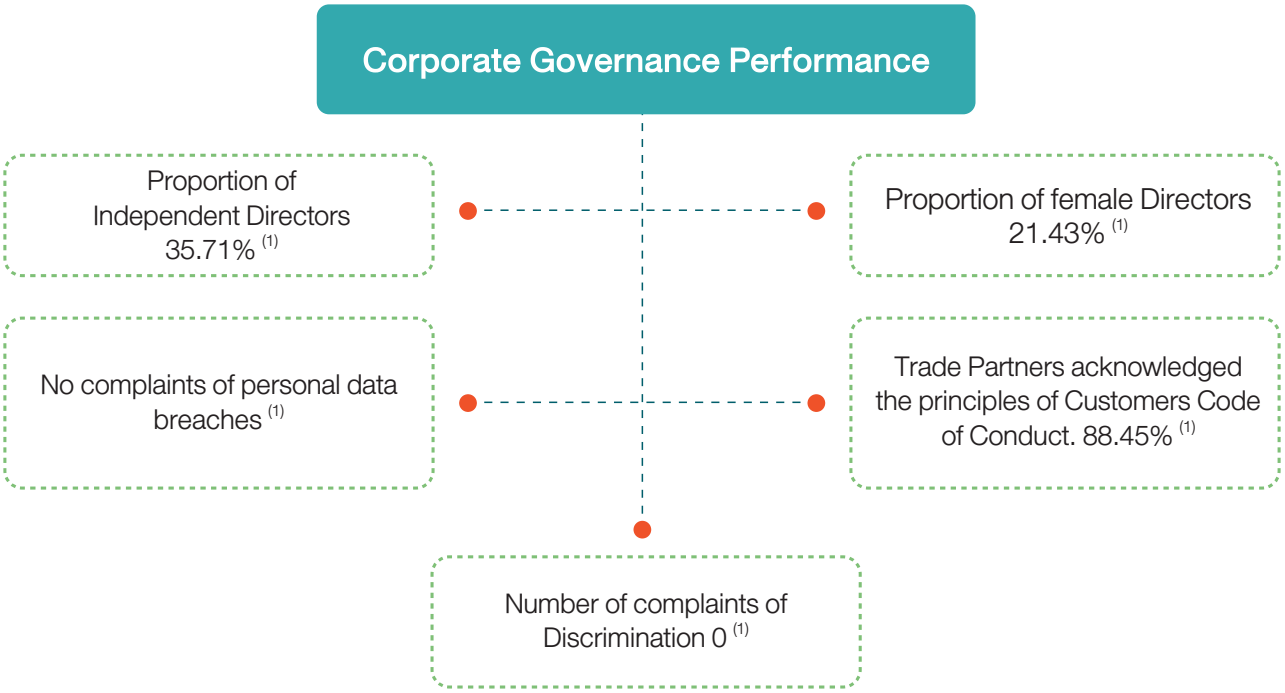
Community and Social Development Participation

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 promote 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 [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
Create value and upgrade the quality of life of local people in the communities and society to grow sustainably.	- Improve the production process of cement plants to use waste fuel up to 30-40% 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. - 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 (1) Strengthen communities to be healthy, provide mobile medical services in a wellness program with TPI Polene to monitor illnesses Health Check-up Service To Educate Health Benefits of lung examination at surrounding communities in Kaeng Khoi District, Mauk Lek, Saraburi (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. (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. (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	- 2.19 million tons of community waste used to replace coal - Repair/build 20homes for people with disabilities, and chronic illness patients, who are in need of housing, in Kaeng Khoi District, Saraburi Province, etc. - The results of the Community Satisfaction Survey in 2021 showed that the scholarship program is a CSR activity of the Group that the community knows and is very satisfied with. - TPI Polene Group assembled to relieve the difficulties of society, communities & employees from the COVID-19 pandemic in 2021, other social assistance projects worth approximately Baht 153.51 million, can be summarized as follows 1. Donated the budget for the purchase of medical apparatus, healthcare products, building materials of TPI Polene group and other items totaling Baht 94.54 million to hospitals and organizational agencies to assist the work of healthcare workers, Public Health, Frontline Staff to control COVID-19 pandemic, as well as help infected patients such as: - Supported the breath project for purchasing "High Flow Machine" for Siriraj Foundation, support mobile X-ray vehicles to Chana Hospital, Songkhla province, entering into the villages of the south, oxygenizers with high flow rates, clean air supply respiratory protection equipment (PAPR), isolator negative pressure cribs, etc. to public health, Songkhla province, to be used in 6 hospitals, such as Chana Hospital/Somdej Nathavee Hospital/Tepa Hospital/ Sabayai Hospital/Sadao Hospital/ Padang Pesar Hospital, and support the Excellent Mobile Vehicle for Songkhla Nakarin Hospital, Faculty of Medicine. Songkhla Nakarin School. - Provided biosanitary products to TPI Polene group to healthcare workers/ frontline staff and COVID-19 patients in 14 hospitals such as Siriraj Hospital, hospitals, field hospitals and police hospitals in Saraburi province, support TPI boards to detach bathrooms for Busarakham Field Hospital (Muang Thong Thani), support the construction of the field hospital, Lerdsin Hospital and supported 31,000 rice boxes for healthcare workers at Bang Su e Central Vaccination Center, including donated rice delivery Dry food and biosanitary products of TPI Polene group to Songkhla Provincial Administration and local residents of Nathap Taling Chan, Sakom and Chana, Songkhla Province.	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.

