



# POWER OF RESILIENCE

## Sustainability Report 2020



## Moving towards our 3<sup>rd</sup> year of sustainable developments

TIPCO Asphalt Group reaches our 3<sup>rd</sup> year of implementing our sustainability strategy, which we have developed together with partners and relevant stakeholders across our value chain. We thoroughly identified their needs and expectations. During the previous year, our key focus was on advancement of innovations across our entire value chain which allowed the Group to better accommodate stakeholder needs in 2020, through innovative solutions. The Group constantly develops in order to reach our sustainability goals in line with our corporate strategy Vision 2025 while becoming a sustainable organization.

Partner who delivers **key to success**

Innovative • **Solutions** • Partner

Cover page: The Expressway 401 Phthaladai - Aw Thong Yee route: one of the most scenic seaside roads along the Gulf of Thailand. With a total length of 8 kilometers, the road effectively helps to shorten travel distance from Sichol district to Khanom district by 33 kilometers. The road was paved with 60/70 grade Asphalt Cement and Asphalt Emulsion CSS-1.

Get to know TIPCO Asphalt Group



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# THE POWER OF RESILIENCE

Power of adapting to new ways of working, with flexibility in business operations during COVID-19 outbreak

**-Innovative-----} Key to Success <-----Partners-**

INNOVATIVE  
2019 Sustainability Report

SOLUTIONS  
2020 Sustainability Report

PARTNER  
2018 Sustainability Report

## About this report

TIPCO Asphalt Group prepared this Sustainability Report 2020. The report is the 3rd annual sustainability report to be published in accordance with the Group's sustainable development strategy, with the key objective of providing all relevant stakeholder groups with access to the Group's current sustainable development initiatives. The report also serves as a tool for communicating strategies, management approaches, work procedures and operating results pertaining to sustainability and, in particular, key materiality issues that impact our business operations and all stakeholder groups across our value chain in 2020. Progress and operating results supporting the United Nations Sustainable Development Goals (SDGs) are also presented.

In the 1st and 2nd publications, our reports focused on establishing the foundation and knowledge for all employees, to develop their understanding of our sustainability philosophy and implementation ability in their initiatives in accordance with the Group's strategy and policy direction. 2020 marked the 3rd year where the Group explicitly integrated sustainability in its corporate strategy. This year's report is designed to be more concise, with certain sections being presented in video format. Our work procedures are in line with modern lifestyle while external stakeholders can understand the procedures and activities of the Group. actively participate in

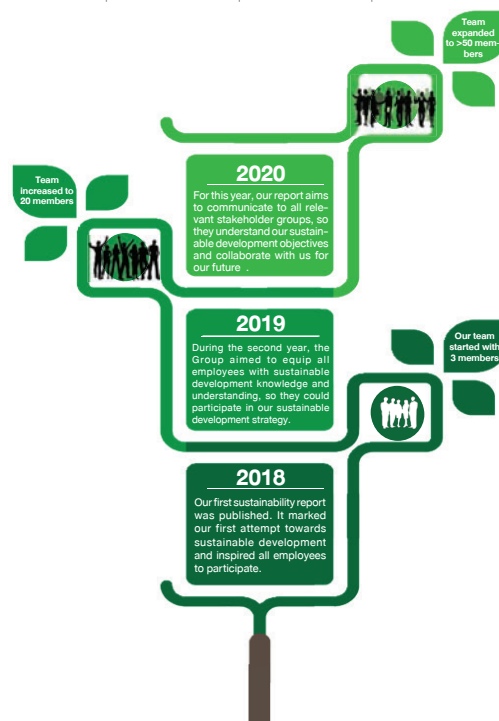
In addition, the Group conducted an audit to verify operating results pertaining to the environment and safety. We were certified on data accuracy and reliability by the Management System Certification Institute (Thailand) (MASCI). (For more details on audit documents, please see page 261 of this report.)

## Scope of the Report

This report encompasses the Group's entities operating in domestic and international markets. On the economic aspect, total revenues of all companies under the Group reflected economic growth, with business plan towards achieving our Vision 2025 including implementation of our sustainable development strategy during 2019-2021.

The scope of this report includes operating results from sustainable development initiatives in innovation (economic), eco-efficiency (environment) and safety (social) from 1st January to 31st December 2020. Data is collected from all the Group's companies in Thailand (except for construction business). The report is compiled based on 4 key components: consideration of sustainability context, assessment of materiality issues, completeness & accuracy of data and, stakeholder contribution to report preparations.

With the ongoing COVID-19 outbreak since late-2019 through 2020, our plans to further expand our sustainability concept and knowledge-sharing to international subsidiaries were inevitably delayed to upcoming years, or once the situation is resolved. This therefore results in further delay in integrating corporate social responsibility activities and other sustainability projects of international subsidiaries into the report.



## Key Changes

- 1) Since 2020, the Group's sustainability report disclosure requires verification from an independent, 3<sup>rd</sup> party certification company. This is to gain confidence from all internal and external stakeholders that all data disclosed by the Group is accurate and highly reliable. This year the Group conducted data verification in Thailand which included data on energy management, greenhouse gas emissions, management of waste disposal and occupational health and safety. This is conducted in line with international standards, which might result in substantial data discrepancy as compared to previous years due to more accurate data collection and compilation methodology.
- 2) 2020 marked the last year of the Group's previous 5-year strategy plan (Vision 2020). This report provides an overview of how the Group aims to successfully meet our targets with our new 5-year strategy plan (Vision 2025). Therefore, some sustainable development indicators might reference 2020 as the baseline for future comparison and monitoring of operating results.

## Global Reporting Initiative (GRI)

This report has been prepared in accordance with the Global Reporting Initiative (GRI) Standards: Comprehensive option, with additional indicators under the Property and Construction sector. For GRI summary, please see page 228 of this report.

## Standard on Social Responsibility (ISO 26000)

The Group is communicating operating results in accordance with ISO 26000 Standard which serves as a guideline for social responsibility set forth by the International Organization for Standardization (ISO). This is on a voluntary basis (not certification) and the Group has applied this Standard since 2012, thereby ensuring our reported data is consistent with international guidelines. Please see details on page 228 of this report.

## The United Nations Sustainable Development Goals (SDGs)

The Group aims to be a global citizen that supports sustainable development initiatives. We analyze our business operations across our value chain, together with participation of relevant stakeholders to constantly deliver great value to the society. Results for 2020 can be found on pages 56-57 of this report.

## Data disclosure in accordance with the UN Global Compact

In 2020, the Group began to disclose data in accordance with the *UN Global Compact*. The UN Global Compact serves as key principles associated with human rights, labors, environment and anti-corruption. The Group analyzed the *Ten Principles* to support our sustainable development initiatives while promoting our employee contributions and our supply chain. The Group expects to further expand this practice while operating our businesses to positively impact the world. For more details, please see page 242 of this report.



You can download the full report here:



## Comments/Feedback

We appreciate any comments or feedback from all stakeholders on our Sustainability Report 2020. All comments and suggestions provided will be highly beneficial to the TIPCO Asphalt Group for future report improvements.

Please provide your comments and feedback in the questionnaire



by scanning the QR Code:

Or submit through other channels below:



## Contact channels

For more information, please contact:



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## Message from Chairman of the Board of Directors

2020 is the third year that TIPCO Asphalt Group has implemented sustainable development initiatives, since 2018. Our sustainability efforts became more tangible as we integrated sustainable development framework in our corporate strategy Vision 2025, announced in 2020, with the key objective of becoming a "Sustainable Organization". Along with good corporate governance practices, these initiatives will support the Group to achieve our business targets.

"The Group would like to assure that we shall continue business operations in accordance with good corporate governance philosophy together with inculcating ethics in all employees while creating positive economic, social and environmental impacts as a good corporate citizen of our community"



In 2020, TIPCO Asphalt Group implemented full-scale sustainable development initiatives; from sustainable development policy formulation, strategy and framework that were fully acknowledged and approved by the Board of Directors. In addition to sustainable development approach which serves as our new challenge, our Group encountered emerging global threats such as the ongoing COVID-19 outbreak which not only caused an adverse public health crisis, but also hindered business growth while several economic sectors were critically affected and resulted in macroeconomic slowdown. These incidents reinforced that business sectors must adapt to new crises in order to sustain business operations. TIPCO Asphalt Group demonstrated our great capability to adapt and plan to counter these challenges rather effectively, in addition to our existing competitive business edge.

TIPCO Asphalt's capability to adapt is not an overnight success, but rather the result of our long track record of good corporate governance which our management has realized its importance since the inception of our business. The Group's cumulative practice and experiences over the years crystalized into new knowledge that helps us to prioritize and adapt to resolve several crises or challenges the Group encountered in the past; both caused by internal or external factors which were very difficult to control. The business management under the ongoing COVID-19 outbreak is well regarded as another challenging lesson for the Group's sustainable development that I and the Board of Directors closely monitor. I have witnessed steadfast dedication from the Management and all employees to greatly collaborate, with safety of all relevant stakeholders as top priority, to achieve our real sustainable businesses, not just in theory or simply following guidelines set forth by certain agencies. In addition, the Group has won several awards and recognition indicating our steadfast dedication and efficiency in our Group's sustainable development progress, namely:

- The 5-Star classification from the Corporate Governance Report of Thai Listed Companies (CGR) project for 3 consecutive years (2017-2019)
- Nomination of TASCO shares to be listed in Thailand Sustainability Investment Index (THSI) for 3 consecutive years (2017-2019). The inclusion in THSI index is

based on the nominated company's progress on ESG (Environment, Social and Governance) initiatives in accordance with the Stock Exchange of Thailand's guidelines and international standards.

- The Sustainability Disclosure Award from Thai Pat Institute for 2 consecutive years (2018-2019) in line with Sustainable Development Report guidelines from Global Reporting Initiative (GRI)
- nrsMembership re-certification from the Thai Private Sector Collective Action Against Corruption (CAC)
- The Thai Bitumen Company Limited, a subsidiary of the Group won the Prime Minister's Industry Award (Corporate Social Responsibility category)

I hereby would like to assure that the Group shall continue business operations in accordance with good corporate governance philosophy together with inculcating ethics in all employees while creating positive economic, social and environmental impacts as a good corporate citizen of our community. We shall standby our core values that focus on teamwork, integrity, prudence, commitment and open-mind.

MR. Chainoi Puankosoom  
Chairman

## Message from the Chief Executive Officer

This comprehensive 2020 Sustainability Report provides details on driving resilience, which began as mere inspiration and later became an integral part of our tangible, in-process sustainable development for everyone across the organization, in line with the Tipco Asphalt Group's strong commitment "Delivering Innovative Solutions for Sustainable Living of all Societies."



"Despite the ongoing COVID-19 situation that has placed significant impacts and changes to the economy, the Group still can successfully retain confidence and trust from our customers, business partners and other relevant stakeholders over our management during the crisis which allows us to deliver all services without any operational interruptions"

"The Group sets high priorities on occupational health and safety pertaining to employees and across all stakeholder groups. Also important is the work flexibility to ensure smooth business operations, and outstanding operating results. We aim to deliver value through our business ethics, together with our sustainability philosophy"

"These remarkable achievements would not be made possible without mutual collaboration from all employees, along with great continual support from our customers, partners and relevant stakeholders that help our businesses through these challenges during 2020"

2020 marks another historical year of remarkable achievements for the Tipco Asphalt Group that could overcome challenges from the pandemic crisis. The ongoing COVID-19 situation has caused significant impacts worldwide; from basic public health infrastructure linked to economic, social and environmental aspects and quickly escalated to the global level, far beyond our human expectations such that we would only experience this event only once in our lifetime.

For more than 40 years of our business journey, the Tipco Asphalt Group has encountered several challenges of all sizes. Nevertheless, we managed to overcome those hard times due to our great, mutual collaboration with all employees who constantly strive to revise and improve their work procedures. This ongoing COVID-19 crisis is no exception: we proactively seek best solutions for our business concerns along with prompt implementations of preventive measures to lower the spread of COVID-19 pandemic with minimal impacts while ensuring our smooth, non-interrupted business operations.

**This ongoing crisis serves as a driving force for the Group to quickly adopt more flexible, efficient work operations that differ from our traditional approaches.** For instance, employees are allowed to work from home using modern online technology coupled with provision of equipment and facility that help speed-up their work. I am also impressed with our employees' willingness to adapt and be 'open-mind' to learn new things, and their work discipline and integrity, strong sense of work ownership with respect to deadline. Our employees possess high self-discipline and responsibility in preventing COVID-19 from spreading to their family members and society.

**As for innovation,** there have been implementations of digital technology developed during previous years on customer service initiatives as a way to minimize direct physical contact, in accordance with COVID-19 control measures, while ensuring non-interrupted work operations. This resulted in the Group's satisfactory operating performance in 2020. Meanwhile, innovation was prevalent and implemented across several products/ services coupled with applications of digital technology, which benefited the Group with cost savings, shorten operations processing time, improved work precision, speed and convenience. In addition, our production facility implemented the Total Preventive Maintenance (TPM) system, which is used by everyone, to improve and optimize productivity with cost savings.

The Group has achieved the goals of zero accident, zero waste and zero machine failure throughout the life cycle of the production system. Our plant employees utilized their time for maximum benefits during the crisis.

**As for health care and safety of employees,** the Group has implemented strict preventive measures: i.e., from provision of employee shuttle buses to overall care on employee workplace access, which encompasses table/seating arrangements, seminars/trainings conducted with strict protective measures, as well as personal hygiene knowledge training, health care activities (weight loss with proper nutrition approach). All of these contributed to all employees experiencing good health and safety from the COVID-19 outbreak.

**In terms of the social aspect,** the Group's employees constantly participate in and support social activities. During the past 3 years, the Group's prime focus has been on public safety while our employees have been instilled with volunteer mindset to help out society during crises. Employees in all our plants participated in an initiative to make protective plastic masks and medical equipment boxes for healthcare workers, along with a 5 million baht donation to support five hospitals.

**The key to our sustainability strategy.** As a leader in asphalt innovation, the Group has focused on road safety and mitigation of environmental impacts while continually conducting activities in line with our sustainable growth strategy, with great operating profits and delivering long-term value to all stakeholders.

During the previous year, we incorporated sustainable development philosophy in our business operations by:

- aligning sustainable development strategy with our business strategy
- setting clear goals and performance evaluation criteria pertaining to each business unit
- maintaining the leading position in asphalt business. The Group aims to achieve our sustainable development goal, through competitive advantage from our innovation developments that focus on safety and cost-saving. These efforts allow us to meet expectations of stakeholders' key materiality issues during the past three years.

**Since 2019, creativity and innovation advancement have remained significant topics.** Customers, business partners, government agencies, and shareholders alike, express their high

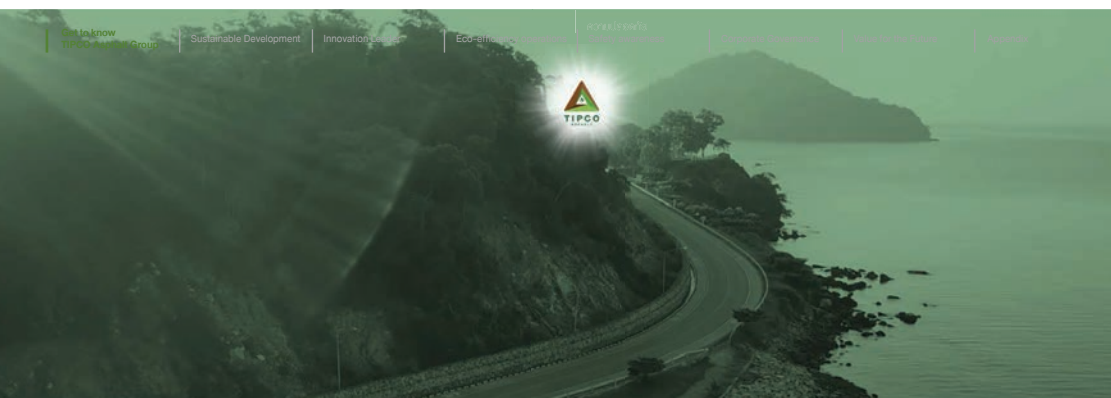
expectations for the Group to implement modern technology and innovations to achieve excellence in asphalt business while strengthening our high quality and standards. This ultimately would help the Group to maintain great trust from all stakeholders, which we consider of the utmost importance. Our employees also take pride in our long-term business successes, which strengthen their dedication and energy to constantly create new innovations that would help the Group to maintain our longstanding leadership position.

With my personal role and responsibilities as the leader of the Group, I realize that for our business to survive the ongoing COVID-19 crisis, we must give top priorities on health and safety pertaining to internal stakeholders i.e. employees as well as external stakeholder groups such as customers, communities, and business partners. More importantly, we must adapt our initiatives with implementation of modern digital technology that would allow fast, flexible and non-interrupted business operations during this uncertain time of the COVID-19 outbreak. This approach ultimately would allow us to maintain great trust from our customers and relevant stakeholders, while delivering value through our business ethics that would lead to mutual success sustainably.

This 2020 Sustainability Report summarizes the **sustainability development performance of Tipco Asphalt Group, with our commitment to deliver sustainable living to all societies through creative innovations, business growth, environmental care, improvement on quality of life of everyone in the society. These are conducted under our good corporate governance philosophy coupled with human capital development in accordance with our corporate strategy direction.**

Next year, we shall explore new key areas. After the world, including Thailand, has adapted a "new normal" in response to the pandemic crisis, we will assess, understand and accommodate stakeholder needs while responding to other key issues under this new context.

Chalwat Srivaltat  
Chief Executive Officer



Mission

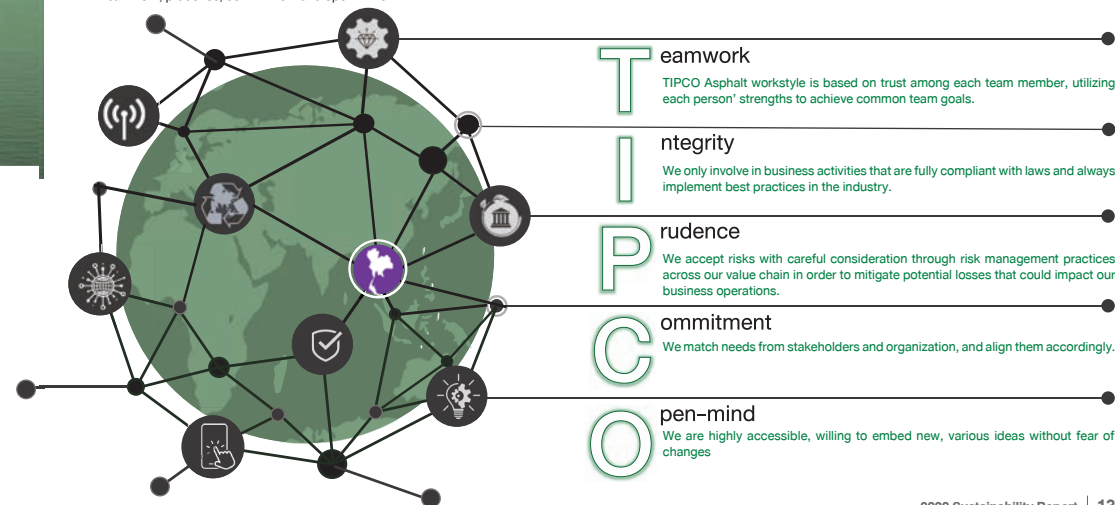
TO BE A GLOBALLY PREFERRED  
INTEGRATED ASPHALT  
**SOLUTIONS** PARTNER

Vision 2025

TO PROVIDE ASPHALT SOLUTIONS  
IN A **SUSTAINABLE MANNER** LEDBY  
AN **INNOVATIVE CULTURE**

## TIPCO Asphalt's Core Values and Innovative Culture

T. I. P. C. O. are well regarded as TIPCO Asphalt Group's core values that empower all employees with great confidence and work together in line with corporate strategy and business direction of the Group. The core values also promote outstanding developments across economic, social and environmental aspects. In addition, the Group has consistently sponsored innovations since 2018: this allows our employees to develop and express their creativity and new ideas while encouraging teamwork, and accepting new breakthrough ideas, to ensure all employees participate in and accept new changes together with improving work efficiency and effectiveness, while adding higher value to strengthen the organization. This also sharpens our competitive edge to withstand any adverse, unexpected impacts. All employees can brainstorm for solutions, stimulate creative thoughts which lead to innovations that ultimately will be embedded into our culture. This will drive the organization forward with solid growth and we can continue sustainably based on integrity, teamwork, prudence, commitment and open-mind.



## Corporate Strategy: Vision 2025

Mission

To be a globally preferred integrated asphalt solutions partner

Vision 2025

To provide asphalt solutions in a sustainable manner led by an innovative culture



## Linkage of sustainable development targets with corporate strategy

We strive to ...

*“...Deliver Innovative Solutions for Sustainable Living of all Societies.”*



## Get to know TIPCO Asphalt Group: With more than 40 years of business experience

Mr. Prasit Supsakorn, Founder of Tipco Asphalt Group, started his career from being an authorized fuel distributor and gas station business. He first entered into asphalt business by providing distribution service of drummed asphalt to Department of Highways. He realized that asphalt is the crucial material for road construction, one of the important infrastructure that plays a vital role in national developments for education, public health, transportation of agricultural products for trading as well as domestic consumption and export which generate revenues that lead to economic developments. Later, Mr. Prasit decided to establish the first asphalt emulsion plant at Lat Krabang Industrial Estate in 1979.

Tipco Asphalt Public Company Limited was listed in the Stock Exchange of Thailand in 1992. The Group's Vision 2025 is "to provide asphalt solutions in a sustainable manner led by an innovative culture" and the Mission is "to be a globally preferred integrated asphalt solutions partner". We commit to "deliver innovative solutions for sustainable living of all societies".

The Group has set its clear objective to become a good corporate citizen that is evident through our commitment to doing business with social responsibility in mind. For instance, we promote the use of asphalt emulsion, liquid asphalt cement emulsified in water, for road construction and maintenance. As water-based, asphalt emulsion does not require additional heating during pavements leading to lesser CO<sub>2</sub> emissions during construction. Hence, asphalt emulsion is more environmental-friendly than conventional asphalt cement.

Our business has grown to become a market leader in Thailand. We expand our production and distribution

network into different regions of Thailand which are in Nakhon Ratchasima, Rayong, Phitsanulok, Surat Thani and also a storage/distribution facility at Phra Pradaeng. With these strategic locations, we can effectively optimize transportation costs and generate economic benefits to our customers.

As being a market leader with great expertise in asphalt business, the Colas Group, the world leader in road construction and maintenance company in France interested in being business partner, subsequently became a strategic partner and shareholder of Tipco Asphalt in 2000 allowing for shared knowledge and expertise.

The Group expanded its business to international markets since 1990, through export and also invested in asphalt production and distribution businesses in foreign countries starting from India and later on in different regions in China. After that, in 1995, the Group has established Tipco Maritime Co., Ltd. to amplify its overseas logistics capability, aiming to increase efficiency of overseas asphalt distribution services of the Group.

To strengthen its business potential, the Group established an asphalt-focused refinery located in Kemaman, Malaysia in 2008. This upstream business allowed the Group to expand further for both domestic and international markets covering Southeast Asian market, China, India, and many countries in other regions. In 2015, the Group formed a joint venture with SK Energy Group, South Korea named Asia Bitumen Trading, one of the leading asphalt producers in East Asia, to synergize on each other's logistic and marketing capabilities to become Asia's No. 1 asphalt distributor.



### Refinery Business

Our refinery, Kemaman Bitumen Company Sdn. Bhd. (KBC), in Malaysia is designed specifically for accommodating heavy crude oil in order to produce a variety of high-quality asphalt products as well as other petroleum products such as Atmospheric Gas Oil (AGO), Vacuum Gas Oil (VGO) and Naphtha. KBC has refining capacity at 30,000 barrels per day and is operated by more than 200 experienced professionals.

In 2020, the production volume has declined from previous years due to the impact of the COVID-19 pandemic which greatly affected the world economy. However, the refinery still remarkably achieved 99.7% of the plant reliability. The refinery also operates in accordance with international standards of ISO 9001, ISO 14001, OHSAS 18001 and recently with ISO 45001:2018, the standard of occupational health and safety management. With all these, the refinery has shown its power of resilience while keeping high operating standards during the challenging period.

Additionally, the Group, through KBC, has formed a joint venture - Borneo Asphalt Sdn. Bhd. (BASB) in Sarawak to expand the business into Borneo island, Malaysia.

### International Business

International Business as grown by 30% in 2019, whilst 2020 represented a challenging year due to COVID-19 pandemic which has impacted asphalt demands and created tight supplies in several markets. With this, the Group needed to carefully consider sales allocations in each market. Although it was a tough situation, our international sales overall declined by 8% with our key markets still being China, Vietnam, Australia and New Zealand. Most adversely affected by COVID-19 pandemic was Indonesia, with a 20% decline in overall sales. India, one of the biggest asphalt importing countries encountered intense price competition from the Middle East.

The pandemic has also resulted in crude and asphalt price volatility, along with logistic constraints that hindered the year's performances. Nevertheless, the Group successfully managed all of these risks to maintain our market share across Asia.



### Tipco Asphalt Maritime Logistics Business

Crew management under the COVID-19 pandemic is one of the most challenging tasks for maritime business. In March 2020, several countries in Asia made announcements on border closing protocols which impacted on crew members in several aspects such as the indefinite delay on permission to land, that could lead to expiry of employment contracts, or cumulative stress suffered by crew members. Hence, the Maritime Group promptly implemented a mental health monitoring program onboard to manage the crews' stress.

The COVID-19 pandemic also makes it more difficult on Crew Change process, we are among a few maritime companies in Asia that could carry out the Crew Change process in Thailand. Meaningly, no crew members have faced the risk of expiry of employment contracts. This demonstrated our Power of Resilience. Our Maritime business manages 8 asphalt tankers, with a total capacity of 42,902 metric tons (DWT) with average vessel age of 12 years. In 2020, Tipco Maritime Co., Ltd., achieved OCIMF/IVQ of 4.0 observation per vessel and TMSA (Tanker Management and Self-Assessment) score of 2.5.

### Thailand Business

In 2020, one big challenge for domestic retail business in Thailand was the delay of government budget from October 2019 to late of 1st quarter 2020. Nonetheless domestic demand in Thailand for asphalt remained strong at 1.34 million tons in 2020, representing 5% growth from 2019. The demand proportions were 0.92 million tons asphalt cement (AC), 0.42 million tons asphalt emulsion (AE) and other types of asphalt products i.e. cutback asphalt, PMA, and Para AC. This was very challenging for the domestic retail business in Thailand to supply all asphalt demands within 9 months.

Thailand Operations Department implemented a Business Continuity and Crisis Management plan for all plants. Employees were divided into 2 teams with a rotation schedule to work across all plants in case any employees were infected with COVID-19. In line with our sustainable development philosophy, all plants in Thailand have launched an energy replacement project for production and distribution processes from using B7-diesel to B10-diesel which reduces greenhouse gas emissions.

### International Retail Business

**Indonesia:** Asphalt imports dropped 30% due to ongoing COVID-19 pandemic as well as government budget suspension on infrastructure. Despite the difficult time, our market share had been increased from last year.

**Vietnam:** Asphalt Distribution Company Limited (ADCo), one of the Group's subsidiary, had made 7% growth as well as maintained its second-place market share in 2020. ADCo was also awarded as an only asphalt supplier for the F-1 racing circuit project in Hanoi.

**China:** Despite COVID-19 pandemic, domestic asphalt demand in China had increased by 16% resulted in doubling sales growth of the Group for retail business in China.

**Cambodia:** The country was not much affected by COVID-19 pandemic together with delayed highway projects from 2019, the demand in the country had been raised by 20%. Tipco Asphalt (Cambodia) Company Limited ("TAC"), the Group's subsidiary, remained the market leader in Cambodia with 11% sales growth in 2020.

**Philippines:** Despite the challenging situation and as a newcomer to asphalt business in the country, Phoenix Asphalt Philippines Inc. successfully managed to expand its business in the country with profitability.

### Construction Business

The Group's road construction business comprises of Thanomwongse Service Company Limited (TWS) and Thai Slurry Seal Company Limited (TSS). TWS is well recognized by government agencies for the high quality of road construction and maintenance services. TWS is accredited by the Comptroller General's Department as a special-class road and bridge construction company. This allows TWS to participate in road construction projects under various government agencies such as the Department of Highways, Department of Rural Roads, Airports of Thailand Public Company Limited, Royal Irrigation Department, and Bangkok Metropolitan Administration.

TSS is an expert in road maintenance works, especially asphalt surface for roads, runways, bridges, and racing circuits. By having our own road construction business, The Group has a thorough understanding of asphalt applications far better than any other asphalt manufacturers. Therefore, the Group is able to offer the right solutions in asphalt applications to customers and project owners.

This makes TIPCO Asphalt Group a truly integrated asphalt company in Thailand; in line with the Group's Vision 2020 "To be a globally preferred integrated asphalt & petroleum related product company". The Group is highly capable of delivering new products and road maintenance technology to government agencies. In 2020, TWS, in partnership with Nawarat Patanakarn Public Company Limited, forming a joint venture has been awarded for a 10 billion baht construction project on 3rd Runway of Suvarnabhumi Airport.

## Get to Know TIPCO Asphalt: Countries we operate in

Asphalt production  
**1,200,000**  
Metric tons per year

Asphalt Storage  
**307,547\***  
Metric tons

Total Load Capacity of Asphalt Tankers  
**42,885\***  
Tons

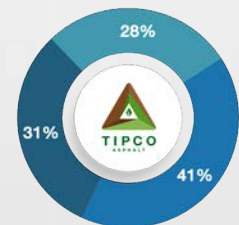
Asphalt Emulsion and Polymer Modified Asphalt Plant  
**45**  
Plants

Asphalt distribution truck  
**304\*\***  
Trucks

Depot  
**35\*\***  
units

The Group operates through investments in  
**10**  
countries worldwide

Number of employees  
**1,434**  
persons



31% Sales of International Wholesale Business  
28% Sales of International Retail Business  
41% Sales of Thai Domestic Market



### Asia Pacific is a key market for TIPCO Asphalt Group's businesses

Besides being a fully integrated asphalt company in Thailand, TIPCO Asphalt Group is well regarded as a leader in the asphalt industry and its technical applications in Asia region. We produce and export more than 20 asphalt products from the Group's refinery facility in Malaysia, as well as from other regional refineries to customers and our subsidiaries located across markets such as Laos, Cambodia, Vietnam, Indonesia, China, Philippines, Malaysia, and India mostly through land transportation (via truck) or the Group's maritime logistics. Our subsidiaries will then produce and deliver finished products to meet demands of their respective markets.

In addition, we also directly export asphalt products to other regions, for instance, Australia, New Zealand, Qatar, Mauritius, Reunion, America, and South Africa.

#### China

The Group's subsidiaries operate across 3 regions (North, Central and South China), focusing on product designs and special application techniques to suit specific local climate in each area.

- 2 port
- 3 asphalt depots
- 3 polymer modified asphalt plants
- Total 42,000 metric tons of asphalt storage capacity

#### Malaysia

Our refinery is at a strategic location on east coast of Malaysia. It is the only asphalt refinery in Asia with deep-sea port, allowing convenient asphalt distribution for international trades. In addition, the use of asphalt storage depot of a joint-venture company Borneo Asphalt Sdn. Bhd. (BASB) in Sarawak allowed the Group to expand the business into Borneo Island.

- 3 plants in total
- 1 asphalt focused refinery
- 2 asphalt depots
- Total 76,200 metric tons of asphalt storage capacity

#### India

A joint venture between TIPCO Asphalt Group and Hindustan Petroleum, Hincol has well been recognized as leading expert in asphalt for more than 2 decades in India market, with several asphalt plant networks nationwide.

- 2 ports
- 12 asphalt depots
- 20 asphalt emulsion and polymer modified asphalt plants
- Total 60,000 metric tons of asphalt storage capacity

#### Philippines

The Group joint-venture with Phoenix Petroleum and Phil Asphalt in Philippines, to conduct asphalt distribution business including promotion of special asphalt product lines that suit the countries' climate.

- 1 port
- 1 asphalt depot
- 2 asphalt emulsion and polymer modified asphalt plants
- Total 6,000 metric tons of asphalt storage capacity

#### Thailand

Thailand's foremost expert in asphalt industry and application techniques, for better roads that last long.

- 2 ports (receive asphalt)
- 5 asphalt depots
- 8 asphalt emulsion and polymer modified asphalt plants
- Total 58,200 metric tons of asphalt storage capacity

#### Indonesia

Our products have been well recognized as special grade, together with our great expertise in infrastructure development and road construction.

- 7 ports
- 7 asphalt depots
- 3 asphalt emulsion and polymer modified asphalt plants
- Total 33,800 metric tons of asphalt storage capacity

#### Vietnam

ADCo is one of Vietnam's largest producers with high potential upon sales and distributions accommodating the growing future demands for roads.

- 4 ports
- 4 asphalt depots
- 6 asphalt emulsion and polymer modified asphalt plants
- Total 24,000 metric tons of asphalt storage capacity

#### Cambodia

We are the leader of asphalt production and distribution in Cambodia. We also pioneer new product mixing and paving techniques to support the country's infrastructure development projects.

- 1 port (receive asphalt)
- 2 asphalt depots
- 2 asphalt emulsion and polymer modified asphalt plants
- Total 3,700 metric tons of asphalt storage capacity

#### Laos

Joint venture with our long-time local partner, Saeng Udom, to establish the first asphalt production plant and distribution in Laos.

- 1 asphalt depot
- 1 asphalt emulsion plant
- Total 650 metric tons of asphalt storage capacity

#### Singapore

Joint-venture with SK Energy from South Korea. The Singapore office supports trade and international exports by synergizing resources to strengthen asphalt distribution capacity in this region.

## TIPCO Asphalt Group: Key Information

### Economic: Financial Information

## Total Revenues (Million Baht)

Total asphalt product sales stood at 1.75 million tons, representing 26.15 billion Baht of revenues, a decline from the previous year mainly due to impacts from the COVI-19 outbreak.

Nevertheless, the Group achieved a remarkable net profit of 3.59 billion Baht, the second highest record for the Group. This was mainly due to asphalt price rebound in line with strong domestic demand.

### Year 2020

**Total sales**  
**26,486**  
30% decline

**Net profit**  
**3,592**  
15% increase

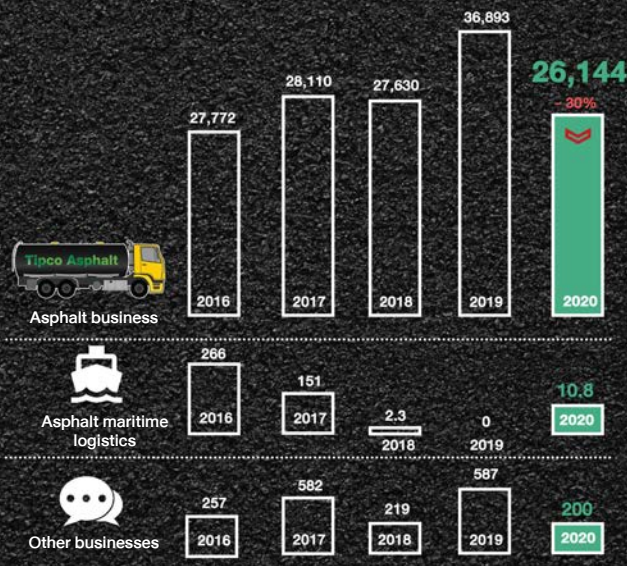
Year 2019

**36,893** (Million Baht)

Year 2018

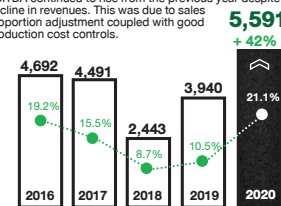
**27,630** (Million Baht)

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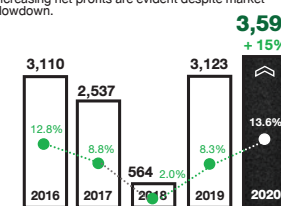
## Earning Before Interest Tax Depreciation and Amortization (EBITDA) (Million Baht)

EBITDA continued to rise from the previous year despite decline in revenues. This was due to sales proportion adjustment coupled with good production cost controls.



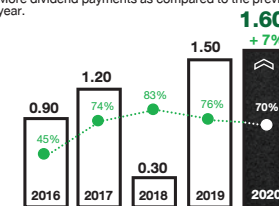
## Net profits and net profit margin to total revenues (Million Baht)

Increasing net profits are evident despite market slowdown.



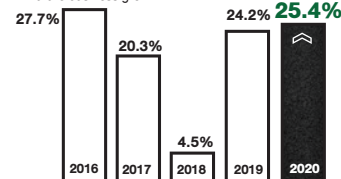
## Dividends and Dividends yield (Baht/share)

More dividend payments as compared to the previous year.



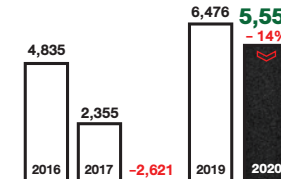
## Return On Equity

The Group constantly delivers good returns to shareholders while investing in construction business to enhance future business growth.



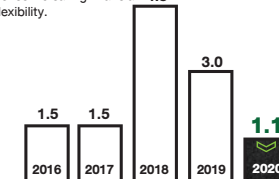
## Net Cashflow from Operations (Million Baht)

Strong cashflow with capacity to invest and expand businesses



## Net Debt to EBITDA (times)

Debt to profit ratio remains at acceptable level, with significant improvement in Net Debt to EBITDA ratio hence indicating financial flexibility.



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## TIPCO Asphalt Group: Interesting information

## Environment

## Safety

## Innovation

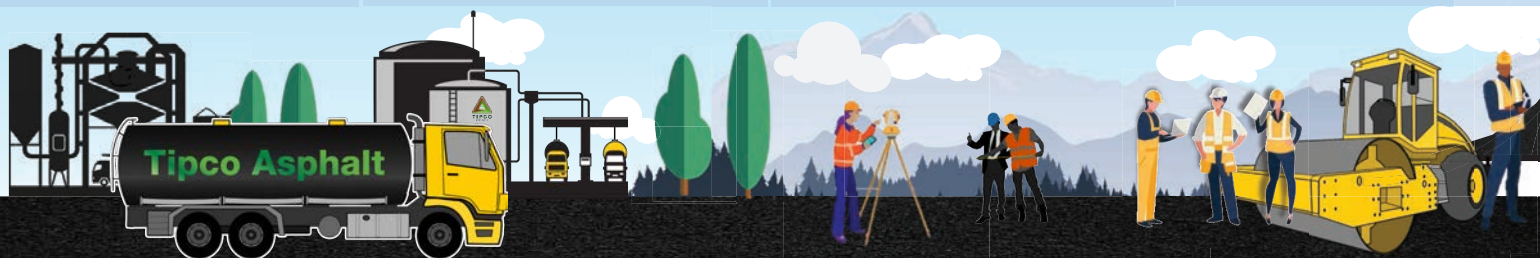
## Service

production/sales

distribution

services

construction



Greenhouse gas reduction (Scopes 1 & 2)

**22 %**

Compared to 2018 data, as baseline year

Ratio of waste that can be re-used

**90 %**

Or 413 tons, from all waste produced

Reduction of energy per production unit

**22 %**

Compared to 2018 data, as baseline year

Number of environment related complaint

**0**

Casa

Number of Cyber Attack incident

**0**

Casa

Number of complaint related to information security

**0**

Casa

Lost Time Injury Frequency Rate > 1 day

**0**

days/ 1,000,000 work hours

Total Recordable Injuries Rate

**0**

days/ 1,000,000 work hours

In process operations cost reduction through innovations

**27.8**

Million Baht from 32 innovation projects

In process operations time saving through innovations

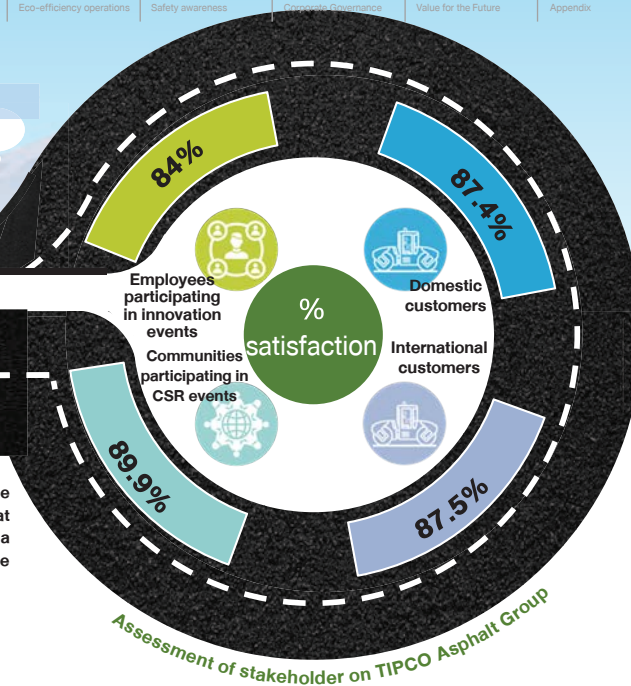
**2,812**

In process operations time saving through innovations

Our construction group, Tanomwongse Service Company Limited, in partnership with the Nawarat Phatthanakan Public Company Limited won a project bid for construction of 3rd Runway at the Suvarnabhumi Airport, with project value of

**9,713.36**

Million Baht



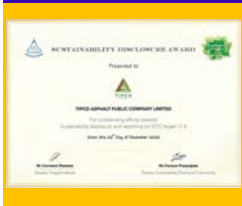
Assessment of stakeholder on TIPCO Asphalt Group

## Awards and Recognitions



### SET Awards 2020:

Outstanding Company Performance Awards, under category of listed company with market capitalization between 30,000–100,000 million Baht (Hosted by The Stock Exchange of Thailand)



### Sustainability Disclosure Award 2020

The Group won the Sustainability Disclosure Award for 2 consecutive years from the Thai Pat Institute. The Group implemented Global Reporting Initiative (GRI) international framework in preparing our sustainability report while establishing guidelines for our long-term operations to become a sustainable organization.



### The Prime Minister's Industry Award 2020, social responsibility category

This special award is provided to companies in the industrial sector that demonstrate outstanding operational efficiency and quality while placing high considerations on social and environmental issues, hence setting a good example of companies that create benefits to society and economy. (hosted by the Ministry of Industry)



### Thailand Sustainability Investment (THIS) 2020

The Group was nominated to be included in the list of Thailand Sustainability Investment for 3 consecutive years (2018–2020), reflecting our operational efforts on Environmental, Social and Governance aspects (ESG). This inclusion in the list was result of annual sustainable development assessment conducted by The Stock Exchange of Thailand.



### Corporate Governance with "Excellent" rating in 2020

The Group participated in annual assessment of the Corporate Governance Report of Thai Listed Companies 2020 (CGR) hosted by the Institute of Directors (IOD) with support from The Stock Exchange of Thailand (SET) and received a rating of "Excellent" or 5-stars, for 3 consecutive years with remarkable high score of 92%.



### CSR-DIW CONTINUOUS AWARD 2563

The Group received the CSR-DIW Continuous Award from Department of Industrial Works, reflecting our continual efforts and activities in social, community and environmental developments.

- Phra Pradaeng plant has won this award for 13 years
- Phitanulok and Nakhon Ratchasima plants have won this award for 12 years
- Rayong and Suratthanee plants have won this award for 11 years



### GREEN INDUSTRY

The Group won the Green Industry awards from the Ministry of Industry. All our Thai plants won this award.

- Pitsanulok plant won the Green Industry Award, level 4, for 3 consecutive years
- All 4 remaining Thai plants won the Green Industry Award, level 3.



### รางวัลสถานประกอบการดีเด่นแรงงานสัมพันธ์และสวัสดิการแรงงาน

The Group received this award from the Department of Labor Protection and Welfare. The award recognizes companies that exhibit outstanding management on safety, occupational health, and work environment, including award for companies that implement Thai Labor Standard.

- Suratthanee plant has won this award for 15 years



### Certificate of "Zero Work Accident" Campaign 2020

This campaign is promoted by Thailand Institute of Occupational Safety and Health (Public Organization) (TOSH) with the aim of reducing accident rates measured by employee cumulative working hours that reflect no work accident with Lost Time Injury.

- Suratthanee plant (Copper level) with 1,000,000–2,999,999 employee cumulative working hours
- Rayong plant (Entry level) with more than 1,000,000 employee cumulative working hours



### Outstanding Establishment Award for Safety

The Group constantly places high priority on safety, occupational health and work environment through integration of safety management and ISO-45001: 2018 international standard.

- Rayong plant (Platinum level)
- 4 remaining plants (Gold level)

The Award is hosted by Department of Labor Protection and Welfare, Ministry of Labor



### Standard on Prevention and Solution to Drugs Problems in an Establishment certificate (Mor Yor Sor)

The Group obtained Standard on Prevention and Solution to Drugs Problems in an Establishment certificates (Mor Yor Sor) 2020 from the provincial Department of Labor Protection and Welfare (DLPW).

- Rayong plant obtained the certificates for 8 consecutive years
- Phitsanulok and Suratthanee plants obtained the certificates for 4 consecutive years

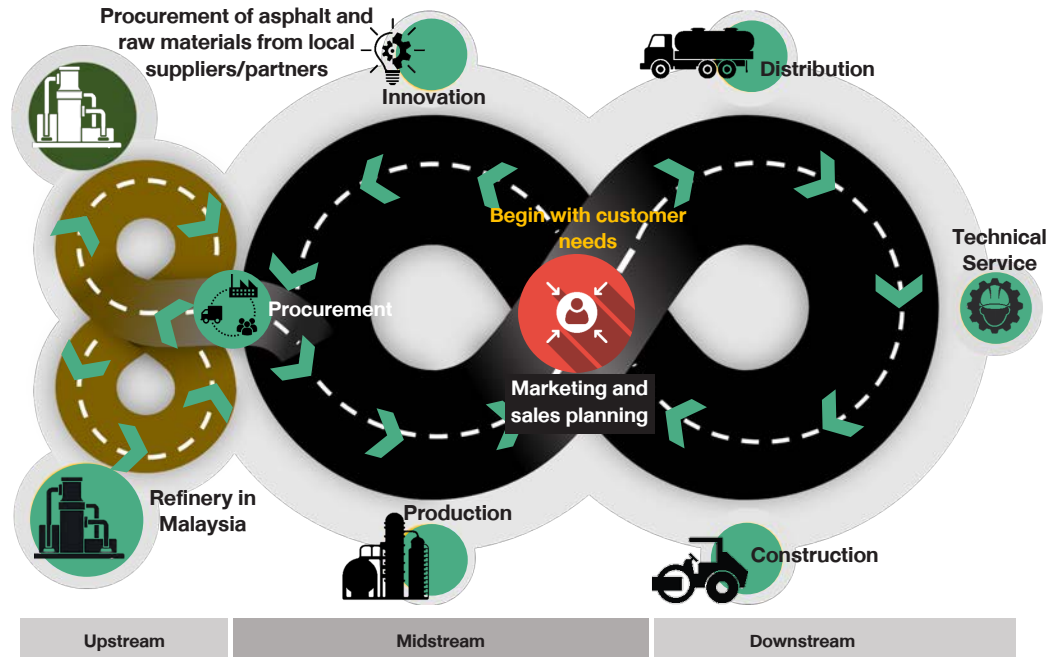
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## TIPCO Asphalt: Value Chain

In 2019, the Group implemented “customer centric” strategy which allowed us to design our business initiatives based on customer needs. In 2020, we adjusted our value chain design to the same approach, with thorough analysis of customer needs while integrating “innovation” in our thought processes to accommodate demands to deliver great products and services that not only directly meet customer preferences but also allow us to further enhance our operations with more efficiency, streamline work processes and save time.