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
	Khoi District. Saraburi, etc. - Conduct corporate social responsibility (Corporate CSR) According to the 2021 Community Satisfaction Survey, the CSR activities of the TPI Polene Group, mostly satisfied to the community, including scholarship programs. TPI Polene Group has implemented educational opportunities for well-educated youth, who are well behaved, 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 the TPI Polene Group, creating a strong bond with the community as a single family.	2. Donated the budget and construction materials of TPI Polene Group renovation and repair buildings and places for temples, schools throughout the country, as well as foundations and organizations that benefit society totaling Baht 46.50 million. 3. Donated scholarships and construction materials of TPI Polene group to schools, educational institutions totaling approximately Baht 12.46 million. Besides, TPI Polene Group also provided RT-PCR Swab equipment and COVID-19 detection equipment to allow all employees to test for COVID-19, including providing vaccines against coronavirus to all employees, and providing TPI Polene biosanitary kits, including provita, bio knox beverages, Micromknox Solution, mouthwash, alcohol gel, etc. to both employees and their families to be immune to COVID-19	

Conduct the Business Operation under Good Corporate Governance Policy



Remark: (1) Only TPI Polene Public Company Limited

Corporate Governance and Anti-Corruption Policy

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. The Board of Directors recognizes its role as a leader of the organization and understands the benefits and implementation of good corporate governance practices in the organization continuously to be internationally recognized. [103-1]

Good Corporate Governance Policy [102-16]

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

Code of Conduct [102-16]

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

Employee Manual

https://www.tpipolene.co.th/en/aboutus-en/employee-handbook

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. [103-1]

Anti-Corruption Policy [102-16]

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

Supplier Code of Conduct [102-16]

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

Privacy Policy

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

International Human Rights Policy

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

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
- Follow good corporate governance principles without corruption - Employees are trained in anti-corruption courses on an ongoing basis every year. - Business partners are constantly increasing their corporate anti-corruption policies and practices every year.	- 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. - Establish responsibilities to ensure that the Company's business operations are transparent, ethical and responsible to shareholders, customers, employees, society and other stakeholders in accordance with the Company's policies and corporate governance as follows:- 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. 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. 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 The Head of Internal Audit is responsible for proper 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. - Assign to all departments of the organization to assess risk associated with corruption in consideration of the COSO-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. - Establish anti-corruption practices for employees, including anti-corruption and anti-corruption mea sures (business dealings with partners and third parties) in order for all employees to adhere to and strictly comply. - Assign the purchasing department or related parties to compare prices or auctions (as the case may be) in case of procurement. - Require channels for whistleblowing and complaints 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,	- Require all departments, especially those that are contacting third parties. risks linked to corruption and/or corruption is assessed, with total 75 departments, representing 100% departments assessed for risks linked to corruption. [205-1] - The proportion of employees trained in anti-corruption courses was 6.31% of total of 7,016 persons, with total of 7,016 employees acknowledged 100% anti-corruption policies. - 88.45% of total of 1,394 companies of the Company's business partners acknowledged corporate anti-corruption policies and practices - There are no lawsuits where the organization has been indicted for corruption, and there are no fraud incidents with partners. (205-3]	- Special lectures by qualified speakers of anti-corruption through online classrooms - Organize anti-corruption activities via electronic media, etc. - Review every agency's fraud risk assessment annually, including objective setting, identify risk, risk assessment, and re-interaction of risk responses from changing events/factors.

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
	immoral, business ethics, such as reporting com plaints 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) - Formulate 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 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. - Require the protection of complainants as the whistleblower or the person filing the grievance in good faith is greatly beneficial to the Company and all employees, therefore, the whistleblower or the person subject to such grievance and parties involving in the fact-finding and reporting process, no matter what difficulties they might have, the Company will ensure that no employees shall be demoted, penalized or be otherwise affected because they honestly decline to participate in corruption. The Company has a policy to investigate such reports with equal transparency, care and fairness and subject them to a proper investigation; information will be kept confidential and only be revealed when necessary while we will take into consideration the safety and damage of the whistleblower or the person filing the grievance, which will be carried out in a confidential manner to ensure staff who make the reports will have their identities protected. The whistleblower or the person filing the grievance (various groups of stakeholders or employee) may choose not to reveal his/her name, address or contact number unless he/she feels that such a disclosure will enable the Company to inform him/her of progress. Information will be kept confidential and only be revealed when necessary while we will take into consideration safety and damage of the whistleblower or the person filing grievance. The Company will hear all such reports with equity, transparency, care and fairness and subject them to a proper investigation, which will be carried out in a confidential manner to ensure the staff member who makes the reports will have their identities protected with fair treatment. - 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.		