Input factors		
Economic	Environmental	Social
Earnings before interest, tax, depreciation and amortization (EBITDA)	Capital expenditures on environmental / plant upgrades	Budget for social activities
<b>3,940</b> Million Baht	<b>11.3</b> Million Baht in 2020	<b>11.5</b> Million Baht in 2020
Value from new products (classified in 2018)	Number of trees planted by the Group	Number of volunteer employees working with communities
<b>114.2</b> Million Baht in 2019	<b>780</b> Trees in 2020	<b>528</b> employees (81.4%)
Dividends per share		
<b>1.50</b> Baht/share		
Production	Human Resource	Development
Total energy consumption	Number of TIPCO Asphalt employees (Thailand)	Innovation Bootcamp training
<b>215,138</b> Giga joules in 2020	<b>640</b> Persons in 2020	<b>77</b> Employees in 2020
Total water use	Total employee development investment	Number of innovation projects in 2019 (results can be evaluated in 2020)
<b>47,650</b> Mega liters in 2020	<b>4.4</b> Million Baht in 2020	<b>133</b> Projects

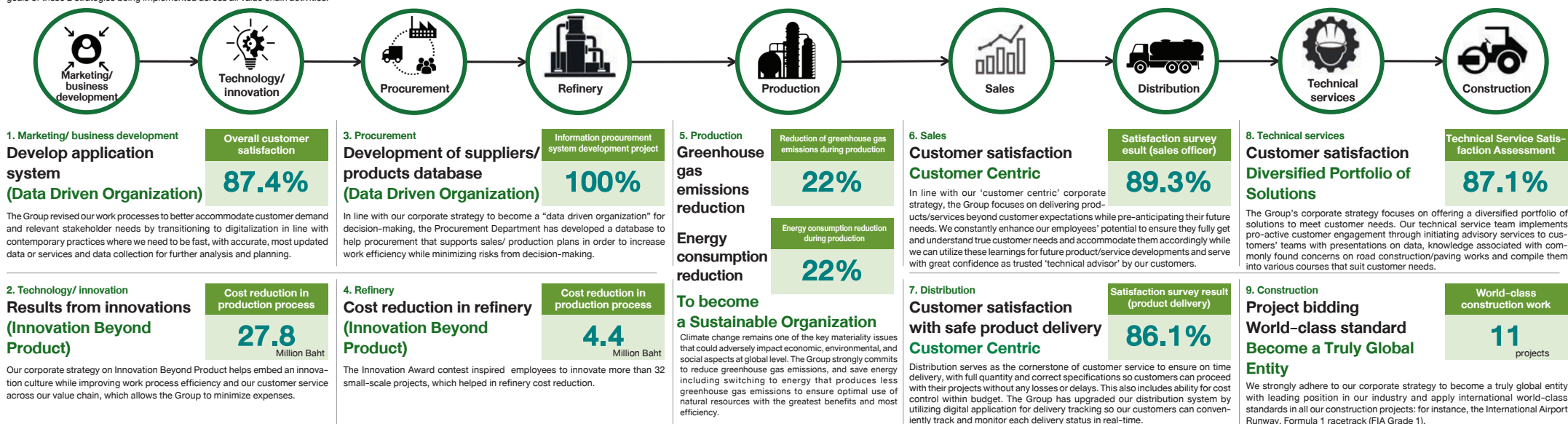


The Group can fully apply our strength in flexible work process adjustments to suit various situations, to ensure uninterrupted business while strengthening our operations. For instance, mitigating risks in procurement process through database management system coupled with development of procurement system that is user-friendly for all users, minimizes errors and has several features where users can customize their own procurement terms and conditions. This supports more a flexible work environment under excellent internal controls.

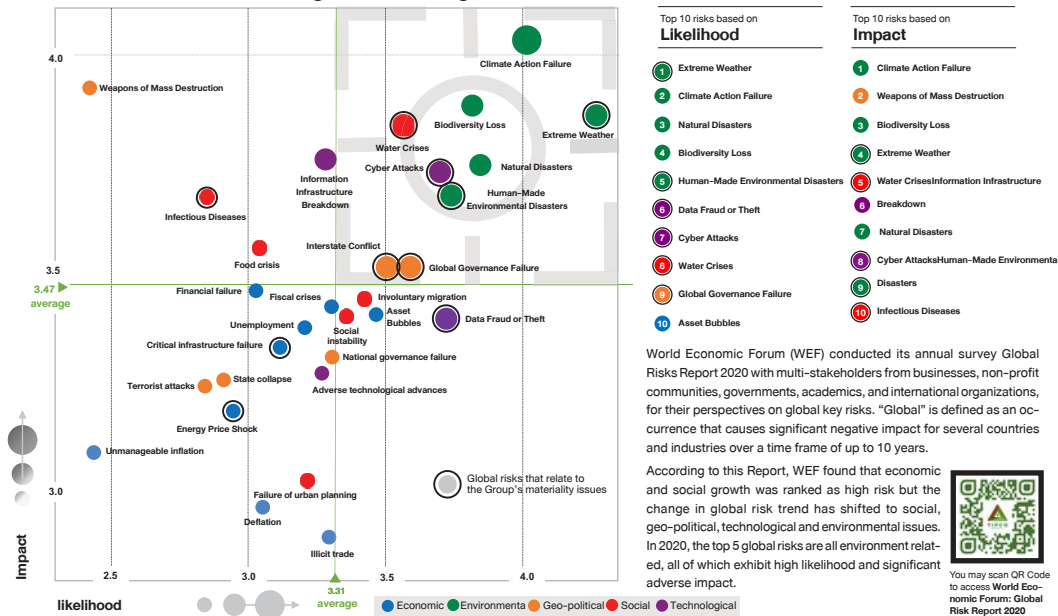
Value added creation					
Economic		Environmental		Social	
Earnings before interest, tax, depreciation and amortization (EBITDA)	<b>5,591</b> Million Baht	Ratio of re-use or recycling waste or used materials	<b>90</b> %	Community satisfaction survey on the Group's activities	<b>90</b> %
Value from new products (classified in 2018)	<b>134.2</b> Million Baht in 2020	Dividends per share	<b>1.60</b> Baht/share	Wastewater released from plants	<b>0</b> %
		Environment related complaint case	<b>0</b> %	Life saving training courses on CPR and AED devices	<b>995</b> persons
				Total volunteer time with the communities	<b>13,077</b> hours
Production		Human resource		Development	
Reduction of greenhouse gas emissions	<b>22</b> %	Ratio of (voluntary) employee resignation	<b>5.4</b> %	Value of innovative products from the 2019 contest	<b>2.0</b> Million Baht
Reduction of energy consumption	<b>22</b> %	Employee training hours	<b>36</b> Hours/person/year	Time saving through use of innovations	<b>2,812</b> hours
Reclaimed wastewater	<b>3.6</b> Cubic meters	Statistics on illness, injury or death from work	<b>0</b> %	Work expense reduction through use of innovations	<b>27.8</b> Million Baht

## TIPCO Asphalt Group: Value chain, linkage to corporate strategy and sustainable development value delivered

TIPCO Asphalt Group integrates sustainable development strategy with its corporate strategy, to ensure that all employees and relevant stakeholders understand the common goals of these 2 strategies being implemented across all value chain activities.



## World Economic Forum: Mega trends and global shifts



## Top 10 global risks with high likelihood within the next 10 years

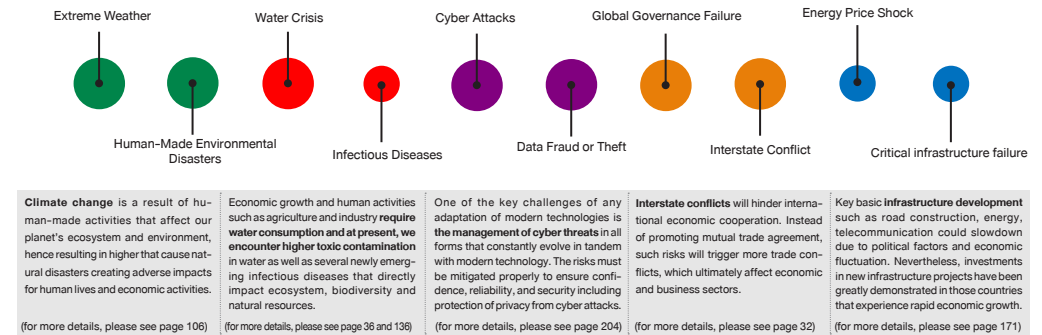
According to the Global Risk Report 2020 published by World Economic Forum, the top 10 global risks that exhibit high likelihood during the next 10 years are as follows:

Top 5 global risks involving natural disasters which tend to change very rapidly and are extreme. Several of these drastic disasters are human-made. Meanwhile, the world economy is encountering more risks in business interruptions triggered by climate change that has become more extreme and rapid than previously anticipated. This also results in biodiversity loss that directly affects supply chains.

Closely following the aforementioned top 5 risks, other top global risks come in the form of data fraud or theft and cyber attack risk that threaten all modern technology. In addition, water crises are a result of global climate change impact, which adversely affect the world economy significantly.

Global governance failure and asset bubbles are also considered as key global risks which would become more prominent during this and following year.

## Global risks in 2020 that relate to the Group's materiality issues



## Trends and direction of global changes and sustainability

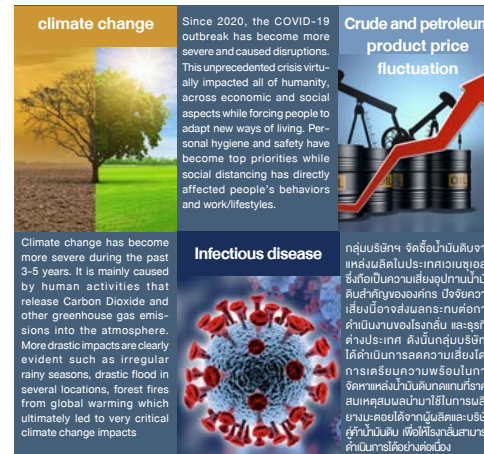
**Corporate risks in relation to global trends 2020** (please see page 168 on corporate risks)



## Trends and direction of global changes with impacts to TIPCO asphalt group in 2020

### Risks with impacts

The Group analyzes and prioritizes risks by utilizing an internal database as well as conducting analysis of external industry risk factors at national and global levels. Also included are the global risk concerns that are likely to happen with significant impacts. There are 3 key global risk concerns that the Group identified in operations that are mitigated by regular risk monitoring across all related units with internal control implementation and communication about risks throughout the Group.



### Risk Management

The Group utilizes information on risks and key challenges to revise risk registers and assessments of work units in accordance with internal and external contexts under COSO framework (which include operational, strategic, reporting and compliance risk types), internal controls, risk assessment (impact/likelihood) and key risk indicators with regular follow-ups and reports on quarterly basis

Climate change	Infectious disease	Crude and petroleum product price fluctuation
Our management on environmental risks, that trigger drastic temperature change, with focus on pollution emission, greenhouse gas, wastewater treatment and product spillage. We implement an Integrated Management System in accordance with ISO 14001 standard, together with greenhouse gas emission control following GHG Protocol as well as other internal risk control measures to mitigate environmental impacts from our operations For more information, please see page 104	The Group implements series of COVID-19 prevention and controls such as work safety for employees, adapting to work from home practice, utilizing modern technology to optimize work efficiency as well as development of digital applications that provide work convenience. We also constantly communicate on work measures to ensure safety of employees, partners, customers, community and relevant parties. For more details, please see page 36	The Group implements effective hedging strategy to help boost the operating profits while preventing crude and product produce volatility. For each crude import, we utilize 4-way collar option as hedging instrument against potential crude cost increase while risk from non-asphalt sales revenues will be managed through swaps contract. For more details, please see page 171



### The Group's Control Measures for COVID-19

Impacts to Employees

Impacts to businesses / partners

Impacts to customers/ communities

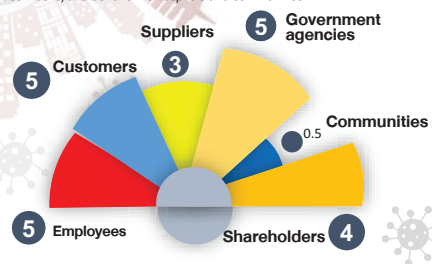
TIPCO Asphalt Group implemented a series of control measures to prevent the spread of COVID-19 through close monitoring and prevention of the disease in accordance with the recommendations from the Department of Disease Control as well as other regulations, to ensure we can promptly handle the situations.

Also included are constant communications and information sharing to all employees and nearby communities, along with provisions of face masks and disinfecting alcohol gel.

#### Corporate Health Check

According to Thai Pat Institute's corporate health check report on COVID-19 prevention, the Group's health check was at "excellent" level encompassing all key stakeholders; namely, employees, customers, government agencies, shareholders, partners, and communities. Our Corporate Health Check score averaged at 3.75 out of 5, representing 75%.

In the section on community, we achieved a lower score as our businesses do not directly involve public health. Nevertheless, the Group instead provided information and knowledge sharing to communities on how to take care of themselves during the crisis coupled with several activities for communities – namely, preparation of personal hygiene supplies (such as face masks) and donation to hospitals and communities.



### Employees

The Group launched the following work protocols:

- Work From Home: This involves splitting employees into 2 teams, each of whom take turns to work at the office and from home (or plant) in order to control potential spread of the disease
- Provide communication channels for employees through traditional office telephones, mobile phones, computer laptops and video conferencing
- For employees who need to commute daily using public transportation, the Group provides them with van transportation, to minimize their chances of infection
- Health scan and self-monitoring measures
- Social distancing, minimized travel activity and self-quarantine protocols
- Crisis management protocol, in case employees were found with infections
- Control measures for cross-border product delivery Control measures for raw materials received at port
- The "TIPCOs GO LEAN" project, with an aim to promote employee personal hygiene and disease prevention

You can scan QR Code to access VDO on the Group's work adjustment protocols

### Suppliers/Partners

**Impact assessment on supply chain**

- In response to COVID-19 impacts, reviews on procurement plans following the sales projection
- Constant reviews on sales forecast by sales department

### Shareholders

At the Annual General Meeting 2020 (AGM), the Group announced protocols for shareholders who attended the meeting in-person, to help prevent potential spread of COVID-19, through The Stock Exchange of Thailand and the Group's official website.

### Government agencies

The Group closely monitors official announcements and new regulations pertaining to COVID-19

- Revision of the Group's measures to be consistent with related regulations
- Daily COVID-19 situation update report

### Customers

The Group established the following communication protocols with customers:

- Direct communication with salesperson through telephone, or email
- Online seminars through Facebook and website to minimize risk of direct physical contact with customers
- Digital platform to process customer orders (Platform) เพื่ออำนวยความสะดวกแก่ลูกค้า

### Communities and road users

Our employees collectively prepared personal hygiene supplies such as plastic protecting face shield and Aerosol Box for medical frontliners. We also donated resistance bands to the elderly to exercise during COVID-19 to promote health. In addition, the Group donated a total of 1.5 million Baht to 5 hospitals.

## COVID-19 impacts and Sustainability

The COVID-19 situation in 2020 marked a challenging year for everyone across all our organizations. One of the most convenient and effective prevention measures is the practice of Social Distancing, which triggered several lifestyle changes on all society such as the trend of Work from Home (WFH) implemented by large organizations. In fact, this measure has been long practiced by small- to medium-size enterprises as way to manage their human resources and costs through freelance employees. At present, the Group adopts this work practice by allowing employees to work from home or any safe locations, to avoid crowded places, including requests for employees to avoid potential risky public locations such as restaurants, shopping malls while still remaining as our full-time employees.

Business and industry sectors are greatly affected by these lifestyle changes as people tend to stay home in accordance with the government's pandemic prevention protocols. Throughout 2020, TIPCO Asphalt Group implemented several measures to turn this crisis into new opportunities through work systems that accommodate customers' business needs in line with the New Normal, without any physical contact while allowing customers to conveniently reach the Group anytime from anywhere they prefer without any compromise of customer service, or even better service. This is done through development of digital platform services, which is one of the projects under our annual Innovation Awards contest that could be applied in COVID-19 situation and further developed for maximum efficiency; from taking customers' orders through product delivery. Nevertheless, the Group shall closely monitor the situation to ensure the safety of all relevant stakeholder groups so we can continue our business without interruption until we find a sustainable way to handle this pandemic.

### Resilience: Adjustment to ensure sustainable businesses

The COVID-19 outbreak has caused adverse impacts on most businesses, as not only operations need be revised but also supply chains. Each stakeholder group focused on how to minimize the impacts while allowing them to be able to sustain their operations.



## Some "Positive" Changes from COVID-19 Crisis

This COVID-19 outbreak greatly impacts all lives on earth, including ecosystem, environment and society in terms of lifestyle, work, and communication including technological developments. Once the situation becomes resolved, some employee lifestyle aspects will be changed in 'positive' ways – in particular, as follows:

### Use of smart phone as normal communication channel

In the past, we rely on several communication channels, but smart phone use will enable more convenience in communication, hence accommodating new work practices in the digital era.

### Implement digital platform

Digital platform embedded in work and service developments will become more common, as employees are already accustomed to this.

### Employees gain more computer expertise, up to good or excellent levels

During this crisis, more employees adapt to new technology in their work to deliver faster, more efficient and less time-consuming outputs. These will serve as great new changes towards the digital era.



You can scan QR Code to access **COVID-19 prevention measures** of TIPCO Asphalt Group

### Promote creative ideas and more participation in innovation initiatives

As our employees are familiar with new technology which allow them to search for new knowledge more conveniently, the Group provides strong support for innovations which will create incentives for our employees to utilize their time to create work improvement ideas from their innovations.

### More work collaboration from utilizing technology

During the crisis, we have witnessed more work collaboration through several digital platforms such as Zoom or Microsoft Teams, and we believe such trends will continue after the crisis and create more mutual benefits.

### Employees can constantly learn new knowledge

The Group can better manage knowledge training such as employee development or skills training, with more efficiency including organizational knowledge sharing which increases the likelihood of project success.

## Leadership during Crisis:

During COVID-19 outbreak, the top management realizes the crucial relationship between economic success and social sustainability. Our leaders express their care for employee safety and good health, with focus on human resource management, mutual caring towards all employees, including welfare provision and employee mental health. The Work From Home protocol might cause some employees to feel insecure: due to different work environment while the pandemic outbreak directly affects them both in terms of economic and social issues, hence causing some mental instability.

The Group's executives fully acknowledge these concerns and manage through this COVID-19 outbreak with great caution, timely responses, and constant communications to all employees both on business operations and safety knowledge. This allows them to earn trust from all employees, along with employee confidence in our leaders and the Group while employees will work with their utmost dedication to achieve our business goals.

The executives have anticipated the New Normal and have already executed several initiatives to accommodate this upcoming trend. For instance, development of a digital platform to facilitate sales and customer service, which greatly help reduce processing time with prompt service to our customers, to enhance customer relations while enjoying more efficient service. In 2020, we achieved remarkably high operating profits; the second highest in our history, with great pride that we all can get through this difficult crisis with success.

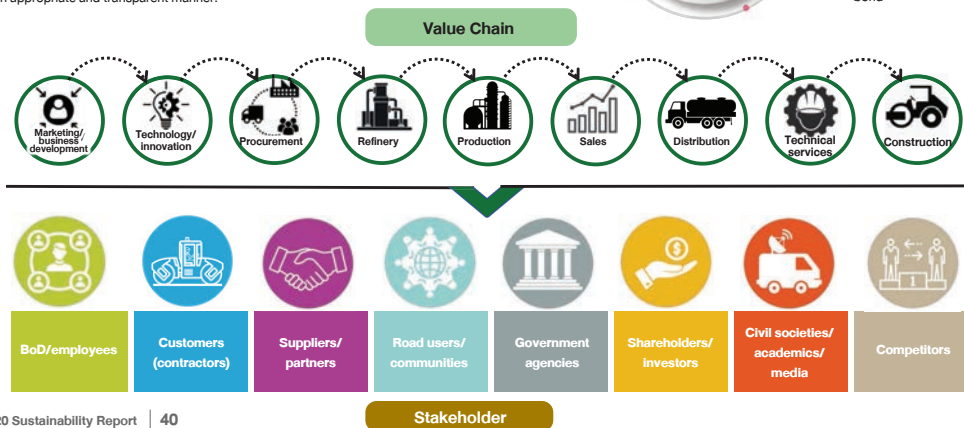
You can scan QR Code to access **COVID-19 prevention measures** of TIPCO Asphalt Group



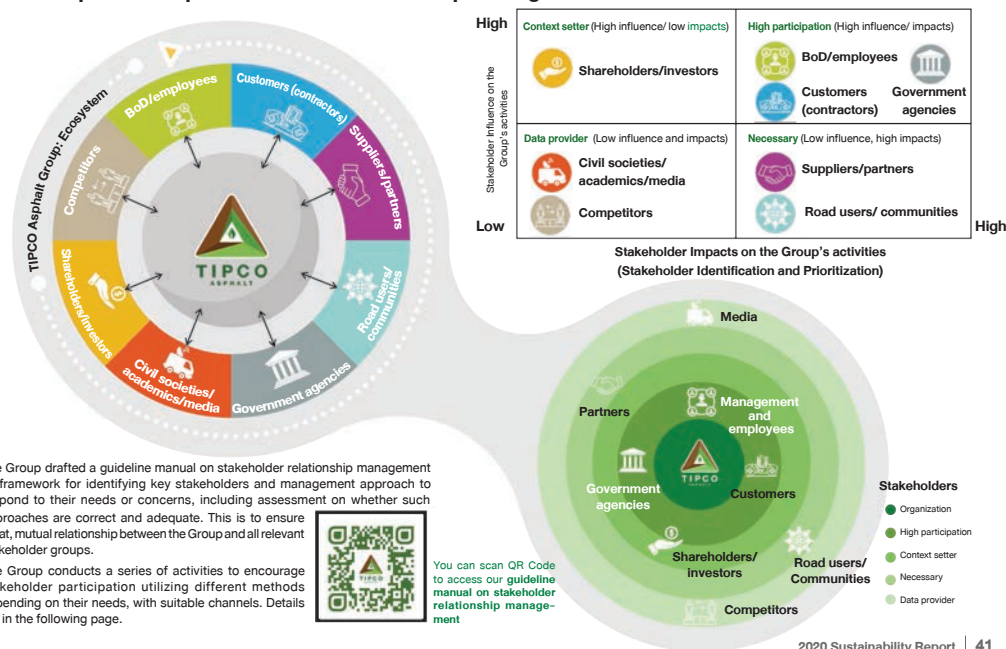
## TIPCO Asphalt Group: Stakeholder Groups across Value Chain

TIPCO Asphalt Group cares for all stakeholder groups across our value chain, as we realize successful business management requires great mutual collaboration among our organization and relevant stakeholder groups. Opinions and feedback from stakeholders play a highly important role in work process improvements that allows us to better accommodate their needs directly, hence more efficiency, lower risks, and achievement of mutual sustainable development goals together. Relationship management with stakeholder groups allows us to access valuable information on their opinions toward the Group's operations with more efficiency. In 2019 during the Group's corporate strategy review, there were 2 new strategic themes proposed; namely "customer centric" and "data driven organization". Since then, we re-designed our value chain in response to the strategy review and new business direction including development of comprehensive database for analysis, for supporting decision making and planning including annual review of communication formats, activities and participation channels that stakeholders can join. These allow us to understand all materiality issues under their interests while gaining insights to their opinions. We provide opportunities for all stakeholders to participate and express their comments openly, in an appropriate and transparent manner.

### Customer Centric and Data Driven Organization corporate strategies



## TIPCO Asphalt Group: Stakeholder Relationship Management



## Stakeholder Engagements during COVID-19 Outbreak

TIPCO Asphalt Group takes into consideration all suggestions from related stakeholders, which serve as an important element in the Group's operations and business efficiency improvement.

In 2020, the COVID-19 outbreak adversely impacted all relevant stakeholders including the Thai economy. The Group then adapted new plans to ensure business continuity while preventing pandemic outbreak within organization, hence minimizing risk of our employees being infected from external sources while relevant stakeholders could resume their normal business contact with the Group. In addition, we adapted a new approach for stakeholder engagement and communication to mostly online formats, to maximize effectiveness during this time of crisis.

The Group manages stakeholder engagement through development of supporting systems and platforms to ensure our business continuity. Nevertheless, we also focus on safety of all stakeholder groups as our top priority.



Stakeholder Group	Needs/ Expectations	Engagement channels/ frequency	Benefits to stakeholders	Highlights in 2020
<b>Board of Directors/ Employees</b>	<ul style="list-style-type: none"> <li>Good corporate governance, in accordance with international practices</li> <li>Transparent and ethical business conduct</li> <li>Great quality of life, career stability, and fair compensations</li> <li>Respect the rights of employees and stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>Semi-annual Employee Meetings to communicate the Group's policy and operating results from the CEO via MS Teams</li> <li>The CEO's visit to 5 Thai plants and meetings with international subsidiaries through remote video conference once a year</li> <li>Communications to ensure awareness on personal healthcare during the COVID-19 outbreak through internal communication channels such as the TIPCO Connect and Intranet.</li> </ul>	<ul style="list-style-type: none"> <li>Good corporate governance in line with policy and effective implementation</li> <li>Integration of sustainability into corporate strategy and business plans</li> <li>Safe and happy workplace with work-life balance</li> <li>Continuous skill and capability developments</li> <li>Career advancement and fair compensation</li> </ul>	<ul style="list-style-type: none"> <li>"5-Star; Excellence" rating from the Corporate Governance Report of Thai Listed Companies</li> <li>Membership re-certification (Level-4) from Thailand's Private Sector Collective Action Against Corruption (CAC)</li> <li>Join SET THIS list</li> <li>Zero lost time incident or fatality accident</li> <li>25% promotion rate for high potential employees to management positions</li> </ul>
<b>Customers</b>	<ul style="list-style-type: none"> <li>Products and services, in line with expectations</li> <li>Customer data confidentiality</li> <li>Fair treatment and respect for customer rights</li> </ul>	<ul style="list-style-type: none"> <li>Customer relationship management activities, customer satisfaction survey and complaint channel through Zoom</li> <li>Training and seminars in 2020 through Zoom to provide knowledge to customers</li> </ul>	<ul style="list-style-type: none"> <li>Reliability on high quality products on time delivery with full quantity</li> <li>Response to expectations and effective communication</li> <li>Relationship enhancement activities and product launches</li> </ul>	<ul style="list-style-type: none"> <li>87.4% customer satisfaction survey results</li> <li>100% of 18 customer complaint issues were resolved and communicated back to the customers</li> <li>1 incident of product recall due to poor quality</li> </ul>
<b>Suppliers/ Partners</b>	<ul style="list-style-type: none"> <li>Fair business practices and anti-corruption</li> <li>Respect rights of partners/alliances</li> </ul>	<ul style="list-style-type: none"> <li>Partner suggestions through Microsoft Teams and Zoom, including consulting services through telephone</li> <li>Annual supplier visit (in-person, at their site (1 plant)) while other supplier visits were conducted through Zoom</li> <li>Joint social responsibility activities</li> </ul>	<ul style="list-style-type: none"> <li>Create safe work environment for partners</li> <li>Promote great, mutual relationship through data sharing and good business practices</li> <li>Business growth supported with anti-corruption</li> </ul>	<ul style="list-style-type: none"> <li>5 product procurements from suppliers/manufacturers that were certified with standards on environment and social responsibility</li> <li>22 Million Baht of local procurements</li> <li>Zero lost time incident or fatality accident (of outsourced logistics providers)</li> </ul>
<b>Road users/ communities</b>	<ul style="list-style-type: none"> <li>Safe road travel</li> <li>Pollution-free community</li> <li>Education and career opportunities for community</li> </ul>	<ul style="list-style-type: none"> <li>Public interaction with communities and road users</li> <li>"Open house" project</li> <li>Channels to receive comments and complaints</li> </ul>	<ul style="list-style-type: none"> <li>Collaborate and promote knowledge/expertise sharing</li> <li>Listen to communities' real needs and complaints</li> <li>Create high-quality road construction innovations</li> </ul>	<ul style="list-style-type: none"> <li>90% average score on community satisfaction survey on our social activities</li> <li>Zero ESG complaints from communities and road users</li> <li>6 key social activities, coupled with 56 other related projects, with total of 7,013 participants</li> </ul>
<b>Regulators</b>	<ul style="list-style-type: none"> <li>Full compliance with related laws and regulations including anti-corruption and infringement</li> </ul>	<ul style="list-style-type: none"> <li>Meetings/joint activities on social responsibility</li> <li>Plant visits</li> </ul>	<ul style="list-style-type: none"> <li>Support and promote the United Nations Sustainable Development Goals (UN-SDG)</li> <li>Tax payments to support local community developments and focus on local employment/hiring</li> </ul>	<ul style="list-style-type: none"> <li>Promoted the United Nations Sustainable Development Goals (UNSDG) through regular conduct of social activities</li> </ul>
<b>Shareholders/ investors</b>	<ul style="list-style-type: none"> <li>Business competitiveness enhancement and enterprise risk management</li> <li>Governance and data disclosure pertaining to business directions</li> </ul>	<ul style="list-style-type: none"> <li>Annual General Meeting with Social Distancing protocols</li> <li>Quarterly analyst meetings</li> <li>Communication of operating results through the Annual Report and Sustainability Report on the Group's official website</li> <li>Channel for complaints (Whistleblower)</li> </ul>	<ul style="list-style-type: none"> <li>Information received is accurate, fair, and up-to-date</li> <li>Prudent business growth management along with risk management through internal control measures</li> <li>Transparent business conduct, to promote good corporate image</li> </ul>	<ul style="list-style-type: none"> <li>1.60 Baht Dividends per share</li> <li>9.21 Baht Book Value per share</li> <li>26,144 million Baht of total revenues</li> <li>5,555 million Baht of gross profits, representing 33% increase from 2019</li> </ul>
<b>Civil societies/ academics/ media</b>	<ul style="list-style-type: none"> <li>Data disclosure with accuracy, clarity, and timeliness</li> </ul>	<ul style="list-style-type: none"> <li>Press conferences on the Group's activities</li> <li>Analyst meeting through traditional in-person format (limited number of participants) and video conference</li> </ul>	<ul style="list-style-type: none"> <li>Data disclosure with accuracy and timeliness</li> <li>Promote creative use of media</li> </ul>	<ul style="list-style-type: none"> <li>Disseminated news while promoting good corporate image through transparent disclosure of reliable data</li> <li>Conducted 4 interviews and press conferences through online channels, due to the ongoing COVID-19 outbreak</li> </ul>
<b>Competitors</b>	<ul style="list-style-type: none"> <li>Fair business practices with transparency</li> </ul>	<ul style="list-style-type: none"> <li>Exhibitions/academic seminars</li> <li>Websites and social media</li> </ul>	<ul style="list-style-type: none"> <li>Fair and transparent competition, in accordance with the Group's ethics</li> </ul>	<ul style="list-style-type: none"> <li>Complied with corporate ethics</li> <li>Complied with sales policy</li> </ul>

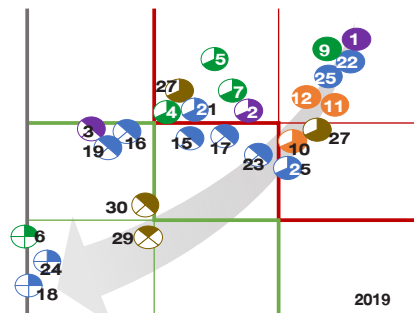
## Assessment of key Materiality for Sustainability

### Identification of key Materiality for Sustainability

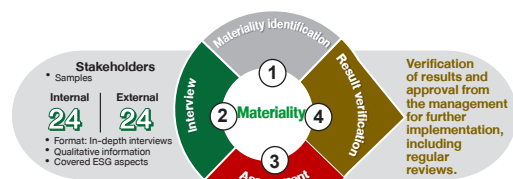
TIPCO Asphalt Group constantly reviews data disclosure in our Sustainability Report, with re-assessment and re-prioritization of key materiality issues for sustainable development due to several incidents such as the COVID-19 outbreak since late-2019 which continued throughout 2020, the United States' sanction against Venezuela which directly impacted the Group's crude supplies source for our refinery in Malaysia, the rapidly-worsening global warming phenomenon of which effects are clearly evident across some operations such as longer rainy seasons where road construction cannot be done, hence impacting our customers' project timelines and our product deliveries.

These unforeseen changes directly affect the Group's operations and may become more severe. We then re-assess key materiality issues for sustainability through in-depth interviews with all relevant stakeholder groups, both internal and external. Then we analyze and prioritize these materiality issues in line with sustainability and sustainable development strategy contexts and utilize them for our plans and measures, including efficiency and timeline management of materiality issues for maximum, mutual benefits which can extend towards information sharing among partners, customers and other key stakeholders.

The Group's materiality assessment was conducted in accordance with Global Reporting Initiatives framework (GRI); GRI Standards.



### Steps of Materiality Assessment



**1 Materiality identification**  
Analyze key materiality issues across value chain through in-depth interview sessions with executives and relevant employees including those key materiality that stakeholders set high priority upon, then summarized into a survey form.

**2 Interview**  
Conduct interview sessions with sample group of internal/external stakeholders through in-depth interview approach via telephone, email, online video conference platforms such as Microsoft Team, or Zoom

**3 Assessment and prioritization**  
Evaluate and prioritize key materiality issues for sustainability that are important to stakeholders and to the Group, using their respective impact and influence as criteria.

**4 Result verification**  
Management of relevant business unit consider, review and endorse the assessment results, then propose to the Chief Executive Officer for final acknowledgment and approval.

### Changes in 2020 key Materiality for Sustainability

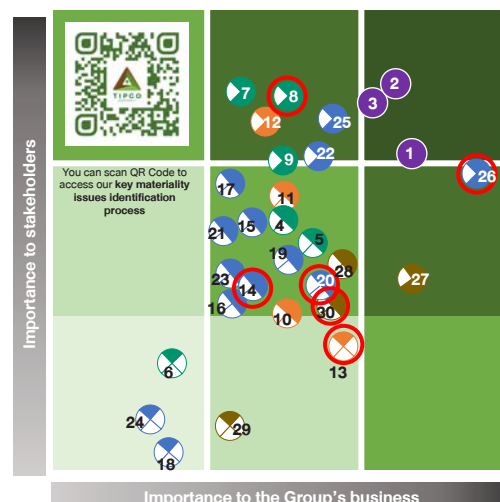
During early-2020, the management and Sustainability working team summarized and identified key materiality issues for sustainability of the Group, using clear criteria and details while considering key risks at global and regional levels. Interviews were conducted with all stakeholder groups relevant to our businesses. The Group identified 6 additional key materiality issues from the survey.

The result indicated that 'innovation' remains one of the most important materiality aspects, according to all stakeholders. In addition, the study reveals additional materiality that the Group needs to be outstanding expert in asphalt business, coupled with our products be friendly to the environment and society. The Group must also constantly provide support to instill innovation culture within the organization.

Some key materiality issues announced in 2019 exhibit lower degree of 'impacts' in this study; this is mainly due to our constant improvements on work operations. Meanwhile, some key materiality issues still remain significant from 2019; namely, environment, transportation safety, risk management, human resource management (staff retention), communication (product market) and sustainable procurement.

There are 11 key materiality topics under highest priority identified in this study. As for how to respond to all key materiality, plans and results are communicated in multimedia video, for clearer communications.

### Result of 2020 Materiality Assessment



**Scope of report:** The report analysis is based on relevancy to the Group's business, information readiness and impacts to the Group's key businesses focusing on asphalt, pre-mix asphalt, lube base oil, logistics services and other supporting businesses. As for operational results pertaining to occupational health, safety and environment, the report only encompasses businesses of TIPCO Asphalt Public Company Limited (under responsibility to product topic) which accounts for 97% of the Group's total incomes.

### TIPCO Asphalt Group: Key Materiality Issues

- Must be key materiality issues that both internal and external stakeholders agree that they are highly significant and impactful. These key issues will serve as key inputs for short- to long-term business plan formulation.
- Exhibit high-to-highest economic, social and environmental impacts

- Innovation leader :** For 10X exponential economic growth
- 1) Instillation and promotion of innovation culture
  - 2) Expert on asphalt paved roads
  - 3) Products/services that are environmentally friendly
- Eco-efficiency management :** For better planet
- 4) Efficient use of resources/ raw materials
  - 5) Energy management
  - 6) Water management
  - 7) Climate change
  - 8) Greenhouse gas management
  - 9) Waste disposal and emission management
- Safety awareness :** "Better safe and sorry"
- 10) Employee health and safety
  - 11) Customer health and safety
  - 12) Logistics and transportation safety
- Good and transparent corporate governance :** For strong business foundation
- 13) Protection of IT network
  - 14) Good corporate governance (anti-corruption)
  - 15) Against trade monopoly/cartel
  - 16) Partner's evaluation through ESG
  - 17) Respect Human Rights
  - 18) Against child labor use in business
  - 19) Stakeholder management
  - 20) Customer centric
  - 21) Community development
  - 22) Quality and responsibility to products/services
  - 23) Respect customer rights and privacy
  - 24) Local procurement
  - 25) Sustainable procurement across value chain
  - 26) Enterprise risk management
- Value for the Future :** Employee development to cope with new changes
- 27) Human resource management
  - 28) Employee training and development
  - 29) Diversity with equal opportunity
  - 30) Employee-centric management












Impact level, by SD strategy and foundations	Low	medium	high	very high	
Innovation leader	Low	Medium	High	Very High	
Eco-efficiency management	Low	Medium	High	Very High	
Safety awareness	Low	Medium	High	Very High	
Good corporate governance	Low	Medium	High	Very High	
Value for the Future	Low	Medium	High	Very High	

New materiality issues in 2020 #8, #13, #14 #20, #26, #30

## Key Materiality Issues in 2020 and Stakeholder Engagement

TIPCO Asphalt Group prioritizes on engagement with stakeholder groups, both directly and indirectly related to the Group's operations. We believe key materiality issues serve as a main component to formulate business directions and sustainable development initiatives for the organization. The Group communicates with relevant stakeholders on key materiality issues that are of interest to each stakeholder groups while they will serve as criteria for our decision making, planning, as well as the Group's business practices.

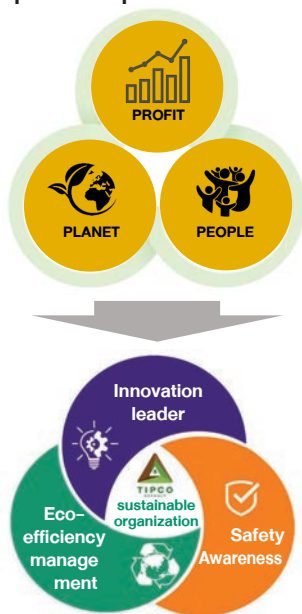
The following table summarizes 11 key materiality issues for sustainability and 13 materiality topics for TIPCO Asphalt Group's business operations in 2020. Each of these issues is classified according to our 3 sustainable development strategies: namely, innovation, eco-efficiency and safety, in conjunction with management on good corporate governance and employee development. These are well in line with our corporate strategy and fit our business models in this highly competitive environment.

 <b>Innovation: (Economic (direct and indirect))</b> <ul style="list-style-type: none"> <li>Create value towards sustainable business through becoming expert in asphalt road surface application</li> <li>Develop products and services that are environment-friendly</li> <li>Instill and promote innovation culture</li> </ul>	 <ul style="list-style-type: none"> <li>Response to key materiality issues proposed by customers and stakeholders by development of products/ services, or from production process, through innovations. This can be achieved through mutual collaboration with employees in the organization, academics, students, and relevant stakeholders to enhance potential and efficiency of our Group to grow sustainably.</li> </ul>
 <b>Eco-efficiency (Environment)</b> <ul style="list-style-type: none"> <li>Climate change management</li> <li>Greenhouse gas management</li> <li>Waste disposal and emission management</li> </ul> <div>Additional topic</div> <ul style="list-style-type: none"> <li>Resource and raw materials management</li> <li>Energy management</li> <li>Water management</li> </ul>	 <ul style="list-style-type: none"> <li>Risk management on climate change that is efficient encompassing all relevant units such as refinery, production, and distribution.</li> </ul>  <ul style="list-style-type: none"> <li>Promote global shift towards low-carbon economy through the Group's sustainable development initiatives while supporting customers and stakeholders through technology or innovations</li> </ul>
 <b>Safety (Social)</b> <ul style="list-style-type: none"> <li>Distribution Safety</li> </ul> <div>Additional topics</div> <ul style="list-style-type: none"> <li>Employee health and safety</li> <li>Customer health and safety</li> </ul>	 <ul style="list-style-type: none"> <li>Design the best workplace and work processes to ensure maximum work safety while promoting good health. This requires good work environment for employees and stakeholders whereby they can fully optimize their potential.</li> </ul>  <ul style="list-style-type: none"> <li>Protect employees, customers, and communities through cyber security risk control measures.</li> </ul>
 <b>Organization Management (Corporate governance and employee development)</b> <ul style="list-style-type: none"> <li>Quality and responsibility for products/services</li> <li>Sustainable procurement across value chain</li> <li>ESG enterprise risk management</li> <li>Human resource management</li> </ul> <div>Additional topics</div> <ul style="list-style-type: none"> <li>Good corporate governance</li> <li>Ethics</li> </ul>	 <ul style="list-style-type: none"> <li>Conduct business with corporate ethics and good governance practices while delivering values for economy, society, community, and environment together with maintaining high management standards in all areas that the Group operates in.</li> </ul>  <ul style="list-style-type: none"> <li>Focus on customer and employee centric approach, so employees can work with their highest efficiency with satisfaction which, in turn, will be reflected in great customer care and relationship enhancement.</li> </ul>

## Scope of Impacts from Key Materiality Issues to Stakeholders

Key materiality issues for sustainability	Scope of impacts									Reference standard used in the Report			
	Internal to the organization		External to the organization							GRI	ISO	SDGs	Page
	Directors	Employees	Customers	Suppliers	Communities	Government	Academics	Stakeholders	Investors				
Expert in asphalt road surface application	●	●								GRI 201	ISO 9001	SDG 4, 9, 16	72
Products and services that are environment-friendly	●	●	●	●		●	●			GRI 201	ISO 14001	SDG 4, 9, 16	82
Enterprise risk management	●	●	●	●	●	●	●	●	●	GRI 102	ISO 9001	SDG 1-17	170
Instill and promote innovation culture	●	●	●	●	●	●	●	●		GRI 201	-	SDG 4, 9, 16	92
Sustainable procurement across value chain		●	●	●		●	●			GRI 308,414	ISO 9001	SDG 8, 9, 12,15,17	176
Greenhouse gas management	●	●	●	●	●	●	●			GRI 305	ISO14001	SDG 8, 12, 13	116
Quality and responsibility for products/services	●	●	●	●		●	●			GRI 102, 417,418	ISO 9001	SDG 3, 4, 8,9,17	182
Road transportation safety		●	●	●		●	●			GRI 403, 404,405	ISO39001	SDG 3, 11, 17	152
Climate change	●	●	●	●	●	●	●	●	●	GRI 305	ISO14001	SDG 8, 12, 13	106
Human resource management	●	●					●			GRI 401, 402,404, 405,407	ISO14001	SDG 4, 5, 8	216
Waste disposal and emission management	●	●	●	●	●	●	●	●		GRI 306	ISO14001	SDG 8, 12, 13	124

## TIPCO Asphalt Group: Sustainable Development Principle



### “To deliver sustainable living for all societies, with innovative solutions”

TIPCO Asphalt Group commits to conduct our businesses, with high consideration for balance across economic, environmental and social aspects. We implement sustainable development of 3P concept; i.e., **Profit** (earnings from **economy/innovations**), **Planet** (earth/ environment through eco-efficiency management), and **People** (people/society – safety) as communication tool for all stakeholders, our employees in particular. This serves as a key driving force for sustainable development to achieve our common goals.



Our definition of **sustainability** refers to business growth in conjunction with social and environmental developments. This centers around our 3 pillars; namely, economic (through innovation), environmental (through eco-efficiency) and social (creation of safety awareness) accompanied by risk management pertaining to economic, social and environmental aspects during decision making as well as business conduct under our sustainable development framework.

The Group constantly adapts to new changes, to steer our organization towards international standards, in line with our corporate strategic goal that focuses on world-class business practices while integrating sustainability into our management approach of the organization. In 2020 the COVID-19 outbreak adversely affected most businesses, but the Group could effectively adapt new management protocols such as **work from safe locations** (home, etc.), and provision of hygiene supplies to prevent further pandemic spread. These hence allowed the Group to achieve remarkable operating results, with great profits exceeding expectations.

## TIPCO Asphalt Group: Sustainable Development Framework and Linkage to Corporate Strategy



Vision 2025

Corporate Strategy

Brand value

Core values

Sustainability Vision

Sustainability foundations

Sustainable development strategies

Social activity framework activity guidelines

To be a globally preferred integrated asphalt solutions partner

To provide asphalt solutions in a sustainable manner led by an innovative culture

### 6 corporate strategy goals

A Truly Global Entity	Innovation Beyond Product	Data Driven Organization
Diversified Portfolio of Solutions	Client Centric	Sustainable Organization

### INNOVATIVE SOLUTIONS PARTNER

Teamwork	Integrity	Prudence	Commitment	Open-mind
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To deliver sustainable living for all societies, with innovative solutions



<b>Transparency and good corporate governance</b> For strong business foundation	<b>Value for the future</b> Employee development to be ready for new changes
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<b>Economic Innovation leader</b> Promote innovations on products, services, new work processes and new businesses relating to asphalt, with focus on “safe and save”	<b>Environmental Eco-efficiency</b> Constant reviews on work process improvements, to achieve eco-efficiency through “preserve community ecosystem”	<b>Social Safety Awareness</b> Promote community members through skill development/training “Safety” and health care to improve the quality of life.
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<b>Collaborate on innovation</b> Knowledge sharing   Co-value creation	<b>Save the earth</b> Friendly to environment   Safe and Save	<b>Safety for all</b> Safe road   Post-accident care
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## TIPCO Asphalt Group: Sustainable Development Strategies

With our sustainable development framework, TIPCO Asphalt Group formulated our sustainable development strategies in 2018, with approval from the Board of Directors. These SD strategies serve as a key tool to drive our Group towards our sustainability vision. In addition, the Group established strong foundations for organization management, which comprised good corporate governance and human resource management, to ensure the Group earn great trust from stakeholders while achieving our goal to become a Sustainable Organization by 2025 in line with our corporate strategy, together with the United Nation Sustainable Development Goals (UN-SDG) number 3, 4, 8, 9, 12, 13, 16 and 17.