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. Employee		
Classified by employee group		
- Senior Executives (TOP EXECUTIVE)	3	100
- Management Level (AVP/VP/SVP)	52	100
- Manager level (ASST.DEPT.MGR. – DEPT.MGR.)	331	100
- Supervisor level (ASST.SUP. – SECTION MGR.)	1,077	100
- Operating level (OFFICER)	5,553	100
Total	**7,016**	100
Classified by Location		
- Head office	1,392	100
- Cement plant, Saraburi province	4,233	100
- CRT & FCB plant, Saraburi province	812	100
- LDPE & EVA plant, Rayong province	579	100
Total	**7,016**	100
3. Business Partners		
- Suppliers/ Business Partners	1,394	88.45

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)		
Classified by employee group		
- 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 (Officer)	70	1.00
Total	**443**	**6.31**

Classified by Location		
Head office	157	2.24
Cement plant, Saraburi Province	114	1.62
CRT & FCB plant, Saraburi Province	123	1.75
LDPE & EVA plant, 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.

Complaints, Suggestions and Whistleblowing [103-2]

TPI Polene 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 as follows:

1. A complaint if encountering any acts that are 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 levels of employees will be responsible for the anti-corruption policy in connection with customers, suppliers and all parties concerned. (Hereafter called "related parties who have conflicts of interest" who have a direct impact on business operations)

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

Corporate Social Responsibility

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

Economic Performance

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. [103-1]

Economic Performance (based on consolidated financial statements)

Total Revenue	Employee wages and welfares	Tax expense	Net profit	Dividend per share
41,279 Million Baht	6,346 Million Baht	177.90 Million Baht	6,918 Million Baht	0.09 Baht

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
- Create growth potential and high return on investment for the organization in the long run and continue to deliver value to sharholders and related stakeholders under good corporate governance policy.	- 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 - 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. - 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. - Continuous development of waste fuel replacement for coal in all four cement plants to reduce cement production costs and increase competitiveness. - Focus on niche market for EVA resin products with high profit margins and increase the production capacity of EVA emulsion and EVA powder. - 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. - Install machinery in the rotary kilns to reduce heat consumption, reduce repair costs and thereby can reduce the cost of cement production. - Increase the range of mortar, fiber cement, concrete tiles and lightweight concrete that meet market demand - Expand the channels of sale in modern trades 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. - Organize logistics to deliver quality products and services to meet the standards at competitive costs and to meet customer needs efficiently and rapidly.	- The first Thai ready-mixed concrete manufacturer to be certified made in Thailand (MiT) by the Federation of Thai Industries. - The only manufacturer in Thailand that can manufacture and distribute EVA Emulsion and EVA Powder to market under the brand Polene® - The Company has revenue from sales of Baht 38,920 million, an increase of Baht 4,644 million (or increased by 13.55%) as the revenues of the petrochemical and chemicals business increased, primarily due to hike of product price. - The Company's cost of sales was Baht 26,391 million or an increase of Baht 1,454 million (or increased by 5.83%) as raw material prices of the petrochemical and chemicals business have risen to be in line with the hike of selling price. - The Company realized net profit from operations (excluding gains (losses) from exchange rates and corporate income tax) of Baht7,067 million, an increase of Baht 4,379 million (or increased by 61.39%) from 2020 - In 2021, 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.	- 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. - 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.

In 2021, 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 [102-7] [201-1]	2021* (Million Baht)
(1) Direct Economic Value Generated	
Revenues	30,635
(2) Economic Value Distributed	
Operating Costs	12,864
Employee Wages and Benefits	4,874
Payments to Providers of Capital	3,035
Payments to Government	338
Community Investment	27
Total	21,138
Retained Economic Value (2) – (1)	9,497

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

Data Security

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 at www.tpipolene.co.th [103-1].

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 2021, TPI Polene Group received no complaints of personal data breaches.

Privacy Policy

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

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
- 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.	- 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 - 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. - 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. - Continuous development of waste fuel replacement for coal in all four cement plants to reduce cement production costs and increase competitiveness. - Focus on niche market for EVA resin products with	- The first Thai ready-mixed concrete manufacturer to be certified made in Thailand (MiT) by the Federation of Thai Industries. - The only manufacturer in Thailand that can manufacture and distribute EVA Emulsion and EVA Powder to market under the brand Polene® - The Company has revenue from sales of Baht 38,920 million, an increase of Baht	million (or increased by 13.55%) as the revenues of the petrochemical and chemicals business increased, primarily due to hike of product price. - The Company's cost of sales was Baht 26,391 million or an increase of Baht 1,454 million (or increased by 5.83%) as raw material prices of the petrochemical and chemicals business have risen to be in line with the hike of selling price. 4,379 million (or increased by

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
	high profit margins and increase the production capacity of EVA emulsion and EVA powder. - 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. - Install machinery in the rotary kilns to reduce heat consumption, reduce repair costs and thereby can reduce the cost of cement production. - Increase the range of mortar, fiber cement, concrete tiles and lightweight concrete that meet market demand - Expand the channels of sale in modern trades 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. - Organize logistics to deliver quality products and services to meet the standards at competitive costs and to meet customer needs efficiently and rapidly.	61.39%) from 2020 - The Company realized net profit from operations (excluding gains (losses) from exchange rates and corporate income tax) of Baht7,067 million, an increase of Baht 4,379 million (or increased by 61.39%) from 2020 - In 2021, 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.	

Products and Service Development with Responsibilities

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. [103-1]

Quality Policy

https://www.tpipolene.co.th/en/aboutus-en/quality-policy-en

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
- Seeking to gather knowledge that is useful for the organization, both in terms of products, services and operating methods - Complete research of new products or improve the quality of at least 5 products within 3 years - Research and development of technology and innovation in at least 5 projects within 3 years - Customers are satisfied	- Provide R&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 - Improve existing products to better meet customer needs and application. It takes into account environmental friendliness and safety for users. - Develop new products, which are various innovations to market to increase alternatives and meet the best uses of consumers.	- The innovative and service technology development projects, in which 14 products are successfully produced and launched in 2019-2021 as the following: • New products development in 2019, such as TPI stucco mortar (M900), TPI Nano Super Armour cement paint (NP110), mortar for plastering (M103), polishing mortar nano cement paint (NP103) and Pro Vita Drinks • New products development in 2020, such as TPI All Seasons cement paint (NP104)	In 2022, it is planned to conduct research and development on solar heat reflective paint project, which has the advantage of saving energy, since this type of house paint, once applied, it helps prevent and reflect heat from outside entering through the building and help even out temperatures in the building. As a result, this helps saving energy and electricity energy cost.

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
with the Company in all aspects to the highest, and the satisfaction level must not be lower than 4.10 out of 5 points. - Customer satisfaction level in solving the Company's problems not less than 82%	- Research and development of alternative raw materials, including the reuse of waste from the production process to reduce the use of raw materials which are natural resources. - 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. - 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. - 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 the responsible departments for providing feedback, providing knowledge about the Company's products and services. - 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	• New products development in 2021, such as TPI marine-sulphate resistant dry mortar (M401S, M402S, M403S and M404S), special primer paints (NP301P and NP304), calcium & vitamin C supplements (Bio Knox) and soil booster. - Five research and development projects that have been completed during 2019-2021 are as follows: • In 2019, selecting probiotic microorganisms for the production of probiotic powder. • In 2020, researching AHA extracts from lactic acid bacteria for ingredients in cosmetic as well as soil conditioner extracts from excess of scrap from the dolomitic limestone production process. • In 2021, the studies to obtain steel fibers that are by-products from the production process of renewable fuels for the production of concrete, and a project to study the effectiveness of hand-washing liquid mixed with herbal extracts to prevent pathogenic bacteria. - R&D expenditures in 2021 were Baht 19,461,389 - Total expenditure for technology, innovation development and service in 2021 amounted to Baht 46,708,411.66 - Overall satisfaction in TPI products averaged 4.33 points out of 5 points. - Overview of pre-sale service satisfaction averaged 4.31 points out of 5 points - Overview of service satisfaction during sales averaged 4.31 points out of 5 points - Overall, after-sales service satisfaction averaged 4.33 points out of 5 points - Overview of average communication satisfaction of the Company 4.31 points Out of 5 points - Overview of sales support service satisfaction averaged 4.30 points out of 5 points - Overall satisfaction averaged 4.32 points out of 5 points or equal to 86.40%. - Customer's resolution satisfaction level was 95.40%. - No incidents of non-compliance with regulations relating to the health and safety impact of products and services [416-2]	

Target [103-2]	Action Plan [103-2]	Key Performance in 2021 [103-3]	Guidelines for improving future operations [103-3]
	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 fist 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.	- No incidents of non-compliance with regulations and/or compliance regulations regarding product and service information and labeling [417-2] - No incidents of non-compliance with regulations and/or compliance regulations regarding marketing communications [417-3]	

R&D projects undertaken in 2021 totaling Baht 19,461,389 are as follows: [103-2]