2018	Strategy	Expected results	Goal for 2025	SDGs
	<b>Innovation Leader</b>	10X exponential economic growth	<b>100% sales increase from innovations</b> <ul style="list-style-type: none"> <li>Target 184,000 tons, compared to 2018 baseline year (92,120 Tons in 2020)</li> </ul>	 
	<b>Eco-Efficiency Operations</b>	For a better world	<b>&gt; 6% Greenhouse gas emissions reduction, compared to baseline year 2020</b> <ul style="list-style-type: none"> <li>Scope 1 and 2</li> </ul>	 
	<b>Safety Awareness</b>	For safety; better safe than sorry	<b>Zero severe accident from work and distribution</b> <ul style="list-style-type: none"> <li>ZERO accident Mission</li> </ul>	 
	<b>Transparency and Good Corporate Governance</b>	Strong business foundation	<b>Above average score on good corporate governance assessment</b> <ul style="list-style-type: none"> <li>Role-model organization with 5-star rating on corporate governance assessment</li> </ul>	 
	<b>Value for the Future</b>	To be ready for new	<b>Each employee participates in annual innovation award contest &gt; 1 project</b> <ul style="list-style-type: none"> <li>To instill innovation culture and encourage sustainable knowledge sharing/transfer within the organization</li> </ul>	 

## TIPCO Asphalt Group: Policy, Roles and Responsibilities on Sustainable Development

TIPCO Asphalt Group developed our sustainable development framework, with approval and implementation of strategies and goal settings since 2017. With our sustainable development vision "**to deliver sustainable living for all societies, through innovative solutions**", it communicates to all employees and stakeholders to ensure their understanding on mutual development goals with systematic monitoring and controls on results. Sustainable development initiatives have been integrated with our business practices and directions to align all employees to follow strategic plans with continual development, thus creating mutual benefits to both the Group and society including clear communication to all employees to ensure their understanding and participation.

Structure	Roles & responsibilities	Frequency
<b>A Board of Directors</b>	<ul style="list-style-type: none"> <li>Approve strategies, goals, and budgets associated with sustainable development</li> </ul>	Quarterly (4 times)
<b>B Corporate Governance Committee</b>	<ol style="list-style-type: none"> <li>Screen policy, strategies, goals and action plans associated with sustainable development</li> <li>Propose policy, and provide result updates to the Board of Directors</li> <li>Review sustainability policy of the Group</li> </ol>	Quarterly (4 times)
<b>C Top Management</b> <ul style="list-style-type: none"> <li>Directors</li> </ul>	<ul style="list-style-type: none"> <li>Consider operating results that deviate from plans and targets, including recommendations on solutions or adjustments</li> <li>Formulate and review guidelines, framework for business conduct, policy, strategy, targets and corresponding action plans.</li> </ul>	Monthly (12 times)
<b>D TIPCO Asphalt Executives</b> <ul style="list-style-type: none"> <li>Managers</li> <li>Supervisors</li> </ul>	<ol style="list-style-type: none"> <li>Monitor operating results in the <b>Management Review Meeting</b>, on sustainable development and ISO standards</li> <li>Coordinate, research and provide recommendations for operating result improvements benchmarking with standards, both internal and external to the Group</li> <li>Prepare quarterly report</li> </ol>	Every 4 months (3 times)
<b>E Sustainability Development working team</b> <ul style="list-style-type: none"> <li>SD officers</li> <li>Volunteer officers</li> </ul>	Communicate framework, policy, strategy, goals, and action plans associated with sustainable development to employees and relevant stakeholders to ensure their acknowledgement and understanding <ul style="list-style-type: none"> <li>Promote and coordinate, both within and outside the organization</li> </ul>	Monthly (12 times)
<b>F All employees</b>	<ul style="list-style-type: none"> <li>Implement action plans to achieve sustainable development goals together</li> </ul>	



TIPCO Asphalt Group: Governance Structure of Sustainable Development



## TIPCO Asphalt Group: Sustainable Development Approach

**Vision 2025 :** To provide asphalt solutions in a sustainable manner led by an innovative culture

**Mission :** To be a globally preferred integrated asphalt solutions partner

TIPCO Asphalt Group constantly adapts and changes to ensure we become a globally preferred business partner. This reflects our world-class business operating standards while integrating proactive sustainable development approach in our businesses. This is clearly evident during the ongoing COVID-19 outbreak in 2020 which created adverse impacts globally. But our Group pre-anticipated such an event and could effectively implement a series of control measures to mitigate such risks; for instance, policy for employees to work from safe locations (such as their homes, with provision of adequate work equipment), and outbreak prevention protocols. These action plans hence enabled our business continuity without any interruption while we could achieve remarkable operating business results as well as continued our corporate social responsibility (CSR) activities.

**Delivery of innovative solutions for sustainable living of all in society**

TIPCO  
ASPHALT

### Creating Shared Value: CSV

TIPCO Asphalt Group implements sustainable development approach through creating shared value (CSV) with expectations on long-term positive results as these involve utilization of the Group's knowledge and expertise to resolve social issues, hence benefiting all relevant parties.

#### Review on products demands, customer needs and new markets

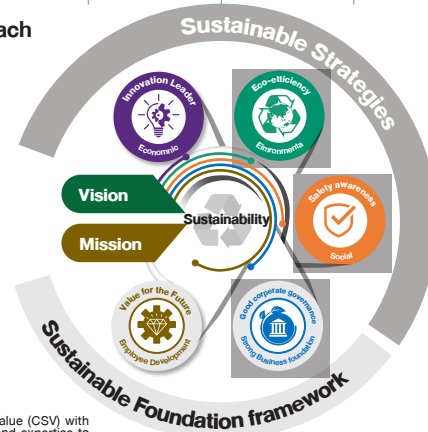
- Develop products and services that are easy-to-use, fairly-priced, and accessible by society/community. For instance, ready-mixed asphalt for pothole repairs. This product offers accident-preventing solution that anyone can conveniently apply on road surfaces while it can be further developed to accommodate various needs across different locations.
- Develop product packaging that suits different product needs and budgets.

#### Efficiency Improvement across value chain

- Develop and improve sales process and transportation to ensure prompt/on-time delivery with minimal errors through implementation or development of modern technology to accommodate the needs of customers and relevant stakeholders more efficiently.
- Utilize organization's knowledge and expertise in resource management with maximum efficiency and effectiveness across value chain.

#### Collaboration on social/community developments that benefit our businesses

- Promote and provide knowledge on road use and general safety for community, with focus on children, youths and those individuals whose jobs directly involve road usage; for instance, drivers.
- Promote safe road travel to minimize road accidents, which is considered one of the main causes of casualty in the country as well as worldwide.
- Provide vocational training on automotive maintenance, in conjunction with the Department of Skill Development.



## Overview: TIPCO Asphalt Group's Sustainable Development Strategies

### Inspiration on sustainable development

We aim to become a sustainable organization in accordance with our key strategy (#S6. Sustainable Organization) which is one of our 6 core corporate strategies. In order to achieve that, we constantly promote new solutions that utilize innovations/modern technology together with our corporate responsibility to enhance our economic successes.

### Execution of strategies

With our objective to become a sustainable organization, we implement our strategies across 3 dimensions; namely, economic, social and environmental together with good corporate governance and human capital development. Our goal is to deliver added value to our customers, relevant stakeholders, communities that we operate in, and our company. Also included are minimizing environmental impacts and creating mutual relationship with alliance for social development.

### Target Setting

Our long-term goal by year 2030 is to create **"10X value"** from our products and services including work process management to minimize impacts to the environment and society. We named this target as '10x growth strategy'

### What we prioritize...

#### Strong foundation

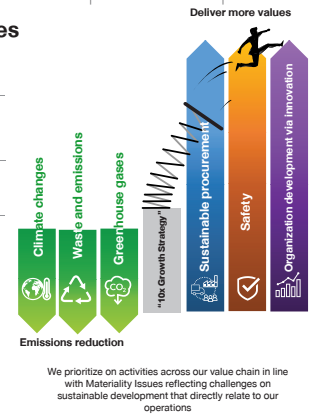
We establish a strong foundation, with long historical records of business successes. These prove that **'we are on the right path'** toward our long-term goal by year 2030. We will continue to constantly develop and improve our work efficiency in the future.

#### More participation

We develop and promote our employees on sustainability, to ensure their understanding that leads to actual implementation effectively. Our distinctive results will come from dedication, utilization of our skills and expertise while encouraging participation from all employees in the organization.

#### Result maximization

We strive to obtain maximum participation from all employees, to ensure we can effectively handle any global challenges while continuing to deliver our best results. This can be achieved through knowledge sharing to all employees together with raising their awareness on sustainability.



### TIPCO Asphalt Group: Implementing Sustainability

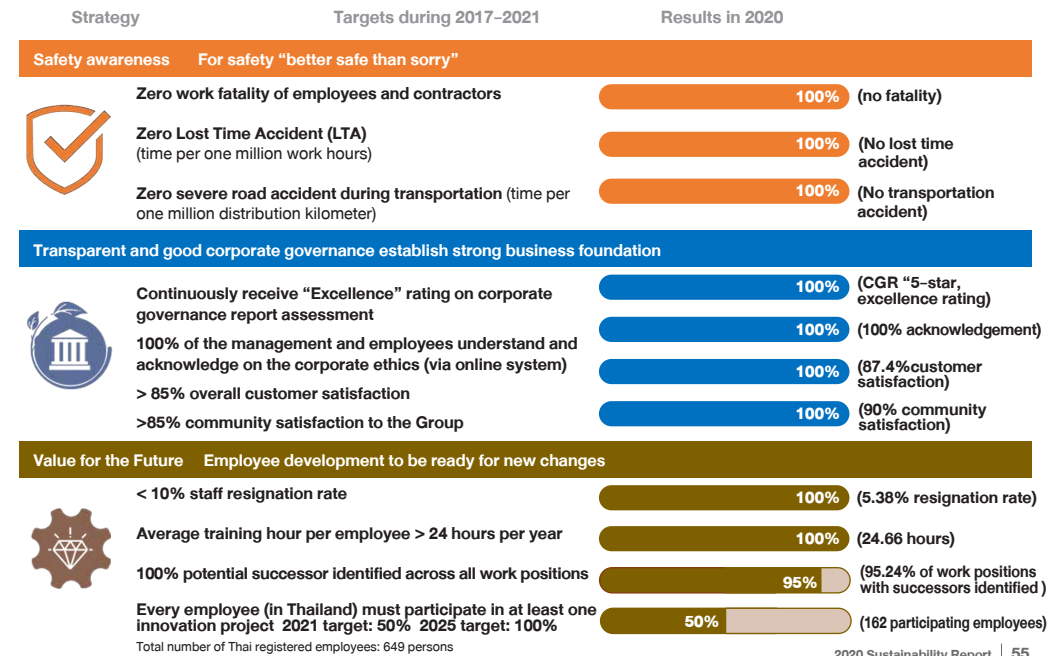
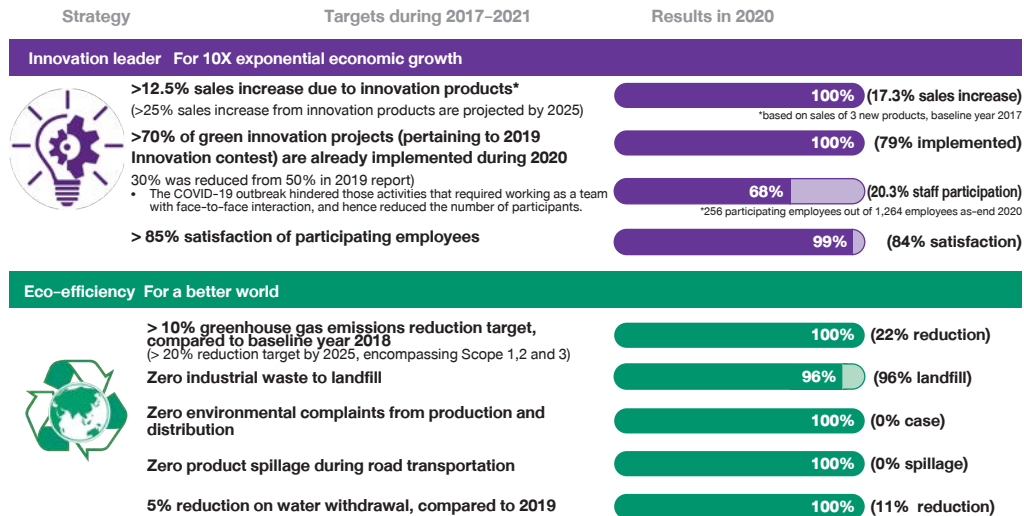
To drive corporate sustainability in an organization is quite a challenge for most companies, but this can be effectively executed and managed. We established a strong foundation through forming groups of high-caliber employees who are interested in sustainability philosophy, and can serve as SD role model to raise other employees' awareness, by knowledge-sharing and activity participation during in- and after-

work processes to maximize our employees' participation and further expand across the whole organization and hence achieving the most benefits and personal pride of all employees and ultimately lead to embedding sustainability in our corporate culture to become a sustainable organization.

















## Sustainable Development Goals and Results in 2020

TIPCO Asphalt Group first developed a 5-year sustainable development framework in 2017. Under this framework, 3 pillars correspond to sustainable development strategies while 2 foundations are designed as strong support for managing and supervising business operations. There are 11 key goal indicators altogether while the Group added some secondary indicators that can measure operational results in response to stakeholder expectations and to the United Nations Sustainable Development Goals (UN-SDG) in 2020.

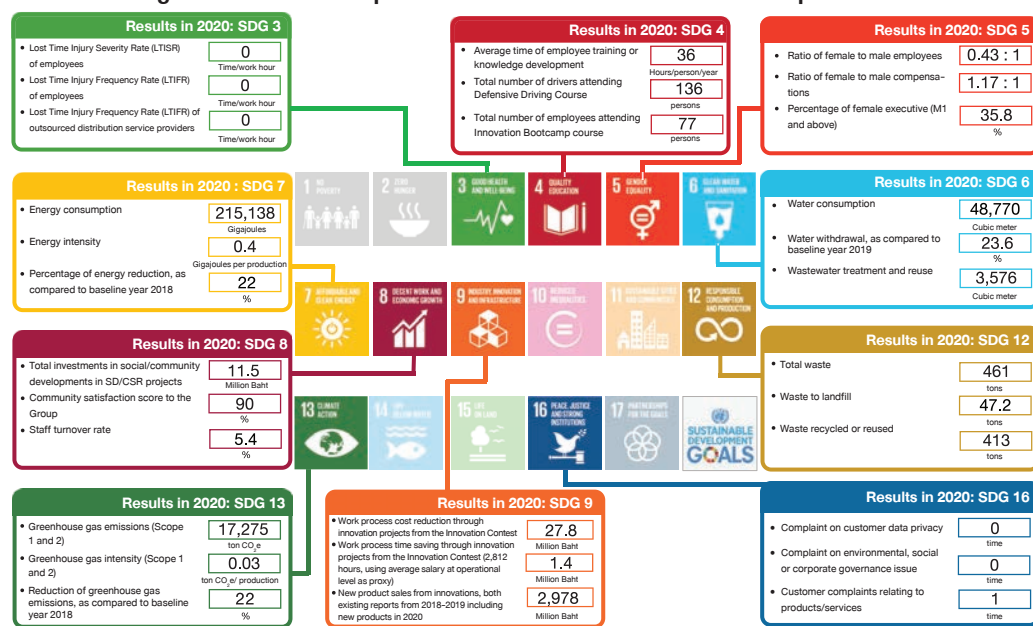


## Sustainable Development Results to Support the UN Sustainable Development Goals: UN SDGs)

In 2020, TIPCO Asphalt Group set sustainable development goals across 3 SD strategic pillars; namely economic, social and environmental including two foundations on good corporate governance and human resource development to ensure all employees work at their greatest efficiency. There is a total of 15 UN-SD goals, each of which corresponds to our key materiality issues. In 2020, 10 goals are presented within the scope of this Report, with the hope that the Group will be able to further develop and expand work collaboration to achieve 15 and all 17 goals, by 2025 and 2029, respectively.

 <b>Innovation Leader</b> We encourage our employees with their creative thinking through Innovation Bootcamp 2020 and the annual Innovative Solutions Award 2520 to promote new learning and innovation at the corporate level.	<b>113,966</b> Sales volumes (tons) from innovation which generates consistent growth and registers around 32% of total sales.	<b>27.8</b> Total work process cost reductions resulting from 32 innovation projects (out of 133 projects) in the 2019 Innovation Contest, each of which received one full year of project execution and follow-up.	<b>2,812</b> Work time saving resulting from Innovation Contest. If calculated based on average employee salary, this would yield an equivalent of 101.2 million Baht cost saving.	 
 <b>Eco-Efficiency Operations</b> We manage environmental and climate change impacts mostly through fuel consumption efficiency improvement including use of alternative energy initiatives across production processes while promoting circular economy.	<b>22 %</b> Greenhouse gas emissions reduction, as compared to baseline year 2018	<b>22 %</b> Lower energy consumption, as compared to baseline year 2018	<b>4 %</b> Ratio of waste to landfill	 
 <b>Safety Awareness</b> We promote awareness and instill culture of safety to ensure all employees understand the concept and adjust their behaviors or even lead others in the area of safety.	<b>0</b> No employee with illness caused by work	<b>0</b> No lost time accident or fatality from work at plants	<b>0</b> No lost time accident or fatality caused by product delivery outside the plants	 
 <b>Transparency Good Corporate Governance</b> We implement the philosophy of corporate ethics and transparent business conduct and operations. In addition, we fully comply with prevailing laws, regulations, methods, and standards set forth by the regulators and respect international practices.	<b>5 stars</b> Good corporate governance assessment	<b>81 %</b> Sustainable development assessment of listed companies, by The Stock Exchange of Thailand	<b>0</b> No violation of human rights, with no whistleblowing report on social, environmental and corporate governance case	 
 <b>Value for the Future</b> We invest in employee development through knowledge training courses, provision of access to necessary resources as well as creating safe work environment in order to nurture their innovative ideas so they can perform their jobs with fullest potential.	<b>95 %</b> Succession planning to ensure adequate human resources with high-caliber talents	<b>36</b> Average employee training hours via online or traditional 2020 format	<b>5.4 %</b> Total staff resignation rate in 2020	 

## 10 Outstanding Sustainable Development Results for UN Sustainable Development Goals in 2020



## Sustainable Development Roadmap

### Lay foundation (2016–2018)

- Good corporate governance, as foundation for future sustainability
- Effective risk management, with execution according to plans
- Setting of sustainable development goals, and clear communication
- Education of the team and progress towards common goals

### Drive sustainable business (2019–2021)

- Management of sustainability materiality issues
- Formulation of policy and strategies to ensure continual business growth
- Stakeholder engagement while proposing mutual benefits

We are here in 2020

### Leverage on sustainability (2022–2024)

- Creation of more value-added products and services via innovative solutions
- Enhancement of work processes to sharpen competitive edge
- Strategic data disclosure, to enhance business confidence and form strong business alliance networks
- Instillation of sustainability DNA across the organization

### Progress towards sustainable business (2025 →)

- Highly adaptive in any situations
- Recognition of new risks
- Innovations in response to the future
- Continual growth with social and environmental advancements

## Achieving the Goal to Become a Sustainable Organization

TIPCO Asphalt Group is confident that our products, services, and work processes are not only consistent with standards but also constantly improved upon above normal standards of the industry sector. Our strong commitment to meet customer expectations serve as a basis for product delivery safety. Our high standard of operational practices results in high work efficiency, with minimal loss and sharpens our business capability that leads to more profits, organizational development and more trust from customers and stakeholders.

All employees and the management dedicate ourselves to develop the Group towards becoming a sustainable organization, with business conduct that promotes and is consistent with the United Nations Sustainable Development Goals (UN-SDG). **This Sustainability Report summarizes the results from our sustainable development initiatives, with an aim to improve the quality of life for all in the society.**



## Scope of Sustainability Materiality Topics and linkage to the United Nations Sustainable Development Goals (UN-SDG)

To deliver sustainable living for all in the society, through innovation solutions





- 
- Pavement Excellence Center
  - Environment-friendly Products and Services
  - Innovation Culture Incubator

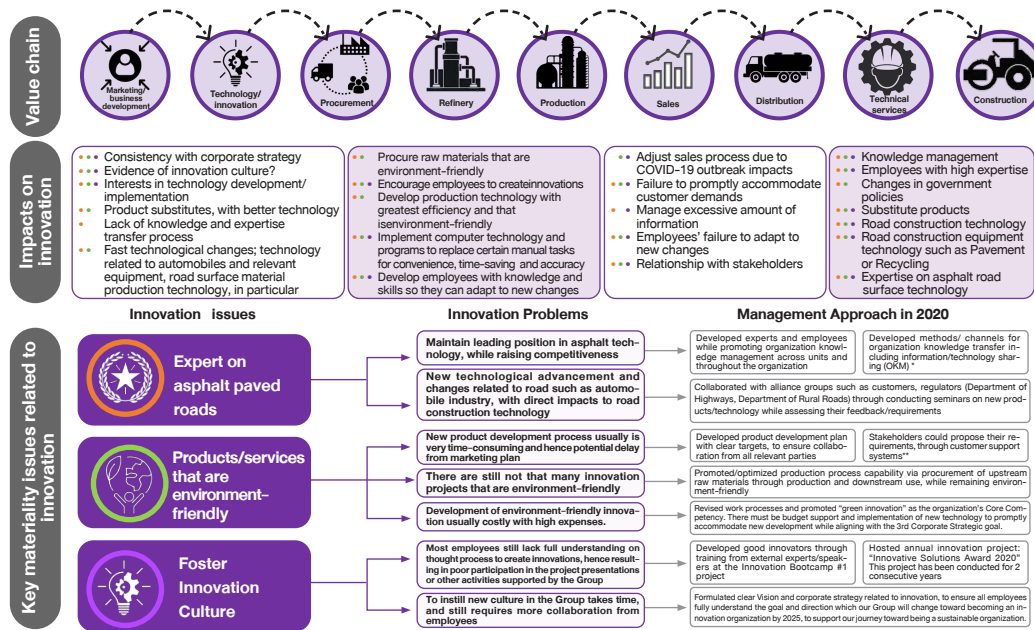
*For 10X exponential development  
Becoming*

Economic

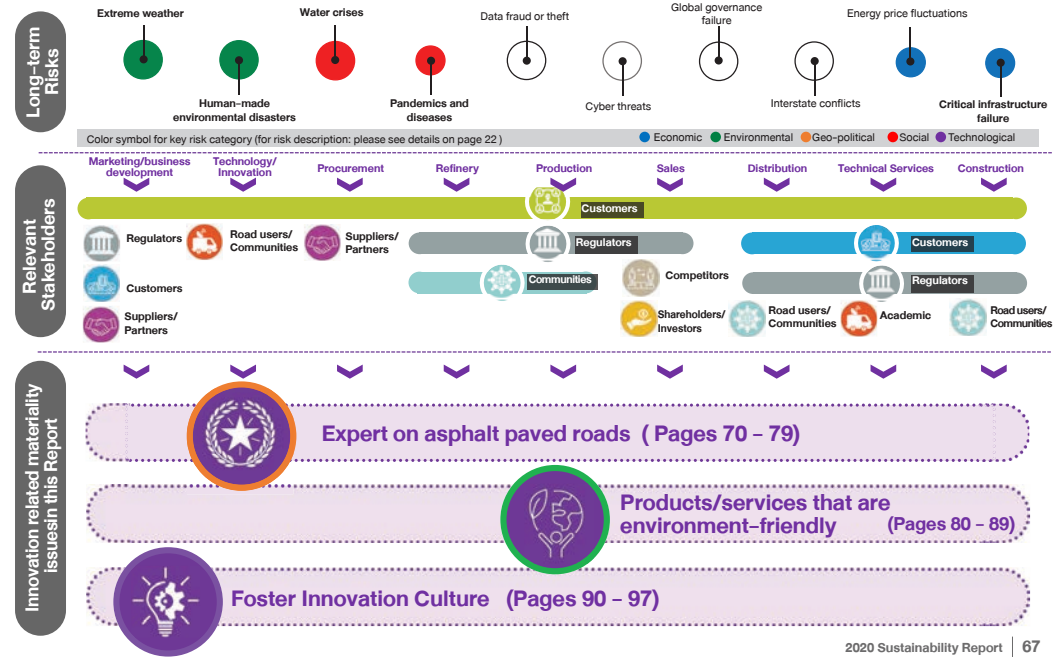
Innovation  
leader



## การวิเคราะห์ห่วงโซ่คุณค่าและผลกระทบด้านนวัตกรรม ของกลุ่มบริษัททีพีเอสฟิลล์



## Innovation related materiality risk factors: impact analysis on the Group's businesses



## Development and promotion of innovation of TIPCO Asphalt Group

TIPCO Asphalt Group is the leader in asphalt innovations which we constantly prioritize to maximize our competitive edge and business growth potential in the long run. Our Vision 2025 corporate strategy also **focuses on delivering innovations beyond products**, the strategic goal which the Group communicates to all employees to ensure their involvement in our business and meeting of targets at all levels as planned. The Group also develops a strategy on innovation while utilizing internal communication as the key channel to ensure all employees work in full alignment.

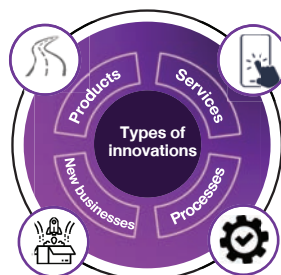
In addition, our sustainability development strategy accommodates the corporate strategy, with **"Innovation Leader"** as one of the key strategic focal aspects. The Group promotes innovations not only in work processes within the organization but also in collaboration across organizations. These innovations include new, creative ideas through new methods, or they can be new ways of thinking, or production to create more added value for the business. The ultimate goal of innovations is to initiate positive changes towards a better direction, with encouraging more results while maximizing benefits to the society.



You can scan QR Code to access our Innovation Policy



You can scan QR Code to access details on Innovation Culture support



Types of innovations

### Benefits to business



#### Create differences

Use of innovation to create distinct features in products and services; in particular asphalt which is well recognized as 'commodity' product that cannot be differentiated through branding strategy. New innovations could then better accommodate the needs while creating differences that allow customers to recognize the brand image as an innovation leader.



#### Improve sales and market share

Asphalts are known to be more 'stable' products both in term of new product features and applications. But amidst this digital era, product innovations are designed to better accommodate more key requirements such as safety, cost-saving, longer product life-cycle. These features will greatly allow the Group to gain more market share and create new market opportunities.



#### Maximize work process efficiency

Work processes are different across companies but most of them can be further improved for optimal efficiency, work time reduction and cost saving. For any work operations, there are several factors involved such as machine/equipment, employees and work processes. If all employees are willing to improve their own work, efficiency enhancement will follow. The Group adopted the TPM system to improve work efficiency (details on page 224)



#### Increase survival and adaptation

Most businesses currently encounter several challenges such as global warming. These create direct impacts to the Group's operations which can be resolved through innovations. Innovations not only allow us to mitigate the impacts but also encourage new product developments that can resolve climate change issues and help societies and the environment, accordingly (please see project details on page 85 and 111)

\*Product categories that are similar in features or properties, or exhibit such negligible differences across different brands.

\*\*TPM – Total productive maintenance

## Innovation Development Guidelines Aligned with Corporate Strategy

The Group establishes the following guidelines to become an innovation leader of asphalt business:

- Analyze all work processes that the Group is currently adopting to see whether they create any potential risks, or adverse social or environmental impacts. Also included are searches for solutions to mitigate such impacts. In addition, the Group thoroughly considers work processes in detail across all aspects to identify potential opportunities for business innovations that can resolve those issues.

- Share innovations with social and environmental benefits, serving as role model example to encourage other businesses and entrepreneurs to follow.

- Search for solutions, constant innovation development for new product opportunities that support the Group's business growth while fully accommodating requirements from customers, contractors, and other relevant stakeholders across business value chain

- Commit to becoming a Data Driven Organization utilizing business information for maximum efficiency in business decision making process through large information database to steer towards business, economic, social and environmental benefits while data-driven innovations can efficiently accommodate all requirements, with alliances, partners, and relevant stakeholders across business value chain by working in full alignment.

### Developments and promotion of the Group's innovations



#### Support from the Group and the Top Management

The Group promotes innovation at all levels; from the Board of Directors who approve:

- Corporate strategy: Strategic goal on "Innovation Beyond Product"
- Sustainable strategy: With "Innovation Leader"

These strategies are thoroughly communicated to all employees and key stakeholders, to ensure their participation and mutual benefits.



#### Promotion of innovation culture and knowledge

The management conducts annual innovation contest (during 2019-2020, for 2 consecutive years) under "Innovative Solutions Award" to encourage and promote employee participation along with the "INNOVATION BOOTCAMP" project to promote creative thinking and thought process development of employees, through coaching sessions by external speakers.



#### Effective resource management

The Group formulates a policy and guidelines on innovation culture, with Human Capital Management (HCM) department as key owner to instill and drive innovation culture and development. The Group also establishes definition of innovation for the organization, to ensure participation from employees at all levels.



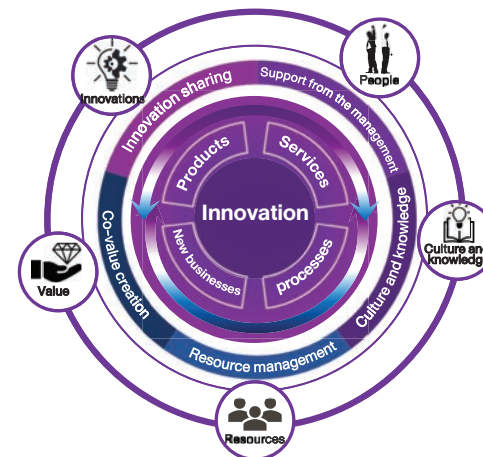
#### Value creation from innovations

The Group selects some of the employees' innovation projects to implement, with constant follow-up, result monitoring and improvements; in particular, those innovation projects pertaining to processes that involves highest number of projects submitted to the contest, several of which have been implemented to actual operations which resulted in production cost reduction, work time-saving, to enhance overall efficiency (please see details on page 93).



#### Acknowledgement and sharing of innovations

At present, the Group only internally communicates innovation projects as some of the ideas are special techniques specific to asphalt business. These generate more interest from employees to participate in innovations, that will ultimately help our businesses to grow sustainably.





# Pavement Excellence Center

## Results from key sustainability development materiality topics in 2020

**Expert in asphalt road surface paving**  
TIPCO Asphalt Group develops knowledge and technology

To become **“leading organization”**  
that can utilize our knowledge and expertise  
through crisis times

**THE POWER OF  
EXPERTISE  
A BETTER LEADER**



**For more  
than 40  
years**

**Asphalt  
expert**

**40 years of excellence  
It's in our DNA**

With more than 40 years of experience in asphalt business, TIPCO Asphalt Group constantly develops and improves asphalt quality to suit road applications **in all weather conditions in Asia region**. We adopt high standards for all asphalt use on road paving while **implementing modern technology** in collaboration with the Colas Group from France, our business partner that pioneered high road technology application such as the electric Wattway road. In addition, the Group utilizes technology in **development of asphalt road surface that exhibits highest level of safety features**.

We also **focus on driving our businesses through innovations** which allow us to experience exponential business growth. Proactive work approach is also implemented to ensure maximum efficiency across all units and steer the Group through crisis times and global challenges. Adoption of digital technology in work processes to better accommodate customer requirements and to minimize service errors, hence producing lower costs, more efficient work time saving across supply chain while raising the Group's competitive edge and employees' capability to utilize new technology in their "New Normal Transformation" work practices.

The Group realizes our responsibility to share new knowledge and modern technology in asphalt business. We host annual technical seminars for key stakeholders, such as civil engineer groups who design roads and road contractor customers to ensure the nation's basic infrastructure developments are carried out using the best technology, with greatest road safety and regular maintenance. The Sustainability Asphalt Total Solutions marks a great innovation of comprehensive asphalt road construction and maintenance.

### Key changes in 2020

- In 2020, the Group deemed it necessary to change the method of conducting annual seminars for knowledge and technology sharing, due to COVID-19; as follows:
  - General road knowledge sharing sessions through online channel.
  - As for advanced technology and knowledge seminars, the Group still hosted the sessions via in-person meetings with presentations, Q&A sessions, and demonstration workshops. But we also implemented strict COVID-19 prevention protocols during knowledge-sharing session, lunch break, and traveling.

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### Results in 2020

- A presentation on asphalt road surface application including safety management technology to government agencies via in-person seminar meeting with COVID-19 prevention protocols
- 20 knowledge-sharing sessions on asphalt application to road contractors by Technical Services team via online channel
- Received 96.8% satisfaction survey score for Technical Services



### Targets

#### 2020

- Annual "FUTURE ROAD" knowledge-sharing seminar on modern knowledge for road design experts in government agencies, and road contractors
- 20 knowledge-sharing sessions on asphalt application techniques for our customers nationwide.
- Received greater than 85% satisfaction survey score for technical service on asphalt research and testing

#### 2025

- To be knowledge portal for asphalt road construction and maintenance that can accommodate any requirements. This is conducted in conjunction with the Organizational Knowledge Management
- To serve as comprehensive end-to-end service center; i.e., from asphalt refinery, production of asphalt products across all standards, down to recycling businesses.



### Future materiality trends on road construction

- 1 Safety**  
Focus on road design that incorporates more safety features such as road surface with more friction property or utilize special formula asphalt with more adhesion property that produces road surface with more rough area and hence more safety for road users.
- 2 Recycle Resources**  
More trends on resource consumption for road construction have been clearly evident. As new road construction normally requires natural resources, recycling has become an alternative approach for optimizing use of resources. In Japan, there are more than 60% recycling of road construction activities.
- 3 Performance: Durability**  
Modern road design must incorporate more road durability as the environment and climate have changed rapidly. In addition, more traffic loads and types of vehicles used on roads have also changed quite considerably that will impact the durability of the roads.
- 4 Infrastructure: Horizontal and vertical expansion**  
In the future, road design will change as more innovations will be implemented in new road designs to accommodate wider varieties of road use. For instance, more horizontal or vertical road expansion, as well as more complex integration of road networks with higher standards such as the motorways.

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## TIPCO Asphalt Group: Leading Expert in Asphalt Business in Thailand

The Group is the leading asphalt producer in Thailand and across Asia. With more than 40 years' of experience in Thailand, we optimize our work operations through innovations and efficiency, to deliver only the best quality products and services to our customers while taking into consideration of social responsibility and sustainable development. **To maintain our leading position, we rely upon our long-established skills and expertise including constant developments.**

With cooperation from our partner, the Colas SA from France, one of the world's leading companies in communication and transportation infrastructure construction and maintenance business, this strategic partner of our Group has empowered us to be able to constantly create and deliver high quality asphalt products and new innovations to our customers. The Group operates comprehensive asphalt businesses; that include continued product developments with focus on quality and reliability that earn great trust from users in both public and private sectors. We invest in a research and development (R&D) facility for product developments that are in line with Quality Management system and certified with ISO/IEC 17025 standard. The R&D unit is fully provided with sets of equipment/devices to conduct key tests such as Flexural Fatigue Test, that can determine the lifetime of Hot Mix Asphalt Road to accommodate customer needs across Asia Pacific region, and currently we are the only company in Thailand that is capable of providing this service.

The Group's products and services focus on high quality to ensure that all products from all plants possess consistent and top quality as per specifications prior to delivery to customers. Our goal is to become the market leader through high quality product offers while taking into consideration the possible social and environmental impacts from production processes; for instance, our management on greenhouse gas emissions, highly efficient production processes, energy consumption control, as well as waste management from production processes. Also included is the recycling of used or expired asphalt materials from paved roads or bridge surfaces. This is a shared common goal with the Colas SA that placed this objective under its major business development plan.

### Asphalt is well known as material that can be fully 100% recyclable and the Group is Thailand's top company for Recycled Asphalt Pavement (RAP)

Our economic, social, and environmental development philosophy is based on "3Rs" approach; that focuses on "Reduce", "Reuse" and "Recycle". As the world's natural resources become more limited, the Group realizes the importance of Recycled Asphalt Pavement that utilizes old materials from a road surface including asphalt through re-processing with addition of certain ingredients to improve properties with standard quality, prior to re-application onto the road.

There are 2 general Pavement Recycling techniques; namely, the **Hot Recycling** (enhance surface quality, normally applied to original road surface) and **Cold Recycling** (enhance base and surface quality, normally applied to original road surface followed by applying another layer of new road surface on top). Each technique can be further executed differently; i.e., "In-plant" (old materials from aging road surface can be re-processed and mixed at plant), or "In-place" (old materials are re-processed and mixed onsite). Which of this technique is applied depends on the work conditions of each construction site, with high consideration on preliminary survey of road surface, damages, and assessment of base-layer strength and traffic loads, to analyze and design construction plan, accordingly.



“

More than delivery of top-quality products, we realize the importance of efficient natural resource consumption, for a better world tomorrow

”

**Mr. Surapon Katekaew**  
Senior Technical Expert Engineer

With more than 35 years of experience with TIPCO Asphalt Group, Mr. Surapon's expertise is in technical service and domestic market business in Thailand. His area of asphalt product specialties are asphalt lines, oils, and special product as well as technical service, new product management while offering new technology to customers and related government agencies.

## Asphalt Concrete Road maintenance that is environment-friendly with Most Efficient Use of Resources

Road quality deteriorates along with extensive use, up to a point where the road no longer can be used with visible damages such as road surface peel off, pothole, deep tire mark, or crack line, hence causing inconvenience or danger to road users. Asphalt concrete road requires regular maintenance and repairs in accordance with guidelines set forth by relevant authorities. There are at present several techniques for maintenance/repairs, but most involve removing old road surface and re-applying with new materials; this method could waste some natural resources while the production on new applied materials also causes a high degree of environmental impacts as well as more burden on government budgets. These concerns hence force road maintenance/repair activities to optimize their use of natural resources in the most efficient way possible.

At present, the Pavement Recycling technique has been a popular method for road maintenance and repairs in Thailand. The technique recycles old road surface materials, to be re-processed for better quality and then re-applied back onto the road, hence improving the road surface strength and durability while minimizing use of natural resources, solving road construction material shortage, and maintaining same road level.

TIPCO Asphalt Group promotes our asphalt concrete road construction, maintenance and repairs utilizing Pavement Recycling technique, to ensure our most efficient use of natural resources. In addition, the Group has developed a team of experts who are knowledgeable in this area and provide support to our customers in understanding road maintenance and repair works, in accordance with government guidelines.

**In 2020, the Group provided more than 150,000 tons of products for road maintenance/repair projects under Pavement Recycling technique, representing 35% of total projects. This helped to reduce natural resource consumption for road maintenance considerably.**



## Colas SA: Our World Class Business Partner in Asphalt Innovations **COLAS**

For more than 20 years, TIPCO Asphalt Group has a strategic partnership with the Colas SA company limited (France): one of the subsidiaries of Bouygues Group, the world's leading conglomerate on construction materials business. As the Group's major shareholder, Colas utilizes its world-class expertise and leading innovations in asphalt business and transfers the knowledge and technology to TIPCO Asphalt; such as product management on asphalt emulsion, and modified asphalt. More importantly, **Colas exemplifies a business philosophy on sustainable consumption and production, in accordance with the UN-SDG 12.6**

Colas aims to become an innovation leader of "Promoting Infrastructure Solutions for Sustainable Mobility" through implementations of its innovations and R&D initiatives in product design and new solutions that accommodate mobility and public infrastructure system development that benefit users. Mobility is no longer restricted to moving from point A to point B, but also take into consideration of service expectations such as convenience, travel efficiency and safety, mutual benefits from public space sharing with intelligent connectivity which can be modified into different designs. These not only respond to goals on innovation development and sustainable mobility, but also accommodate delivery of new products and services to customers using modern production technology on products and services that can meet customer needs in the long-run, or new product lineups that can disrupt new changes in the market.

These distinct changes allow Colas Group to deliver great products and services, with consideration on climate change and environmental impacts.

Colas SA has placed top priority on innovations, R&D, and developments across other environment-related areas, including:

### Low carbon solutions

In order to respond to the global challenge of climate change, Colas formulated a strategic plan on carbon reduction in all of its operations.

In December 2020, **Colas announced a 30% (direct) greenhouse gas emissions reduction target (Scope 1 and 2), including 30% (Indirect) reduction (Scope 3a).**

During 2019-2030, Colas will implement a long-term plan for carbon reduction, effective from 2021 in conjunction with new solution developments that promote carbon reduction.

TIPCO Asphalt Group also implements a similar strategy on eco-efficiency that **focuses on the most efficient use of limited natural resources without any effect on the environment** (for details please see pages 100-137). **The Group utilizes recycling techniques** (on pages 74-75 and in the yellow image on the right) Colas uses remaining materials from construction projects from its subsidiaries including old asphalt from damaged roads to re-process it and re-apply to new road surface, which helps in minimizing waste accordingly.



**Low Carbon Solution**  
Use raw materials that come from nature

### Recycling economy : Local sourcing of raw materials and zero waste management



**Innovation is the true game changer.** Business accomplishments benefit from creating new things. We preserve our core philosophy of being a pioneer in continual developments of new products, processes, and innovations. Research and development are our DNA

### Mr. Xavier Guyot

Senior Manager, Product research and development

Mr. Xavier supervises product research and development unit for Asia Pacific region. His role also includes quality control in accordance with product standards and local regulations. Mr. Xavier also serves as coordinator for Colas (France) in terms of asphalt technology development and knowledge transfer

### Colas' research and development on innovations focuses on the following key areas:

- Products and techniques such as Hydraulic Binders low-carbon cement and cement products that use Bio-Sourced Materials, the Warm, Semi-Warm and Cold Mix techniques, Road Recycling including technique to add more recycled materials in the Product Mix.
- Sustainable mobility.** Sustainable mobility solutions developed by Colas take into **consideration of any potential impacts to environment**, energy consumption and road users' convenience, road safety, as well as customers' budget. For instance, the Cool & Low Noise Asphalt project, Mobility by Colas solutions, Flowell Dynamic Signaling Solution and Wat-tway Pack local energy autonomy solution through Wattway photovoltaic road surfacing.
- Intelligent road network development: Colas uses all its expertise and knowledge in the design of traffic service system that allows relevant government agencies to better manage traffic controls in city areas more efficiently. The project utilizes advanced digital technology in conjunction with work processes to create new services to customers.

It can be seen that Colas' **objective on innovation developments promotes sustainable consumption and production with lower energy** consumption through intelligent network of traffic management, use of low-pollution materials, low-temperature technique product application without greenhouse gas emissions and, more importantly, maximizing recycling activities to ensure most efficient use of natural resources.

TIPCO Asphalt Group benefits from this great collaboration on modern technology and knowledge transfer to help with the Group's developments for greater results. We target to reduce waste from road construction activities and expired asphalt products (asphalt road surface) as well as recycling waste from production processes (details on pages 124-131)

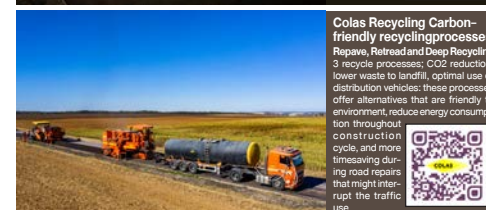
Colas, as one of the top 5 recycling companies in the world, adopts a recycling economy philosophy. As major producer and user of construction materials, Colas developed a technique to recycle asphalt road surface, including remaining materials from construction projects to be re-processed into new asphalt raw materials for re-paving road surface and repairing the base layer. This reduces the need for using new materials while the company also focuses on procuring materials from local sources.



**Bio-Sourced Materials**  
use raw materials that come from nature Bio-sourced materials mostly come from 'wood' or 'vegetable oil'. Photosynthesis converts atmospheric CO2 into these carbon-based materials throughout product life which supports carbon neutral concept. This initiative has been experimented since 2009



**Flowell Dynamic Signaling Solution**  
Co-developed by Colas R&D and CEA Tech, this dynamic signaling solution project allows better management of public space and city roads. Flowell installed on the road are flexible and can accommodate the community's expectation on real-time information.



**Colas Recycling Carbon-friendly recycling processes**  
Repair, Retread and Deep Recycling 3 recycle processes: CO2 reduction, lower waste to landfill, optimal use of distribution vehicles these processes offer alternatives that are friendly to environment, reduce energy consumption throughout construction cycle, and more timesaving during road repairs that might interrupt the traffic use

## Road Construction Expertise at International Standard

TIPCO Asphalt Group owns 2 subsidiary companies specializing in road construction; namely, Thanomwongse Service Co., Ltd (TWS) and Thai Slurry Seal Co., Ltd (TSS). TWS is a certified main contractor by the government, with great experience in large-scale road and bridge infrastructure construction projects. TSS operates as a contractor for complex, asphalt road and bridge maintenance projects that require high technology. TSS closely works with both public and private sectors and is capable of taking on road and bridge construction projects that are complex and require high technology during construction. Colas (France) also serves as a major shareholder in TSS and hence can provide support in term of world-class technology and expertise in road and infrastructure development projects. There is also close collaboration with the Group's research & development unit to ensure each product is properly used to produce the highest quality and best results.

### Project on road surface repair around the Grand Palace

The project involves re-design of modified road surface from the research & development unit, with final approval from Department of Ordnance, Army and Department of Public Work, Bangkok Metropolitan Administration. The project had to address the following challenges:

- This project on road surface repairs around the Grand Palace was to accommodate the royal funeral ceremony of His Majesty the Late King Bhumibol (Rama IX), with road surface must be able to handle great point load from the Royal Chariot with 4 inches wide steel wheels and body weight of more than 13.70 tons without creating any rutting trail that can interrupt the Chariot ceremony due to such weight.
- The renovated road surface must be extra smooth and highly durable to prevent the Royal Chariot from swaying due to its 11.2 meter height.



Readers can scan QR Code below to learn more about our greatest pride in the project of road surface repairs around the Grand Palace to accommodate the royal funeral ceremony of His Majesty the Late King Bhumibol (Rama IX), with our greatest attention to details and no room for mistakes.



You can scan QR Code to access our video clips of the project on road surface repairs around the Grand Palace for the royal funeral ceremony of His Majesty the Late King Bhumibol (Rama IX)



“  
We deliver Value... we  
all work with philosophy  
of responsibility to road  
user safety and  
highest-standard quality ...  
”

**Mr. Sanit Srisuchin**  
General Manager, Thai Slurry Seal  
Co., Ltd.

In his 14-year journey with Thai Slurry Seal, Mr. Sanit manages and participates in special infrastructure maintenance, both from public and private projects to deliver distinctive and high quality. He also manages regular road maintenance of public road projects with focus on quality, efficiency, and full deliverables according to project contracts.