R&D Projects	Detail	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 CO_2 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 CO_2 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, glygolyn acid from sugarcane, lactic acid from sour milk. tartalic 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

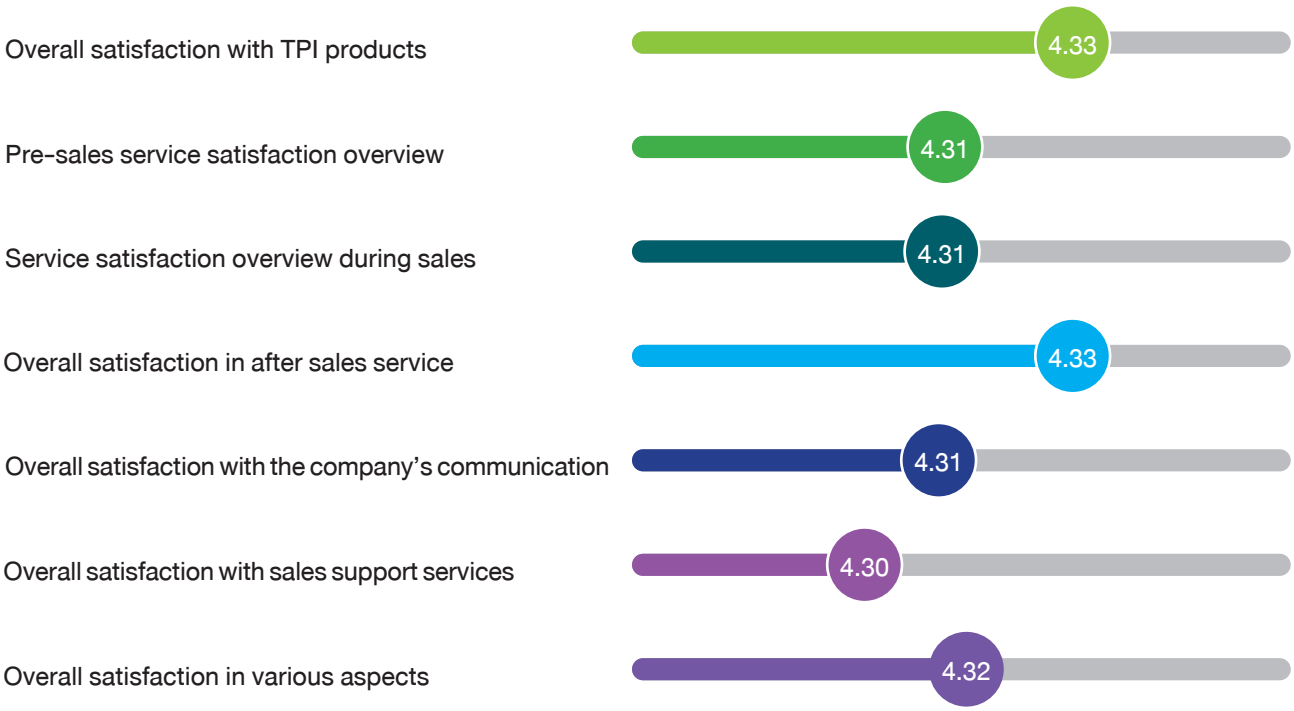
A research and development project of soil conditioners from scrap excess in the dolomitic limestone production process.	Soil is one of the fundamental factors that are important to production in the agricultural sector. Planting requires fertile soils with enough food minerals for plants, which will 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
Development of powdered fruit and vegetable cleaning products in accordance with the Ministry of Public Health's requirements regarding cleaning or disinfection products used for food.	From the development of fruit and vegetable cleaning products, TPI Green Alkaline Wash, in liquid form, is capable of cleaning dirt and agricultural chemicals contaminated with fruits and vegetables. However, due to the liquid product characteristics that are not convenient for transportation and storage, we have developed fruit and vegetable cleaning products that have the properties of disinfecting food pathogens and retain the ability to remove dirt and chemical residues in agriculture, with its ready-to-use properties in powder form for mixing water at a specified ratio and then soaking fruits and vegetables.	THB 2,480,000
Total		THB 19,461,389

Technology, innovation and service development projects in 2021 totaling Baht 46,708,411.66 [103-2]

Technology, Innovation and Hospitality Development Projects	Detail	Investment value
Development of Road Marking Paint Product with solvent free- ready to use type	Innovations in ready-to-use traffic paint products do not rely on heat to warm the melting before using, it can be used to combined 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.	THB 7,730,825.14
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

Technology, Innovation and Hospitality Development Projects	Detail	Investment value
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
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
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 ashs 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
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
Total		**THB 46,708,411.66**

Level of customer satisfaction in various fields for the year 2021 (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.

About this report

Source of Information [102-48]

The 2021 Sustainability Report of TPI Polene Public Company Limited has been prepared as the first report [102-51] 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 [102-52] from January 1 to December 31, 2021 [102-50], 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.