Road surface repairs for safety efficiency; Chalyaphruek road, Nonthaburi province



Taxiway and runway road surface repairs, Suvarnabhumi International Airport

### Road surface maintenance, Rama IX Bridge

In 2020, the project utilized Para Slurry Seal technique for incoming traffic lanes. But for outgoing traffic lanes which had been used for more than 2 years, it required advanced maintenance technique. Key challenges of this project were:

- Management of high traffic congestion
- Road surface design with Fatigue Resistance property due to constant vibration of bridge suspension cables
- Application of Waterproofing Bituminous Membrane that required precise work procedure in conjunction with appropriate temperature of steel bridge structure

**Important note:** Special asphalt product design with Fatigue Resistance Mix and special technique cannot be accomplished without great support from Colas SA and effective management of bottle-neck traffic flows with zero accident

### Road surface repairs for safety efficiency; Chalyaphruek road

Road surface project utilized Premium Grade Asphalt Technique using Porous Asphalt that can drain excess water quickly

- Aggregates, that are suitable for porous asphalt application, need to pass gradation process to ensure proper sizes
- Need to control temperature and time delivery of mixture
- Attention to details during paving and compressing to ensure voids according to specifications

**Important notes:** Porous asphalt road surface exhibits rough surface, with high porous feature and hence can effectively and quickly drain water during- or after- rain. This special property enables safer driving with less slippery surface, reduces the light reflection while minimizing noise as the asphalt can act as insulation to absorb noise well.

### Taxiway and runway road surface repairs, Suvarnabhumi International Airport

High Performance Pavement (HPP) technique, with project highlights as follows:

- Project deliverables to the Airport of Thailand (AOT) since 2017, with surface repairs conducted in 2020
- Received high recognition from the Airport of Thailand (AOT) that led to implementation of "performance-based" system as standard criteria for selecting contractor since then

**Important note:** Runway must withstand heavy loads of airplanes, with durability against compression from airplane wheels during take-off and landing. HPP has more superior features than conventional asphalt, together with special paving application via Multiplex Beam with Unit Sensors that can double Stability, Stiffness Modulus while increasing Rutting Resistance by more than 4 times, and hence resulting in smooth and extra durable runway.



**Environment-friendly  
Products and Services**

## Results from key sustainable development materiality topics in 2020

### Focus on environment-friendly Products and services

**TIPCO Asphalt Group promotes and develops “Green products and services” for a better future, away from all crises**

Amidst the global climate change challenge, which is becoming more severe where we need to contribute to greenhouse gas emissions reduction, TIPCO Asphalt Group recognizes this problem and support developments of new products that are environment-friendly, without creating additional burdens to society.

TIPCO Asphalt Group ensures that all employees participate in our “Innovation Beyond Product” strategic goal, with considerations on new developments of services and work processes where each employee can come up with an initiative derived from their daily work including ways to further improve the work, with key priorities on reduction of natural resource use and minimizing emissions which are the main root causes of global warming.

In 2020, there were more innovation projects associated with the environment. Participating employees learnt new knowledge with new innovation mindset from the “Innovation Bootcamp” workshop. The employees placed top considerations on social and environmental aspects, where most of the innovation ideas focused on work process adjustments to minimize emissions, or operating time-saving which led to more efficient energy consumption. The Group will continue to promote this philosophy with more focus on environmental challenges.

At present, the world is facing several new challenges. In particular, the COVID-19 outbreak in 2020 drastically alter people’s lifestyle, with more adaptation towards new technology that could help drive business while raising our competitiveness. The Group has implemented several digital technologies and innovations in our business operations.

In order to respond to customer expectations including service efficiency improvement due to customer shift towards Smart Phone technology, the Group developed and implemented several mobile applications that provided customers with greater convenience and received good responses. For instance, a mobile application to facilitate sales orders and product delivery status tracking. There are still several more projects currently under development, all linked across our value chain, with the ultimate aims of lowering cost, better resource use, meeting customer demands, improving service capabilities, and delivering customer satisfaction (Impressive Customer Journey).

#### Key changes in 2020

- Full implementation of mobile application for “sales orders and product delivery status tracking” in response to the ongoing COVID-19 outbreak with social distancing protocol, for customers’ safety and convenience
- Raise employee awareness of innovations with high considerations on environmental and social aspects. The Innovation Boot Camp was conducted to coach participating employees with systematic ways for creating innovations, setting directions for actual implementation to yield most efficient results

#### Results in 2020

- Full implementation of mobile application for “sales orders and product delivery status tracking” with further extension to encompass management of delivery system
- Market trial of “Dust Control” product. Dust control is liquid asphalt mixture that, once applied to dusty road, can effectively capture, and prevent dust particles from diffusing into the air. The product works well in areas such as laterite road or construction sites. The Group began to achieve sales volumes since April 2020

## THE POWER OF GREEN, CLEAN BETTER, TOGETHER



#### Targets

##### 2020

- 10% increase in number of innovation projects, with focus on environmental and social aspects, from 2019
- 3 new environment-friendly, product market trials in 2020, with satisfactory sales volumes during market trial period
- Sales from innovations accounted for 15% of overall sales volumes

##### 2025

- Target sales from innovations to reach 25% of total sales volumes
- Become leader of environment-friendly asphalt products and services
- Instill all employees with mindset of environmental/social care, and implement this in work operations to ensure no impacts to environment

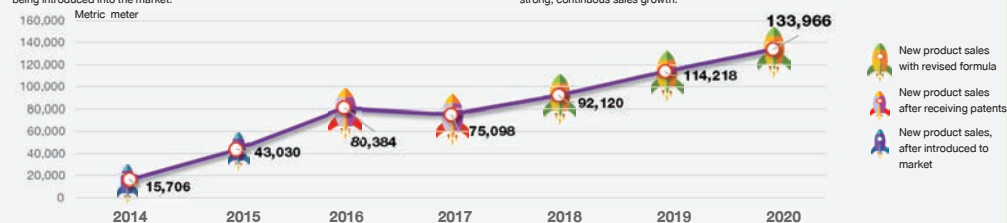
Type of Innovation	2018	2019		2020	
	Already Implemented	Idea	Already Implemented	Idea	Already Implemented
Products/services	1	8	7	1	2
Process	1	17	47	16	14
Process	-	2	-	-	1
Products that are environment-friendly	2	5	5	1	1
Processes that are environment-friendly	3	8	18	23	18
Social innovations that are environment-friendly	3	7	6	1	1
Total projects	10	47	86	42	37



#### Summary on Innovation Values from products developed out of Innovations in 2018 (Continuous development)

Asphalt industry is not a business that undergoes rapid change; therefore, new product development and market trial will take some time. 2020 will be the last year we report sales volumes of new product set; i.e., Para AC, EAP and Premix while these new products will begin to register sales growth after being introduced into the market.

Exponential sales growth was evident in 2016 after we received patents for these new products in 3Q-2015, followed by another strong growth again after the products were revised with better formulas. Low ammonia Para AC was introduced to the market since late-2016 which has enjoyed strong, continuous sales growth.



Best service offered to solve customers' pain points or dissatisfaction to ensure their greatest satisfaction together with excellent experience

## VOC

"Voice of Customer-Feedback from our customers and stakeholders are the most valuable inputs for our future work improvements"

From VOC to process development via innovation Pain Point



## "Sales Order and Delivery Status Tracking Application"

The Group conducted a marketing survey via 92 customer visits in 2019 to obtain valuable customer feedback for our future service development and improvement, to directly accommodate their needs.

From the majority of customers saying "The ordering process has many steps, and needs to waste time contacting to confirm" including "tracking the delivery status, there are many steps to know the answer", and the goal of, "Easy and takes less time"

The Group implemented digital technology to provide customers with more convenience while allowing them to access and verify their own transaction information such as available credit line or order status.

In 2019, an application was developed to help facilitate sales order for customers' convenience. This application allows our customers to place purchase orders from anywhere.

In 2020, the Group developed an application for product delivery status checking, hence removing all unnecessary time during telephone calls that involved too many steps for verification from different employees while allowing customers to check product delivery status by themselves. This also empowers customers to be able to plan their own construction work well in advance, with more accuracy.

This year, the Group integrates all communication channels including key contact units for our customers with "Just one simple click, to access all". We not only focus on product sales and services but also attempt to accommodate all of our customers' needs with continuous development to resolve all issues while anticipating any potential future concerns. All our employees fully realize that if we fail to fully accommodate constantly changing needs of our customers, we will not achieve our branding objective "Innovative solution partner" as our sustainable development value.



### Value gained from this initiative

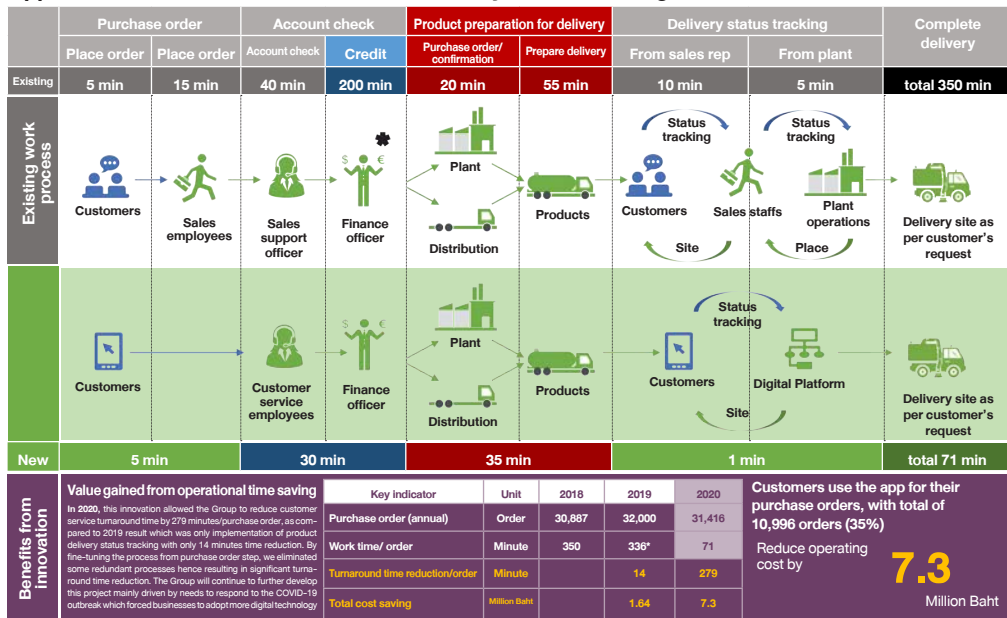
- Reduce operating cost
- Co-develop with customers
- Improve work efficiency (time saving)
- Reduce greenhouse gas emissions from operations
- Empower employees in work operations
- Revise/improve services



"We commit to create innovations with better social and environmental impacts for the world while our service processes will shift more toward digital platforms to achieve our objective on becoming innovation leader "



## Application for Sales Order and Product Delivery Status Tracking



\*\* Credit check and verification require attention to details and need to setup proper control measures during next phase

\*\* In 2019, the project was tested only on delivery status tracking, which yielded delivery time saving result from 15 minutes down to 1 minute.



“

This project was initiated so we can accommodate our customers' needs through innovation and technology that allow more convenience while directly meeting our customers' needs in line with the constantly changing business environment. The app becomes particular useful during this COVID-19 outbreak

”

**Mr. Chanchai Lohapratarn**  
Director, Domestic Market Department  
Responsible for marketing and sales in Thailand  
Mr. Chanchai is responsible for sales, marketing and technical services for customer groups in Thailand



“

Thailand Operations Department integrates data from Centralized Logistics system with the application of the sales team. During the first phase, our Centralized Logistics team can connect data pertaining to all delivery truck units matched to purchase order from each customer which hence allowed them to track their order delivery status. At present, we are developing several new initiatives that aim to provide more convenience to our customers

”

**Mr. Suphat Pipitawan**  
Director, Thailand Operations  
Responsible for production and distribution  
Mr. Suphat is responsible for production, warehouse and distribution via asphalt trucks in Thailand



“

This is a new breakthrough for our style of work, which can eliminate unnecessary steps while still keeping full controls. Credit and finance officers provide full support for this initiative so our customers can enjoy more convenience upon their purchase order placement. Finance department is also working on other co-development projects to further improve our work operations

”

**Miss Auchcha Ruttrakulthip**  
Director, Finance  
Responsible for credit and finance  
Miss Auchcha is responsible for the Group's customer credit management and finance matters in Thailand



“

I am very glad that TIPCO Asphalt came up with this app this year, as the COVID-19 outbreak forced several businesses to adjust their work operations. This app greatly provide me with convenience with user friendly features and requires less time to operate. I like this idea and do keep on developing new great things

”

**Mr. Veerapol Kerdpoo**  
Thienprasert Limited Partnership  
Road contractor in Lopburi. This customer provided feedback in 2019 including comments from actual use and information for future improvements

## Product Innovations that are environment-friendly

### “Prime Coat asphalt and Tack Coat solution (10 kg container) ”



You can scan QR Code to access our How to use Prime Coat asphalt and Tack Coat solution (10 kg container) applied during road surface preparation prior to paving with TIPCO PREMIX



You can scan QR Code for details on continuous innovations that provide convenience to retail users with no equipment. This is part of the annual Innovation Award 2020



#### Pain points:

1) Road surface needs to be clean prior to paving with asphalt



Prime coat asphalt is sprayed onto road surfaces that are compressed laterite

Tack coat solution concrete or asphalt paved surface

2) Using product in standard 200kg container with small, tight work area will cause some problems



Asphalt solution with standard 200kg container is quite difficult to pour directly

To open/close the lid of 200kg container is very inconvenient

3) Product storage longer than 7 days



Lengthy product storage without occasional rotation of container every 7 days will result in product slush

#### Solution guidelines:

##### Existing

##### Upcoming

- 1) Re-design of the bucket container with size suitable for general use with asphalt solution needs around 15-20 square meters
- 2) Easy to apply, with no remaining waste materials
- 3) Easy to use and transport
- 4) The 10kg container exhibits extra durability, passing the 1.8-meter vertical Drop Test. It is also easy to transport

Innovate more equipment that helps facilitate work under small, tight areas. These innovations aim to provide more convenience for users

#### Benefits of asphalt solution (10 kg container)



Streamline work process for contractors where they can work without equipment



Cost-saving on projects in small work areas or communities that require asphalt paving, with no waste materials



Achieve high efficiency application, can use instantly without needs to store the remaining portion

## Product Innovations that are environment-friendly

### “TIPCO Dust Control”



You can scan QR Code to access our Video on properties and how to use Dust Control

#### Pain points:

1) Small dust particles diffuse into the air



Dust diffusion caused by wind



Impacts to the local community residents' respiratory system

2) Local community residents can only do quick-fix, temporary solutions



Pour water onto the dusty ground. This only offers a short-term temporary solution



In certain areas, it is very challenging to find large quantity of water coupled with high cost

#### Solution guidelines:

##### Existing

- 1) Our special formula asphalt solution with extra small molecule with positive charges can penetrate and capture small dust particles which then aggregate them into larger and more heavy particles which become more difficult to diffuse into open air
- 2) Dust Control can penetrate deeper than conventional asphalt, hence resulting in better bonds between road surface molecules with more strength than other traditional road surfaces
- 3) No impact to environment and easy to apply
- 4) Help in energy consumption as there is no need to use water, and no need to re-apply everyday

#### Benefits of Dust Control



Reduce water consumption to pour onto the dusty road and lower energy use during water transportation



Minimize risk of respiratory disease to local community residents for their better health



Lower dust diffusion into nearby community



**Foster Innovation  
Culture**

## Results from key sustainable development materiality topics in 2020

### 1 Instill and promote innovation culture

**TIPCO Asphalt Group instills and promotes  
“Innovation Culture”  
to be different, under COVID-19 outbreak**

TIPCO Asphalt Group always places high priority on innovation. During 2018, we integrated innovation as one element of corporate strategy during our strategic review on Vision 2025 “Innovation Beyond Product”. Our key expectation is to instill an innovation culture for the organization including implementation of innovative ideas to business operations while encouraging employees to participate in these initiatives. The Group will benefit from businesses and profits in conjunction with our sustainable development policy that focuses on social and environmental aspects.

One of the key lessons learned from our first annual innovation award contest was the challenge in finding right topics and benefits from innovations. The Group then conducted the “Innovation Bootcamp” with coaching sessions hosted by external experts on innovation to train our participating employees on systematic innovation thinking, including presentation of the project ideas. In 2020, there were more than 50% of proposed innovation projects that exhibit high potential for further developments to generate new business models or profits while being fully aligned with corporate strategy and were selected through to the next round of innovation development stage.

In addition to innovation knowledge sharing, in order to successfully instill an innovation culture, employees must fully understand the innovation mindset. In 2020, TIPCO Asphalt Group prepared a survey on innovation mindset for all employees, both in terms of their behaviors and support of our organizational environment, to employees across all units at all levels. The survey will be launched in 2021 and it is considered as a key tool for the Innovation Roadmap 2025.

### Key changes in 2020

- “Innovation Bootcamp” project to prepare and provide knowledge to employees on their understanding of systematic innovation thinking including project presentation for approval
- Communication on innovation projects and new ideas including modern technology through podcast
- Support of the TPM project, with Nakhon Ratchasima plant as role model, and further extended to other plants

### Results in 2020

- From all projects in 2019 contest, 39 out of 133 projects exhibited added value through (i) 27.8 million Baht cost reduction, (ii) 2,812 hours of work time saving and (iii) 2 million Baht revenue from new products initiated by these innovation projects
- 79 projects were proposed in the Innovative Solutions Award 2020, with a total of 256 participants

## THE POWER OF INNOVATION A BETTER COMPETITIVENESS



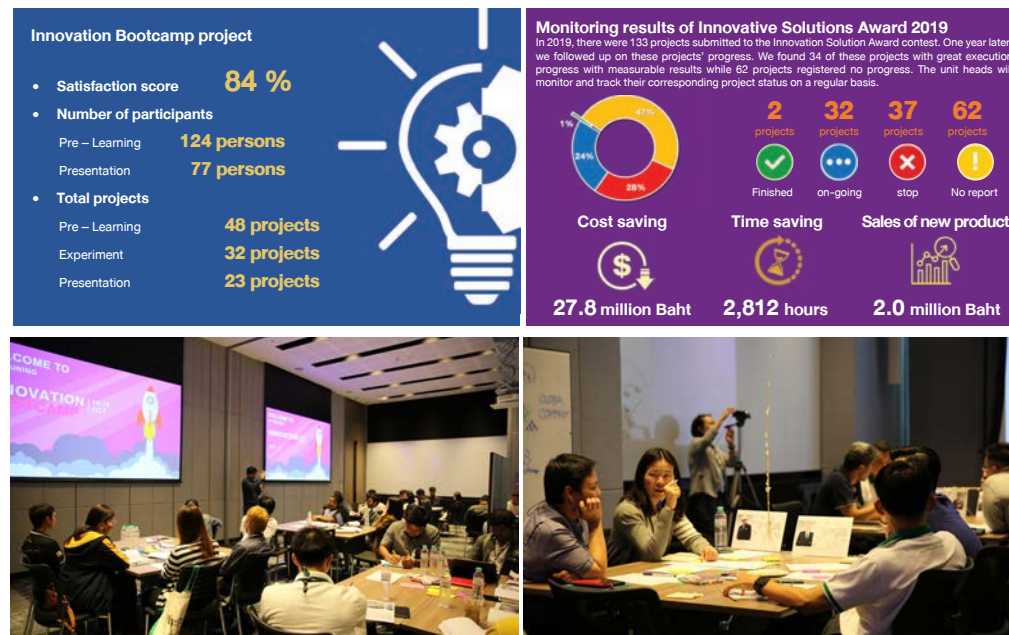
### Targets

#### 2020

- Training on systematic innovation thinking at Innovation Bootcamp project, for interested employees who further submitted their projects for the Innovation Solution Award > 50% of total participants
- 50% employee participation
- More than 90% project satisfaction
- More than 10 projects on ‘green’ innovation, or environmental and social innovations. More than 5 of which were already implemented in 2020

#### 2025

- Integration of ‘innovation’ into corporate culture; with >25% profit increase from innovation, as compared to baseline year 2018

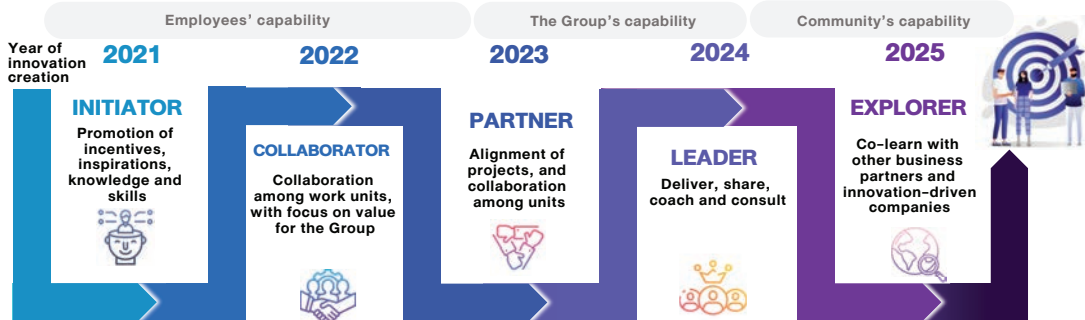


## Innovations from inspiration and experience

# INNOVATION ROADMAP 2025

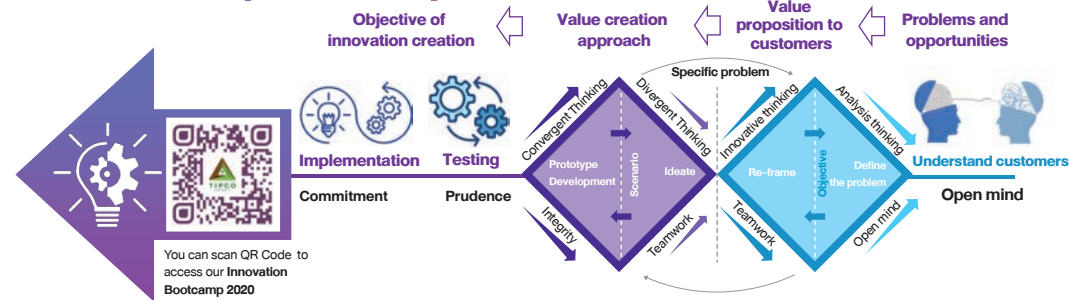
Since 2018 TIPCO Asphalt Group has integrated innovation philosophy in the Group's corporate strategy, with focus on establishing knowledge and foundation, full understanding and structure of innovations through Innovative Solutions Award while encouraging innovation thought process through Innovation Bootcamp.

But only basic knowledge is not sufficient for innovation creation with tangible business results and profits including overall social benefits. The Group formulated Innovation Roadmap 2025 to serve as a guideline for systematic innovation thinking and will be in effective by 2021. The roadmap focuses on employee skill coaching, inspiration, and incentives for employees to initiate and create innovations. In 2022, the plan will aim at innovation initiatives from mutual collaboration across units while employees can visualize benefits from such cross functional cooperation that seamlessly integrate and optimize multi-skills from various units. By 2023 the roadmap will focus on creating the organization's capability that can drive innovations across different areas where the Group operates while seeking external partners to further co-develop new innovations, both from business partners or from other innovation-driven organizations which will be the Group's ultimate target by 2025.



## Encourage employees to share new innovations together with continuous developments in innovation process

# TIPCO Asphalt Group: Innovation Creation Process



**Ajarn Torkiat Noisamlee – Activity Host Innovation Bootcamp**

"The Innovation Bootcamp plays such a vital role in innovation culture development. The activities will draw true potential from participating employees on creative thinking, together with knowledge, experience, and other tools to come up with new, creative problem-solving solutions while serving as a starting point to systematically drive innovations in the organization; from creating Innovative Mindset, promoting Innovation Thinking, and implementing Innovation Process. Our employees are the powerful core of this innovation development mechanism that drives continuous innovation development while the management shall behave as role model in searching for new creative ideas or trends to convince all employees that we are the organization that is ready to "open for changes" in order to improve work operations while reaping benefits from new business opportunities and becoming a sustainable organization, as per our corporate strategy."

**Mr. Chaiwat Srivalwat, Project Chairman**  
Chief Executive Officer, TIPCO Asphalt Group

I realize that to ensure sustainable development in our Group, our employees must be ready to cope with all the rapid changes and impacts at global scale. My support for our Innovative Solutions Award contest began in 2019. Since then, I witnessed continual developments, in particular, human development through Innovation Bootcamp project in coaching of innovation thinking to ensure our employees' full understanding of the meaning and goal of innovations. As for process improvement, we promote the Total Productive Maintenance (TPM) as the framework for other areas of developments. Developments in both innovations and TPM allow the Group to greatly reduce costs, process timesaving together with launches of new products and services. From a small step every month, and every year these efforts turned out to be such a great leap that can transform our organization through employees' thought process development in expressing their creative ideas with actual implementation for tangible results which supports our Group to grow sustainably.

## TIPCO Asphalt Group: Development and promotion of Innovation Culture in 2020

# INNOVATIVE SOLUTIONS AWARD 2020

2020 was the second year that the annual Innovative Solutions Award contest was conducted. The project took 7 months due to the COVID-19 outbreak, but we finally completed the project by April 2021 (via online channel) with live-broadcast of the project presentation stage that received great employee participation. There were 256 employees in this contest, representing 16% of total employees together with 79 projects submitted for the contest; 16 of which were qualified for the final round; and 8 of which won innovation awards (6 and 2 winning projects under new process and product innovation categories, respectively).

256

Participating staffs (person)

79

Projects submitted

### Employee participation 15% target\*



Total participating employees 18%



Total participating employees (From Thailand) 26%



Total participating employees (from overseas subsidiaries) 11%

\* Long-term target: All employees must participate in innovation projects by 2025

### Innovation categories under 2020 Contest

#### Product innovation

This year, there were 8 product innovation projects submitted, as compared to 14 during 2019. Nevertheless, each project could be further developed and was presented in the meetings.

#### Service & marketing innovation

This year, there were 8 service/marketing innovation projects submitted, as compared to 19 during 2019. But after coaching, these projects could be further developed. For instance, the project on digital application for sales order and product delivery status tracking which received more developments across our value chain together with other relevant work units, to ensure best, seamless service provision for our customers.

10%

10%

80%

#### Process innovation

This category registered highest number of projects submitted as they mostly concern employees' routine work operations which could be done themselves, or in conjunction with other relevant units to achieve better work results with continuous developments.

### 79 Total innovation projects under 2020 Contest

This year revealed lower number of submitted projects as compared to 133 in our first year of contest (2019). After the training on innovation thinking, our employees gained better understanding and could present more projects that enabled further development to create more added value.

## Bacteria Cultivation Project for wastewater treatment at KBC Refinery

**Issue:** Wastewater from refinery process caused contamination and bad odor to nearby community. Therefore, proper treatment is required prior to releasing wastewater back to nature. With conventional bacteria cultivation technique for wastewater treatment, if the bacteria does not survive the process, it would normally take about 3-4 months for full system recovery. In addition, KBC's water treatment system is very unique as there is no local wastewater treatment service provider with specialized expertise that can develop water treatment system in accordance with KBC's needs.

**Objective:** The bacteria cultivation project for wastewater treatment in the refinery focuses on separation of contaminated residues from wastewater utilizing bacteria organism while reducing time needed to use bacteria for water treatment. The research study aimed at the following:

- 1.) Types of waste that are suitable for bacteria treatment technique
- 2.) Bacteria cultivation method
- 3.) Chemical quantity that supports bacteria optimal growth
- 4.) Toxicity with adverse impacts to bacteria from new types of crudes

**Findings:** After 30 rounds of repeated experiments and research processes, the major findings were as follows:

- 1.) Bacteria cultivation with bacteria selected from the research study yielded types of bacteria that were mostly suitable for refinery operations, along with 40 - 50 % expense reduction as compared to traditional method using commercially available bacteria in the market.
- 2.) Bacteria's resistance and ability for wastewater treatment from new waste sources: The research found that utilizing 6 types of bacteria for wastewater treatment could significantly reduce expenses by 20,000-30,000 US dollars, as compared to traditional waste treatment method.
- 3.) 30% cost reduction on new bacteria feed, with 4 times faster results. This hence allowed time saving for bacteria recovery from 4 months down to merely 1 month.
- 4.) After 1 year of continued experiments, the refinery reaped 26,800 US dollar in cost-saving.

**Shared benefits:** Such remarkable success of this project can be further applied across bacteria-based, wastewater system of TIPCO Asphalt Group's plants to minimize treatment time while speeding up bacteria treatment efficiency, with lower cost.



- Climate Change
- Greenhouse Gas Management
- Effluents, Waste and Pollution Management
- Other Environmental Management
  - Energy management
  - Water management

*For a better world*

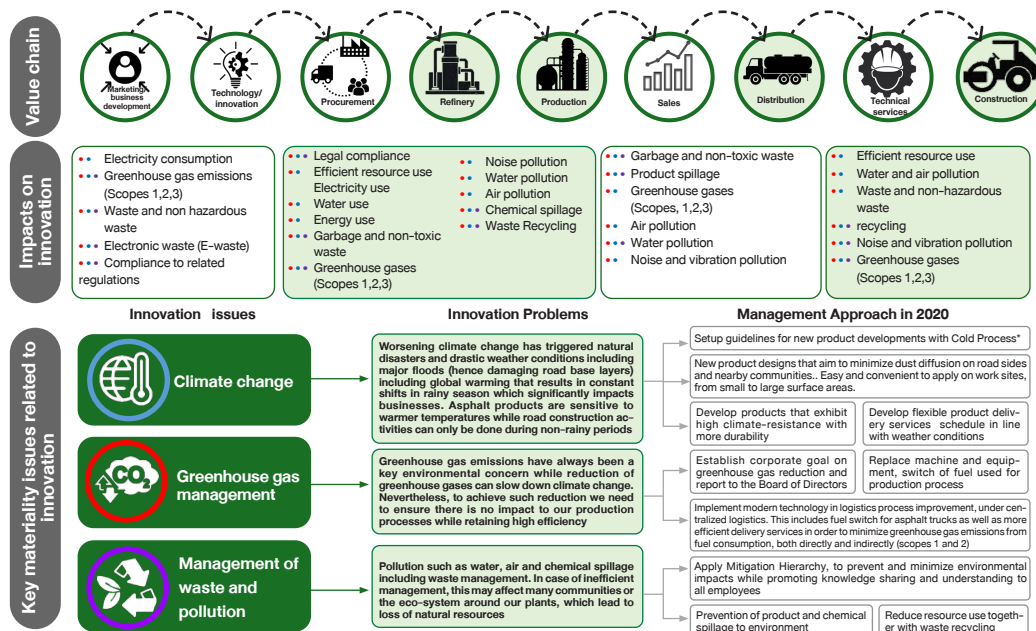
Environmental

*Managing*

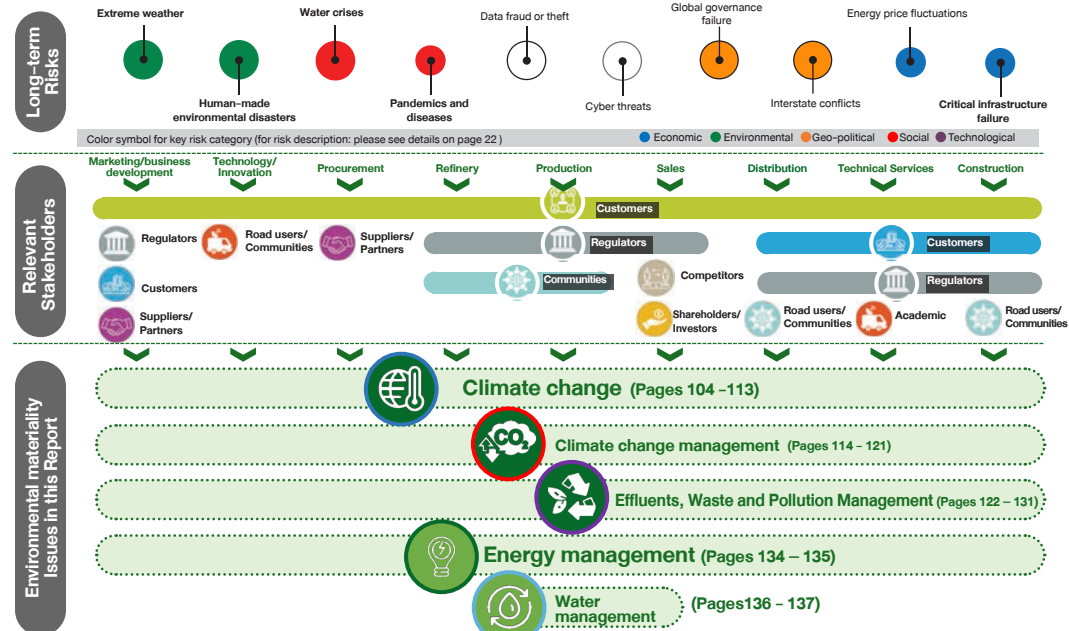
Eco-efficiency



## Analysis of Value chain and process impacts to environment ● Direct ○ Indirect



## Environmental materiality risk factors: Impact analysis on the Group's businesses



## Analysis on key environmental materiality issues



Eco-efficient  
operations

- Greenhouse Gas Management
- Effluents, Waste and Pollution Management
- Energy management
- Water management

Environmental  
improvement

Environmental  
protection

Social  
responsibility

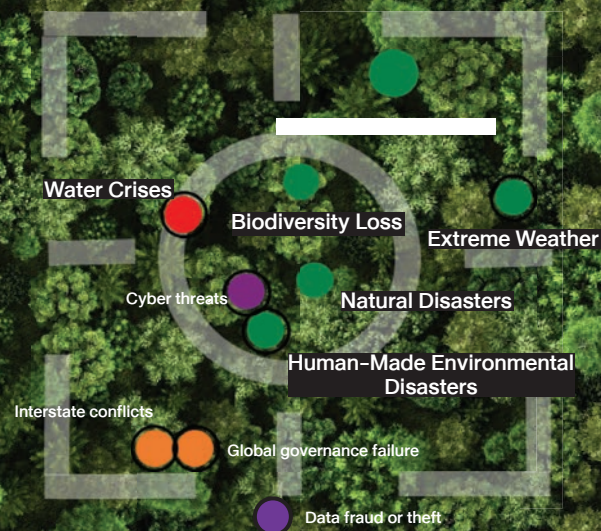
Safe and efficient  
products

Safe workplace

- Products that help with climate change
  - Dust control (please see page 89 for details)
  - Customer service via digital platform (please see details on pages 84-87)
- Products that are friendly to environment- Pre-mixed asphalt

- Wastewater treatment for water recycling
- Effluents, waste, and pollution management
- Fire and flood incident prevention system
- Emerging risk prevention systems such as the COVID-19 outbreak prevention, etc.
- Community relations and social activity care system

## Key global risks that the world will encounter during the next 10 years



## Challenges

### Climate change

Climate change has become an inevitable issue that significantly impacts businesses across several aspects, both directly and indirectly. The Group realizes this issue and places top priority on it.



### Greenhouse gas management



### Garbage, waste, and pollution management



### "Climate Change"

Together we can  
solve this



**GREEN  
Mission**

Go Green  
Go Clean



# **Climate Change Opportunities & Risks**

## Results from key sustainable development materiality topics in 2020

### Climate change

**TIPCO Asphalt Group is ready to deal with “Climate change”**  
Turn crisis into opportunity

According to the Global Risks Report 2020 published by World Economic Forum (pages 30-31), the top 5 global risks involve natural disasters that are becoming more drastic and severe, some of which were results from human activities. The global economy encountered more risks from interruptions caused by climate changes that are more extreme than previously expected, hence resulting in climate and season shifts, severe floods including drought due to higher temperatures. These events directly impact TIPCO Asphalt Group's businesses across its value chain as well as relevant stakeholders.

The Group recognizes this climate change challenge and adapts our work processes accordingly to ensure effective and efficient cost control, which directly contributes to the Group's work process management.

In addition, climate change creates impacts to community/society. The Group utilizes our business expertise for resolving such impacts that cause dust diffusion that adversely worsens community/society health conditions and way of life. This chapter will summarize projects that the Group co-develops with the MitPhol Company Limited, our partner, on experiments to resolve the issue of sugar cane dust diffusion during summer in communities near its sugar cane plantations.



You can Scan QR Code to access our Environment Policy

### Key changes in 2020

- Designed and developed DUST CONTROL special formula, which is environment-friendly for better adhesion on laterite road surfaces or parking lots, to minimize dust diffusion into the air
- DUST CONTROL is designed for application on any areas and is environment-friendly. Just mix it with water and it can be applied instantly. It is convenient as there is no need for pre-heating or toxic chemical additives
- Once completely dry, DUST CONTROL will enhance road surface durability, and will not dissolve when exposed to rainwater and hence is environment-friendly while creating no contamination to public water sources in nearby communities

### Results in 2020

- Helped the community by using water to pour onto road surfaces to suppress dust diffusion. Therefore, the community can utilize water for other purposes while promoting less energy consumption due to less needs to transport water on daily basis
- Promote better health among the community members, minimize potential allergy or respiratory related diseases in young children and the elderly in the community
- Reduce amount of dust diffusion deposited on houses and shops in the community, hence promoting clean community condition

# THE POWER OF MINDSET CHANGING LONGER LIVING, HAPPIER



### Targets

#### 2020

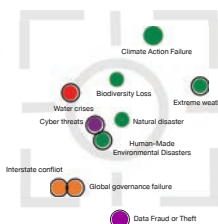
- Design DUST CONTROL to resolve dust diffusion problem
- Can be applied anywhere while being friendly to environment

#### 2025

- Setup targets for zero small dust particles in every community
- Promote conservation of water resources, with most efficient use



## Climate change strategy



Global warming and climate change have become key global challenges at national and international levels, with significant economic, social and environmental impacts. TIPCO Asphalt Group commits to minimize our greenhouse gas emissions from production processes of products and services, both directly and indirectly across our value chain.

At present, climate change tends to become more severe which results in natural disasters such as severe climate conditions, major floods, or drought. In addition, there have been pressure from investors who promote the concept of low-carbon economy as well as international regulations on greenhouse gas emissions implemented across countries, along with continuing consumer trend that prefer products that are friendly to environment.

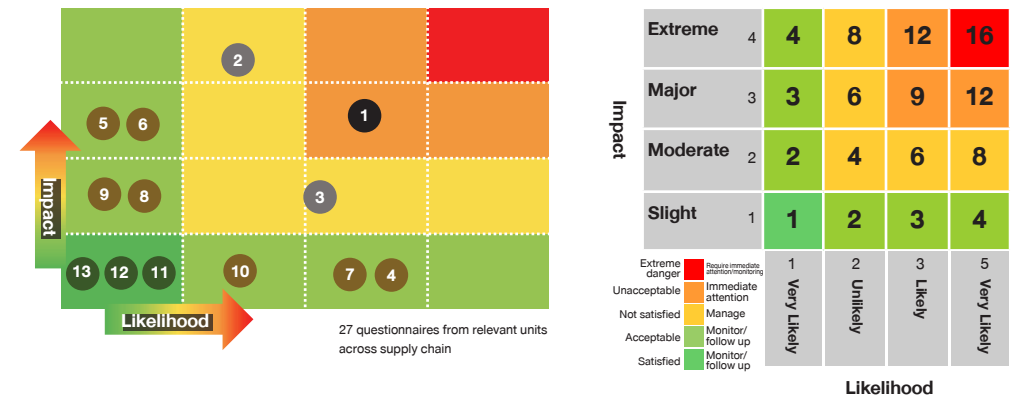
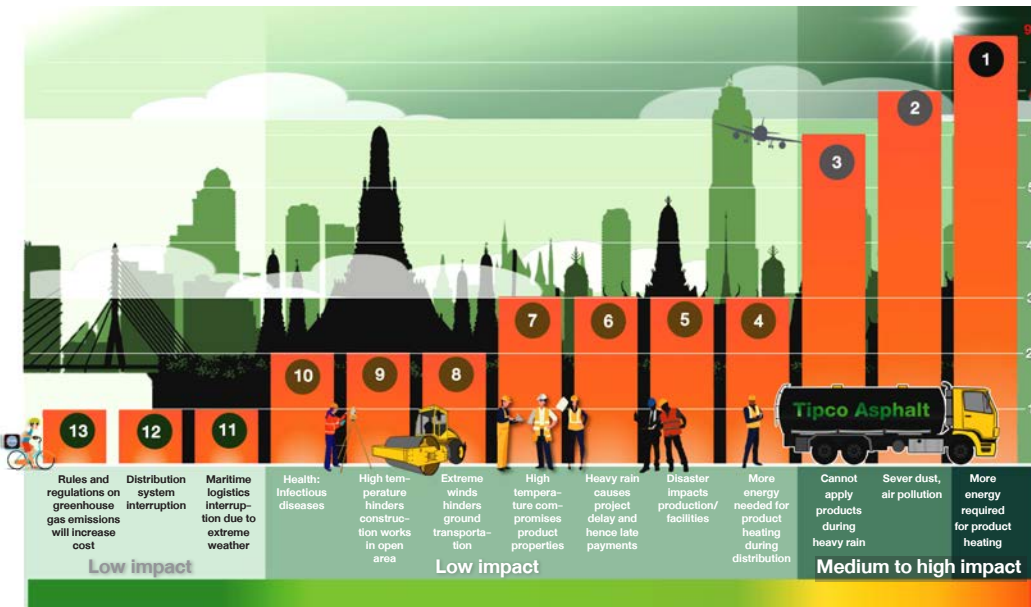
Such aforementioned factors serve as risks to the Group's businesses, both in terms of production and distribution of products as well as operational results and corporate image. The Group focuses on greenhouse gas management, while supporting Thailand's national target on greenhouse gas emissions reduction in accordance with the Paris Agreement within the United Nations Framework Convention on Climate Change (UNFCCC). The Group formulates our climate change and energy management strategy that demonstrates our long-term commitment to greenhouse gas emissions reduction under the UN Sustainable Development Goal 13: Climate Action, with guidelines to manage climate change in line with our Vision 2025 strategic plan.

## Climate-Related Risks & Opportunities

TIPCO Asphalt Group analyzes risk factors and impacts relating to climate change on the Group's business continuity through risk & opportunity identification, effects, and measure control in 2020, which are as follows:

Risks & Opportunities	Effect on the Company	Mitigation Measures
<ul style="list-style-type: none"> <li>Risk on compliance or market mechanism on greenhouse gas emissions reduction which might impact the Group's operating expenses</li> <li>Risks from consumer expectations toward products that are environment-friendly</li> <li>Risk from physical impacts due to climate change such as floods, season shifts, road damages from sudden storms that could lead to either negative or positive impacts to the Group's revenues.</li> </ul>	<ul style="list-style-type: none"> <li>Expenses, operating cost, and procurement of alternative fuels to reduce greenhouse gas emissions</li> <li>Corporate image on climate change management</li> <li>Expenses associated with new technology adoption for new product developments</li> <li>Capital expenditure on new product developments</li> <li>Lower product sales and revenues due to climate change which directly impact road construction and maintenance works of contractors</li> <li>Opportunity to increase sales and revenues for the Group due to damaged road surfaces after major floods</li> </ul>	<ul style="list-style-type: none"> <li>Set short- and long-term targets for climate change management</li> <li>The Group hired external expert for data audit pertaining to GRI 302, GRI 305 guidelines to ensure reduction of greenhouse gas emissions</li> <li>Formulate innovation policy while promoting innovation culture across the Group to encourage innovation of technology and new products</li> </ul>

## TIPCO Asphalt Group: Climate risk assessment on operations



## Climate change-related risks and impacts on the Group's operations

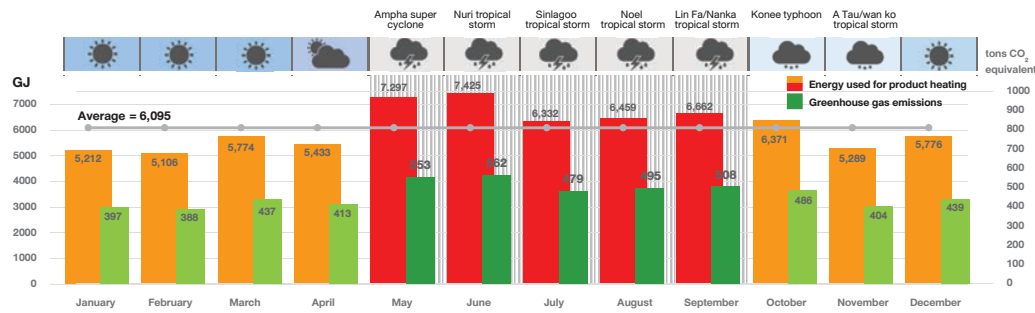
Risk Topics	Impacts to business/society/environment	Control measures	Timeline
<b>1</b> Energy use for product heating during heavy rain season	More use of energy for product heating to reach right temperature as per specification hence incurs more energy cost	Increase frequency of sales plan revision, and synchronize with inventory management – particularly for high temperature asphalt, to meet weekly sales demand	Implemented in 2020
<b>2</b> More severe dust, air pollution during summer	Health hazard to communities living in dusty surroundings which impact quality of life	Develop innovative products that minimize dust diffusion into the air, at affordable prices while causing negligible pollution.	Market trial in 2023
<b>3</b> Constraint on inability to apply conventional asphalt products during times of heavy rain	Constraint on days with heavy rain as road contractor cannot apply products, hence causing project delay and sales opportunity loss	Develop innovative products that can be used in all types of weather, with the condition that such new products must come from internal Innovation Solution Award contest	Market trial in 2023

## Management of climate change

### Energy consumption for product heating

Energy consumption for product heating (Giga Joules) and greenhouse gas emissions (tons CO<sub>2</sub> equivalent) in 2020

According to Thai Meteorological Department's forecast, Thailand rainy season starts from 18th May until early October 2020



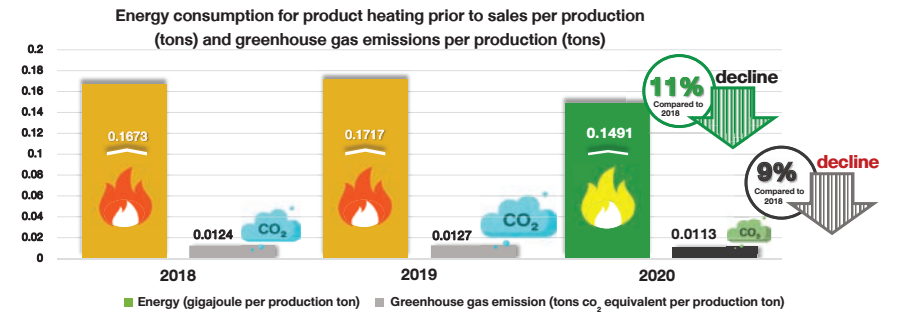
The graph illustrates energy consumption for product heating in the plants prior to sales during rainy season, where we experience more product temperature drop than any other periods and hence more fuel is required for product heating to reach pre-specified temperature. More energy consumption is evident during rainy season through more fuel consumption for production heating

**Solution:** According to aforementioned energy consumption risk, the Group increased sales planning frequency from monthly to weekly for those high-temperature products, to optimize inventory management in line with customer needs, and better control of energy consumption

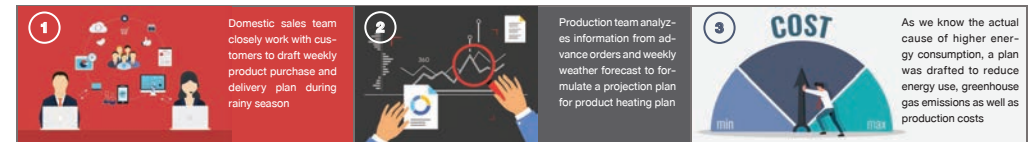


### Energy consumption for product heating

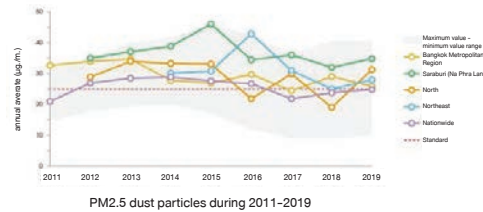
Comparison of energy consumption for product heating prior to sales with production (gigajoule/ tons of production) and greenhouse gas emissions compared with production (tons CO<sub>2</sub>equivalent/ tons of production) during 2018-2020



Shift towards more frequent, weekly sales plan monitoring enables significant savings on energy consumption for product heating prior to sales per production to decline by 11%, with 9% lower greenhouse gas emissions, compared to 2018



## More severe dust pollution during summer time



Dust diffusion is long recognized as a key cause of air pollution which directly impacts public health, reduce visibility of the community and road users while generating dust deposits and dirt on buildings. According to the report on air and noise pollution situation control in 2019 conducted by the Pollution Control Department, it was found that Thailand generates above average dust particles in the air, with significant increase in certain areas. Some communities applied a quick fix solution by pouring water on dusty roads, but this serves only as a temporary solution while wasting water resources.

The Group acknowledges this challenge and utilizes our expertise in asphalt to develop a special product called TIPCO DUST CONTROL to resolve such problems experienced by communities living adjacent to dusty roads while helping in road visibility for road users. Please see page 89 for more



## Conventional asphalt products cannot be applied during heavy rain or water puddles

Climate change causes a tremendous problem for delivery of temperature-controlled products in accordance with specifications. It also creates problems to users such as customers, road contractors who cannot apply asphalt during periods with medium to heavy rain or sudden storms such as tropical storm.

- Issues:**
1. Rainy season shift
  2. Contractor's knowledge of product application
  3. Access to road safety
  4. Road repairs and maintenance in areas with heavy rain or water puddles

**Problems that need to be resolved:**

Climate change lowers product quality

Climate – Resistant and Multi – Geo Products

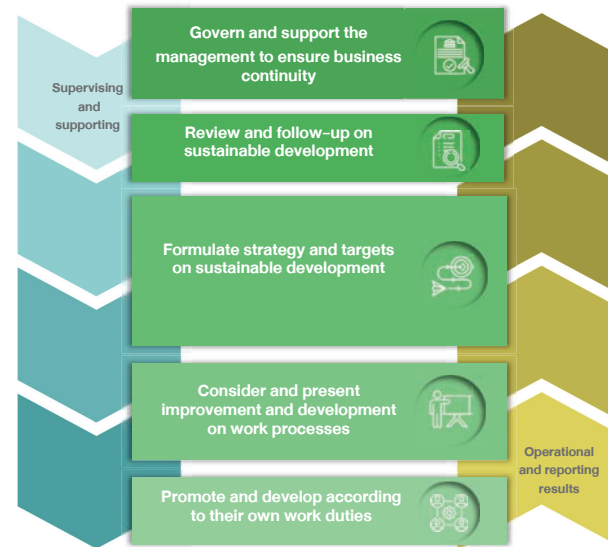
Road application during rain heavy after asphalt application



Asphalt flood in to the near by house

## Climate Governance and greenhouse gas management

TIPCO Asphalt Group implements appropriate risk control measures for climate change, in line with business directions and report progresses to the Corporate Governance committee



**TIPCO Asphalt Group's Board of Directors** are responsible for supervising and supporting the management to deliver on the Group's business performance while considering all relevant stakeholders, which ultimately lead the organization toward sustainable development.

**Corporate Governance Committee** (a sub Board) is responsible for reviewing and following-up on sustainable development progress of the organization, with quarterly meetings every year.

**Sustainable Development Working Team** is responsible for implementing strategies and targets pertaining to sustainable development, including sustainable development risk management which includes climate change risks that impacts operations across our value chain through consideration of internal and external context changes, which will impact sustainable development strategies. This team meets 4 times a year.

**Social Responsibility Working Team** is responsible for process improvement approach, both in-process and after-process, to achieve our objectives and targets pertaining to sustainable development while presenting the progress to Sustainable Development Working Team. This team plans to meet 4 times a year.

**All employees** are responsible for promoting and participating in improvement and development in accordance with his/her own work responsibility while demonstrating their volunteer spirit in their work to drive TIPCO Asphalt Group towards sustainable growth.



# Greenhouse Gas Management

## Results of sustainable development materiality topics in 2020

### Greenhouse gas management

TIPCO Asphalt Group aims to solve “global warming” with work process improvements

While most attention has now been focused on the timing of COVID-19 outbreak recovery, climate change still remains a crisis. The COVID-19 outbreak has changed several operations processes and reduced greenhouse gas emissions in 2020, but these are considered short-term, temporary changes. Nevertheless, the Group still focuses on new innovations implemented to lower greenhouse gas emissions, both directly and indirectly with the ultimate aim of lowering greenhouse gas emissions that might impact global warming and climate change at domestic and international levels. The Group setup targets for greenhouse gas emissions reduction in production and distribution processes while encouraging road logistics service partners to switch fuel type to help with greenhouse gas reduction; i.e., from B7-diesel to B10-diesel. According to our research studies conducted in conjunction with automobile manufacturers, B10-diesel fuel use results in better fuel consumption, engine wear, and reduced greenhouse gas emission. We share this knowledge with logistics service providers and drivers to convince them to switch fuel type to B10-diesel, accordingly.

The Group implements a series of innovations such as automated equipment control, application and other online systems in production, QC, inventory control and product distribution to optimize system efficiency while minimizing work time, other costs as well as lowering greenhouse gas emissions.

The Group commits to develop and implement new innovations to reduce greenhouse gas emissions despite those innovations may not yet be able to achieve significant reduction results. These small beginnings of our innovation journey since 2019 can encourage all employees in terms of their awareness and participation in greenhouse gas emissions reduction, both during- and off-work hours.

### Key changes in 2020

- Product delivery management under centralized logistics to optimize fuel consumption and utilization of asphalt trucks
- Replace old equipment and machine, revision of work process within plants, fuel type switch pertaining to production process and distribution to raise efficiency on energy consumption and reducing greenhouse gas emissions
- Promote use of alternative energy source

### Results in 2020

- Greenhouse gas emissions (Scope 1,2) equal 17,275 tons CO<sub>2</sub> equivalent
- Greenhouse gas emission intensity (Scope 1,2) equals 0.032 kilogram-CO<sub>2</sub> per production tons, representing 22% reduction as compared to 2018 hence achieving our target



You can scan QR code to access **Integrated Management Policy**

# THE POWER OF ECO-EFFICIENCY A BETTER FUTURE



### Targets

#### 2020

- Reduce greenhouse gas emission intensity (scopes 1,2) by at least 6% from 2018

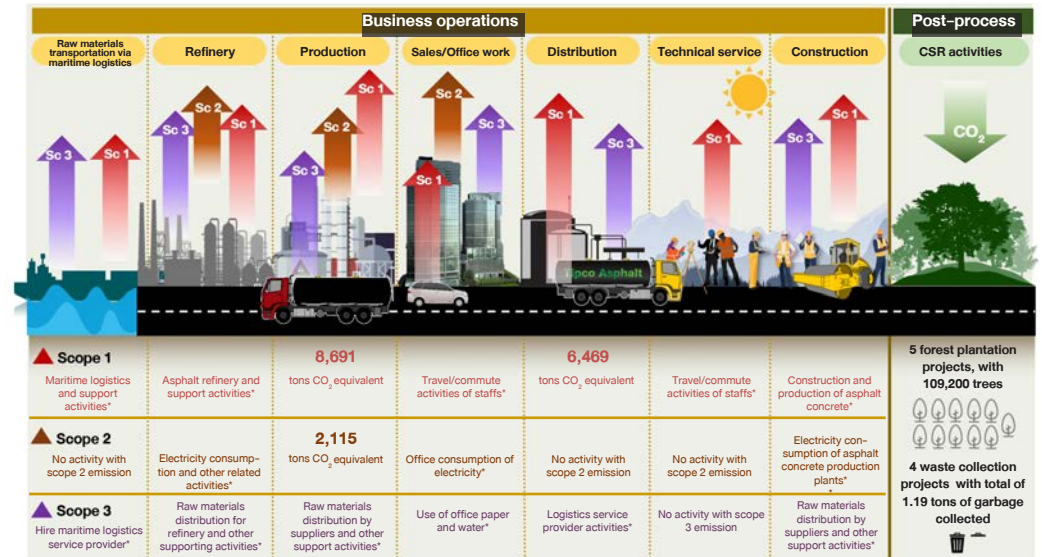
#### 2025

- Reduce greenhouse gas emission intensity (scopes 1,2) by at least 6% by 2025, as compared to 2020
- Greenhouse gas emissions (scope 3) data disclosure by 2025



## Business operations and greenhouse gas emissions in 2020

TIPCO Asphalt Group realizes our business activities might create some impacts to the environment through greenhouse gas emissions across our value chain; from greenhouse gas emissions from fuel used during distribution of raw materials, asphalt, refinery, production and customer service that consume electricity or fuel including chemicals used during production, product delivery to customers, and product application on the roads by contractors. The Group's activities hence contribute to greenhouse gas emissions to some degree.



## Strategy on Greenhouse Gas Emissions Reduction

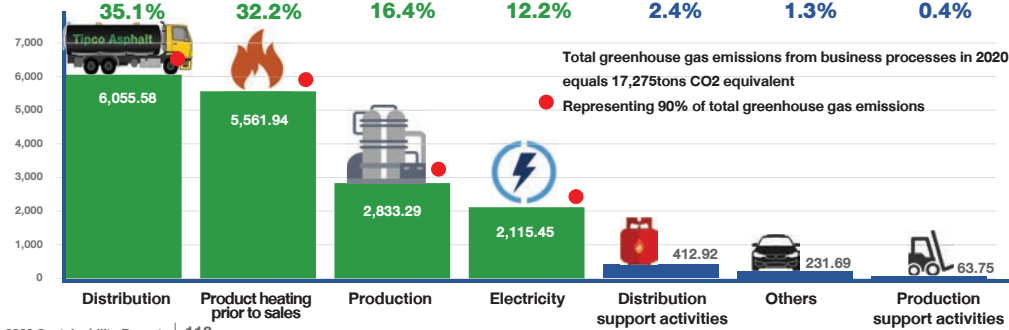
TIPCO Asphalt Group contributes to greenhouse gas emissions which is the main cause of global warming and climate change that is regarded as key environmental concerns at national and global levels with direct impacts to ways of living as well as business operations. The Group hence formulates a “Green Strategy: Green Mission” to reduce greenhouse gas emissions with the target of greenhouse gas intensity reduction of no less than 6% by 2025 (as compared to 2020).

**“GREEN MISSION”**

- Energy management
- Garbage, waste and pollution management
- Encourage all employees to participate in greenhouse gas emissions reduction

In addition to tangible, measurable greenhouse gas emissions reduction, the Group, led by Thailand Operations Department, utilizes tools, practice guidelines and human development as key driving factors for greenhouse gas reduction through Total Productive Maintenance (TPM) applied across plants, together with KPI-setting for each plant's employees to ensure they share common goals on self-development, learning, new solutions or innovations to improve machinery efficiency and minimize maintenance needs. This project encourages employees' potential together with optimizing machinery efficiency and hence support greenhouse gas reduction. Each employee can also utilize TPM knowledge in their daily lives during off-work hours, that also helps in greenhouse gas reduction in their lifestyles as well.

### TIPCO Asphalt Group: Greenhouse Gas Emissions by Business Activity



## Targets and results of greenhouse gas management

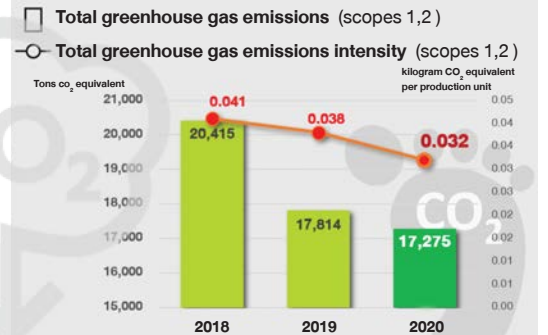
With ongoing global climate change impacts such as air pollution, drought, severe forest fires, rain storm and flood in certain areas, the Group realizes the significance of greenhouse gas emissions management generated through the Group's own operations, both directly and indirectly, in accordance with Thailand's national strategic goals on greenhouse gas reduction while minimizing impacts to environment, the Group hereby setups a short-term 1 year and long-term 5 years goals as follows:

Management goal	2020	2021	2025
Greenhouse gas emission intensity (scopes 1,2)	Reduce by (%) <b>6</b> As compared to baseline year	Reduce by (%) <b>2</b> As compared to based year 2020*	Reduce by (%) <b>6</b> As compared to based year 2020

\* Note: In 2021, the Group decided to change baseline year from 2018 to 2020, as during 2020 the Group hired an external audit company (MASCI) to conduct audit to verify data calculation method and accuracy. Therefore, the base year was changed for more accuracy.

### Results in 2020

- 17,275 tons CO<sub>2</sub> equivalent of greenhouse gas emissions (scopes 1,2)
- 0.032 kilogram CO<sub>2</sub> equivalent of greenhouse gas emission intensity, representing 22% reduction as compared to 2018 thus achieving our target



## Greenhouse Gas Management Project Highlights in 2020

### Hot Oil Boiler system efficiency enhancement

The Group implemented Hot Oil Boiler system efficiency improvement within plant facilities in Nakhon Ratchasima and Phrapradaeng where there were old, small-sized boilers in use for many years. The Group foresees opportunities for energy reduction via high efficiency, hot oil boiler technology with more opportunity for alternative fuels. The Group then decided to replace all hot oil boilers with Air Preheater Economizer units that prevented lower heat loss while the units can switch fuels between bunker, diesel, alternative fuel, or natural gas. Installation was completed in September 2020 with 92% efficiency achieved from hot oil boiler units, 10% greenhouse gas reduction and 10% heat energy saving and 10% reduction of Nitrogen Oxide (NOx), Sulfur Oxide (SOx), Carbon Monoxide (CO) due mainly to improved machinery efficiency.

#### Targets

- To improve and achieve more than 90% efficiency of hot oil boiler units
- To reduce fuel consumption of Hot Oil Boiler and lower heat energy by no less than 8%
- To reduce production cost, as well as greenhouse gas emissions per work hour of hot oil boiler units by at least 8%

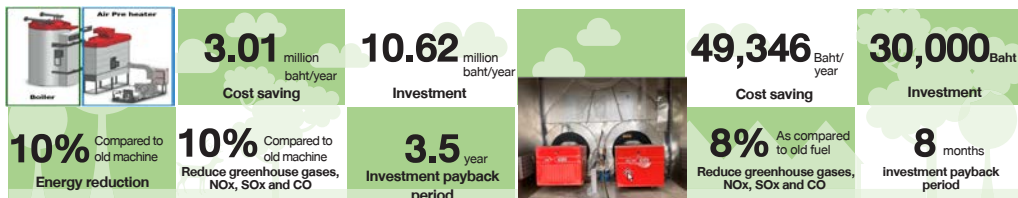
### Fuel switch to CD10 for Direct-fired Burner

To achieve greenhouse gas reduction target, the Nakhon Ratchasima plant came up with an innovation on fuel switch from diesel to CD10 for Direct-fired Burner unit used for asphalt production stage and during product heating prior to sales

The fuel switch from diesel to CD10 for Direct-fired Burner unit hence allowed the plant to reduce greenhouse gas emissions during asphalt production stage and product heating prior to sales by 8%, as compared to using diesel fuel only

#### Targets

- At least 5% reduction of greenhouse gas emissions from production and product heating prior to sales processes in 2020



## Greenhouse Gas Management Project Highlights in 2020

### Asphalt cement production capacity improvement through natural rubber with lower greenhouse gas emissions during production process

From raw material preparation, production and production management process reviews for Para asphalt cement (Para AC) in the Nakhon Ratchasima and Phitsanulok plants, we improved the production process to yield more efficiency and resulted in lower emission of Nitrogen Oxide (NOx), Sulfur Oxide (SOx), carbon Monoxide (CO) from the enhanced efficiency with lower fuel consumption.

The Nakhon Ratchasima plant improved the piping and value system by implementing a Heat Exchanger system in asphalt cement product heating prior to production.

This production process improvement resulted in 28% production time saving, 24% lower fuel consumption during production process together with 24% reduction in Nitrogen Oxide (NOx), Sulfur Oxide (SOx), Carbon Monoxide (CO) emissions.



Heat Exchanger system that is used for production of Para AC

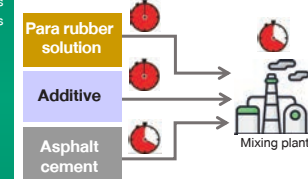
#### Target – Nakhon Ratchasima plant

- At least 20% production time saving
- At least 20% lower fuel consumption
- At least 20% less greenhouse gas emissions

Phitsanulok plant changed the Heat Coil on Para AC production tank along with raw material management to provide the revised heat coil unit with better efficiency while lowering Idle Time.

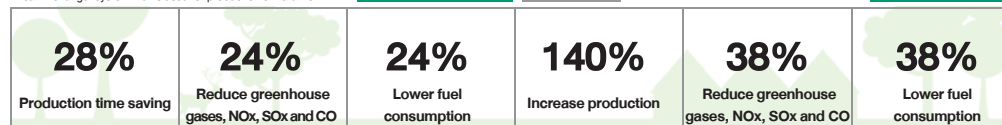
This production process improvement resulted in 140% production capacity increase with 38% lower fuel consumption during production and 38% reduction in Nitrogen Oxide (NOx), Sulfur Oxide (SOx), Carbon Monoxide (CO) emissions.

#### Para AC Production Process



#### Target – Phitsanulok plant

- 50% production capacity increase
- At least 20% lower fuel consumption
- At least 20% lower greenhouse gas emissions





## **Effluents, Waste and Pollution Management**

## Results of sustainable development materiality topics in 2020

### Effluents, Waste and Pollution Management

TIPCO Asphalt Group strive to reduce  
“pollution”

for a better environment amidst COVID-19 pandemic

TIPCO Asphalt Group implements a recycling approach by establishing a policy, plan and strategic goal for the next 5 years through knowledge-sharing to employees on waste reduction from production and all other related processes including distribution, maintenance, QC as well as office processes such as accounting and human resources. Each work unit will apply Total Productive Maintenance (TPM) tool (Makigami and Kaizen) on eliminating certain unnecessary work tasks.

In addition to waste reduction through less use, the Group formulates a “3Rs” policy that focuses on Reduce, Reuse, Recycle; the concept derived from TPM tool. For instance, waste from QC lab. After a lab test, employees will dump leftover waste into a container and clean used apparatus with water, which will enter the wastewater treatment system of the lab prior to the plant wastewater system. After implementation of TPM, employees can sort tested samples by types with no leftover waste and can reuse those samples, accordingly. As for the wastewater treatment system, QC employees investigate causes of residue filter system failure which can help reduce spare parts needed for regular maintenance while improving system efficiency. This includes another innovation that can separate residue in a water treatment tank and reuse it as raw materials in the production process. These processes also reduce the amount of wastewater from QC lab that enters the plant’s main treatment system.

Nevertheless, whenever there is waste in the system, the Group implements a policy on waste sorting prior to disposal. There is an education campaign on waste sorting and once we collect a significant amount of recycled waste, it will be sold to other buyers and the proceeds will be used as CSR funds. Report on waste sorting and sales proceeds for CSR funds will encourage employees to participate in this initiative. As for waste from the production process that is left over from the sorting process, it will be collected or recycled in other ways, under mutual decision and consideration of SSHE, QC and WH departments, or will be sent for external disposal or elimination in accordance with the regulations, as the final choice.

#### Key changes in 2020

- Commit to waste management under 3Rs concept: Reduce, Reuse, and Recycle. Also included is material replacements to reduce waste quantity from source of origin
- Improve waste sorting method according to type of waste materials in conjunction with education campaign on reducing and sorting waste to plant’s employees to ensure the most effective waste management
- Develop and improve equipment to ensure no chemical spillage to the environment

#### Results in 2020

- No significant product spillage during delivery
- 16.5 tons of disposed industrial waste to landfill. This below-target result is due to heat insulation replacement materials which must be treated with safe waste disposal to landfill method.
- The reuse of materials waste (3Rs) accounts for 90% of total waste

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A BETTER WORLD & CLEANER**



#### Targets

##### 2020

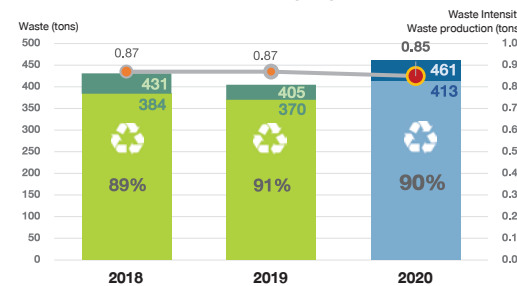
- Zero significant product spillage during delivery
- Zero industrial waste disposal to landfill
- The reuse of materials waste (3Rs) accounts for 85% of total waste

##### 2025

- Zero significant product spillage during delivery
- Zero industrial waste disposal to landfill
- The reuse of materials waste (3Rs) accounts for 90% of total waste



Total industrial waste quantity and percentage of reuse (3Rs)



## Business operations and waste across value chain in 2020

TIPCO Asphalt Group constantly improves our management of waste materials, with analysis of waste data encompassing our supply chain while all employees must acknowledge their mutual target to reduce waste. The table below illustrates waste quantities generated across value chain including management approach :



You can scan QR Code to access video clip on "We love Ta Tong Canal" CSR activity (trash collection and conservation of local Ta Tong canal, Surat Thani province)

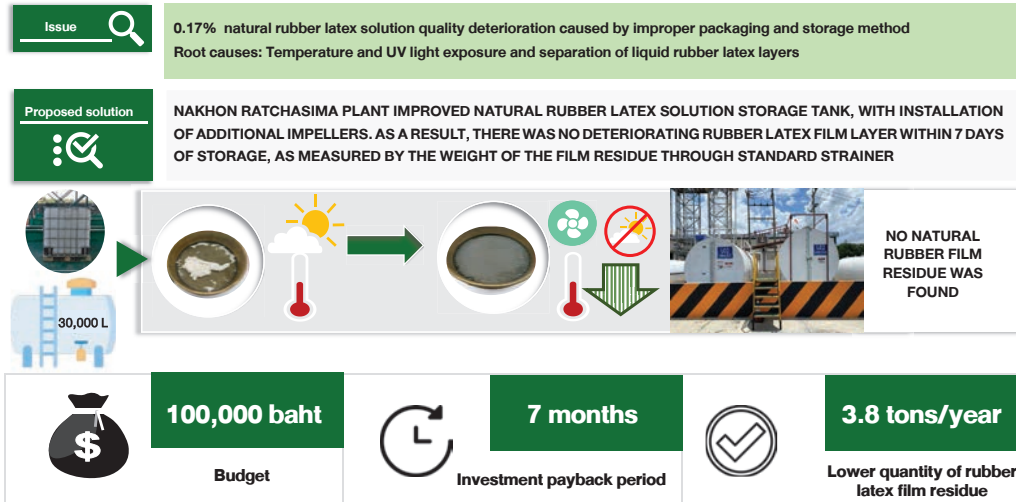


ZERO WASTE PROJECT	Business Process						
	Raw material logistics through maritime service	Refinery	Production	Production support activities	Distribution	Technical service	Construction
<b>Sorting</b>	Phase 2 : Report in 2021	Phase 2 : Report in 2021	212.74 tons	5.7 tons			Phase 3 : Report in 2022
<b>Recycle</b>	Phase 2 : Report in 2021	Phase 2 : Report in 2021	176.92 tons	Phase 2 : Report in 2021	17.88 tons	Phase 3 : Report in 2022	Phase 3 : Report in 2022
<b>Incineration</b>		Phase 2 : Report in 2021	0.9 tons				Phase 3 : Report in 2022
<b>Landfill</b>		Phase 2 : Report in 2021	16.52 tons	30.66 tons			Phase 3 : Report in 2022

## Effluents, Waste and Pollution Management : Project highlights

### Natural rubber latex quality preservation through new packaging project

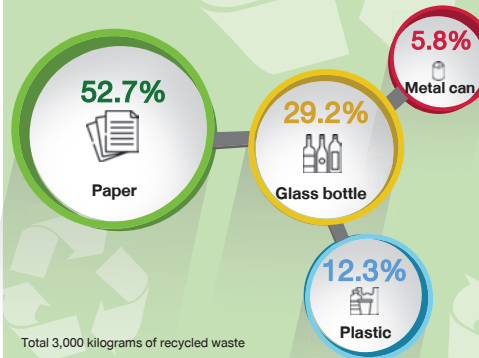
Natural rubber latex solution is a key ingredient in the production of asphalt cement or Para AC products with enhanced quality through natural latex. Processes of raw materials receipt and storage for further production to meet customer orders play a very crucial role, whereby Nakhon Ratchasima plant implemented a natural rubber latex storage tank improvement project, together with the installation of a natural rubber latex impeller unit.



## Recycle Bank Project

Recycle Bank is a waste management project in the plants to encourage employees to sort waste materials, hence minimizing waste disposal to landfill. The project operates similarly to a traditional commercial bank, with each team being responsible for sorting waste in their own areas where waste that can be recycled such as plastic water bottles, glass bottles, paper boxes are deposited at the bank. A Recycle Bank officer then weighs the waste, calculates the quantity, records the waste details, and sells it to other local buyers.

### Types of recycled waste under Recycle Bank Project

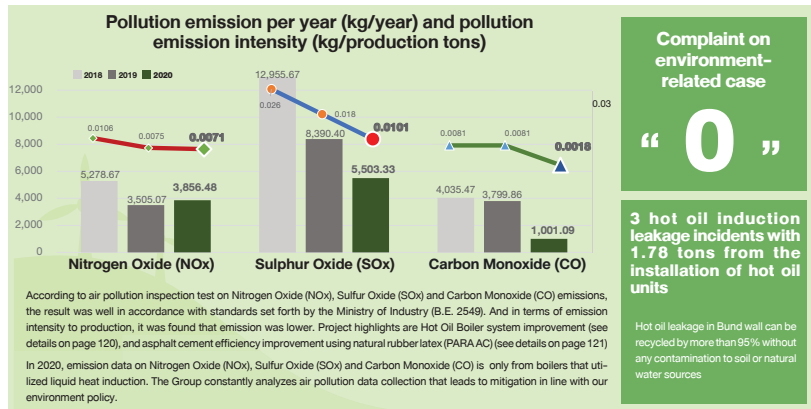


## Results of sustainable development materiality topics in 2020

### Pollution control

Our environmental management is executed within the ISO14001 environmental management system framework in conjunction with prevailing regulations to prevent and minimize environmental impacts caused by our business activities. In accordance with our environment policy, the Group reassesses our business operations and impacts on the environment. It was found that some of our business operations might cause some pollution impacts, in particular fuel consumption for production and asphalt and other raw materials spillage in large storage tanks and risks contaminating the environment.

In 2020, the Group established action plans on control, prevention, and progress monitoring on all our operations in accordance with work instructions related to the environment while there were assessments on environmental quality at least once a year at production plants and asphalt storage facilities. We also monitor impacts to biodiversity through an Environmental Impact Assessment (EIA) every 6 months in accordance with regulations. Budget was allocated for Bund Wall improvements in asphalt production areas to prevent raw materials and product spillage from storage tanks to the environment.



### Complaint on environment-related case

“ 0 ”

3 hot oil induction leakage incidents with 1.78 tons from the installation of hot oil units

Hot oil leakage in Bund wall can be recycled by more than 95% without any contamination to soil or natural water sources

### Targets

#### 2020

- Air pollution in accordance with regulation limits
- No complaint associated with the environment

#### 2025

- No complaint associated with the environment



## Raw materials and product leakage management project highlights this year

### Bund Wall improvement to prevent raw materials and product spillage from storage to environment

From the Group's internal monitoring controls, in case of significant raw materials or product leakage that cannot be handled by the installed rail system, there could be a risk contaminating the environment. The Group allocated budgets for Bund Wall improvement in raw materials and product storage areas to safeguard against severe leakage incidents, and for easy and convenient retrieval, as well as preventing raw materials and product leakage from contaminating the environment.

The Group implemented this initiative across the plants. For instance, the Bund Wall construction to prevent raw materials and chemical leakage at Nakhon Ratchasima plant, the project on Bund Wall improvement of waste storage at Rayong plant, with a total investment of 10 million Baht. The Group places high priority on concerns of stakeholders residing near our plant facilities and constantly improve our business operations in terms of more safety and no impact to the community or society.

These improvements in our plant operations give great confidence to those stakeholders residing near our plants on our good corporate governance.

Number of raw material, chemical and product leakage case that impact environment or community ➡ 0 case

Complaint on environment-related case ➡ 0 case





## Other Environmental Management

- Energy management
- Water management

## Results of sustainable development materiality topics in 2020

### Energy Management

TIPCO Asphalt group gives high consideration on efficient energy management although this materiality topic does not require immediate attention. Nevertheless, the Group has constantly managed energy use as it is one of the key costs of production as well as the cause for greenhouse gas emissions. The Group manages energy consumption well while our stakeholders are regularly informed that the Group can successfully improve and reduce energy use; in particular, those fossil-fuel ones while promoting innovations in work processes including proposing alternative ways for more efficient energy use.

In addition to our recent initiative to switch fuel from B7-diesel to B10-bio diesel for distribution operations pertaining to the Group as well as outsourced logistics service providers, as mentioned in the greenhouse gas emissions chapter, the Group also studies and searches for other alternative energy sources such as switching from B7-diesel to B10-bio diesel for the Hot Oil Boiler systems at Phra Padaeng and Suratthani plants. Also included is collaboration with domestic sales department on **Centralized Operations Management** approach which greatly enables more efficient production, inventory management, reduce unnecessary distribution trips which led to more effective energy consumption and less greenhouse gas emissions from production and distribution activities.

The Group also launched 5 energy conservation projects in 2020 with the objective of optimizing energy consumption for greater efficiency. These projects were submitted to the annual Innovative Solutions Award Contest to encourage employees, and raise their awareness on energy consumption during production as well as in their daily lives both during- and off-work hours, in order to reduce energy consumption and greenhouse gas emissions, to achieve the ultimate goal on sustainability.

#### Key changes in 2020

- Initiated innovation projects pertaining to efficient use of fuel and energy
- Presented innovation project (work process) on energy management with aim of reducing energy consumption and generating cost savings
- Improved production process and equipment to optimize energy consumption efficiency while considering switch towards alternative or environmentally-friendly energy sources to replace fossil fuels

#### Results in 2020

- 215,138 Gigajoule of total energy consumption in 2020, representing 0.40 gigajoule per production tons (intensity), or 22% decline as compared to baseline year 2018
- 11% reduction in energy and fuel consumption for product heating prior to sales (5 plants in Thailand), as compared to baseline year 2019. This is in line with weekly sales plan revision based on customer needs (see page 111). Also, there was Hot Oil Boiler system improvement (see page 120) and asphalt cement production quality improvement through natural rubber latex (PARA (AC) (see page 121)



You can scan QR Code to access our Energy conservation policy

#### Target

##### 2020

- At least 5% reduction in energy and fuel consumption for product heating of Thailand Operation department, as compared to baseline year 2018

##### 2025

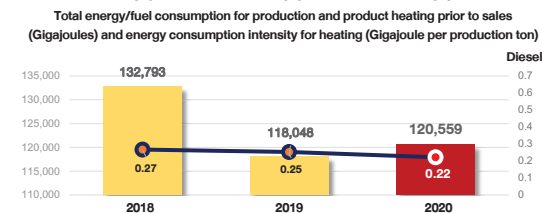
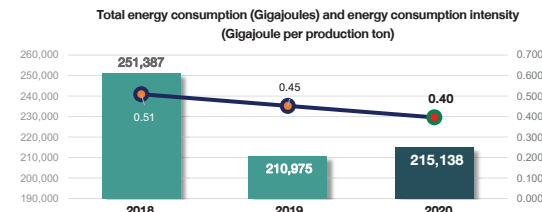
- At least 6% reduction in energy consumption from overall production, as compared to baseline year 2020



## TIPCO Asphalt Group: Energy Conservation

The Group places high priority on efficient energy management while promoting innovations to be implemented in work processes with alternative solutions for more efficient energy use to minimize greenhouse gas emissions. There were additional projects focusing on energy conservation in 2020 as follows:

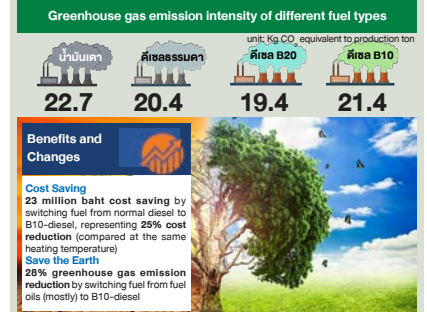
- Innovation initiatives related to efficient fuel and energy use. For instance, Nakhon Ratchasima plant utilizes CD-10 alternative fuel for asphalt cement heating during production and sales process
- Improved production process and equipment to optimize energy consumption efficiency while considering alternative or environmentally-friendly energy sources instead of traditional fossil fuel. For instance, Phrapadaneg and Suratthani plants adopt B10-biodiesel for alternative fuel used in Hot Oil Boiler system
- All 5 Thai plants adopted alternative fuel for distribution activities; i.e. switching to B10-biodiesel from B7 diesel



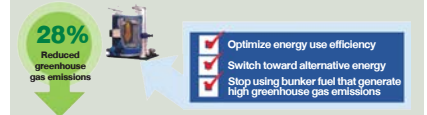
## Energy Conservation projects in 2020

### Project on switching to environment-friendly fuel

With reference to Suratthani plant team's study on Hot Oil Boiler system improvement to optimize fuel efficiency while reducing fuel cost upon product heating, the team experimented with switching from bunker fuel, diesel, and B20-diesel to B10-biodiesel for product heating coupled with some machinery adjustment. The study found different rate of fuel consumptions with **B10-biodiesel exhibiting the least fuel consumption rate with lower greenhouse gas emissions than the other fuel types.**



### Benefits of fuel switch to B10-diesel



## Results from sustainable development materiality topics in 2020

### Water management

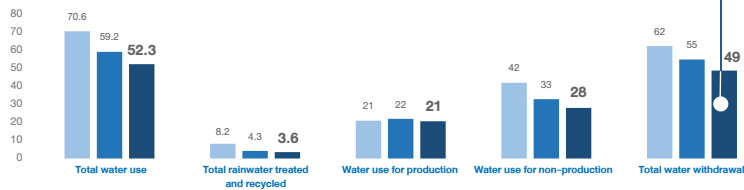


Water resource management with the most efficiency to ensure sustainable existence of natural resources and benefits our future generations, is on the Group's top priority and well in line with the ISO14001 environmental management standard that the Group has implemented constantly.

**Water resource** has been one of the key natural resources for our businesses as water is one of the key ingredients for asphalt emulsion product lines. Therefore, all TIPCO Asphalt Group's production plants are designed with surface water reservoir for each plant's internal use to prevent water shortage for production while eliminating risks on dispute over water with nearby community; or in some case, the plant can share access to water source with nearby community during drought. In 2015, the Group allowed local residents of Baan Doi Sung community to use our surface water at the Thai bitumen plant at Bang Saphan, Prachuab Kirikhan province, as the plant was not operating during that time. This greatly reflected our strong determination to be a "good neighbor" of the community, with social responsibility as our top priority.

The COVID-19 outbreak in 2020 forced the Group to adapt new measures for employees to be able to work from home, to reduce the number of employees physically working in the office. In addition, the Group prepared a plan to improve rainwater drainage and wastewater recycling systems to facilitate production process. This enabled our plants to reduce water consumption considerably.

#### Water Consumption (Mega liters)

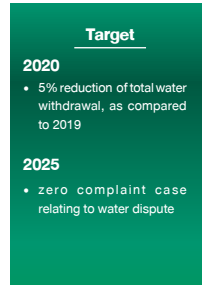


#### Key changes in 2020

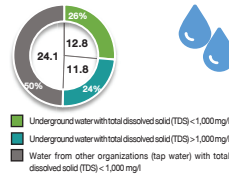
- Optimized water use efficiency through "3Rs" concept such as reduce use of water by utilizing wastewater under treatment in production process, with constant support
- Improved water rail drainage system at Nakhon Ratchasima plant to enhance ability to store rainwater for production use

#### Results in 2020

- 49 mega liters of water withdrawal, a 11% decline as compared to 2019 due to 15% lower water use in non-production process
- 3.6 mega liters of wastewater (after treatment) to be recycled in production process



#### Water withdrawal (Mega liters)



## TIPCO Asphalt Group: Water resource conservation

Climate change has resulted in shift of rainy season with more severe storms as well as floods. Sometimes, the plant's water drainage system might not be able to handle such large amount of rainwater due to its rather small rail size in comparison to rainwater quantity. As such, the Group allocated budget for a systematic water resource management plan through a 3.4 million baht rainwater rail drainage system improvement at Nakhon Ratchasima plant so we can identify water source more clearly and lead to optimal use for each activity,

The Group designed a system to bring all wastewater from the production process and its support processes to the main water treatment system in accordance with standards, where the water will be collected at the reservoir for further reuse in the production of asphalt emulsion.



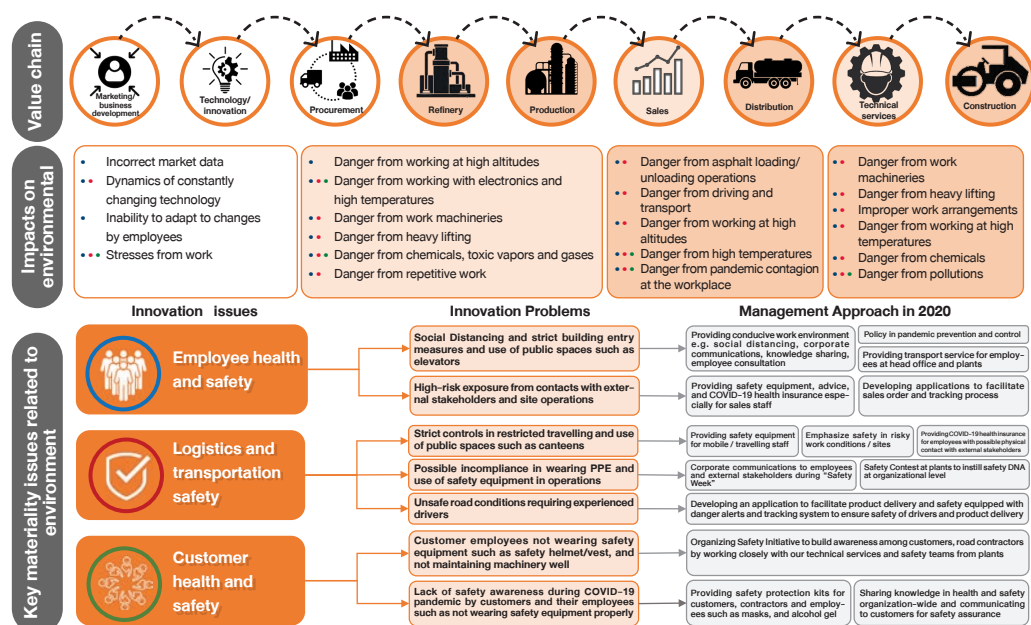
- Employee Health and Safety
- Logistics and Transportation Safety
- Customer Health and Safety

*For safety "better  
safe than sorry"*

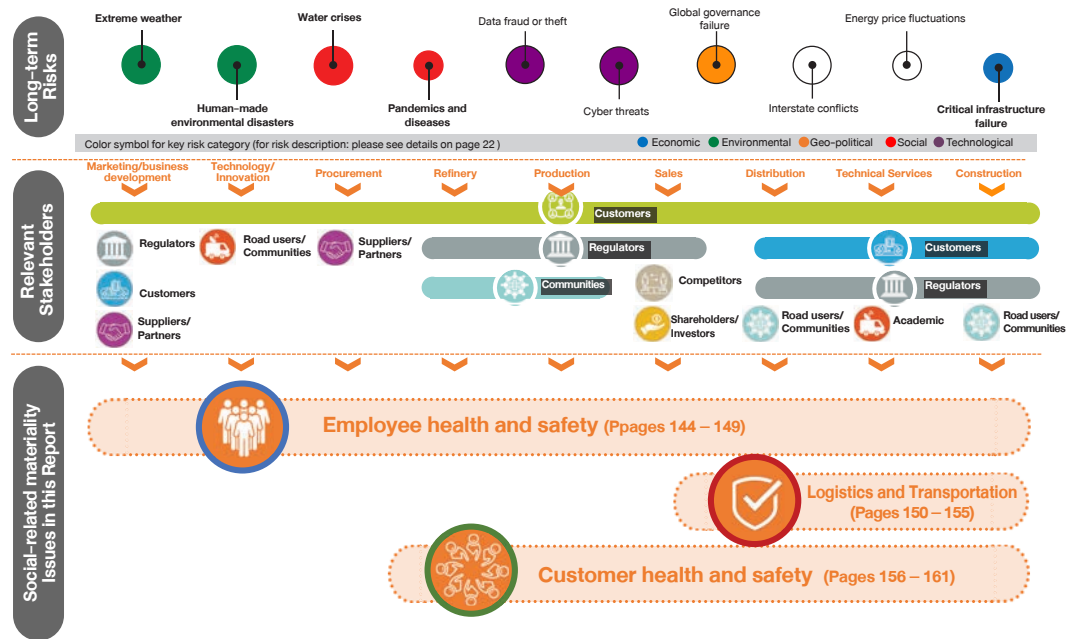
*Together in*  
**Safety  
Awareness**



## Analysis of value chain and impacts on safety throughout our operations contact



## Safety-related materiality risk factors: Impact analysis on the Group's businesses



## We are committed to instill safety mindset as core DNA of TIPCO Asphalt Group



Our objective is to develop safety, occupational health, and safe work environment, with ZERO accident

Safety First

SAFETY+  
EQUIPMENT

Employee Health  
and Safety



## Results of sustainable development materiality topics in 2020

### Safety and Health management

Tipco Asphalt Group provided and ensured

“Safe Work Place”

Protection and care for employee health during COVID-19

**THE POWER OF  
SAFETY WORKPLACE  
SAFER, TOGETHER**



Tipco Asphalt Group provides a conducive and safe work environment in order to prevent occupational accidents, injuries, and diseases from all employees and relevant stakeholders based on the risk management principle of reducing and controlling risks that could impact occupational health and safety. This principle is in line with our sustainability strategy by focusing on building safety awareness and promoting employee health in accordance with ISO45001 (international standard for occupational health and safety).

Our main objective is moving towards **Aim – ZERO Accident**, zero work-related accident and injury by prioritizing our employees and contractors through safety risk assessments as key tools used in work planning, system improvement and safety control standard.

In light of the ongoing COVID-19 crisis, we have adopted several new normal measures including Work from Home. Our Health and Safety Team closely monitored, assessed the situation, and developed COVID-19 prevention and control measures (more details in page 37). In 2020, there was no case of infection and disease from the emerging pandemic and from work. We are committed to keep up with operational standards of the Safety and Occupational Health and Environment at Workplace Category Award from Department of Labour Protection and Welfare (Ministry of Labour), and were awarded “Zero Accident Campaign 2020” by Thailand Institute of Occupational Safety And Health (Ministry of Labour).

We are committed to instill safety DNA within the organization to promote safety awareness among employees at the workplace and in their daily lives.

#### Key changes in 2020

- Developing Knowledge Center and providing necessary skills in safe operations
- Promoting safety awareness through training programs and safety activities
- Implementing proactive control measures in accordance with current situations such as emerging rules and regulations
- Conducting root cause analysis for incidents or near miss incidents
- Organising activities promoting employee wellbeing

#### Results in 2020

- Zero lost time injury
- Zero lost time injury frequency rate per a million hours worked
- Zero lost time injury severity rate per a million hours worked
- No work-related disease
- No accident causing lost time injury

#### Targets

##### 2020

- Lost time injury severity rate less than 1.67 per a million hours worked
- Zero work-related sickness

##### 2025

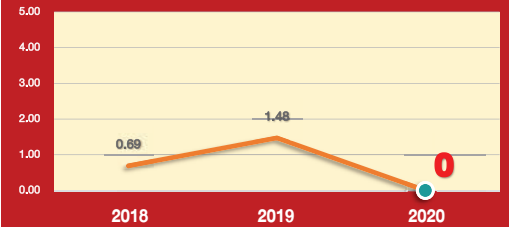
- Zero fatality and lost time injury
- Zero lost time injury frequency rate from work-related accidents and logistics
- Zero work-related sickness



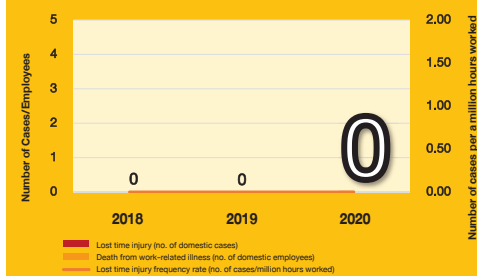
**AIM  
ZERO  
ACCIDENT**

With responsibility to ensure appropriate work environments, especially during the unexpected COVID-19 pandemic, we were able to adapt working conditions that ensured hygiene and safety without disrupting work operations including Work From Home guidelines to facilitate the balance of safe work operations and employee well-being. We believe this approach will keep our talents happy and committed.