Scope of the report [102-45]

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 [102-56]

The ESG Committee and the top management of the Company play 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.

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 [102-53]

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
26/56 Chantad mai Road, Tungmahamek, Sathorn, Bangkok 10120
Phone: +66 (0) 2213-1039, 2285-5090 # 12982 / 12159
E-mail : orataij@tpipolene.co.th / chayutd@tpipolene.co.th

Sustainability Report 2021
On the website of TPI Polene Public Company Limited
www.tpipolene.co.th or https://www.tpipolene.co.th/en/news-en/sustainability-en

This report has been prepared in accordance with the GRI Standards: Core option. [102-54]

GRI Standard	Disclosure	Page Number (s) And/or URL (s)	Omission			SDG Linkage to Disclosure
			Identified Omission (s)	Reason (s) for Omission (s)	Explanation for Omission (s)	
GRI 101: Foundation 2016						
General Disclosures						
GRI 102 : General Disclosures 2016	102-1 Name of the organization	18, 22				
	102-2 Activities, brands, products, and services	18				
	102-3 Location of headquarters	19, 22				
	102-4 Location of operations	19-20				
	102-5 Ownership and legal form	22				
	102-6 Markets served	18-20				
	102-7 Scale of organization	19-20, 22-23, 80				
	102-8 Information on employees and other workers	23				SDG 8, SDG 10
	102-9 Supply chain	25-27				
	102-10 Significant changes to the organization and its supply chain	19-20, 22				
	102-11 Precautionary principle or approach	42				
	102-12 External initiatives	29-31				
	102-13 Membership of associations	29-30				
	102-14 Statement from senior decision-maker	6-8				
	102-16 Values, principles, standards, and norms of behavior	23-24, 29-31, 74				SDG 16
	102-18 Governance structure	28				

GRI Standard	Disclosure	Page Number (s) And/or URL (s)	Omission			SDG Linkage to Disclosure
			Identified Omission (s)	Reason (s) for Omission (s)	Explanation for Omission (s)	
	102-40 List of stakeholder groups	34-37				
	102-41 Collective bargaining agreements	63				SDG 8
	102-42 Identifying and selecting stakeholders	33				
	102-43 Approach to stakeholder engagement	34-37				
	102-44 Key topics and concerns raised	34-37				
	102-45 Entities included in the consolidated financial statements	87				
	102-46 Defining report content and topic boundaries	37, 40				
	102-47 List of material topics	40				
	102-48 Restatements of information	(This report is the first sustainability report)				
	102-49 Changes in reporting	(This report is the first sustainability report)				
	102-50 Reporting period	87				
	102-51 Date of most recent report	87				
	102-52 Reporting cycle	87				
	102-53 Contact point for questions regarding the report	87				
	102-54 Claims of reporting in accordance with the GRI Standards	87-88				
	102-55 GRI content index	88-98				
	102-56 External assurance	87				

GRI Standard	Disclosure	Page Number (s) And/or URL (s)	Omission			SDG Linkage to Disclosure
			Identified Omission (s)	Reason (s) for Omission (s)	Explanation for Omission (s)	
Material Topics						
Economic Performance						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	78				
	103-2 The management approach and its components	72-73, 78-79				
	103-3 Evaluation of the management approach	72-73, 79				
GRI 201 : Economic Performance 2016	201-1 Direct economic value generated and distributed	80				SDG 8, SDG 9
Anti-Corruption						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	74				
	103-2 The management approach and its components	75-76, 78				
	103-3 Evaluation of the management approach	75				
GRI 205: Anti-Corruption 2016	205-1 Operations assessed for risks related to corruption	75				SDG 16
	205-2 Communication and training about anti-corruption policies and procedures	77				SDG 16
	205-3 Confirmed incidents of corruption and actions taken	75				SDG 16
Materials						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	42, 44				
	103-2 The management approach and its components	42-44, 78				

GRI Standard	Disclosure	Page Number (s) And/or URL (s)	Omission			SDG Linkage to Disclosure
			Identified Omission (s)	Reason (s) for Omission (s)	Explanation for Omission (s)	
	103-3 Evaluation of the management approach	44				
GRI 301: Materials 2016	301-1 Materials used by weight or volume	45				SDG 8, SDG 12
	301-2 Recycled input materials used	45				SDG 8, SDG 12
Energy						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	42, 47				
	103-2 The management approach and its components	42-44, 47-48, 78				
	103-3 Evaluation of the management approach	47-48				
GRI 302: Energy 2016	302-1 Energy consumption with in the organization	47-48				SDG 7, SDG 8, SDG 12, SDG 13
	302-3 Energy intensity	49				SDG 7, SDG 8, SDG 12, SDG 13
	302-4 Reduction of energy consumption	49				SDG 7, SDG 8, SDG 12, SDG 13
Water and Effluents						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	42, 50				
	103-2 The management approach and its components	42-44, 50, 78				
	103-3 Evaluation of the management approach	50				
GRI 303: Water and Effluents 2018	303-1 Interactions with water as a shared resource	50				SDG 6, SDG 12
	303-2 Management of water discharge-related impacts	50				SDG 6