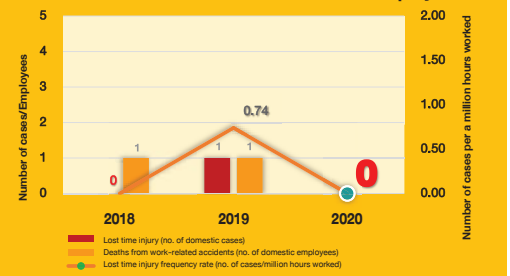
#### Total Recordable Domestic Injuries Rate (Cases/million hours worked)



#### Domestic Work-Related illnesses



#### Domestic Work-Related Accidents of employee





### Promoting safety awareness culture in organization

1. **Developing Knowledge Center and promoting necessary safety** related skills to reduce work-related accidents and losses for employees and contractors
2. **Promoting safety awareness** through training programs, safety activities, safety dialogues, and other site visits
3. **Proactive control measures in accordance with current situations** such as emerging rules and regulations and reassessing risky activities
4. **Conducting root cause analysis for incidents or near miss incidents** as well as developing corrective actions and preventive measures to reduce repetitive cases
5. **Implementing employee health promoting activities** under "Healthy, Safety and Happy Workplace" project to prevent work-related illness

**Investments in occupational health and safety improvements at Tipco Asphalt plants in Thailand**

We are committed to promoting conducive and safe work environments for our all employees and stakeholders by providing safety assurance, and equipping them with necessary skills for continued and effective operations.

Total budget allocated to SSHE in 2020

# 22.5

Million Baht

Scan here for Video Safety at the Workplace

scan here for covid-19 prevention measures at tipco asphalt



### Management system in safety, health and environment

Our SSHE management system has been certified with ISO45001 for safety and occupational health and ISO14000 for environment management system by Management System Certification Institute (Thailand). The certifications cover operations of 5 plants in Thailand encompassing processes from production to product delivery to customers. The key focus is on risk assessment of routine/non routine operations, unsafe behaviors, unsafe work conditions, and risk identification and assessment on risk impact and likelihood by business units including employees and unit heads.

The risk management approach depends on the level of severity and occurrence likelihood. The risks are monitored and reassessed on a regular basis which may require revisions or adjustments to risk management and control measures in line with current situations. Representatives are nominated to form a task force to devise planning, and push ahead with the implementation. SSHE team in-charge in each plant communicates to employees at all levels to be aware of potential risks in work operations and in their own lives.

First aid room and facilities are provided in each plant ready for use. There are also medical staff dedicated to providing health and hygiene advice, and also recommendations on work and health related issues and first aid in addition to annual training on safety, occupational health and environment.

Employees also receive an annual health check-up and special health promoting activities are conducted targeting employees with high exposure to physical hazards including chemicals and noises.

Examples of our activities include exercising before work, balanced diet, participation in annual sports competitions (local and national).



### Fire Protection System Improvement Project

Since 2019, we have prioritized the deployment of an alert system and fire alarms across 5 plants by improving our fire detection system: fire detectors, heat detectors, and flame detectors. Also included are additional automatic fire sprinkler systems installed to cover all storage spaces for fuel and flammable chemicals. We also built large-scale fire water tanks in each plant to ensure sufficient water in case of fire incidents.



Our employees' safety is our top priority. We give importance to provision of necessary safety equipment and tools such as PPE, fire extinguishers, fire fighting foam, and conducting annual fire drills with fire stations for the safety of all our employees.





## Logistics and Transportation Safety

## Results of sustainable development materiality topics in 2020

### Safe logistics management

Regardless of Covid-19 crisis, we managed to

“deliver”  
products safely and timely

# THE POWER OF SAFETY MANAGEMENT SAFER, TOGETHER



The Group is committed to a management system focusing on road safety in line with ISO39001. Our Centralized Logistics Management team was established to systemize logistics management and ensure safe and timely product delivery even during the ongoing COVID-19 pandemic. For the past 3 years, we were certified with ISO39001 and we continue to implement our logistics system in accordance with ISO39001 guidelines and we adhere to our strict policies for plant operations and logistics.

We utilize digital applications and online platforms to improve logistics safety. This includes an alert system of risky delivery routes especially for large trucks. Our logistics team work closely with sales team and customers to identify risky routes in customers' work sites as well. The data can be conveniently accessed with self-learning tools through an application before going to work sites.

Through our centralized control room based at Phrapradaeng Plant, we monitor logistics activities 24/7. Any irregularities will be directly reported to responsible units or outsourced drivers to inspect and report the results back to the Centralized Logistics Management team. For example, in case of any corporate violations, delivery permits for a particular truck driver will be cancelled.

### Key changes in 2020

- **Vehicle and driver readiness check** in line with COVID-19 guidelines in each local area
- **Developing Safe Logistics Knowledge Center** based on risky delivery routes and risk identification of customers' plants
- **Providing Defensive Driving Course** and learning assessment for our truck drivers
- **Providing safe driving training** and social responsibility awareness training for our outsourced drivers

### Results in 2020

- Zero severe truck accident per million vehicle km
- Zero road user complaints on the safety of our delivery trucks
- Zero product leakage during delivery



You can scan QR Code to access our Road Traffic Safety Policy



# AIM ZERO ACCIDENT



## UN SDGs Target 3.6 on Reducing the Number of Global Deaths and Injuries from Road Traffic Accidents by 2020

Goals Target 3.6. We are fully aware that road safety is of utmost importance to the daily lives of everyone, from our employees, customers, community, and relevant stakeholders in our value chain. Therefore, safety is the integral DNA of our Group. In 2019, our **Corporate Sustainability Policy** emphasized **safety awareness** as one of our core strategies. Our goals were simple: No accident, **No danger to people**, **No harm to the environment**. In other words, we aim for Zero Accident.

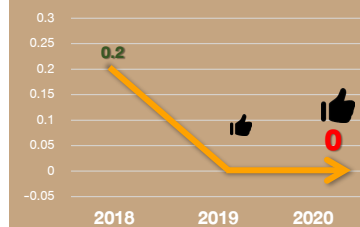


### Safety operations in road transport

- **Vehicle and driver readiness check** in line with COVID-19 guidelines in each local area
- **Developing Safe Logistics Knowledge Center** based on risky delivery routes, risk identification of customers' plants, and rest points across regions in Thailand
- **Providing Defensive Driving Course** and learning assessment for our truck drivers
- **Providing safe driving training** and social responsibility awareness training for our outsourced drivers

### Accident Fatalities from Domestic Delivery

(Number of cases per million hours worked)



year  
2018  
2019  
2020

Complaints on safety and occupational health

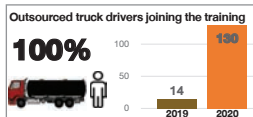
**0** case





### Safety Driving Training

- Defensive driving training to ensure drivers are aware of driving rules and boost necessary skills for the safety of both drivers and other road users.
- Started in 2019, the training program was joined by 14 outsourced drivers and 130 outsourced drivers in 2020. This accounted for 100% of our outsourced drivers. They need to be tested before receiving certification renewal every 3 years.



Driving and safety test



The training featured both theories, relevant traffic regulations, and labor laws. Every driver must understand the importance of safety and be able to use tools and equipment safely for themselves and for others and comply with the regulations strictly.

\*In 2020, the number of our truck drivers reduced from 165 to 136 drivers due to the new Centralized Logistics Management team and changes in work processes. A certain number of drivers resigned on a voluntary basis.

### Views from our safety, occupational health, and environment team

“  
It is more than just delivering products to the final destination.  
The safety of big truck driving is the most important duty to our society  
”



“  
*Our goal is beyond mere delivery. The road users and society in general must not be affected. All lives on the road must be safe.*  
”

**Suthat Tommayot**  
Plant manager at Prapadaeng in charge of Centralized Logistics Center:  
Supervises centralized logistics management system and 200 truck fleet



“  
*We understand the risks from our jobs and manage them effectively*  
”

**Watchara Thearawiboon**  
Deputy plant manager at Phitsanulok in charge of SSHE operations in Thailand:  
Supervises safety, occupational health, and environment across all 5 plants in Thailand



“  
*After I joined the training, I realized that once I get on those wheels, I am accountable for my own life and others*  
”

**Snga Sriaudom**  
Wirot Saensuk Transport Ltd. Outsourced driver specializing in professional dangerous goods over 3 years. He joined the training on 19/09/2020 พจนานุกรมที่ 18/9/2564



**Customer Health  
and Safety**

## Results of sustainable development materiality topics in 2020

### Promoting Customer Health and Safety

#### Knowledge Sharing for “Customer Safety” Health Care and Protection during COVID-19 Crisis

The safety of customers and employees is our primary concern especially during the COVID-19 pandemic. Our occupational health and safety were significantly enhanced specifically by establishing operational guidelines for risky areas, closely monitoring and assessing current situation and effectiveness of operational safety measures to prevent any pandemic spread caused by our employees.

Social Distancing, lockdown, and other strict travel control measures brought significant challenges especially in terms of customer contact in several areas. However, a digital order application to facilitate customer ordering and tracking process is already in place to support customer service effectively and promptly without requiring close physical contact with customers. This solution not only ensures health and safety of customers, it also reduces the risks of pandemic contagion without compromising the delivery of operations to customers.

In addition, we continue to provide technical service to customers as one of our value-added support. This includes safety knowledge sharing in relation to operational works, construction machineries, and emergency preparedness training so that customers and our employees perform their work safely. In other words, we aspire to cultivate safety awareness as part of our corporate culture towards improving safety and occupational health environment, and zero accident.

#### Key changes in 2020

- Health and safety guidance during COVID-19 pandemic for employees in contact with customers
- COVID-19 tests provided to employees in contact with customers prior to work and report submitted within specified timeframe
- COVID-19 protective kits provided to customers and employees: face shields, alcohol gel, and other protective kits
- **Digital order application** utilized to facilitate customer service to reduce physical contact without compromising service quality

#### Results in 2020

- 140 Participants joined safety knowledge training in 2020 (from 151 participants since 2019)
- 87% Customer satisfaction in technical service
- **Utilization of Digital** order application in order and product delivery to uplift service quality and safety standards
- Implementation of customer safety knowledge sharing and provision of safety vests to road contractors
- 7 Safety-related projects: Improvement projects on equipment/machinery enhancements and safe operations for employees and relevant stakeholders

## THE POWER OF SAFETY MINDSET SAFER, TOGETHER



#### Targets

##### 2020

- Provide technical advice and safe operations in construction, and general safety knowledge 20 times/year
- At least 85% customer satisfaction in technical service

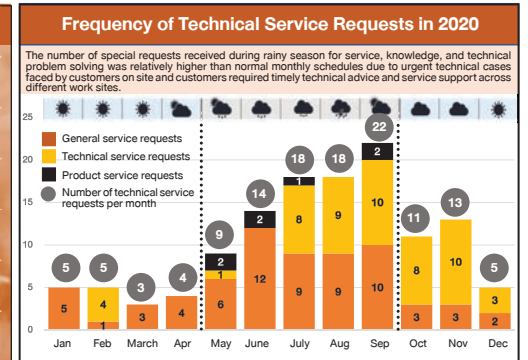
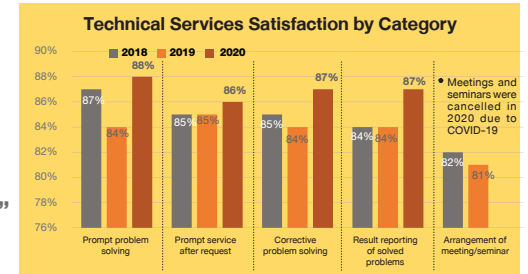
##### 2025

- Create partnership in technical road construction safety for road construction sector



## AIM ZERO ACCIDENT

“Customer Safety is Essential to Our Team”



# AIM ZERO ACCIDENT



## Advising safety in asphalt concrete plants to our customers



Southern Saithong Construction Company Limited, Chumphon

In asphalt concrete production, the machineries and materials used need to be well maintained on a regular basis to ensure safety of all relevant operators. This is because the process requires heating at very high temperatures especially for fuel tank, asphalt storage tank, and stone sintering.

Technical service team from Tipco Asphalt would develop work plans together with customers, inspect, and provide safety related advice such as installing insulation to protect physical contact and heat loss in asphalt pipes.



One of the technical services for safe and effective product applications was testing pavement stiffness with Portable Pendulum Test for the safety of road users on Ratchadaphisek Road and for the safety of road construction workers particularly for construction sites in the city during night time.



At Trang Provincial Administrative Organization, special road maintenance training was provided including safe road construction and road maintenance for the safety of construction workers and for long-lasting road conditions.

## Views from Participants Joining Customer Safety Education Project



“

We put our heart and soul to the safety of our people. The possible impacts and damages they could cause are unimaginable

”

**Sompun Leelapunyaporn**  
Senior Product Manager

Manages technical and domestic sales support team and supervising team of technical experts including safety area



“

My main duty is to communicate the importance of safety in product use for the safety of road users and provide technical safety knowledge to road contractors. Because every life counts

”

**Chaiwat Wongweang**  
Technical Service Officer

Provides technical advice to road contractors and customers for asphalt products: technical knowledge, product application, and safety



“

Road construction is very dangerous work and special care is crucial. I think it is valuable that Tipco Asphalt provides knowledge and helps create safety for construction workers

”

**Thanarat Asavasuthirakul**  
Sampetch Partnership, Kampong Petch

Our company has been in road construction for over 48 years. We continue to improve our quality especially by developing through our people and prioritize safety in our business operations





Virtual Anti-Corruption  
Day 2020



**Corporate Governance**

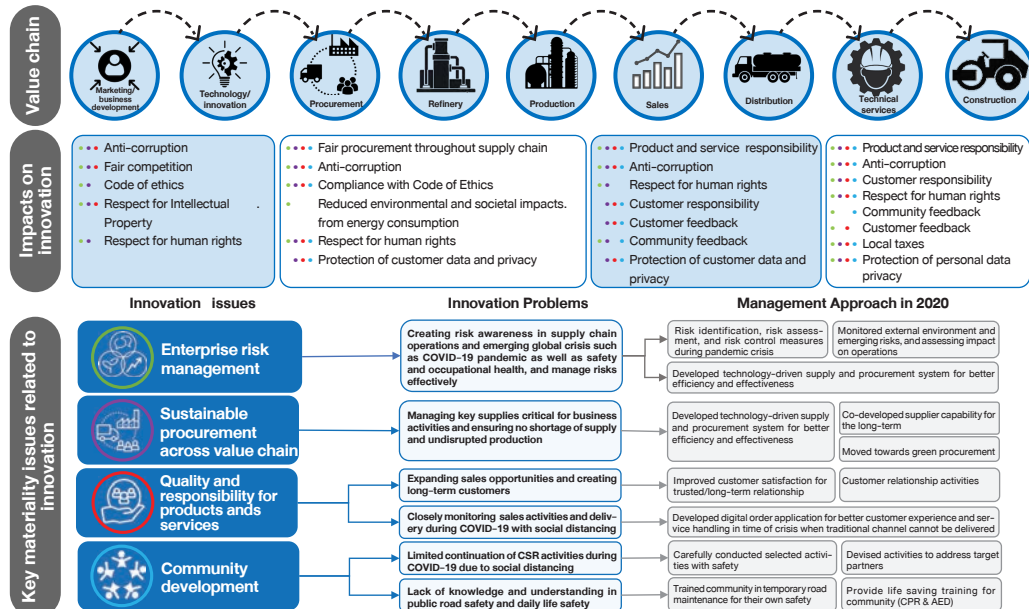
*Build strong foundation*

*Managing*  
**Transparency and  
good corporate  
governance**

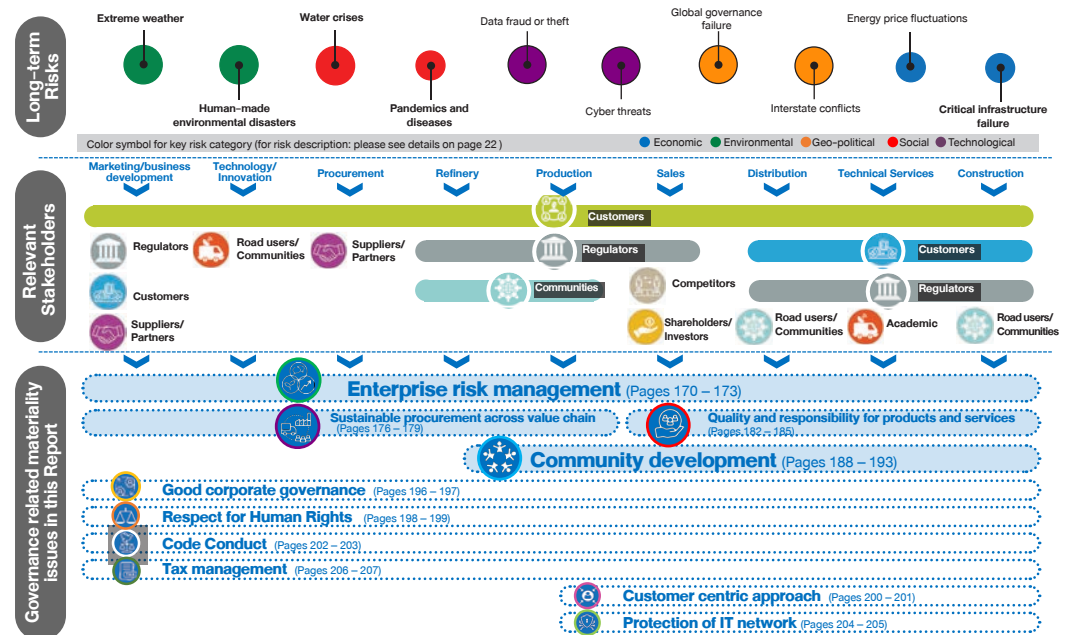
1 People 2 Climate 3 Good jobs 4 Quality 5 Society 6 Clean water 7 Energy 8 Decent work 9 Industry 10 Economic 11 Sustainable 12 Responsible 13 Life below 14 Peace 15 Life on land 16 Sustainable 17 Partnerships

SUSTAINABLE DEVELOPMENT GOALS

## Value chain analysis and impacts on governance



## Governance related materiality risk factors: Impact analysis of the Group's businesses



## Corporate Governance at Tipco Asphalt



## Corporate Strategy 2025



## sustainability strategy





## Enterprise Risk Management

## Management Approach to Sustainability in 2020

### ESG Enterprise Risk Management

Long-term vision and materiality assessment with  
“Proactive Risk Management”

Adaptive planning and control to cope with COVID-19

The Group continued to improve our enterprise risk management framework and incorporated risk assessment in social, environmental, and governance related issues and ensured control measures with monitoring on a regular basis.

We also take into consideration emerging risks that are likely to occur and impact the organization in the next 3-5 years. These include pandemic risks such as COVID-19 and IT risks such as cyber attacks as well as environmental related risks and operational improvements in the future.

Internal control measures have been in place to manage the aforementioned ESG and emerging risks such as Business Continuity Management plan to minimize impacts on business and operations with regular monitoring and reporting every quarter to Risk Management Committee (RMC).

#### Key changes in 2020

- Risk assessment and setting up control measures for COVID-19 crisis handling and prompt control for employees, customers, and business partners.
- Risk assessment and setting control measures in personal data protection with all relevant business units in accordance with Personal Data Protection Act, B.E. 2562 (2019).
- Accelerated the use of cloud-based platforms in business activities for data security, prevented data leaks, and improved efficiency.

#### Results in 2020

- Human Capital Team provided corporate communication in all COVID-19 related guidelines and internal measures to reduce the spread of the pandemic
- Improved IT system and related operational procedures (work in progress)
- Lower number of cyber attacks such as phishing email reduced to 25%

## THE POWER OF PRUDENCE SAFER, TOGETHER



Scan QR Code here for our **Enterprise Risk Management Policy**



Scan QR Code here for our **Risk Management Guideline Manual**

#### Targets

##### 2020

- Quarterly enterprise risk management report
- Develop risk registers on environmental, social, and human rights aspects

##### 2025

- Conduct risk review
- Incorporate utilization of risk assessment tools to improve business operations and performance monitoring



## Risk Factors Affecting Corporate Sustainability

Risk Factors	Impacts on Business Operations	Risk Controls
<b>Volatility of crude oil prices and uncertainty of crude oil supply</b> One of the key corporate risks is the relationship between volatility of crude prices and uncertainty of crude supply due to asphalt production requiring special specification of high sulfur crude supplies	<ul style="list-style-type: none"> <li>• The volatility of crude oil prices affect the economics of crude procurement as crude prices and asphalt prices may not always move in the same direction which will affect the cost of crude procurement, thus, profitability.</li> <li>• Uncertainty of crude oil supply especially high sulfur crude impacts the continuation of refinery operations and the production of asphalt supplies available in the market</li> </ul>	<ul style="list-style-type: none"> <li>• Hedging policy to mitigate price fluctuation with careful hedging strategy for each cargo; four-way collar is used to protect risk of higher crude costs</li> <li>• Securing long term contract for crude procurement</li> <li>• Seeking alternative crude sources</li> <li>• Expanding crude storage capacity with additional storage tanks and floating storage</li> </ul>
<b>Financial risks: credit, liquidity, foreign currency</b> Risks related to finance include credit, liquidity, and exchange rate, and crude oil prices. Several financial instruments are used to manage financial risks, not for trading or speculative purpose.	<ul style="list-style-type: none"> <li>• Increase in interest rate impacts the costs of financing</li> <li>• Volatility of foreign currencies impacts the costs of operations due to financial transactions in different currencies.</li> </ul>	<ul style="list-style-type: none"> <li>• Using financial instruments such as selling SWAP to reduce currency risk</li> <li>• Strict internal financial controls such as paying off long-term debts</li> <li>• Centralized finance team as a service center providing business units with financial management advice, funding, financial risk management, financial instruments in line with corporate policy</li> </ul>
<b>Asphalt cement supply and refinery-related risk</b> Volatility of asphalt cement prices is critical risk to our dedicated asphalt refinery in Malaysia. Particularly when there is high demand, annual refinery shutdown and maintenance must be done thoroughly without affecting refinery operations.	<ul style="list-style-type: none"> <li>• Refining and asphalt production are affected when there is a lack of raw materials supplied to the refinery, thus, asphalt products availability in the market</li> <li>• Unexpected refinery shutdown or maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Seeking alternative sources of asphalt supply</li> <li>• Keeping good, long-term relationships with refineries in Asia through regular supply contracts</li> <li>• Sourcing asphalt cement from our own asphalt refinery in Malaysia</li> <li>• Expanding asphalt storage capacity of the refinery</li> </ul>
<b>Climate change risk</b> Increasing impacts from climate change on business operations such as shorter time of work period and unexpected impacts on the health and well-being of employees and society due to pollution (PM 2.5).	<ul style="list-style-type: none"> <li>• Sudden natural incidents such as heavy rain can impact product application, road pavement/maintenance and construction and cause possible delays</li> <li>• Heavy rains and consequent lower climate temperature can lower the effectiveness of product heating in delivery process</li> </ul>	<ul style="list-style-type: none"> <li>• More frequent sales planning on weekly basis to increase efficiency of warehousing and appropriate energy use planning especially for products requiring heating at high temperature</li> <li>• Developing Climate – Resistant and Multi – Geo Products</li> </ul>
<b>COVID-19 pandemic risk</b> The spread of COVID-19 pandemic not only impacts the public health and economy at large but also business operations throughout our supply chain and value chain activities. We implemented several measures to strictly curb the spread.	<ul style="list-style-type: none"> <li>• Investments in sanitation and hygiene: social distancing, regular cleaning especially areas exposed to customers and employees at head office and all plants</li> </ul>	<ul style="list-style-type: none"> <li>• Internal control measures and guidelines in accordance with Department of Disease Control and the government</li> <li>• Providing protective tools/kits to employees and customers</li> <li>• Supporting and donations to hospitals and healthcare workers to fight COVID-19 pandemic</li> </ul>
<b>Cyber attack and data protection risk</b> As we are accelerating digital transformation driven by COVID-19 and social distancing, we have more exposure to cyber risks.	<ul style="list-style-type: none"> <li>• Connecting with many external networks for business activities causes possible vulnerability to cyber attacks</li> <li>• Capital investments in providing appropriate tools to work from home such as laptops</li> </ul>	<ul style="list-style-type: none"> <li>• Reviewing policy and guidelines for IT security</li> <li>• Assessing IT infrastructure and data security to close loopholes and improve IT system effectiveness</li> <li>• Establishing data protection guidelines in line with PDPA PDPA</li> </ul>

Reference: more details on page 106 – 113

Reference: more details on pages 32 – 39 and 148-149

Reference: more details on page 204 – 205

## Knowledge sharing and training in risk management

The Group gives priority to knowledge sharing and providing training in risk management to our employees. The results of risk management are reported to Risk Management Committee (RMC) and Audit Committee (AC) on a regular basis. These include risk related updates, emerging/global risks, and top corporate risks. Management reports operational performance of their business unit risk management in different channels such as quarterly risk report and RMC meeting. In addition, at operational level, risk management is communicated through corporate communication channel and risk culture building at corporate level. Also, the risk management tools such as risk registers have been used to address operational monitoring and future work planning.



### Risk Management



### Risk Management

We continue to support the learning and training of our employees in risk management and self-work planning at individual level.



## Business Continuity Management Plan

The Group places emphasis on business continuity to ensure continued operations and protecting the interests of our stakeholders and managing a sustainable business. We are prepared for resilient and flexible operations and the use of new technologies to enhance operational effectiveness. We support the learning and application of these new technologies among our people for their convenience and safety as well as for our customers, business partners. In this regard, we continue to review and update our business continuity plans in line with emerging incidents and have regular drills especially for activities and job positions that are critical for the continuity of business operations.

### Results in 2020

- Communicated to employees and relevant stakeholders to build awareness and knowledge in personal hygiene and safety
- Uplifted COVID-19 control measures and provided employees exposed to high risk circumstances with COVID-19 tests
- Uplifted hygiene in work areas for head office, Maritime Business, refinery, plants, and constructions. These included temperature check and screening, hygiene protocols, and providing protective tools/kits for employees such as face shields and alcohol gel

The results of these measures and protocols ensured safety and effectiveness.

### Emergency Drills in 2020 (number of times)

Business Activity	Emergency plan				Terminal Safety Measures (Domestic/International)	Truck accident		Emerging risks	
	Fire	Spilled chemicals	Flood	LPG Leakage		Road Rescue Plan	Oil Spill Clean-UP	Pandemic	IT system recovery
Refinery in Malaysia	1	1	1	1				1	2
Maritime Business					3			1	
Head Office in Thailand	1								
5 Operating Plants in Thailand and Warehouse Center	5	5	4	2	8	5	2	1	

### Targets

#### 2020

- Established emergency response measures for emerging risks to protect safety and health of employees, customers, and business partners for continuity of business operations

#### 2025

- Proactive business continuity plan by incorporating potential disasters and other unexpected incidents with possible high impacts
- Promote the use of technology in business operations and to management for the continuity of business activities



## Sustainable Supply Chain

## Management Approach to Sustainability in 2020

### Sustainable Supply Chain

#### Fighting against COVID-19 Crisis with “Trusted Partnership”

The Group has placed significant emphasis on sustainable supply chain to ensure smooth business operations especially during crises. Guided by our Sustainable Procurement Policy, we identified material issues related to economic, social, and environmental factors derived from within the Group and from business partners throughout our supply chain. The main objective is to ensure that products and services delivered on time and per guaranteed quality. We also deploy technologies in procurement management to improve effectiveness, transparency, better resource allocation, as well as to ensure continuity of business activities.

We commit to uplift the standards of our business partners and create good partnerships through knowledge sharing and engaging them with many activities for mutual understanding and sustainable growth of partnerships in line with our business directions.

In line with our commitment towards ethical business conduct, we are aiming to extend it to our business partners as well as they are a vital part of our supply chain. Therefore, we created Supplier Code of Conduct to serve as a guideline to suppliers partnering with the Group.

#### Key Changes in 2020

- Developed **Digital Platform** to improve procurement for ordering processes
- Worked closely with business partners to **improve standards towards sustainability** and to give supplier assurance. The areas included quality, delivery, occupational health and safety, labor, human rights, environment, and community engagement
- Worked closely with business partners to support local economies and improve their wealth and income through **local sourcing**
- Communicated with relevant stakeholders** our special procurement measures and controls during COVID-19 crisis

#### Results in 2020

- 92.27% Timely deliveries of raw materials and packaging (transaction values per year)
- 100% Quality of raw materials and packaging delivered (transaction values per year)
- 5 Product categories procured from suppliers certified with environmental or social responsibility aspects.
- 22 Million baht of transaction values for local sourcing

## THE POWER OF SYNERGY STRONGER, TOGETHER



Scan QR Code for our  
**Sustainable  
Procurement Policy**

#### Targets

##### 2020

- At least 85% Timely delivery of raw materials and packaging (transaction values per year)
- At least 99.5% Quality of raw materials and packaging delivered (transaction values per year)
- At least 3 Product categories procured from suppliers certified with ESG aspects
- At least 20 million baht local sourcing in Thailand

##### 2025

- Extend procurement processes covering all product categories
- Develop data analytics tools for procurement planning
- Uplift sustainable procurement in line with international standards

### Procurement Digital Platform

In order to improve effectiveness of procurement processes. A digital platform was developed to facilitate ordering process. Our procurement team can operate more conveniently and efficiently, as well as reduce paper works and human errors. With the dynamic change in business environment, this approach enables us to be more flexible and adapt to changes while minimizing impacts from the unexpected and global crises such as Covid-19. The digital platform enables us to operate from home promptly and continue our operations effectively.

#### 1. E-Procurement with business partners

Electronic procurement allows employees to place orders automatically and track their orders on our business partners' platforms for convenience and transparency.



#### 2. Auto PO / Complex PO

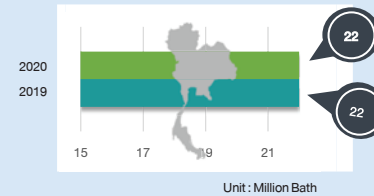
This system helps minimize procurement work steps for repetitive or regular/routine supplies transactions that require no price negotiation or possess contract with fixed and/or installment payments. The Procurement team can directly approve purchase orders (PO) and promptly forward to Finance team to process payments.



### Local Procurement

Local suppliers are important partners to us. Our target for local purchases is 20 million baht in order to support the distribution of local economies and local communities through local sourcing where our business activities are located

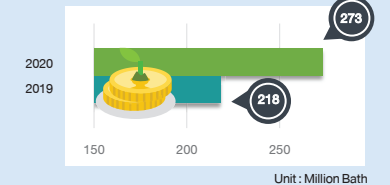
#### Total Local Procurement



### Green Procurement

Green procurement has been one of the key tools used in tackling environmental issues. In Thailand, the trend among both public and private sectors has been growing. Tipco Asphalt also recognizes the importance of this issue and is making efforts towards sustainable procurement. We developed green procurement guidelines for supplier selection in line with government criteria such as Green Label. We aim towards sustainable change in our production processes and consumption in the future.

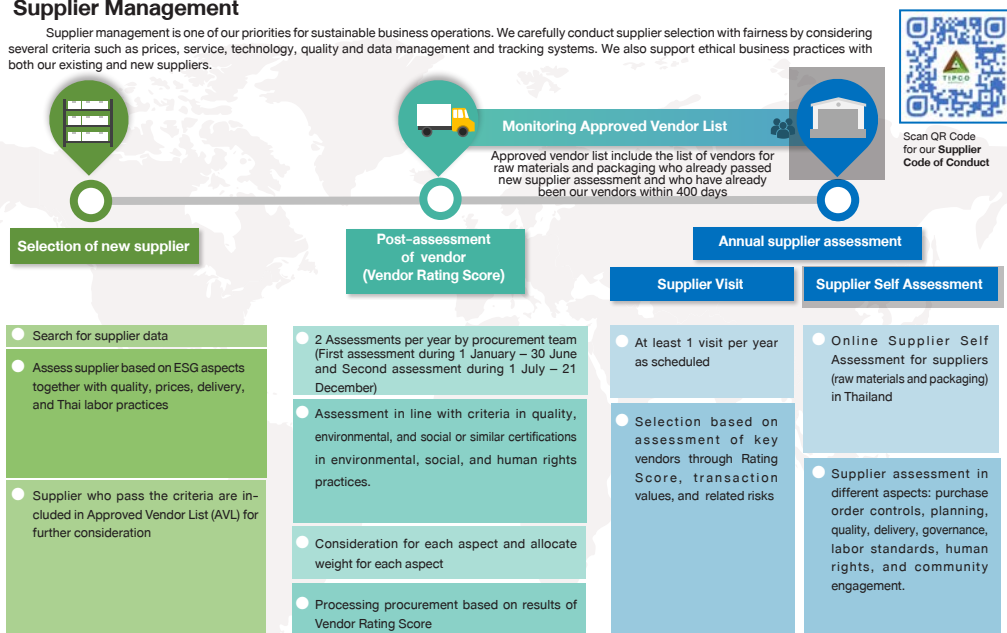
#### Total Green Procurement



REMARK : Revise green procurement value of 2019 and 2020 by correcting the classification of green product category

## Supplier Management

Supplier management is one of our priorities for sustainable business operations. We carefully conduct supplier selection with fairness by considering several criteria such as prices, service, technology, quality and data management and tracking systems. We also support ethical business practices with both our existing and new suppliers.

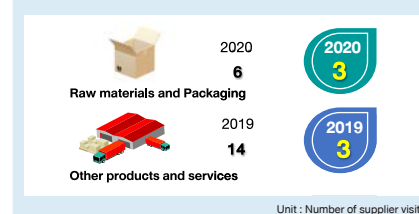


## Results of Vendor Rating Score

		2019		2020	
		Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec
<b>A Class</b>	Essential More than 90%	33	41	35	37
<b>B Class</b>	Important Between 81-90%	12	13	21	15
<b>C Class</b>	Development Between 51-80%	3	2	1	1
<b>D Class</b>	Improvement Below 50%	0	0	0	0

Unit : No. of partners

## Supplier Visit



## Supplier Self Assessment

In 2021, the Group conducted Online Supplier Self Assessment to provide additional channels for suppliers of raw materials and packaging mainly in Thailand.

## Supplier Development

In 2020, we monitored and advised one of our partners, Me Power Project Co.,Ltd. We helped them improve and systematize operations to reduce safety risks in work areas in line with Safety Workplace practice for better health and provide Personal Skill-Training to prepare for TISI certification.





**Quality & Responsibility for  
Products & Services**

## Management Approach to Sustainability in 2020

### Product and Service Responsibility and Customer Care Adapting to COVID-19 Crisis and Keeping our Operations Running “Customers can Rest Assured”

Quality is our utmost priority. We realize safety and long-lasting roads are important for transportation. The key element to good road condition is the quality of certified asphalt. We strictly ensure the quality of our products and quality control using up-to-date tools and technologies in QC for accuracy. We continue to support our QC employees' development through trainings and other special skills development and provision of proper tools, by investing in QC equipment worth 7.1 million baht to provide quality assurance of our products. In addition, product certification must be issued in line with strict documentation practices so that contractors can use them in their project deliverables and ensure the product specification and quality meet the requirements. This process is an essential part of road construction.

Our service is based on customer centric approach. We make efforts to understand their needs and anticipate their expectations. This leads us towards continued improvements of products and services to address customer needs including their health, safety, and well-being. Regardless of social distancing practices during COVID-19, we made sure that we were able to provide services promptly without disrupting customer operations and guaranteeing timely delivery and logistics management, product quality, and product performance.



Scan QR Code for our Quality Control approach

### Key changes in 2020

- Used digital order platform for ordering and delivery tracking for safety (more details in pages 84–87)
- Incorporated customer satisfaction results from previous year in order to improve our operations and provide better and more efficient services
- Shared knowledge in different areas: Innovation, new technologies, and asphalt related updates



Scan QR Code for video on our Quality Control and Product Standards

### Results in 2020

- 87.5% Customer satisfaction
- 94% Timely completion of complaint handling for products and services
- 1 Case of product return for Premix product
- Safety training provided by our plant safety team

## THE POWER OF PARTNERSHIP STRONGER, TOGETHER



#### Targets

##### 2020

- At least 85% Customer Satisfaction
- 100% Completion of timely complaint handling for products and services
- 0 Product return
- Good customer relationship and engagement activities

##### 2025

- Provide impressive customer experience with superior products and services



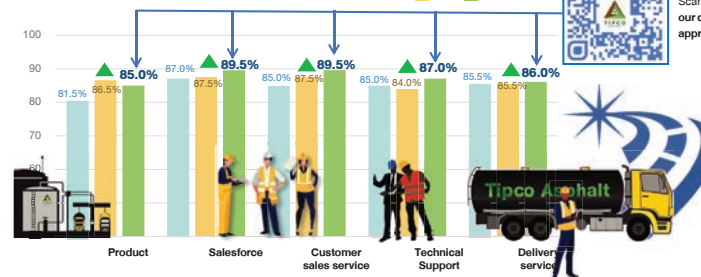
## Meeting Customer Needs and Ensuring Customer Satisfaction

We are committed to achieving our Customer Centric strategy as a key driver of success by addressing and proactively anticipating customers' needs and expectations. Our continued development is evolving from the primary focus on ensuring quality product to capitalizing on advanced technology for better products and services to be provided. In 2019–2020, we integrated customer and stakeholder feedback into internal process improvements. All Voice Of Customers (VOC) feedback is taken into account. One of the examples is the packaging size for our Asphalt Emulsion products. Previously, the smallest size offered was 1 ton which may not be convenient for home use. We later adapted the size to 10 kg for retail customers. The other examples are Dust Control solutions to reduce pollution and particles on the road and Digital Customer Order application for convenience and efficiency.



Scan QR code here for our sales policy

### Product and Service Satisfaction



Category	2018	2019	2020	Target 2021	Customer Satisfaction	2018	2019	2020
Product	81.5%	86.5%	85.0%	85.0%	Domestic customers	87.2%	86.6%	87.4%
Salesforce	87.0%	87.5%	89.5%	85.0%	International customers	81.3%	86.5%	87.5%
Customer sales service	84.5%	87.5%	89.5%	85.0%	Overall satisfaction	84.3%	86.6%	87.5%
Technical Support	85.0%	84.0%	87.0%	85.0%	Satisfaction target	85.0%	85.0%	85.0%
Delivery service	85.5%	85.5%	86.0%	85.0%				

Remark : \*Reported data is based on Oracle CRM  
\*\* Corrected the numbers to be the average of domestic and international.

## Complaint Handling Management



### Complaints management

# 100%

**Complaints solved**

Within given timeframe subject to different operations

**Suwannee Sittirung**

In charge of customer care ordering and complaint handling, our sales support team ensures timely and efficient operations so that our customers can work as scheduled and reach their targets. We also ensure their problems are solved on time. "At your service"

Details	2018	2019	2020
<b>Number of complaints</b>	<b>19</b>	<b>20</b>	<b>18</b>
• Domestic	7	7	13
• International	12	13	5
<b>Complaints solved</b>	<b>19</b>	<b>20</b>	<b>18</b>
• Domestic	7	7	13
• International	12	13	5
<b>% Successful Cases</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
• Domestic	100%	100%	100%
• International	100%	100%	100%

## Marketing activities in 2020

2020 was a very challenging year for us due to COVID-19, however we continued to organize activities in collaboration with other different bodies such as the annual meeting with Department of Highways. Hygiene and safety measures were strictly enforced throughout the meeting. In addition our technical team organized knowledge sharing and safety activities with contractors for their sustainable business.

### Annual activities with Department of Highways

Introducing new technologies for high performance asphalt for long-lasting road pavements



### Safety advisory

We provided safety advice to our asphalt concrete customers where our plant engineering team from each region included other safety aspects we emphasize on. This is because working with asphalt concrete requires high temperature especially fuel storage tanks. So safety is our top priority (refer to page 160).





One of the social development project that Tipco Asphalt Group is proud of is Bueng Ta Krenk Area Development Project for sustainable integrated tourism in Phitsanulok Province

# Community Development

## Management Approach to Sustainability in 2020

### Community Engagement and Development

We supported our community to protect their safety together

during COVID-19

Community engagement is an important element of our ecosystem. We are committed to sustainable business and social responsibility by keeping good relationships with communities and implementing many community engagement activities to address their problems and concerns. We communicate and give assurance to key stakeholders that our organization, communities, and society can coexist.

The activities we have done for the communities are regularly assessed based on the concept of Social Return on Investment\* (SROI) for decision making to ensure the contributions made are beneficial to the community and society together as we grow.

Since 2017, Patching Pothole has been one of the key projects for public road safety. We collaborated with local government bodies, partners, and educational institutions to fix potholes on the roads with specially designed asphalt product for small potholes that can be done easily as a Do-it-Yourself solution.

With COVID-19 crisis in 2020, we refocused our activities towards prevention of pandemic spread such as donating face shields to medical staff.

### Key Changes in 2020

- Provided support against the spread of COVID-19 to local communities and hospitals
- Shifted from corporate social responsibility activities to creating shared value (CSV) through activities and projects: promoting safety, public health, education, and preserving local wisdom.
- Extended the use cases of **patching pothole** with ready-to-use asphalt products to improve safety in local communities, reduce road accidents, and injuries, as well as to uplift the quality of living of communities.

## THE POWER OF CARE & SHARE

### SAFER LIVING, TOGETHER



Scan QR Code for our Corporate Social Responsibility Policy

#### Targets

##### 2020

- 85% Satisfaction of social activities
- At least 16 hours volunteering participation per employee per year (or 10,240 hours per 640 employees per year (Thailand))

##### 2025

- Implement CSR/CSV activities that directly address the needs of local communities and in line with corporate code of ethics and sustainability strategy



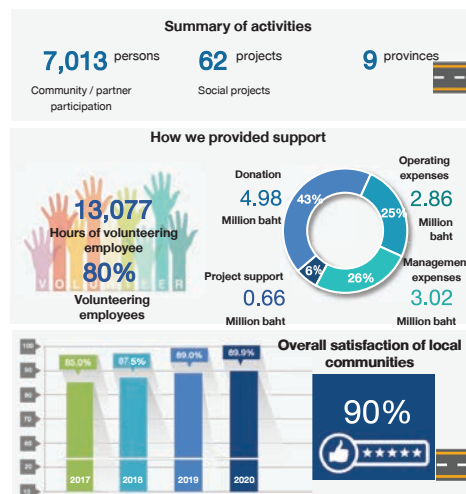
### Results in 2020

- 90% Satisfaction of social activities
- 80% Voluntary employee participation in CSR and CSV activities
- 13,077 Hours of volunteering participation
- 62 Social projects implemented
- 7,013 Stakeholders participated
- 5 Million baht donated to support healthcare bodies

\* SROI is an analytical tool to quantitatively measure non-traditional financial values (such as environmental and social) for the impact of a project, business, or organization.

## Progress of Social Activities in 2020

Particularly in 2020, we adapted our activity plan by allocating the majority of budget to supporting medical staff to fight against COVID-19 such as donating face shields and negative pressure rooms.



## Community engagement

Empathize and understand as we grow together



Scan QR Code for Corporate Social Responsibility Social



Scan QR Code for Corporate Social Responsibility procedure

- 1 Conduct community dialogues to seek feedback of their concerns and expectations from our contribution in community care
- 2 Implement project with partner/network as planned
- 3 Co-plan the project with target community and partner/network
- 4 Implement project with partner/network as planned
- 5 Evaluate and assess project performance

## Key community concerns on our business operations

We are committed to responsible business and to be a good corporate citizen in all locations of our offices and operating plants. We ensure all voices are heard and provide different channels in which local communities can reach us through community dialogues. SD officers represent our focal contacts to facilitate the discussion, follow up, and monitor community-related projects and evaluate stakeholder satisfaction accordingly.



Scan QR Code for our Corporate Social Responsibility plan

Concerns raised	Management	Result
1.) Odor nuisance from production	Set up deodorization system Developed Ultra Low Ammonia based products	No incident
2.) Product leakage during delivery	Provide safety logistics training (refer to pages 152-155)	No incident
3.) Fire incident	Provide fire prevention training and drills (refer to pages 152-155)	No complaint
4.) Public road safety and roadway erosion	Provide safety logistics training (refer to pages 152-155)	No complaint



Scan QR Code for our Complaint Handling Process

### Complaints on social and environmental issues

0 complaint

2017	2018	2019	2020
0	1	0	0

## Public Road Safety Project

Based on the dialogues with communities within vicinities of our 5 operating plants, we learned of problems and needs the communities were facing. We came to realize that with our knowledge and experience in road safety, we could work with the communities to make our roads safer and without costly maintenance expense especially during rainy season through our flagship activity, Patching Pothole.



Source : <http://saferoadsae.unir.or.id/wp-content/uploads/2018/03/Road-Safety-Strategy-January-26-2018-reduced.pdf>

## Public Road Safety Strategy

### Safety on the road

### Road Accident



## Case Study : Patching Pothole with Asphalt Premix



### Community development and sustainable society



We are committed to be part of sustainable society development driven by business activities. We contribute to promoting public road safety as asphalt producer for road pavement and making efforts to reduce social and environmental impacts from operations.

We are also dedicated to continued product development to address environmental and social issues, with products such as Dust Control solutions and Tipco Premix. In line with our strategy 2025, this approach not only enables us to help the society but also generate business opportunities that are environment-friendly as well.

We aim to achieve 200 tons in volume solely from these special products by 2025.

In addition, we continue to study and develop new products and services to address societal problems as well as sharing our expertise to help with job opportunities for others such as providing skills development for asphalt paving in collaboration with Department of Skill Development.



Scan QR Code for patching pothole with Tipco Premix



Scan QR Code for video of Road maintenance project (2017-2020)

### Patching Pothole

We cooperated with Department of Rural Roads to implement temporary road maintenance (1-2 year period), and the road maintenance project is currently ongoing. This project is participated by volunteers, high way police, and communities. We demonstrated how to use asphalt premix to fix the potholes which normally takes 2-3 hours. This DIY fixing can be done conveniently. We received good feedback that the communities are interested in using our products.

### Business Benefit Metrics

- Improve innovation capabilities to develop environment-friendly products such as asphalt premix
- Enhance corporate image as Innovative Asphalt Leader
- Create network of knowledge-sharing across 5 operating plants
- Increase revenue (over 0.5 million baht) from products used

### Social and Environmental Benefit Indicators

- 7.98% SROI
- 1,150 participants in road maintenance
- 8 roadways completed maintenance

(Scan QR Code for Road Safety Project - Patching Pothole with Tipco Premix)



## Highlights of Social Activities/Projects

In 2020, we were not able to organize social activities as planned for safety reasons due to the COVID-19 outbreak. Some of the activities were postponed or cancelled. Therefore, we shifted our plan instead to monitoring 6 current projects: 4 of which were still running and 2 of which were postponed.

### Our Proud Volunteers

Thai Bitumen Company Limited received Prime Minister's Industry Award 2020 for Outstanding Achievement in Corporate Social Responsibility. The award by the Ministry of Industry recognizes the company's commitment to social and environmental responsibility.

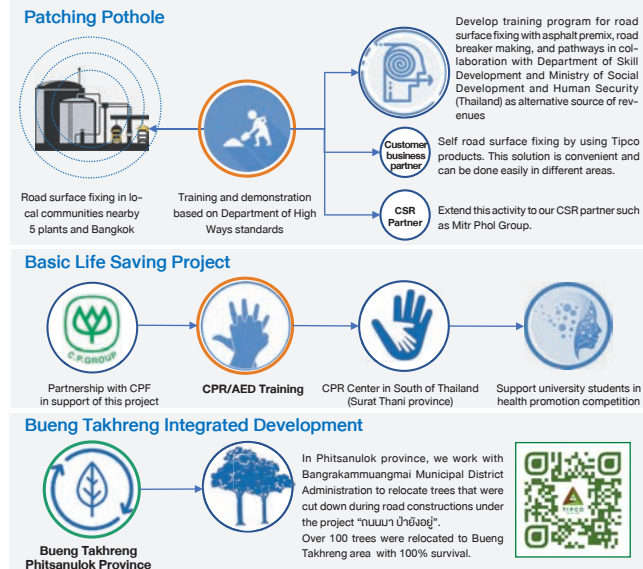
We are proud of their dedicated time and participation in social activities to improve the livelihood of local communities. We are also proud of their efforts to set up a CSR network in Surat Thani province joined by other private partners and the Ministry of Social Development and Human Security in Surat Thani province.



Type of project		
	Economic	Environment
	Social	
	<b>Patching Pothole with Asphalt Premix</b> The project aims to ensure safety for all road users and public at large. The project is about road surface/pothole fixing which may cause accidents.	<b>18</b> Projects
	<b>Road Safety for Kids</b> This is another project under Road Safety for All aiming to provide road safety knowledge and traffic rules to children for their own safety on the road and while commuting with their parents.	<b>13</b> Times
	<b>Basic Life Saving Project</b> The project aims to provide basic life-saving training and how to use defibrillators based on guidelines by the Life Saving Standards Committee & The Heart Association of Thailand for the benefit of general public.	<b>2,019</b> Participants
	<b>SMART Knowledge Sharing</b> This initiative will be implemented under "social cooperation" project where the main objective is to develop special expertise for asphalt profession such as road maintenance and speed breaker making.	<b>New Projects</b> To be launched post COVID-19 crisis
	<b>Higher Education Innovation Contest Project</b> This initiative will be implemented under "การส่งเสริมการวิจัย" project where the main objective is to improve operational effectiveness with new technologies.	<b>New Projects</b> To be launched post COVID-19 crisis
	<b>Buang Takhreng Integrated Development</b> This project aims to create an ecosystem while conserving and restoring water sources. The project was designed as an integrated learning and tourism center. We continued to support tree planting in the area.	<b>3,168</b> Trees planted

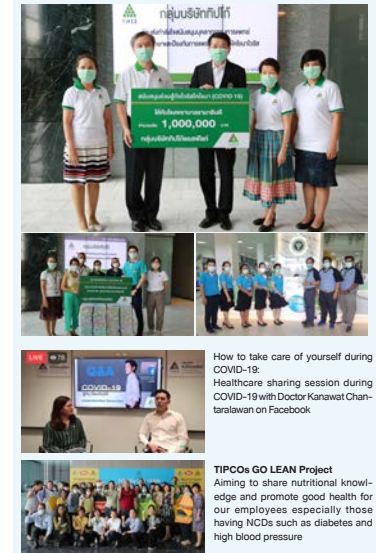
## We continue to fine tune our social projects to address community needs

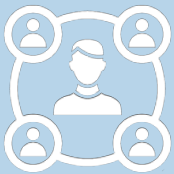
There are 3 key projects where we continue to adjust our activities to serve more benefits to local communities.



## In Fight Against COVID-19

Donating protective kits to medical staff such as face shields





## **Good and transparent corporate governance**

- **Good Corporate Governance**
- **Code of Ethics Adherence**
- **Customer Centric Approach**
- **Respect for Human Rights**
- **Protection of IT Network**
- **Tax Management**

## Management Approach for Other Materiality Topics in 2020

### Good Corporate Governance

The Board of Directors recognizes the importance of good corporate governance to the Group's sustainability, shareholder value, as well as trust among all stakeholders including shareholders, employees, customers, business partners, competitors, and creditors.

The Group adheres to guidelines of The Stock Exchange of Thailand, Corporate Governance Report of Thai Listed Companies, and AGM checklist. In addition, the Group has adopted the corporate governance code for listed companies 2017 (CG Code) developed by the Securities and Exchange Commission (SEC).

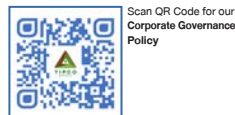
The Board of Directors announced our Corporate Governance Policy to ensure effective oversight of the Group's governance, sustainability management, and anti-corruption practices as well as to promote overall governance in accordance with GRC. The requirements also include building self-awareness and responsibilities in line with the Corporate Governance Policy for the Board of Directors, employees, business partners, and relevant stakeholders.

#### Progress Updates in 2020

- Adhere to Annual General Meeting guidelines in accordance with AGM Checklist
- Adhere to Corporate Governance Report of Thai Listed Companies (CGR) by Thai Institute of Directors (IOD)
- Complied with anti-corruption policy, monitoring, and reporting practices and regular participation in Thai Private Sector Collective Action against Corruption (CAC) activities
- Monitored and reviewed corporate sustainability issues
- Reviewed and proposed to the Board of Directors Corporate Governance practices in accordance with CG code 2017 applicable to the Company's context

#### Results in 2020

- AGM Checklist : 98%
- CGR Score : 5 Star (3 consecutive years)
- CAC Recertification on 30 June 2020
- Received Sustainability Disclosure Award 2020 by Thaipat Institute
- Qualified in the SET THSI index since 2018
- Received Outstanding Company Performance Awards by The Stock Exchange of Thailand (SET) for market capitalization between 30,000 and 100,000 million baht



Scan QR Code for our Corporate Governance Policy

#### Targets

##### 2020

- AGM Checklist : 98 %
- CGR: 5 Star
- CAC Recertification





##### 2025

- Corporate Governance recognitions at highest level in accordance with CG Codes by relevant bodies such as The Stock Exchange of Thailand, The Securities and Exchange Commission, and Thai Institute of Directors.



## Strong Corporate Governance

The Nomination and Remuneration Committee perform duties in nominating persons by consideration of appropriate qualifications in accordance with Policy on Director Qualifications and Nomination policy. The Board of Directors should consist of members with necessary qualifications stipulated by law. There should be the diversity in different backgrounds including education, professional experience relevant to the Group with no discrimination in gender, age, ethnicity, and nationality.

Independent Directors	Women in Board	10 Non-Executive	Board Assessment
 6 : 15 Independent directors out of Board of Directors	 1 Female Director	 4 With direct experience in core business	 Average collective score

## Board Skill Development

The Board has endorsed the policy to promote and support skill development for the board members and top management to improve necessary knowledge and skills through different training courses organized by the Thai Institute of Directors and other relevant organizations. In 2020, the training courses for board members and top management are listed below.

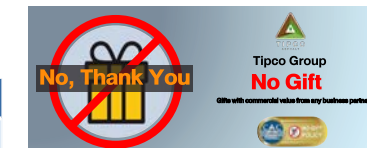
Board Member	Type	Training Course
Mr. Nopporn Thepsithar	Independent Director	<ul style="list-style-type: none"> <li>Risk Management Program for Corporate Leaders (RCL 21/2020)</li> <li>Strategic Board Master Class (SBM 9/2020)</li> <li>Board Nomination and Compensation Program (BNCP 10/2020)</li> <li>หลักสูตร IT Governance and Cyber Resilience Program (ITG 15/2020)</li> </ul>
Mr. Niphon Suthimai	Independent Director	<ul style="list-style-type: none"> <li>Board Nomination and Compensation Program (BNCP 10/2020)</li> </ul>

## Performance Assessment of CEO and Executive Directors

The assessment of CEO and top management is in line with our Corporate Strategy for Sustainable Organization by focusing on sustainable business not only in terms of financial performance but also in consideration of environment, society and governance.

Assessment criteria reflect corporate sustainability management which includes enterprise risk management, corporate governance, anti-corruption (CAC participation) as well as human resource development and environmental protection.

## No Gift Policy



We communicate guidelines for board members, management, and all employees especially during normal gift-giving occasions on our "No Gift Culture." The message is extended to customers and partners through electronic mail detailing our purpose, cooperation requests and to other stakeholders through our corporate website. We emphasize our commitment and are committed to set a good and fair standard of business practice for all relevant stakeholders.

## Management Approach for Other Materiality Topics in 2020

### Code of Ethics Adherence

The policy and guidelines on corporate governance are specified in our corporate governance policy which includes roles and responsibilities of the Corporate Governance Committee and top management. The continued growth and successes of the Group is the result of adherence to corporate core values and ethical practices by all including board members, management, and all employees. This code of ethics unites us all towards good corporate governance and gives assurance to our shareholders, investors, and other stakeholders.

To ensure full transparency and auditability, the Group establishes a clear whistleblowing process to enable employees and stakeholders to file complaints of observed unethical behaviors.

In 2020, the Code of Ethics was amended in the employee complaint section under board members or CEO. It also includes nomination of fact-finding committee and authorities in case of any changes in IT system-related information. All of these will be conducted with confidentiality.

We continue to communicate to all employees, stakeholders, and external parties. The feedback received is used to improve internal processes in consultation with SET and Corporate Governance Committee.

#### Results in 2020

- Employee communication: We provided Code of Ethics training to all new employees. In 2020, we also provided additional training to the current employees on Code of Ethics and Anti-Corruption matters. However, with the constraint during COVID-19 outbreak, we provided training through online channels.



Complaint in Ethics related matter

**0** case



Scan QR code for our Code of Conduct

#### Targets

##### 2020

- 0 Complaint in ethics-related matter

##### 2025

- Promote ethical awareness, provide training, and conduct knowledge testing
- 0 Complaint in ethics-related matter



### Anti-Corruption

The Board of Directors established our Anti-Corruption Policy and Anti-Bribery Policy. We are committed to the fight against anti-corruption that could happen throughout business supply chain to ensure effective risk management and prudent operations and decision making. Since 2017, we have been a certified member of CAC (Thai Private Sector Collective Action Against Corruption) and our membership was recertified in 2020, which is valid for 3 years.



#### Key changes in 2020

- CAC membership re-certification
- Anti-Corruption Manual
- Corruption risk review and monitoring

#### Results in 2020

- Successful CAC membership recertification (3 year validity)
- Completed Anti-Corruption Manual and communicated to all employees
- Provided Anti-Corruption Policy and knowledge training to new employees



Scan QR Code for our Anti-Corruption Policy

#### Targets

- Re-certification of CAC membership with extension of 3 additional years
- 0 Corruption related complaint
- Maintain CAC membership status and promote anti-corruption/anti-bribery/anti-fraud practices to our business partners.



## Management Approach for Other Materiality Topics in 2020

### Customer Centric Approach

We emphasize the importance of customer centric approach in our customer service. In 2019, with our new vision 2025, one of our corporate strategies is Customer-Centric Approach. We invest efforts to address customer expectations and anticipate their future needs.

Feedback from the customer survey will be incorporated to improve and develop products and services. All relevant teams involved in the customer journey will participate and contribute, not only limited to the marketing team. This includes sales, technical services, logistics and truck drivers. Everyone can take a customer's feedback and share with relevant teams to further improve and address the customer's needs. Our employees can also develop innovative projects for better products, services, or work processes.

Our Annual Innovation Award is convened every year with financial support from the Group. For example, in 2020, over 85% (67 out of 79 projects) of employees submitted their innovation proposals in order to address the needs or suggestions from customer feedback. We also support the extension of cooperation between employees, customers, and other educational institutions to solve societal and environmental issues. In other words, the collaboration aims to generate external innovative creation. For example, we have a project with King Mongkut's University Of Technology Thonburi. However, it was put on hold due to the COVID-19 pandemic. We expect the collaborative projects to uplift our contribution to the society and build a strong ecosystem through collaborations with different parties.

The customer survey initiative was kicked off by our Domestic Marketing team. The team conducted a survey among 92 customers and received valuable feedback which helped improve our work efficiency in delivery and tracking processes. As a result, we launched our Digital Customer Order Application and trials were conducted throughout 2020. Our customers expressed their satisfaction. With this success story, other business units in our supply chain are working on digital solutions to provide better service and improve efficiency.



Scan QR Code for our  
Customer-Centric  
Management

#### Key changes in 2020

- Developed an application to provide convenient digital platform to better serve customers
- Incorporated datum-driven approach to better serve customers and address their needs more effectively

#### Results in 2020

- Implemented Digital Customer Order Application to facilitate ordering and delivery tracking for better service efficiency and accuracy
- Developed Dust Control products to address customers' concern of pollution
- Designed new packaging to suit different customers, such as 5 kg and 10 kg for retail customers, in addition to the conventional 20 tons which is more suitable for contractors

#### Targets

##### 2020

- Streamlined sales process
- Provided platform for product delivery tracking

##### 2025

- Proactively address customer needs across value chain and create integrated system to proactively address customer needs
- Integrate seamless internal cooperation and facilitation to create impressive Customer Journey



## Customer-Centric Driven Culture throughout Value Chain

In order to build sustainable good customer relationship, we recognize all parties are important and can collectively contribute experience and knowledge from their exposure throughout the customer journey in many aspects. Hence, customer relationship management is not only related to marketing and sales teams. We take into consideration all relevant business units across our value chain because everyone can be our Brand Ambassador. Our Customer-Centric approach includes adapting how we work with customers, our attitudes and thinking process in providing service. All employees can be a channel for customer-listening and share feedback internally to holistically improve the entire customer experience for our products and services. This seamless process is expected to transform into our key competitive strength in the market.



### Cultivate Service Mind "Fast Accurate and Reliable"

#### Corporate Strategy 2025: Customer Centric

In 2020, we analysed the results from in-depth interviews with 92 customers collected in 2019 to improve our products and services, and addressed their feedback as follows:

- Developed Customer Order Platform to provide convenient and reliable application to place orders and track deliveries with accuracy and convenience.
- Developed products to solve their concern such as Dust Control solutions to help reduce pollution especially in areas with high traffic volume and local markets.
- Developed employee knowledge and mindset to better provide customer service beyond expectations and enhance holistic customer satisfaction at all touch points.



#### Service Beyond Expectation

- Building customers' long-term trust in our business
- Increase in sales
- Increase in profitability
- Harmonized work environment

#### Continued Sustainable Development

Build sustainable customer relationships and collaboration to address local needs and create mutual competitiveness

## Management Approach for Other Materiality Topics in 2020

### Respect for Human Rights

The Group is committed to ensure proper management in respect of human rights throughout our value chain guided by our Human Rights Policy in accordance with UN Guiding Principles on Business and Human Rights (UNGPs). In order to minimize violations of human rights and related risks across our value chain, we conducted Human Rights Due Diligence Processes: identification of human rights issues, identification of impacted stakeholders, control and mitigation plans, and progress monitoring. We aim to ensure strict protection and no abuses in human rights in our business operations.

In 2020, internal processes related to human rights aspect were reviewed since the previous 2017 version. Additions were made to incorporate non-discriminatory treatment and employment due to differences in political opinions, origins, social background, marital status, personal attitudes, disabilities, HIV, pregnancy, union membership, other rights and opinions entitled to as basic human rights. The addition also included distributing the communication and creating understanding among employees and stakeholders as well as implementing the human rights protection practices in line with our corporate policy and Thai Labor Standard (TLS). This process was approved by the Corporate Governance Committee accordingly. In this regard, we ensure strict monitoring and governance and that our business operations are conducted in respect of human rights across activities in the value chain.

#### Key Change in 2020

- Reviewed internal processes to include non-discriminatory treatment and employment due to differences in political opinions, origins, social background, marital status, personal attitudes, disabilities, HIV, pregnancy, union membership, other rights and opinions entitled to as basic human rights and to include communication and creating understanding among stakeholders

#### Results in 2020

- Revised Human Rights Policy to incorporate non-discriminatory treatment to differences based on Thai Labor Standard
- No complaint in human rights-related case from any corporate channels
- Human rights risk assessments: Low level of risk



Scan QR Code for our Human Rights Policy



Scan QR Code for our Management Approach in Human Rights

Complaints in 2020

0 Case

#### Targets

##### 2020

- 0 Case of human rights-related issues from any corporate channels
- Human rights risk management: Medium to low level of risk target

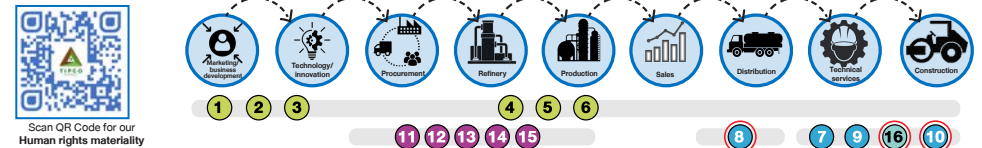
##### 2025


- Knowledge-sharing on global issues and management in human rights to management and employees
- Ensure up-to-date Human Rights Policy with global standards
- Human rights risk management : Low level of risk target



## Human Rights Materiality Issues

In 2019, the Group conducted human rights risk assessment and in 2020 the risk assessment was reviewed on a total of 16 issues: 6 employee-related, 4 customer-related, 5 business partner-related, and 1 road user/community-related. The risk assessment for these issues was considered medium level. After control measures were taken into consideration, there were 13 risks remaining within the risk appetite. One of them requires follow-up with customers and another requires follow-up with the community. There is one customer issue related to safety that requires further risk management measures.



Human Rights Materiality Issues	Risk	Impact	Management Approach
<div><div><div>1 Employment</div><div>2 Compensation</div><div>3 Training and education</div><div>4 Occupational Health and Safety</div><div>5 Working environment</div><div>6 Corporate engagement</div><div>7 Working conditions</div><div>8 Occupational Health and Safety</div><div>9 Working environment</div><div>10 Training and education</div><div>11 Working environment</div><div>12 Occupational Health and Safety</div><div>13 Child labor</div><div>14 Forced labor</div><div>15 Illegal labor</div><div>16 Safety and well-being</div></div><div><div>Impact</div><div>Likelihood</div><div>Risk level</div><div>Extreme danger</div><div>Unacceptable</div><div>Not satisfied</div><div>Acceptable</div><div>Satisfied</div><div>Require immediate attention/monitoring</div><div>Immediate attention</div><div>Manage</div><div>Monitoring/ follow-up</div><div>Monitoring/ follow-up</div></div><div><div>According to the group of stakeholders</div><div>Employees/Partners</div><div>Suppliers/Partners</div><div>Customers</div><div>Road users/Communities</div></div></div>	<div>Road construction training for customers</div> <div></div> <div>10</div>	<div>Incorrect product use and resultant product quality can impact the reputation of producing company such as asphalt paving during heavy rain can cause leakage to local areas</div>	<div><ul style="list-style-type: none"><li>• Provide product use training for site workers and their supervisors</li><li>• Share knowledge on climate change and impact to asphalt works</li><li>• Assess operational risks during extreme weather (heavy rain and storms)</li></ul></div>
	<div>Safety and occupational health of customers</div> <div></div> <div>8</div>	<div>Potential accidents from operations by contractors:</div> <div><ul style="list-style-type: none"><li>- Unloading asphalt into customers' tanks</li><li>- Using improper equipment in asphalt paving</li><li>- Road traffic around work sites</li></ul></div>	<div><ul style="list-style-type: none"><li>• Train customers and their workers on the proper use of equipment and safety</li><li>• Provide safety training for security officers by technical services team</li></ul></div>
	<div>Safety and livelihood of road users and communities</div> <div></div> <div>16</div>	<div>Potential dangers, injuries, and deaths of road users and passengers due to unsafe roads in local communities</div>	<div><ul style="list-style-type: none"><li>• Demonstrate road maintenance practices to government authorities and students interested in social activities</li><li>• Share knowledge through various channels to keep their roads safe on their own and save cost on minor road maintenance</li></ul></div>

## Management Approach for Other Materiality Topics in 2020



We are committed to improve secured and transparent IT standards and ensure effective governance in personal data protection. This includes data collection, processing, and use in accordance with intended purpose that is approved by the data owner. We will ensure all personal data collected will be kept with security, and the data owner is entitled to request for actions related to their personal data at anytime.

The majority of our business transactions deal with business to business and less with business to customer. However, we are exposed to potential personal data risks requiring special considerations in different areas: employees, retail customers, suppliers, business partners, individual shareholders, as well as data collected on corporate websites (cookies).

On 28 February 2019, Thailand's Personal Data Protection Act (PDPA) was approved by the National Legislative Assembly. The main objective was to provide a procedural framework on personal data protection. On 27 May 2019, PDPA was signed and endorsed by the monarchy that enforced all listed companies to comply with. However, the enforcement was then postponed to 31 May 2021.

### Key changes in 2020

- Prepared proper equipment and tools for Work From Home employees with secured network and infrastructures to prevent cyber attacks
- Set up a working team to study impact and risk assessment of PDPA for further planning across business units
- Applied PDPA framework in corporate data security system

### Results in 2020

- 0 Cyber attack
- 0 Complaints related to data security
- Cyber risk assessment by cyber risk experts
- Improved IT infrastructure: Data security and reliable IT system to support Work From Home practice
- Communicated and raised awareness to employees on cyber and internet use related risks.



Scan QR Code for our  
Cyber Security Policy



## Our Goal for Cyber Security and IT System

IT system enabled us to maintain our operations especially during the Work From Home practice. Over 50% of our communication and operations required web-based platform and cyber connections. This new normal exposes us to more cyber attack risks that can cause damages to data security, IT equipment, and our main operating system (ERP - Enterprise Resource Planning)

Guided by our corporate Enterprise Risk Management framework, cyber attacks/IT security/personal data security is one of our key corporate risks since 2020. This is in line with global risks identified in the Global Risk Report 2020 by World Economic Forum.

We have set the target to manage cyber security and IT system as well as our human capital, and seek professional recommendation from external parties to manage this emerging risk accordingly.

### 1-Year Goal and Results (2020)

#### First Half

Personal data protection registered as top corporate risk

#### Second Half

Set up working team to study and assess PDPA impact and potential risk for further internal coordination

- Improved IT infrastructure especially in data security and cyber security
- Developed secured applications in line with international standards
- Applied PDPA framework to improve data security measure
- Regularly reviewed effectiveness of IT security system and uses
- Verify protection systems and methods of attempts.
- Assessed new emerging risks in data security



### 5-Year Long-Term Goal (2021-2025)

- Seek legal consultation specializing in PDPA
- Due diligence of personal data risk
- Develop workflows of personal data
- Develop Personal Data Protection Policy and seek approval from the Board of Directors
- Review internal processes and documentation system such as contacts, forms, and other documents
- Appoint Data Protection Officer (DPO) and establish communication channel
- Report work progress and develop security systems
- Collaborate with private and public sectors in cyber security

## Management Approach for Other Materiality Topics in 2020

### Corporate Tax Management

The Group is committed to good corporate governance, transparent business operations, and upholding to good corporate citizenship and sustainability. Tax management is conducted in a such a manner for utmost benefits to the Group and stakeholders while capitalizing on tax benefits and tax exemptions to support investments, employment, and economic growth in accordance with the laws and regulations.

In 2020, the Group announced our Corporate Tax Policy with full details accessible online. The policy includes identification and assessment of tax risks, timely tax payment, tax considerations incorporated in investment viability, and intercompany transactions complied to tax regulations and international standards. This is to ensure correct and fair tax payment. In terms of new investments, we ensure that tax management is in compliance with regulations and is in line with business activities and strategies. We also take into consideration tax benefits or tax exemptions for the benefits of stakeholders. The tax management is also audited and reported to the Board of Directors for acknowledgment to ensure the tax management is in compliance with relevant regulations, effective auditable tax payment, and attract long-term investments in the organization.

In 2020, our income tax was 757 million baht compared to 509 million baht in 2019. The increase was due to higher profit before income tax as compared to previous year. The net profit after tax was 3,592 million baht and represented 2.28 earnings per share in 2020 compared to those in 2019 with 1.98 earnings per share.

The Group cultivates awareness of the importance of tax among employees across our value chain activities. This includes, for example, keeping necessary tax invoices and documents of customers and business partners. We recognize that strict tax management in compliance to regulations is fundamental to sustainable business, corporate reputation, social responsibility, economic contribution, as well as keeping good relationships with relevant tax authorities through correct, transparent, and auditable tax information disclosure.

#### Key change in 2020

- Reviewed and assess tax related risks and internal control measures

#### Results in 2020

- Announced Corporate Tax Policy and enforcement
- Communicated Corporate Tax Policy to company employees and subsidiaries, and followed up in operations by Board of Directors

Scan QR Code for our  
Tax Policy



#### Targets

**2020**  
Develop Corporate Tax  
Policy for the Group

#### 2025

- Assess and review tax related risks to ensure transparency and compliance with the law
- Provide training in tax knowledge to employees and develop guideline manual



## Responsible Tax Practice at Tipco Asphalt Group

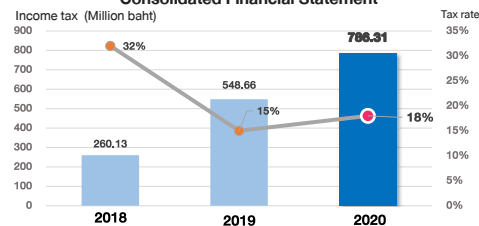
According to Thailand's corporate income tax law, Tipco Asphalt Group income tax rate is 20%. In 2020, the actual tax payment according to separate financial statements was 18%. This is due to management of tax reduction in different areas: increase in tax deductible expenses, income tax exemptions and tax benefits from International Business Centre (IBC).

Unit: Million baht

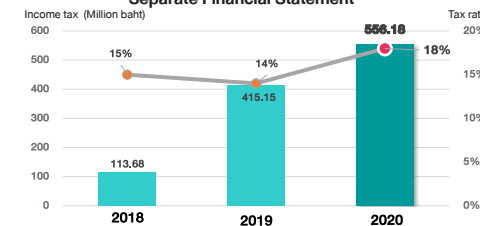
Items	2018		2019		2020	
	Consolidated Financial Statement	Separate Financial Statement	Consolidated Financial Statement	Separate Financial Statement	Consolidated Financial Statement	Separate Financial Statement
Sales & Service Income	27,631.92	24,683.03	36,892.97	33,640.72	26,155.27	22,943.39
Profit Before Income Tax	814.76	921.13	3,654.73	2,876.81	4,354.84	3,025.87
20 % Corporate Income Tax rate (Thailand)	(162.95)	(184.23)	(730.95)	(575.36)	(870.97)	(605.17)
Corporate Income Tax	(260.13)	(133.68)	(548.66)	(415.15)	(786.31)	(556.18)
Corporate Income Tax Rate	32%	15%	15%	14%	18%	18%

Note: Details of the reconciliation transaction between income tax expenses and the product of accounting profits and the applicable tax rate. Refer to the 2020 Annual Report, page 211.

#### Consolidated Financial Statement



#### Separate Financial Statement



- Human resource management
- Employee Training and Development



**Value for the  
Future**

*Ready for changes in the world*

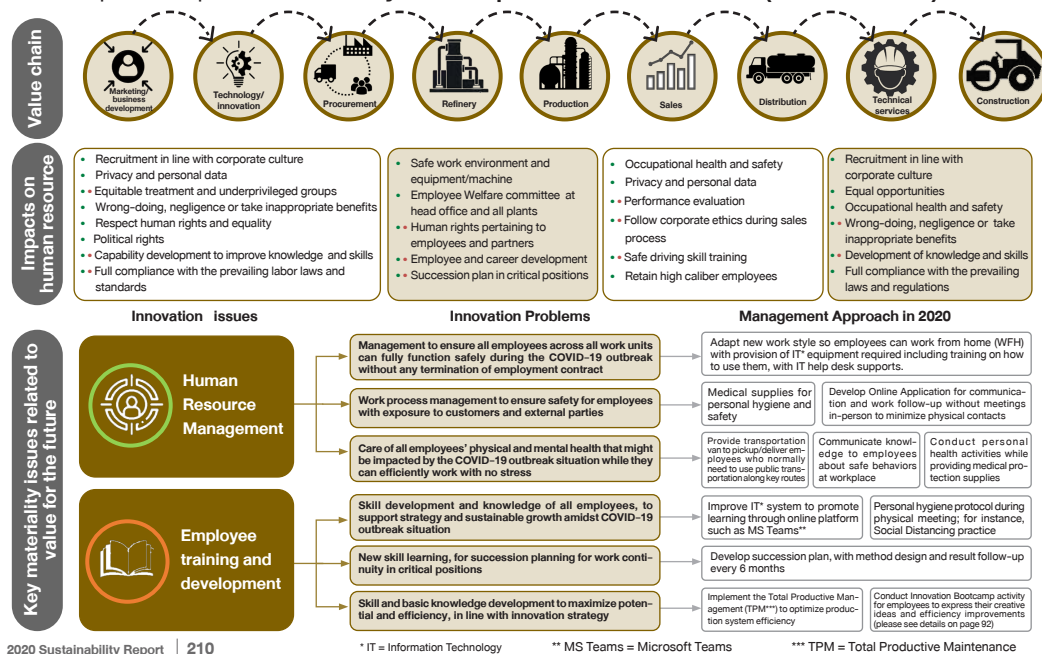
*Focusing on*

**Human capital  
development**

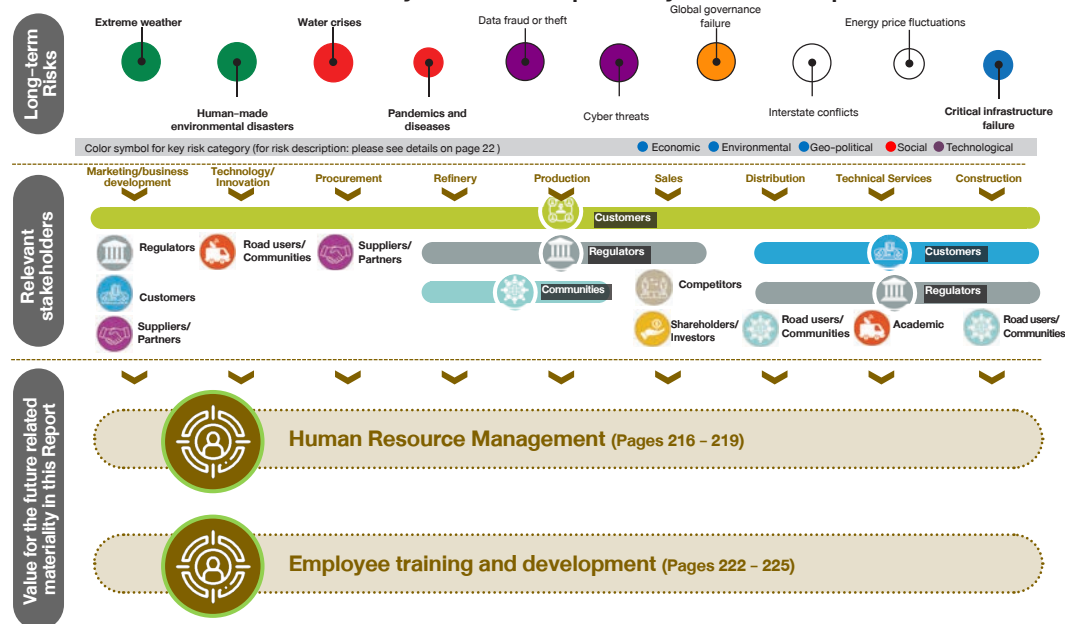


Strong and good-humored human resource management team

## TPCO Asphalt Group : Value chain analysis and impact on value for the future (human resource)



## Value for the future related materiality risk factors: Impact analysis on the Group's businesses



## Human Resource Management to ensure all employees' well being



## Linkage of employee participation and business operating performance



Human resource management that deliver value added



## Employee Management

## Results from sustainable development materiality topics in 2020

### Employee Management

TIPCO Asphalt group provides great care to ensure  
“happy employees”

**THE POWER OF  
WELL-BEING  
HEALTHIER, TOGETHER**



TIPCO Asphalt Group's vision on human resource management focuses on career development in line with personal happiness. While the Group has expanded our business operations across several regions, great work environments are created to enhance mutual collaboration and good morale among staffs. The ongoing COVID-19 outbreak in 2020 hence forced the Group across all locations to revise human resource management approach amidst new constraints that employees can no longer conveniently travel to attend training visit trips or conduct knowledge sharing activities. Meanwhile, the Group formulates corporate strategic direction to become an organization with innovation culture; this aspect can be witnessed through our implementation of online systems to facilitate our business contact and communication including online activities across different countries. This serves as a great opportunity to integrate human resource management database across the whole group since 2018 and completed in 2020. This full integration enables smooth human resource management with efficient business operations.

During COVID-19 outbreak, we take great care of our employees not only on physical health but also through constant communication to raise everyone's spirit, with great health. We are convinced that everyone will get through this tough situation together safely.

#### Key changes in 2020

- Assessed and evaluated COVID-19 outbreak while proposing preventive and control measures for COVID-19 outbreak to employees
- Promoted and supported online work systems so most employees could Work From Home as much as they could
- Raised awareness and constantly communicated on disease outbreak to employees
- Developed digital online platforms to facilitate HCM service requests for convenient follow-ups
- Adopted flexible work hours to reduce congestion during rush hours including bus services for employees, to reduce their use of public transportation while providing employees with medical supplies to prevent disease spread

#### Results in 2020

- 25% promotion rate or high caliber employees to management position
- 100% retention of high-potential employees
- 5.37% resignation rate
- 100% rate of resuming work, after maternity leave



You can scan QR Code to access Thai Labor standard policy

**“Employees who enjoy their work will also be reflected in customers' satisfaction...”**

#### Target

##### 2020

- 25% promotion rate or high caliber employees to management position
- No more than 10% resignation rate
- 100% rate of resuming work, after maternity leave

##### 2025

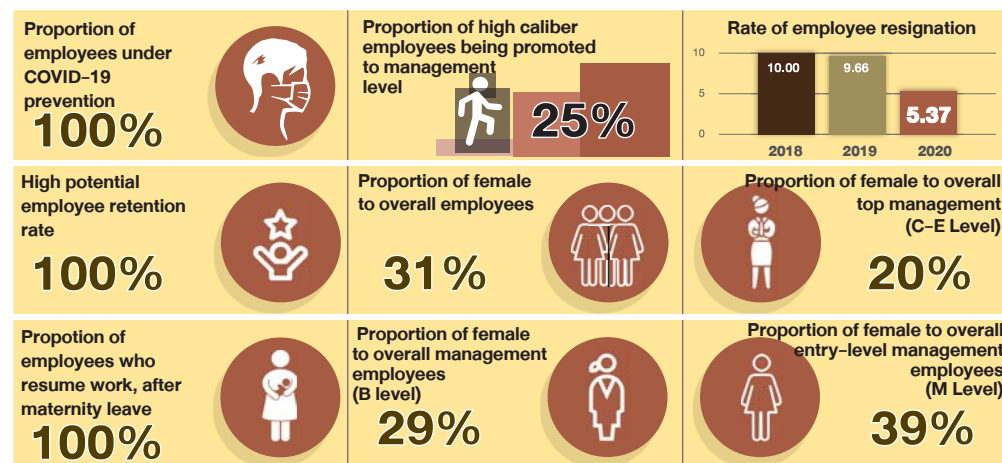
- 90-days Average Time to fill in recruitment, for manager level up
- Quality of Hire criteria of high-potential employees who pass work evaluation during the first 6 months



## Development of employee potential, incentives and retention

The Group develops Job Competency Profile manual for each position, as communication tool for employee development between supervisors and subordinates. A criterion was set on development needs assessment of at least once a year for employees as supplemental to Individual Development Plan (IDP) set forth by the Group for employees' work development plan. This also serves as part of annual performance evaluation which comprises 3 steps; namely, Planning, Coaching and Reviewing. As for performance management, we follow systematic guidelines in Work Instruction throughout the organization, which is done via an online system so the management, supervisors and employees can utilize the database on evaluation and mutual understanding during communications.

In addition, the database allows the Group to better manage annual salary and bonus adjustments according to performance evaluation scores. Budget setting for annual salary and bonus adjustment is not based on the average score while each individual employee's annual adjustment will be different depending upon his/her performance evaluation.





## Training & Development

*We continue to develop, whether offline or online*



## Results from sustainable development materiality in 2020

### Employee development Focus on Growth Mindset

### “Creating growth mindset”

### Access to coaching/training during COVID-19

With the Group's corporate strategic goal that focuses on being customer centric, our human resource management approach is similarly 'employee centric' by standardizing our work environment while promoting mutual work collaboration professionally, attracting high potential candidates and accelerating employee development to groom them to become future leaders.

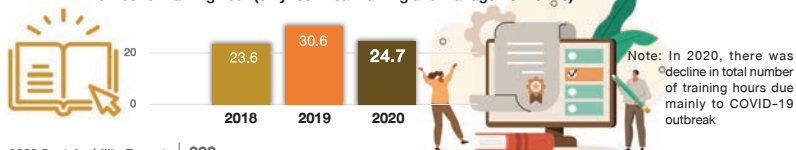
#### Key changes in 2020

- Designed and developed DUST CONTROL special formula, which is environment-friendly for better adhesion on laterite road surfaces or parking lots, to minimize dust diffusion into the air
- DUST CONTROL is designed for application on any areas and is environment-friendly. Just mix it with water and it can be applied instantly. It is convenient as there is no need for pre-heating or toxic chemical additives
- Once completely dry, DUST CONTROL will enhance road surface durability, and will not dissolve when exposed to rainwater and hence is environment-friendly while creating no contamination to public water sources in nearby communities

#### Results in 2020

- 36 hours/person/year of total training hours, or 24.7 hours/person/year (only technical knowledge and management skills)
- 95.24% succession planning
- Delay in One-Group-One-System project enforced a review to suit the COVID-19 situation in which each country needs to adapt in accordance with changing situation. For instance, work from home protocol in which employees need to adjust their work styles as well as personal lives. The Group focused on providing software system and hardware equipment including supporting healthcare of employees and their families

Number of training hour (only technical training and management skills)



## THE POWER OF LEARNING SMARTER TOGETHER



#### Targets

##### 2020

- Number of training hour per staff (only technical training and management skills) must be greater than 24 hours per year
- 100% succession planning

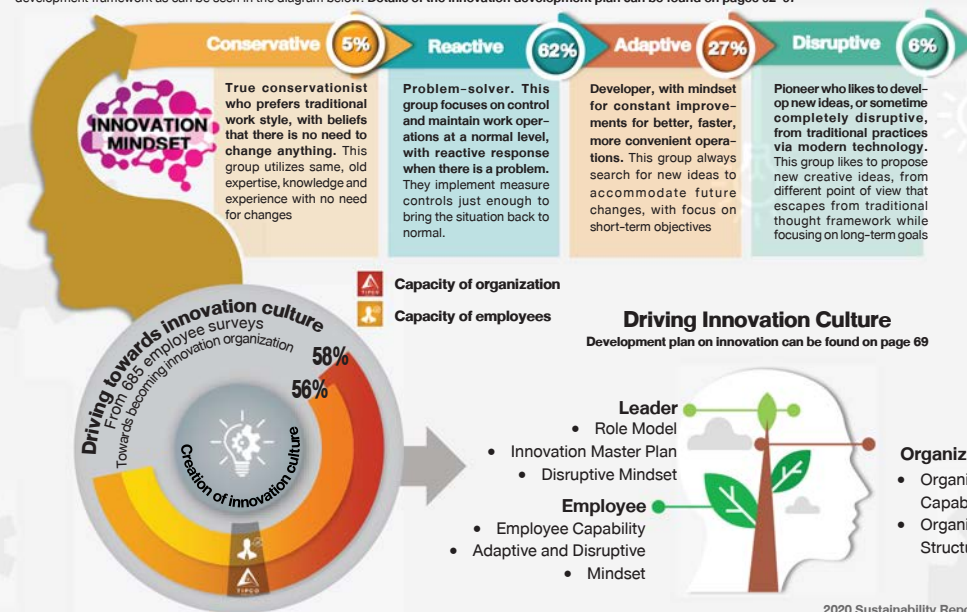
##### 2025

- Career development plan, as measured by progress in IDP for high-potential employees, must be greater than 75%
- 100% succession planning across all target positions



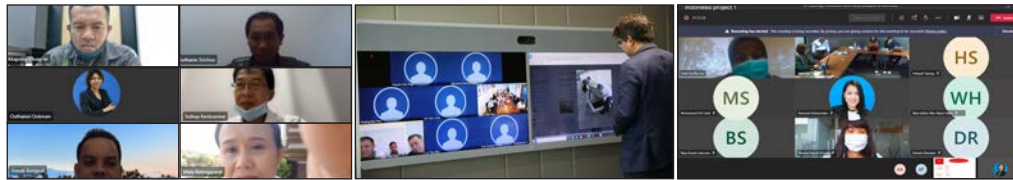
## Employee development to drive innovation culture

The knowledge management approach of the Group aims to drive innovation culture, while encouraging employees to develop Disruptive, Adaptive, and Reactive mindset. According to the innovation culture survey during March 2021 with 85% employee participation, we can classify employees into 4 groups according to our Innovative Mindset development framework as can be seen in the diagram below. Details of the innovation development plan can be found on pages 92-97

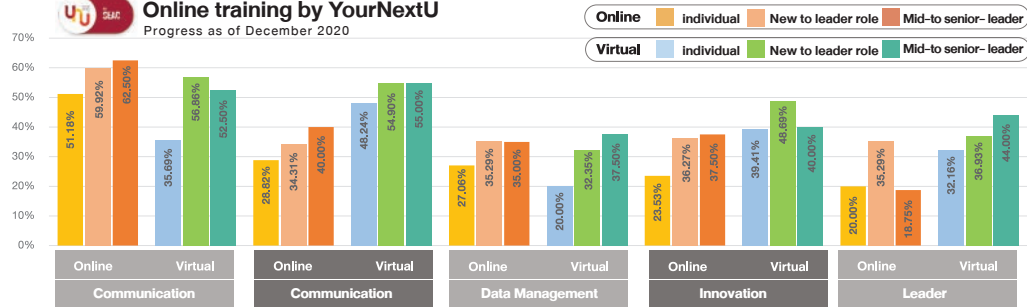


## Limitless learning in COVID-19 crisis

The Group including all subsidiaries reviewed the method and channels for employee development, in line with COVID-19 outbreak prevention measures in 2020, by adopting IT platforms such as Virtual classroom, or Online classroom. As for internal training courses, Microsoft Teams is used for communication, data collection, idea exchanges and presentations hence allowing all trainees across any locations to access the database and can efficiently utilize this communication channel. As for training activities hosted by external parties, they received great participation from employees through online platforms where information can be shared efficiently from both internally arranged training to those conducted by external speakers or agencies. These support systems allowed us to achieve our human resource development goal in 2020 while providing employees with opportunities to be familiar with use of new technology that will help with future coordination.



### Online training by YourNextU Progress as of December 2020

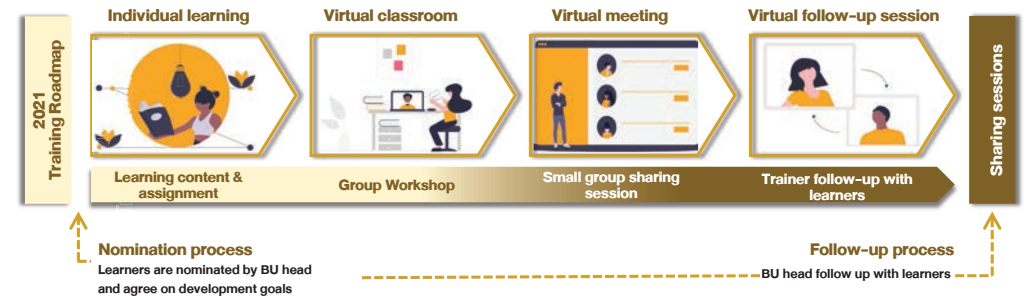
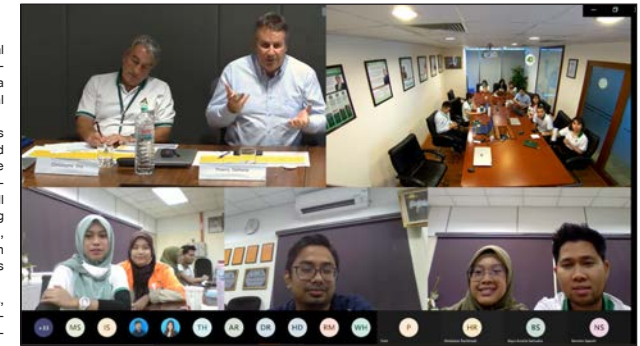


## Learning approach for 2021

The Group combines knowledge learning process from Virtual and Online Classroom for employees to participate in online activities. This allows employees to be exposed to new learning through a variety of channels while they can become more familiar with digital learning platforms.

With objectives for employees to excel in career growth as well as their personal lives, the Group place priority on learning and capacity development for employees across all levels to ensure they are equipped with knowledge, expertise including their interest in focusing on certain areas of work through Up-skill, Re-skill and, New-skill approach. We encourage and promote self-learning through electronic media and online platforms, such as YourNextU, at their own convenient time, for each employee to discover and learn about work areas or topics of their own interests across all aspects on capability developments.

In order to prepare our employees for business challenges, Interactive Learning has been adopted, with focus on actual experience and implementation to drive businesses and employee developments, in a sustainable manner.



## Training hours pertaining to environment, occupational health and safety

TIPCO Asphalt Group developed a training course on environment, occupational health and safety for employees and contractors to be aware of impacts on environment from our operations while promoting occupational health and work safety. The course was designed based on key requirements from work positions, risk assessment pertaining to environment and danger in accordance with ISO14001 environment management standard, ISO 45001 measures on safety and occupational health management and measures on road traffic safety management (RTF).

In 2020, there were 3,044 hours of overall training pertaining to environment that the Group conducted for our employees and contractors, coupled with 7,522 hours of occupational health and safety training, hence the average training hours of employees and contractors in the table to the right.

Unit: Hours of Training/head/year in 2020

Participants	Environment-related Training	Occupational Health and Safety Training
Employees	4	17
Contractors	5	1

## TPM : Total Productive Maintenance

Since 2019, the Group began to train employees of Thailand Operations on TPM, starting with Nakhon Ratchasima and Rayong plants as sample models for TPM implementation. The TPM policy was officially announced on 19th May 2021.

In 2020, there were further TPM extensions across 3 remaining plants; i.e., Phitsanulok, Phrapadaeng and Suratthani, where target participants were Operators, Engineers and Unit Heads and Section Heads to ensure full understanding of basic TPM knowledge.

TPM's objective is to develop human resource while revising work processes and standardizing production in order to become a world-class organization. With realization of more intense market competition in production and distribution of asphalt and petroleum products, TPM will play a critical role in strengthening our business operations with sustainable development.

In 2020, there were 9,560 hours of total TPM training conducted for employees, representing average training hours per person per year of 22.6 hours.



You can scan QR Code to access our TPM policy



## TPM: Total Productive Maintenance results in 2020

Since 2019, the Group began to train employees of Thailand Operations on TPM, starting with Nakhon Ratchasima and Rayong plants as sample models for TPM implementation. TPM's objective is to develop human resource while revising work processes and standardizing production in order to become a world-class organization. TPM results in 2020 hence allowed the Group to save over 7 million Baht on operating cost together with 280 ideas on work improvement initiatives by employees through Kaizen process.