GRI Standard	Disclosure	Page Number (s) And/or URL (s)	Omission			SDG Linkage to Disclosure
			Identified Omission (s)	Reason (s) for Omission (s)	Explanation for Omission (s)	
	303-3 Water withdrawal	50-53				SDG 6
	303-4 Water discharge	50, 52-54				SDG 6
	303-5 Water consumption	54				SDG 6
Emissions						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	42, 55				
	103-2 The management approach and its components	42-44, 55-56, 78				
	103-3 Evaluation of the management approach	55				
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	56				SDG 3, SDG 12, SDG 13, SDG 14, SDG 15
	305-2 Energy indirect (Scope 2) GHG emissions	56				SDG 3, SDG 12, SDG 13, SDG 14, SDG 15
	305-3 Other indirect (Scope 3) GHG emissions	56				SDG 3, SDG 12, SDG 13, SDG 14, SDG 15
	305-4 GHG emissions intensity	56				SDG 3, SDG 12, SDG 13, SDG 14, SDG 15
Waste						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	42, 58				
	103-2 The management approach and its components	42-44, 58-59, 78				
	103-3 Evaluation of the management approach	58				
GRI 306: Waste 2020	306-1 Waste generation and significant waste-related impacts	58				SDG 3, SDG 6, SDG 11, SDG 12

GRI Standard	Disclosure	Page Number (s) And/or URL (s)	Omission			SDG Linkage to Disclosure
			Identified Omission (s)	Reason (s) for Omission (s)	Explanation for Omission (s)	
	306-2 Management of significant waste-related impacts	58-59				SDG 3, SDG 6, SDG 8, SDG 11, SDG 12
	306-3 Waste generated	59-60				SDG 3, SDG 6, SDG 11, SDG 12, SDG 15
	306-4 Waste diverted from disposal	59-60				SDG 3, SDG 11, SDG 12
	306-5 Waste directed to disposal	59-60				SDG 3, SDG 6, SDG 11, SDG 12, SDG 15
Environmental Compliance						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	42				
	103-2 The management approach and its components	42-44, 78				
	103-3 Evaluation of the management approach	44				
GRI 307: Environmental Compliance 2016	307-1 Non-compliance with environmental laws and regulations	44				SDG 16
Occupational Health and Safety						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	65				
	103-2 The management approach and its components	65-68, 78				
	103-3 Evaluation of the management approach	65				
GRI 403: Occupational Health and Safety 2018	403-1 Occupational health and safety management system	65-67				SDG 8
	403-2 Hazard identification, risk assessment, and incident investigation	65-66, 68				SDG 3, SDG 8

GRI Standard	Disclosure	Page Number (s) And/or URL (s)	Omission			SDG Linkage to Disclosure
			Identified Omission (s)	Reason (s) for Omission (s)	Explanation for Omission (s)	
	403-3 Occupational health services	66-67				SDG 3, SDG 8
	403-4 Worker participation, consultation, and communication on occupational health and safety	65-67				SDG 8, SDG 16
	403-5 Worker training on occupational health and safety	66				SDG 8
	403-6 Promotion of worker health	65				SDG 3
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	65				SDG 8
	403-8 Workers covered by an occupational health and safety management system	68				SDG 8
	403-9 Work-related injuries	69				SDG 3, SDG 8, SDG 16
	403-10 Work-related ill health	70				SDG 3, SDG 8, SDG 16
Training and Education						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	62				
	103-2 The management approach and its components	62-63, 78				
	103-3 Evaluation of the management approach	62-63				
GRI 404: Training and Education 2016	404-1 Average hours of training per year per employee	62, 64				SDG 4, SDG 5, SDG 8, SDG 10

GRI Standard	Disclosure	Page Number (s) And/or URL (s)	Omission			SDG Linkage to Disclosure
			Identified Omission (s)	Reason (s) for Omission (s)	Explanation for Omission (s)	
	404-2 Programs for upgrading employee skills and transition assistance programs	64				SDG 8
	404-3 Percentage of employees receiving regular performance and career development reviews	64				SDG 5, SDG 8, SDG 10
Non-discrimination						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	62				
	103-2 The management approach and its components	62-63, 78				
	103-3 Evaluation of the management approach	62-63				
GRI 406: Non-discrimination 2016	406-1 Incidents of discrimination and corrective actions taken	62				SDG 5, SDG 8
Child Labor						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	62				
	103-2 The management approach and its components	62-63, 78				
	103-3 Evaluation of the management approach	62-63				
GRI 408: Child Labor 2016	408-1 Operations and suppliers at significant risk for incidents of child labor	62				SDG 5, SDG 8, SDG 16
Forced or Compulsory Labor						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	62				
	103-2 The management approach and its components	62-63, 78				
	103-3 Evaluation of the management approach	62-63				

GRI Standard	Disclosure	Page Number (s) And/or URL (s)	Omission			SDG Linkage to Disclosure
			Identified Omission (s)	Reason (s) for Omission (s)	Explanation for Omission (s)	
GRI 409: Forced or Compulsory Labor 2016	409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor	62				SDG 5, SDG 8
Seurity Practices						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	62				
	103-2 The management approach and its components	62-63, 78				
	103-3 Evaluation of the management approach	62-63				
GRI 410: Security Practices 2016	410-1 Security personnel trained in human rights policies or procedures	63				SDG 16
Human Rights Assessment						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	62				
	103-2 The management approach and its components	62-63, 78				
	103-3 Evaluation of the management approach	62-63				
GRI 412: Human Rights Assessment 2016	412-2 Employee training on human rights policies or procedures	62-63				
Customer Health and Safety						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	81				
	103-2 The management approach and its components	78, 81-83				
	103-3 Evaluation of the management approach	81-83				

GRI Standard	Disclosure	Page Number (s) And/or URL (s)	Omission			SDG Linkage to Disclosure
			Identified Omission (s)	Reason (s) for Omission (s)	Explanation for Omission (s)	
GRI 416: Customer Health and Safety 2016	416-2 Incidents of non-compliance concerning the health and safety impacts of products and services	82				SDG 16
Marketing and Labeling						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	81				
	103-2 The management approach and its components	78, 81-83				
	103-3 Evaluation of the management approach	81-83				
GRI 417: Marketing and labeling 2016	417-2 Incidents of non-compliance concerning product and service information and labeling	83				SDG 16
	417-3 Incidents of non-compliance concerning marketing communications	83				SDG 16
Socioeconomic Compliance						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	78				
	103-2 The management approach and its components	78-79				
	103-3 Evaluation of the management approach	79				
GRI 419: Socioeconomic Compliance 2016	419-1 Non-compliance with laws and regulations in the social and economic area	79				SDG 16
Innovative Technology and Service						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	42, 81				

GRI Standard	Disclosure	Page Number (s) And/or URL (s)	Omission			SDG Linkage to Disclosure
			Identified Omission (s)	Reason (s) for Omission (s)	Explanation for Omission (s)	
	103-2 The management approach and its components	42-44, 78, 81-85				
	103-3 Evaluation of the management approach	81-82				
Research and Development						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	42, 81				
	103-2 The management approach and its components	42-44, 78, 81-84				
	103-3 Evaluation of the management approach	82				
Transport						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	42, 46				
	103-2 The management approach and its components	42-44, 46, 78				
	103-3 Evaluation of the management approach	46				
Land Degradation, Contamination and Remediation						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	42, 58				
	103-2 The management approach and its components	42-44, 58, 78				
	103-3 Evaluation of the management approach	58				
Construction and Real Estate (CRE)-Specific Information Disclosure of Construction and Real Estate Sector according to GRI	CRE5 Land remediated and in need of remediation for the existing or intended land use, according to applicable legal designations	58				SDG 3, SDG 6, SDG 12, SDG 14, SDG 15

GRI Standard	Disclosure	Page Number (s) And/or URL (s)	Omission			SDG Linkage to Disclosure
			Identified Omission (s)	Reason (s) for Omission (s)	Explanation for Omission (s)	
Customer Satisfaction						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	81				
	103-2 The management approach and its components	78, 81-83				
	103-3 Evaluation of the management approach	81-83, 86				
Products and Services						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	81				
	103-2 The management approach and its components	78, 81-85				
	103-3 Evaluation of the management approach	81-83				
Information Security						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	80				
	103-2 The management approach and its components	78,80-81				
	103-3 Evaluation of the management approach	80-81				

Reader Survey Form

Request for your kind cooperation in responding to reader surveys by 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 / chayutd@tpipolene.co.th

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 ○ 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)

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

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

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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.

TPI POLENE Public Company Limited

26/56 Chan Tat Mai Rd., Thungmahamek, Sathorn, Bangkok 10120

0-2285-5090, 0-2213-1039

0-2213-1035

wmasters@tpipolene.co.th

http://www.tpipolene.co.th

ธุรกิจปูนซีเมนต์
Cement Business

ธุรกิจคอนกรีตผสมเสร็จ
Ready-mixed Concrete Business

ธุรกิจเม็ดพลาสติก
Plastic Resin Business

ธุรกิจปุ๋ยอินทรีย์
Organic Fertilizer Business

ธุรกิจโรงไฟฟ้า
Power Plants Business