TPM: Project category and indicator	Results in 2020	Unit
1. Cost Saving Project	7.1	Million Baht
2. Project on improvement from supervisor (F1 Theme)	43	Project
3. Project improvement from operator (Kaizen Sheet)	280	Project
4. Number of employees participating in TPM Projects (% per Operations employees)	69%	%
5. Percentage of participating employees in TPM projects (Thailand Operations Department)	1,669	Lesson
6. Coaching Operators on basic maintenance	22	Activity



You can scan QR Code to access our TPM activities

**TPM Activity**





## Appendix

- Definitions and technical terms
- Data according to indicators
- Coverage of TIPCO Asphalt Group in this Report
- Accreditation/ Verification from external bodies
- Compliance with the UN-GC
- Survey on sustainability report: readers' feedbacks
- From the Working team

### Definitions and technical terms used in this Report

Technical term	page	definition
<b>Sustainability</b>	<b>1</b>	Long-term value that the organization delivers to stakeholder groups; in economic, environment and social aspects as well as good corporate governance practice
<b>Mission*</b>	<b>12</b>	Mission statement is a statement that summaries the Group's ultimate aim to become in the future. Re-visited every 5 years, the Group's corporate strategy will be crystalized into new Mission. Leaders sometime utilize Mission upon convincing and driving all staffs to align their works in common direction. It also communicates the Group's objective to related stakeholders such as customers, partners, or shareholders to acknowledge this clear, realistic, and tangible goal **
<b>Vison 2025*</b>	<b>12</b>	The Vision statement accompanies Mission on showing how the Group will achieve its Mission. Vision 2025 indicates the 5-year timeline for strategy executions that support the Mission/Vision while indicating what action plans need to be done with more details and be completed by year 2025.
<b>Innovation culture</b>	<b>13</b>	Harmonious mixture between physical environment, social interaction, and work conditions that instill common value, attitude, and paradigm with objective to promote and develop capability on innovation
<b>Innovation idea</b>	<b>94</b>	New initiatives to create innovation to resolve and accommodate needs pertaining to stakeholders of the organization
<b>CSR Volunteer (hour)</b>	<b>189</b>	Staffs or the management can participate upon community activity during- or off- work hours. But calculation of "CSR volunteer operating expenses" will use actual CSR time during work hours, multiplied by average salary pertaining to respective job grade of participating members
<b>Project direct expenses</b>	<b>189</b>	Expenses that the Group directly sponsors to the conduct of social activities (with exclusion of expenses associated with staffs attending the activities)
<b>Project support expenses</b>	<b>189</b>	Expenses that the Group support staffs and other participants such as transportation cost, meals, and other miscellaneous expenses
<b>Cash donation expenses case</b>	<b>189</b>	Financial donation for volunteer activity and local culture supports, sports, including other donations during emergency such as donation for flood victims, donation to medical staffs to fight against COVID-19 outbreak. This type of expense include 'in-kind' donations that the Group provides to other social activities

**Notes:**

\* The Group's Mission an Vision are crystalized from our corporate strategy formulation workshop, and they are for internal use purposes. First announced in 2010, under the recommendation from the Group's strategy consult, the late-Dr. Chatchai Bunnak, Ex-Ford Operation (Thailand) CEO, the group adopted the strategic methodology and design which since then have been used for both internal and external communications such as the Annual Report

\*\* from <https://www.aree-associates.com/our-service/service/vision-mission-core-values-creation/>

## SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs



### ECONOMIC INNOVATION LEADER



Standard			Topics of data disclosure	Performance					Page No. or URL	Note(s) / Omission(s)
SDGs	ISO	GRI		Unit	2017	2018	2019	2020		
Business Performance										
Direct economic value/distributed										
Goal 8	ISO 26000 (8.2,6.8.7)	GRI 102-1	Revenues from sales and services (1)	Million Baht	28,982	27,963	37,626	26,486	20-21	
			Cost of sales and services	Million Baht	25,949	26,979	33,767	21,403	20-21	
			Operating profit	Million Baht	2,537	564	3,123	3,592	20-21	
			Compensation and benefits of employees	Million Baht	1,205	1,090	1,108	1,283	20-21	
			Dividend payment for annual performance	Million Baht	1.2	0.3	1.5	1.6	20-21	
			Income tax payment (2)	Million Baht	371	234	509	757	20-21	
			Social investment	Million Baht	15.3	23	11.9	11.5	20-21	
Innovation										
Innovation Mangement										
Goal 9	ISO 26000 (6.6.5,6.5.2, 6.8.6, 6.8.7)	-	Policy and practice guidelines on innovation development at organization level	Yes/No	*	*	*	*	68	
			Workplan on innovation development pertaining to processes, product/services or business models that are friendly to society or environment, and qualitative benefits from innovation developments	Yes/No	*	*	*	*	72,82,92	
			- Hold corporate innovation contest to improve employee engagement > 10%	%	-	-	24%	20%	92-97	

## SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

Standard			Topics of data disclosure	Performance					Page No. or URL	Note(s) / Omission(s)
SDGs	ISO	GRI		Unit	2017	2018	2019	2020		
<b>Goal 9: Industrial innovation and infrastructure</b>	<b>ISO 26000 (6.6.5,6.5.2, 6.8.6, 6.8.7)</b>	-	- Provide voluntary innovation knowledge - "Innovation Bootcamp"	Yes/No	-	-	-	*	93	
			<b>Data on Innovations pertaining to processes, products/services, or business models that are environment-friendly</b>							
			- Number of creative / innovative projects	Number of Project	-	10	133	79	92-97	
			- Numbr of Green Way Innovation	Number of Project	-	8	52	12	92-97	
			- Number of Product Innovation Projects	Number of Project	-	NA	14	7	92-97	
			- Number of Service Innovation Projects	Number of Project	-	NA	19	8	92-97	
			- Number of Process Innovation Projects	Number of Project	-	NA	100	64	92-97	
			- Number of Employee Engagement activities	Number of Engagement Activity	-	NA	408	256	92-97	
			- Number of innovation projects developed and implemented as a product/service/process.	Number of Project	-	10	86	13	92-97	
			- Number of Employee Engagement activities for Innovation Bootcamp	Number of Engagement Activity	-	-	-	80	92-97	
			- Number of project from Innovation Bootcamp	Number of Project from Innovation Bootcamp	-	-	-	23	92-97	
			<b>Innovation management: Targets</b>							
			- The number of prototype projects implemented in operations is at least 25% of the total number of innovations that year	Number of prototype projects implemented	-	-	NA	32	92	
			- The number of projects submitted for the contest increases by 10% every year	% of incremental projects submitted	-	-	* 141 pper (133 projects)*	* 41 % (79 projects)*	96-97	Note (4)
			- The number of projects submitted by BUs other than Production department, increases by 15%	% increase of projects submitted by other BUs (apart from Production)	-	-	13	6	96-97	
			- Number of Green Innovation ideas > 10 projects	Number of Green Innovation projects	-	-	26	12	96-97	
			- Number of projects implemented in the business is at least 10 projects (starting in 2021)	Number of innovation projects implemented in the business	-	-	-	34	96-97	Note (5)

## SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

Standard			Topics of data disclosure	Performance					Page No. or URL	Note(s) / Omission(s)
SDGs	ISO	GRI		Unit	2017	2018	2019	2020		
Goal 9	ISO 26000 (6.6.5, 6.5.2, 6.8.6, 6.8.7)		Quantifiable benefits from innovation management							
			Economic benefits							
			- 3 new products, with improvements every 2 years	Value (million Baht)	75,098	82,120	114,218	133,866	82-89	
			- Cost reduction from Innovation projects	Cost Reduction (M.THb)	NA	NA	NA	27.8	82-89	
			- Time reduction from Innovation projects	Time Reduction (Hour)	NA	NA	NA	2,812	82-89	
			Environmental benefits							
			- Reduction of CO <sub>2</sub> from all projects	Ton of Carbon Dioxide	NA	NA	NA	13,448	-	
			Social benefits							
			- Value that society can utilize	Baht	NA	NA	NA	NA	82-89	
			- Reduced impacts to society/community	Number of times	NA	NA	NA	NA	82-89	

### Note :

NA (Not Available): No data collected

(1) Launched the annual Innovative Solutions Award Corporate Innovation Contest in 2019

(2) Launched Innovation Bootcamp in 2020

(3) Started the annual Innovative Solutions Award, as corporate innovation contest project in 2019; originally new product/innovation projects were created by the R&D and domestic & international sales departments

(4) The project was launched in 2019, with 133 projects submitted for contest

(5) According to the master plan, there will be an operational audit from 2021 onwards

## SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs



### ENVIRONMENTAL ECO-EFFICIENCY OPERATIONS



Standard			Topics of data disclosure	Performance					Page No. or URL	Note(s) / Omission(s)	
SDGs	ISO	GRI		Unit	2017	2018	2019	2020			
Greenhouse gas emissions											
Greenhouse Gas Emissions Management											
Goal 13	ISO 26000: (6.5.5) and ISO 14001	GRI 305	Policy and guidelines on environment management: Greenhouse gas emissions	Yes/No	*	*	*	*	140, 115		
			Principle, standard or practice on environment that the Group implements or refers to	Yes/No	*	*	*	*	116		
			Plan for greenhouse gas emissions reduction	Yes/No	*	*	*	*	120-121		
			Target set for greenhouse gas emissions reduction	Yes/No	*	*	*	*	116		
			Total greenhouse gas emissions reduction	Tons of CO <sub>2</sub> equivalent	21,942	20,415	17,814	17,275	116-117		
		GRI 305-1	• Direct (Scope 1) GHG emissions	Tons of CO <sub>2</sub> equivalent	19,166	18,309	15,749	15,159	117		
		GRI 305-2	• Indirect (Scope 2) GHG emissions	Tons of CO <sub>2</sub> equivalent	2,776	2,106	2,065	2,115	117		
		GRI 305-3	• Other indirect (Scope 3) GHG emissions	Tons of CO <sub>2</sub> equivalent	NA	NA	NA	NA	-		
		GRI 305-4	GHG emissions intensity (Scopes 1,2 )	Tons of CO <sub>2</sub> equivalent per ton of production	0.040	0.041	0.038	0.032	116		
		GRI 305-7	Quantitative targets on significant air emissions								
		GRI 305-7	• Nitrogen Oxide (NOx)	Kilogram	NA	5,279	3,505	3,856	130		
			• Sulfur Oxide (SOx)	Kilogram	NA	12,956	8,390	5,503	130		
			• Carbon Monoxide (CO)	Kilogram	NA	4,035	3,800	1,001	130		
			• Nitrogen Oxide (NOx)	Kilograms per ton of production	NA	0.011	0.008	0.007	130		
			• Sulfur Oxide (SOx)	Kilograms per ton of production	NA	0.026	0.018	0.010	130		
			• Carbon Monoxide (CO)	Kilograms per ton of production	NA	0.008	0.008	0.002	130		

SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

Standard			Topics of data disclosure	Performance					Page No. or URL	Note(s) / Omission(s)
SDGs	ISO	GRI		Unit	2017	2018	2019	2020		
Biodiversity										
Goal 15	ISO 26000: (6.5.6) and ISO 14001	GRI 304-1	Policy on biodiversity	Yes/No	*	*	*	*	130	
		GRI 304-1	Policy and framework supporting construction or management of buildings that are environment-friendly	Yes/No	*	*	*	*	130	
		GRI 304-2	Project to protect/rehabilitate natural environment or eco-system through the Group's products and services	Yes/No	*	*	*	*	131	
		GRI 304-2	Knowledge sharing on protection/rehabilitation of environment/eco-system/ biodiversity to relevant stakeholders	Yes/No	*	*	*	*	131	
Energy										
Energy Management										
Goal 7	ISO 26000: (6.5.4) and ISO 1400	GRI 302	Policy and guidelines on environment management: Energy	Yes/No	*	*	*	*	134	
			Principle, standard or practice guidelines on environment management that the Group implements and refers to such as ISO 50001, LEED	Yes/No	*	*	*	*	134	
			Plan to reduce electricity and/or fuel consumption	Yes/No	*	*	*	*	134	
			Target on reducing electricity and/or fuel consumption	Yes/No	*	*	*	*	134	
		GRI 302-1	Total energy consumption within the organization (Non-renewable sources)	Gigajoule	270,880	251,387	210,975	215,138	135	
		GRI 302-1	Total fuel consumption within the organization from renewable sources	Gigajoule	-	-	-	-	-	
		GRI 302-3	Energy intensity ratio for the organization	Gigajoule/production unit	0.50	0.51	0.45	0.40	135	
		GRI 302-4	Amount of reduction in energy consumption (electricity and/or fuel)	Gigajoule	NA	NA	40,412	36,249	135	Note (1)
Effluents, Waste and Pollution										
Effluents, Waste and Pollution Management										
Goal 12	ISO 26000: (6.5.3) and ISO 14001	GRI 306	Policy and guidelines on environment management: Effluents, waste and pollution	Yes/No	*	*	*	*	123	
			Principle, standard or practice guidelines on environment management that the Group implements and refers to	Yes/No	*	*	*	*	124	
			Plan to reduce effluents, waste, and pollution	Yes/No	*	*	*	*	124	
			Target on reduction of effluents, waste, and pollution	Yes/No	*	*	*	*	124	
		GRI 306-1	• Total water discharge, by quality and destination	Million cubic meters	0	0	0	0	137	
		GRI 306-2	• Total waste, by type and method	Ton	367	431	405	461	125-127	

SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

Standard			Topics of data disclosure	Performance					Page No. or	Note(s) /
SDGs	ISO	GRI		Unit	2017	2018	2019	2020	URL	Omission(s)
Goal 12	ISO 26000: (6.5.3) and ISO 14001	GRI 306-2	- Total weight of hazardous waste	Ton	NA	NA	NA	212	125-127	
			* Sorting	Ton	NA	NA	NA	0	125-127	
			* Storage	Ton	NA	NA	NA	0	125-127	
			* Reuse	Ton	NA	NA	NA	0	125-127	
			* Recycle	Ton	NA	NA	NA	195	125-127	
			* Recovery	Ton	NA	NA	NA	0	125-127	
			* Treatment	Ton	NA	NA	NA	0	125-127	
			* Incineration	Ton	NA	NA	NA	0.9	125-127	
			* Disposal	Ton	NA	NA	NA	16.5	125-127	
			- Total weight of non-hazardous waste	Ton	NA	NA	NA	249	125-127	
			* Sorting	Ton	NA	NA	NA	218	125-127	
			* Storage	Ton	NA	NA	NA	0	125-127	
			* Reuse	Ton	NA	NA	NA	0	125-127	
			* Recycle	Ton	NA	NA	NA	0	125-127	
			* Recovery	Ton	NA	NA	NA	0	125-127	
			* Treatment	Ton	NA	NA	NA	0	125-127	
			* Incineration	Ton	NA	NA	NA	0	125-127	
			* Disposal	Ton	NA	NA	NA	30.7	125-127	
		GRI 306-3	- Total volume of recorded significant spills of asphalt and chemicals	Ton	NA	NA	NA	1.78	130	
			- From TIPCO Asphalt's own operations	Ton	NA	NA	NA	1.78	130	
			* Total number of recorded significant asphalt spills	Times	NA	NA	NA	0	130	
			* Total quantity of significant asphalt spills	Ton	NA	NA	NA	0	130	
			* Total number of recorded significant non-asphalt spills	Times	NA	NA	NA	3	130	Note (2)
			* Total quantity of significant non-asphalt spills	Ton	NA	NA	NA	1.78	130	Note (2)

SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

Standard			Topics of data disclosure	Performance					Page No. or	Note(s) / Omission(s)
SDGs	ISO	GRI		Unit	2017	2018	2019	2020	URL	
Goal 12	ISO 26000: (6.5.3) and ISO 14001	GRI 306-3	- From external unit (distribution): Delivery via trucks	Ton	NA	NA	NA	0	130	
			* Total number of recorded significant asphalt spills	Times	NA	NA	NA	0	130	
			* Total quantity of significant asphalt spills	Ton	NA	NA	NA	0	130	
			* Total number of recorded significant non-asphalt spills	Times	NA	NA	NA	0	130	
			* Total quantity of significant non-asphalt spills	Ton	NA	NA	NA	0	130	
Water										
Water Management										
Goal 6	ISO 26000: (6.5.4) and ISO 14001	GRI 303	Water policy and guidelines on environment management	Yes/No	*	*	*	*	136	
			Principle, standard or practice guidelines on environment management that the Group implements and refers to such as ISO/DIS 24526 ISO 14046	Yes/No	*	*	*	*	136	
			Plan to reduce water consumption	Yes/No	*	*	*	*	136-137	
			Target on reduction of water consumption	Yes/No	*	*	*	*	136	
		GRI 303-3	Total water withdrawal	Mega liters	89.0	62.4	54.9	48.77	-	
			* Surface water (Freshwater ≤1,000 mg/L Total Dissolved Solids)	Mega liters	NA	NA	NA	NA	-	
			* Surface water (Other water >1,000 mg/L Total Dissolved Solids)	Mega liters	NA	NA	NA	NA	-	
			* Groundwater (Freshwater ≤1,000 mg/L Total Dissolved Solids)	Mega liters	32.5	16.4	16.9	12.8	-	
			*Groundwater (Other water >1,000 mg/L Total Dissolved Solids)	Mega liters	20.8	16.1	13.1	11.8	-	
			* Third-party water (Freshwater ≤1,000 mg/L Total Dissolved Solids)	Mega liters	35.7	29.9	24.9	24.1	-	
			* Third-party water (Other water >1,000 mg/L Total Dissolved Solids)	Mega liters	0	0	0	0	-	
		GRI 303-4	Total water discharge	Mega liters	0	0	0	0	137	
			Total recycled water discharge	Mega liters	9.7	8.2	4.3	3.6	137	
		GRI 303-5	Water consumption	Mega liters	98.7	70.6	59.2	52.3	137	
			Water consumption intensity ratio	Cubic meters/production unit	0.18	0.14	0.13	0.10	136	

SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

Note :

NA (Not Available): No data collected

(1) Total energy consumption reduction (electricity and/or fuel) as compared to baseline year 2018

(2) 3 accounts of hot oil leakage incidents, with total of 1.78 tons caused by hot oil boiler installation system at Phra pradaneg plant. These leakages were confined within Bund Wall, and were fully retrieved and more than 95% recycled with no contamination to the soil or natural water sources.

## SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs



### SOCIAL SAFETY AWARENESS



Standard			Topics of data disclosure	Performance					Page No. or URL	Note(s) / Omission(s)	
SDGs	ISO	GRI		Unit	2017	2018	2019	2020			
Safety, Occupational Health and Working Environment											
Goal 3	ISO 26000 (6.4.6) ISO 45001	GRI 403	Occupational health and safety management policy and work environment	Yes/No	*	*	*	*	146		
		GRI 403-1	Occupational health and safety management guidelines for contractors or outsourced service providers	Yes/No	*	*	*	*	154,157-161		
			occupational health and safety target and work environment	Yes/No	*	*	*	*	146,152,		
		GRI 403-2	Hazard identification, risk assessment, and incident investigation	Yes/No	*	*	*	*	140		
		GRI 403-3	Occupational health services	Yes/No	*	*	*	*	149		
		GRI 403-4	Worker participation, consultation, and communication on occupational health and safety	Yes/No	*	*	*	*	148		
		GRI 403-5	Training on occupational health and safety for employees and contractors	Yes/No	*	*	*	*	154		
		GRI 403-6	Promotion of worker health	Yes/No	*	*	*	*	149		
		GRI 403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Yes/No	*	*	*	*	154		
		GRI 403-8	Workers covered by an occupational health and safety management system								
			Number of employees under occupational and safety management ISO 45001								
			• Total number of employees - Thailand	Persons	732	712	672	649	-	Note (1)	
				%	100	100	100	100	-		
			• Total numbers of employees - foreign locations	Persons	NA	NA	NA	762	-	Note (2)	
		%		NA	NA	NA	100	-			

## SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

Standard			Topics of data disclosure	Performance					Page No. or URL	Note(s) / Omission(s)
SDGs	ISO	GRI		Unit	2017	2018	2019	2020		
Goal 3	ISO 45001	GRI 403-8	Workers covered by an occupational health and safety management system							
			Number of employees under occupational health and safety management, with internal audit system							
			• Total number of employees - Thailand	Persons	732	712	672	649	-	Note (1)
				%	100	100	100	100	-	
			• Total numbers of employees - foreign locations	Persons	NA	NA	NA	588	-	Note (2)
				%	NA	NA	NA	77	-	
			Number of employees under accreditation of occupational health and safety standard, from external certifying bodies							
			• Total number of employees - Thailand	Persons	732	712	672	649	-	Note (1)
				%	100	100	100	100	-	
			• Total numbers of employees - foreign locations	Persons	NA	NA	NA	419	-	Note (2)
				%	NA	NA	NA	55	-	
		GRI 403-9	Work-related injuries							
			Work hours							
			• Total work hours - domestic employees	Work hours	1,254,298	1,403,089	1,348,338	1,298,198	-	Note (1)
			• Total work hours - employees in foreign locations	Work hours	NA	1,733,094	1,708,299	1,699,190	-	Note (2)
			• Total work hours - contractors	Work hours	NA	NA	NA	NA	-	
			Recordable work-related injury							
			• Total number of injury incidents with full records - domestic employees	Times	2	1	2	0	146-147	Note (1)
			• Total number of injury incidents with full records - employees in foreign locations	Times	0	2	2	1	-	Note (2)
			• Total number of injury incidents with full records - contractors	Times	0	0	0	0	-	Note (1)
			• Statistics of injury incidents with full records - domestic employees	Times/ million work hours	1.59	0.69	1.48	0.00	146-147	Note (1)
			• Statistics of injury incidents with full records - employees in foreign locations	Times/ million work hours	NA	1.15	1.17	0.59	-	Note (2)
			• Statistics of injury incidents with full records - contractors	Times/ million work hours	0	0	0	0	-	Note (1)

## SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

Standard			Topics of data disclosure	Performance					Page No. or URL	Note(s) / Omission(s)
SDGs	ISO	GRI		Unit	2017	2018	2019	2020		
Goal 3	ISO 45001	GRI 403-9	Fatalities as a result of work-related injury							
			• Number of fatalities as a result of work-related injury - domestic employees	Persons	0	1	1	0	146-147	Note (1)
			• Number of fatalities as a result of work-related injury - employees in foreign locations	Persons	0	0	1	0	-	Note (2)
			• Number of fatalities as a result of work-related injury - contractors	Persons	0	0	0	0	-	Note (1)
			High-consequence work-related injuries (in case of personal recovery for more than 6 months)							
			• Number of high-consequence work related injury - domestic employees	Times	0	0	0	0	146-147	Note (1)
			• Number of high-consequence work related injury - employees in foreign locations	Times	0	0	0	0	-	Note (2)
			• Number of high-consequence work related injury - contractors	Times	0	0	0	0	-	Note (1)
			• Statistics of high-consequence work related injury - Domestic employees	Times/ million work hours	0	0	0	0	146-147	Note (1)
			• Statistics of high-consequence work related injury - employees in foreign locations	Times/ million work hours	0	0	0	0	-	Note (2)
			• Statistics of high-consequence work related injury - contractors	Times/ million work hours	0	0	0	0	-	Note (1)
			Lost time as a result of work-related injury							
			• Number of lost time injury - domestic employees	Times	2	0	1	0	146-147	Note (1)
			• Number of lost time injury - employees in foreign locations	Times	0	2	2	1	-	Note (2)
			• Number of lost time injury - contractors	Times	0	0	0	0	-	Note (1)
			• Lost Time Injury Frequency Rate (LTIFR) - domestic employees	Times/ million work hours	1.59	0.00	0.74	0.00	146-147	Note (1)
			• Lost Time Injury Frequency Rate (LTIFR) - employees in foreign locations	Times/ million work hours	NA	1.15	1.17	0.59	-	Note (2)
			• Lost Time Injury Frequency Rate (LTIFR) - contractors	Times/ million work hours	0	0	0	0	-	Note (1)
			Near-miss accidents							
			• Total number of near-miss accidents of employees and contractors	Times	0	9	49	14	-	Note (1)

## SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

Standard			Topics of data disclosure	Performance					Page No. or URL	Note(s) / Omission(s)
SDGs	ISO	GRI		Unit	2017	2018	2019	2020		
Goal 3	ISO 39001	GRI 403-9	Fatalities as a result of accidents - product distribution							
			• Number of fatalities as a result of accidents - product distribution - domestic employees	Times	0	1	0	0	152-153	Note (1)
			• Number of fatalities as a result of accidents - product distribution - employees in foreign locations	Times	NA	NA	NA	NA	-	
			• Number of fatalities as a result of accidents - product distribution - outsourced contractors	Times	0	0	0	0	-	Note (1)
			• Statistics of fatalities as a result of accidents - product distribution - domestic employees	Times/ million work hours	0	0.69	0	0	152-153	
			• Statistics of fatalities as a result of accidents - product distribution - employees in foreign locations	Times/ million work hours	NA	NA	NA	NA	-	
			• Statistics of fatalities as a result of accidents - product distribution - outsourced contractors	Times/ million work hours	NA	NA	NA	NA	-	
			High-consequence work-related injuries - Product distribution							
			• Number of high-consequence work-related injuries - product distribution - domestic employees	Times	0	0	0	0	152-153	Note (1)
			• Number of high-consequence work-related injuries - product distribution - employees in foreign locations	Times	NA	NA	NA	NA	-	
			• Number of high-consequence work-related injuries - product distribution - outsourced contractors	Times	0	0	0	0	-	Note (1)
			• Statistics of high-consequence work-related injuries - product distribution - domestic employees	Times/ million work hours	0	0	0	0	152-153	Note (1)
			• Statistics of high-consequence work-related injuries - product distribution - employees in foreign locations	Times/ million work hours	NA	NA	NA	NA	-	
			• Statistics of high-consequence work-related injuries - product distribution - outsourced contractors	Times/ million work hours	0	0	0	0	-	Note (1)

## SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

Standard			Topics of data disclosure	Performance					Page No. or URL	Note(s) / Omission(s)
SDGs	ISO	GRI		Unit	2017	2018	2019	2020		
Goal 3	ISO 26000 (6.4.6) ISO 45001	GRI 403-9	Lost time as a result of work-related injury							
			• Number of lost time injury (days) - domestic employees	Days	NA	0	2	0	-	Note (1)
			• Number of lost time injury (days) - employees in foreign locations	Days	NA	22	41	1	-	Note (2)
			• Number of lost time injury (days) - contractors	Days	0	0	0	0	-	
		GRI 403-10	Ill health							
			Fatalities as a result of work-related ill health							
			• Number of employee fatalities as a result of work-related ill health - domestic employees	Persons	0	0	0	0	-	Note (1)
			• Number of employee fatalities as a result of work-related ill health - employees in foreign locations	Persons	NA	NA	NA	NA	-	
		GRI 403-10	• Number of employee fatalities as a result of work-related ill health - contractors	Persons	0	0	0	0	-	Note (1)
			Occupational Illness							
			• Number of occupational illness - domestic employees	Times	0	0	0	0	-	Note (1)
			• Number of occupational illness - employees in foreign locations	Times	NA	NA	NA	NA	-	
			• Number of occupational illness - contractors	Times	0	0	0	0	-	Note (1)
			• Occupational Illness Frequency Rate (OIFR) - domestic employees	Times/ million work hours	0	0	0	0	-	Note (1)
			• Occupational Illness Frequency Rate (OIFR) - employees in foreign locations	Times/ million work hours	NA	NA	NA	NA	-	
			• Occupational Illness Frequency Rate (OIFR) - contractors	Times/ million work hours	0	0	0	0	-	Note (1)

### Note :

NA (Not Available): No data available

(1) Including Headquarters and 5 asphalt plants; namely, Nakhon Ratchasim, Rayong, Phra pradaeng depot and TaTong depot

(2) Including Malaysia, Cambodia, China, Indonesia and Vietnam

## SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs



Standard			Topics of data disclosure	Performance					Page No. or URL	Note(s) / Omission(s)
SDGs	ISO	GRI		Unit	2017	2018	2019	2020		
Good Corporate Governance										
Board Performance										
Goal 16	ISO 26000 (6.2)	GRI 102-31	Performance of the Board of Directors and all other Board sub-committees that relate to the Group's sustainability on environmental, social, and corporate governance aspects	Yes/No	•	•	•	•	196-197	
Board Composition and Diversity										
Goal 16	ISO 26000 (6.2)	GRI 102-16	Board composition: Proportion of independent directors on Board	Proportion of independent directors on Board	47%	47%	47%	40%	196-197	
			Board composition: Proportion of non-executive directors on Board	Proportion of non-executive directors on Board	67%	67%	67%	67%	196-197	
			Proportion of non-executive directors with expertise in the company's core business	Proportion of non-executive directors with expertise in the company's core business	30%	30%	30%	27%	196-197	
			Ratio of Male: Female directors	Ratio of Male: Female directors	13:2	13:2	13:2	13:1	196-197	
Board Assessment										
Goal 16	ISO 26000 (6.2)	GRI 102-28	Guidelines for director's performance evaluation	Yes/No	•	•	•	•	196-197	
			Performance evaluation results pertaining to each individual directors such as score level, or average score	Score level, or average score of director's performance evaluation	3.91	3.86	3.86	3.87	196-197	
			Guidelines for director developments and their performance	Yes/No	•	•	•	•	196-197	

## SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

Standard			Topics of data disclosure	Performance					Page No. or URL	Note(s) / Omission(s)
SDGs	ISO	GRI		Unit	2017	2018	2019	2020		
Code of Conduct and Compliance										
Goal 16	ISO 26000 (6.2)	GRI 102-17	Code of conduct training and education	%	100%	100%	100%	100%	198	
			Ratio of trainee on Code of Conduct	100%	100%	100%	100%	198		
			Code of conduct: Due diligence	Number of complaints	0	1	2	0	198	
ESG Risk Management										
ESG Risk Management										
Goal 1 – Goal 17	ISO 26000 (7.4.3, 7.8.2)	GRI 102-15	Policy and guidelines on risk management pertaining to environmental, social or governance aspects	Policy and guidelines on risk management (Y/N)	•	•	•	•	170-173	
			Framework, standard or guidelines on risk management such as COSO-ERM or ISO31000	Framework, standard or guidelines on risk management (Y/N)	•	•	•	•	170-173	
			Risk, impact, and likelihood associated with risk relating to environmental, social or governance aspects including emerging risks that could impact the business in near future and total number of risks to the Group	Total number of risks to the Group	3,569	3,569	3,449	3,115	-	
			• The Group's top corporate risks	Number of the Group's top corporate risks	5	5	6	6	-	
			• Strategic risks	Number of strategic risks	128	128	110	12	-	
			• Operational risks (non Thai plants)	Number of operational risks (non Thai plants)	1,516	1,516	1,295	1,058	-	
			• Operational risks (5 Thai plants)	Number of operational risks (5 Thai plants)	1,925	1,925	1,985	2,053	-	
			• Corruption risks	Number of corruption risks	NA	NA	4	4	-	
				Number of corruption-related complaint	0	1	2	0	-	
			Frequency of drill exercises for unexpected incidents such as emergency plan, crisis management plan, and business continuity plan	Number of times and frequency of drill exercises for unexpected incidents	NA	NA	13	40	173	
			• Head Quarter - Bangkok , Thailand	Times/year	NA	NA	1	1	173	
			• Refinery business	Times/year	NA	NA	5	4	173	
			• Maritime business	Times/year	NA	NA	3	4	173	

## SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

Standard			Topics of data disclosure	Performance					Page No. or URL	Note(s) / Omission(s)
SDGs	ISO	GRI		Unit	2017	2018	2019	2020		
Goal 1 – Goal 17	ISO 26000 (7.4.3, 7.8.2)	GRI 102-15	• 5 asphalt plants - Thailand	Times/year	NA	NA	5	32	173	
			• Asphalt business - foreign locations	Times/year	NA	NA	NA	NA	173	
			• Construction business	Times/year	NA	NA	NA	NA	173	
Supply Chain										
Supply Chain Management										
Goal 12, Goal 16	ISO 26000 (6.6.6)		Policy and guidelines on supply chain management pertaining to environmental, social, or governance aspects	Yes/No	•	•	•	•	176-179	
			Supply chain management plan	Yes/No	•	•	•	•	176-179	
			Goals on supply chain management	Yes/No	•	•	•	•	176-179	
		GRI 308-1 GRI 414-1	Proportion of new partners that pass criteria on environmental, social, or governance aspects	Number of partners	NA	0	1	2	176-179	
			% of 'new' partners during the year	NA	0	50	33	176-179		
Customer Centric										
Customer Satisfaction										
Goal 8	ISO 26000 (6.7.6)	GRI 102-43	Customer satisfaction improvement: Initiatives	Yes/No	•	•	•	•	182-185	
			Channel to manage customer service complaints	Yes/No	•	•	•	•	182-185	
			Customer satisfaction improvement: Targets	Yes/No	•	•	•	•	182-185	
		GRI 102-43 GRI 102-44	Overall customer satisfaction results	%	85.1%	84.3%	86.6%	87.5%	182-183	
			• On products	%	83.5%	81.1%	86.5%	85.0%	182-183	
			• On sales employees	%	88.0%	87.0%	87.5%	89.5%	182-183	
			• On sales support	%	87.5%	84.5%	87.5%	89.5%	182-183	
			• On technical services	%	83.0%	85.0%	84.0%	87.0%	182-183	
			• On product delivery	%	84.5%	85.5%	85.5%	86.0%	182-183	
			Customer satisfaction results - Domestic	%	85.6%	87.2%	86.6%	87.4%	182-183	
			• On products	%	85%	86%	85%	84%	182-183	
			• On sales employees	%	87%	88%	88%	89%	182-183	

SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

Standard			Topics of data disclosure	Performance					Page No. or URL	Note(s) / Omission(s)	
SDGs	ISO	GRI		Unit	2017	2018	2019	2020			
Goal 8	ISO 26000 (6.7.6)	GRI 102-43 GRI 102-44	• On sales support	%	88%	88%	89%	89%	182-183		
			• On technical services	%	83%	85%	84%	87%	182-183		
			• On product delivery	%	86%	89%	87%	88%	182-183		
			Customer satisfaction results - International	%	84.3%	81.3%	86.5%	87.5%	182-183		
			• On products	%	82%	77%	88%	86%	182-183		
			• On sales employees	%	89%	86%	87%	90%	182-183		
			• On sales support	%	87%	81%	86%	90%	182-183		
			• On technical services	%	NA	NA	NA	NA	182-183		
			• On product delivery	%	83%	82%	84%	84%	182-183		
		GRI 102-43 GRI 417-2 GRI 417-3	Number of incident or complaint resulting from customer service mistakes, with explanation, impact, and solution guidelines								
			Customer service complaint management approach								
			Total number of customer complaints	Case	10	19	20	18	184		
			• Total number of complaints on product quality	Case	3	12	8	9	184		
			• Total number of complaints on quantity	Case	2	4	1	4	184		
			• Total number of complaints on services	Case	0	0	1	1	184		
			• Total number of complaints on packaging	Case	0	0	1	0	184		
			• Total number of complaints on product delivery	Case	3	3	4	4	184		
			• Total number of complaints on other issues	Case	2	0	5	0	184		
			Total number of customer complaints - Domestic	Case	3	7	7	13	184		
			• Total number of complaints on product quality	Case	0	4	1	7	184		
			• Total number of complaints on quantity	Case	0	0	0	1	184		
			• Total number of complaints on services	Case	0	0	1	1	184		
			• Total number of complaints on packaging	Case	0	0	1	0	184		
			• Total number of complaints on product delivery	Case	3	3	4	4	184		
			• Total number of complaints on other issues	Case	0	0	0	0	184		

SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

Standard			Topics of data disclosure	Performance					Page No. or URL	Note(s) / Omission(s)
SDGs	ISO	GRI		Unit	2017	2018	2019	2020		
Goal 8	ISO 26000 (6.7.6)	GRI 102-43 GRI 417-2 GRI 417-3	Total number of customer complaints - International	Case	7	12	13	5	184	
			• Total number of complaints on product quality	Case	3	8	7	2	184	
			• Total number of complaints on quantity	Case	2	4	1	3	184	
			• Total number of complaints on services	Case	0	0	0	0	184	
			• Total number of complaints on packaging	Case	0	0	0	0	184	
			• Total number of complaints on product delivery	Case	0	0	0	0	184	
			• Total number of complaints on other issues	Case	2	0	5	0	184	
			Total number of resolved customer complaints	Case	10	19	20	18	184	
			• Total number of resolved customer complaints, within pre-specified time period	Case	10	18	20	17	184	
			• Total number of resolved customer complaints, delayed beyond pre-specified time period	Case	0	1	0	1	184	
			• Total number of resolved complaints on product quality	Case	3	12	8	9	184	
			- On-time	Case	3	12	8	8	184	
			- Late	Case	0	0	0	1	184	
			• Total number of resolved complaints on quantity	Case	2	4	1	4	184	
			- On-time	Case	2	4	1	4	184	
			- Late	Case	0	0	0	0	184	
			• Total number of resolved complaints on services	Case	0	0	1	1	184	
			- On-time	Case	0	0	1	1	184	
			- Late	Case	0	0	0	0	184	
			• Total number of resolved complaints on packaging	Case	0	0	1	0	184	
			- On-time	Case	0	0	1	0	184	
			- Late	Case	0	0	0	0	184	
			• Total number of resolved complaints on product delivery	Case	3	3	4	4	184	
			- On-time	Case	3	2	4	4	184	
			- Late	Case	0	1	0	0	184	

SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

Standard			Topics of data disclosure	Performance					Page No. or URL	Note(s) / Omission(s)
SDGs	ISO	GRI		Unit	2017	2018	2019	2020		
Goal 8	ISO 26000 (6.7.6)	GRI 102-43 GRI 417-2 GRI 417-3	• Total number of resolved complaints on other issues	Case	2	0	5	0	184	
			- Ontime	Case	2	0	5	0	184	
			- Late	Case	0	0	0	0	184	
			Total number of resolved customer complaints – Domestic	Case						
			• Total number of resolved complaints on product quality	Case	0	4	1	7	184	
			- Ontime	Case	0	4	1	6	184	
			- Late	Case	0	0	0	1	184	
			• Total number of resolved complaints on quantity	Case	0	0	0	1	184	
			- Ontime	Case	0	0	0	1	184	
			- Late	Case	0	0	0	0	184	
			• Total number of resolved complaints on services	Case	0	0	1	1	184	
			- Ontime	Case	0	0	1	1	184	
			- Late	Case	0	0	0	0	184	
			• Total number of resolved complaints on packaging	Case	0	0	1	0	184	
			- Ontime	Case	0	0	1	0	184	
			- Late	Case	0	0	0	0	184	
			• Total number of resolved complaints on product delivery	Case	3	3	4	4	184	
			- Ontime	Case	3	2	4	4	184	
			- Late	Case	0	1	0	0	184	
			• Total number of resolved complaints on other issues	Case	0	0	0	0	184	
			- Ontime	Case	0	0	0	0	184	
			- Late	Case	0	0	0	0	184	
			Total number of resolved customer complaints – International	Case						
			• Total number of resolved complaints on product quality	Case	3	8	7	2	184	
			- Ontime	Case	3	8	7	2	184	

SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

Standard			Topics of data disclosure	Performance					Page No. or URL	Note(s) / Omission(s)
SDGs	ISO	GRI		Unit	2017	2018	2019	2020		
Goal 8	ISO 26000 (6.7.6)	GRI 102-43 GRI 417-2 GRI 417-3	- Late	Case	0	0	0	0	184	
			* Total number of resolved complaints on quantity	Case	2	4	1	3	184	
			- On time	Case	2	4	1	3	184	
			- Late	Case	0	0	0	0	184	
			* Total number of resolved complaints on services	Case	0	0	0	0	184	
			- On time	Case	0	0	0	0	184	
			- Late	Case	0	0	0	0	184	
			* Total number of resolved complaints on packaging	Case	-	-	-	-	-	
			- On time	Case	-	-	-	-	-	
			- Late	Case	-	-	-	-	-	
			* Total number of resolved complaints on product delivery	Case	0	0	0	0	184	
			- On time	Case	0	0	0	0	184	
			- Late	Case	0	0	0	0	184	
			* Total number of resolved complaints on other issues	Case	2	0	5	0	184	
			- On time	Case	2	0	5	0	184	
			- Late	Case	0	0	0	0	184	
Responsible Marketing Communications										
Goal 3	ISO 26000 (6.7.4)	GRI 417-1 GRI 417-2	Policy and guidelines on information disclosure pertaining to impacts from products/services that customers should be informed Product recalls, from production process errors	Yes/No	*	*	*	*	184	
				Number of times	0	0	0	1	184	Note (1)
Protection of Customer Privacy										
Goal 16	ISO 26000 (6.7.7)	GRI 418-1	Policy and guidelines on protection of customer privacy	Yes/No	*	*	*	*	183-184	
			Principle, standard or guidelines on protection of customer privacy adopted by the Group Report on personal data violation	Yes/No	*	*	*	*	183-184	
				Number of times	0	0	0	0	183-184	

## SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

Standard			Topics of data disclosure	Performance					Page No. or URL	Note(s) / Omission(s)
SDGs	ISO	GRI		Unit	2017	2018	2019	2020		
Human Rights										
Goal 8	ISO 26000 (6.3.3)	GRI 412-1	Policy and guidelines on labor human rights	Yes/No	*	*	*	*	202-203	
			Principle, standard or guidelines on employee treatments	Yes/No	*	*	*	*	202-203	
			Follow-up on implementation of policy and guidelines on human rights	Yes/No	*	*	*	*	202-203	
		GRI 412-3	Total number of human rights complaint - employees	Number of complaint case	0	0	0	0	202-203	
		GRI 412-3	Total number of human rights complaint - partners with contracts	Number of complaint case	0	0	0	0	202-203	
Community Development										
Goal 8 Goal 10	ISO 26000 (6.8.2)	GRI 413-1	Community development: Policy and practices	Yes/No	*	*	*	*	188-193	
			Community development: Initiatives	Yes/No	*	*	*	*	188-193	
			The Group plans long-term initiatives in 3 categories:	Yes/No						
			- Co-Creation Innovation (Innovation leads to the future)	Yes/No	*	*	*	*	188-193	
			- Save the World (Low Environmental Impact)	Yes/No	*	*	*	*	188-193	
			- Safety for All (Safety First)	Yes/No	*	*	*	*	188-193	
			Investment in local community development programs							Note (2)
			1) Budget Allocations for CSR Activities/Projects	M.TH.B	21.41	23.98	15.36	11.53	188-193	
			- Cash contribution for CSR projects	M.TH.B	NA	13.26	7.72	2.86	188-193	
			- Management Overheads	M.TH.B	NA	4.90	0.93	0.66	188-193	
			- In-kind giving: product or service donation	M.TH.B	NA	0.90	0.81	4.98	188-193	
			- Employee cost during paid hours for volunteering	M.TH.B	NA	3.88	2.44	3.02	188-193	
			2) Community Service Volunteer Hours							Note (3)
			- Number of Participating Employees	Person	723	689	671	528	188-193	
			- Hour of CSR Activity from Employees	Hour	23,584	23,978	15,358	13,077	188-193	
			- Rate of Time Spent on CSR Activity/Year	Hour/Persons/Year	33	35	23	25	188-193	
			- Number of Total Employees (Only Thailand)	Person	777	725	714	658	188-193	
			- Employee Volunteering Engagement	% Employee Engagement	93%	95%	94%	80%	188-193	

## SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

Standard			Topics of data disclosure	Performance					Page No. or URL	Note(s) / Omission(s)
SDGs	ISO	GRI		Unit	2017	2018	2019	2020		
Goal 8 Goal 10	ISO 26000 (6.8.2)	GRI 413-1	Community development: Targets							
			- Maintain overall community satisfaction rate	%Satisfaction Rate	NA	> 85%	> 85%	> 85%	188-193	
			- Employee engagement rate for CSR activities	% Employee Engagement	90%	95%	95%	85%*	188-193	Note (4)
			- Zero community complaint about environmental impact or human rights on the community	Number of incident or complaint	0	0	0	0	188-193	
			Outcomes and Impacts from investment in local community development programs							
			- Number of CSR projects/activities	Number of activity	NA	NA	98	62	188-193	
			- Number of provinces that implement CSR projects	Number of province	NA	NA	19	9	188-193	
			- Number of collaborating partners in CSR activities	Number of partner	NA	NA	22	29	188-193	
			- Number of stakeholders joining CSR activities	Person	NA	NA	8,970	7,013	188-193	
			- Total waste collected from our projects	Tons	NA	NA	NA	1,189	188-193	
			- Total number of trees planted	Trees	49800	62200	103700	109200	188-193	
			- Number of roads repaired in CSR programs	Number of repaired road	10	15	22	8	188-193	
			- Number of employees and people in the community receiving emergency life-saving (CPR) training	Number of CPR training	NA	180	956	955	188-193	
			- Number of students receiving all types of training from the company	Number of student	419	1404	1050	1495	188-193	
			- Total greenhouse gas emissions reduction	% ton CO <sub>2</sub> reduction	NA	NA	NA	230.99	188-193	
		GRI 413-2	Community engagement survey results	% Satisfaction	N/A	87.2%	88.9%	89.9%	188-193	
			- Road safety activities	Social	NA	87.8%	92.6%	92.0%	188-193	Note (5)
			- Knowledge-sharing activities for children and youth		NA	NA	97.2%	93.2%	188-193	
			- Publications / demonstrations on emergency life-saving (CPR)		NA	NA	95.7%	91.4%	188-193	
			- Community career promotion activities	Economy	NA	88.8%	78.5%	87.4%	188-193	
			- Collaborative innovation activities (External Stakeholders)		NA	NA	82.2%	86.0%	188-193	
		GRI 413	- Environmental education activities	Environment	NA	84.3%	87.1%	87.7%	188-193	
			Total number of incidents or complaints on environmental impact or breaches of human rights in the community, with explanation of the management approach of such incidents or complaints	Number of incidents or complaints	0	1	0	0	188-193	

## SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

### Note :

NA (Not Available): No data available

- (1) Premix asphalt encountered some quality issues, resulting in product recalls from customers. This was mainly due to insufficient sampling quantity being tested by customers prior to product receipt. Solution proposed was to increase test sample quantity.
- (2) The Group improved data collection on community developments through our business processes in 2018. Information prior to 2018 is only available as aggregate data.
- (3) The Group revised work process on social activity. In the past, a KPI was assigned to employees' annual performance evaluation as a way to encourage and instill their participation in social responsibility. But in 2019, the KPI setup was removed, hence resulting in lower number of hours but staffs' participations have not decreased
- (4) Due to COVID-19 outbreak, some activities could not be conducted as planned, which lowered the target from 95% to 85%.
- (5) In 2019, the Group began to conduct community satisfaction survey, classified by types of activity with long-term objectives and repeated on regular basis.

## SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

### HUMAN CAPITAL DEVELOPMENT VALUE FOR THE FUTURE



Standard			Topics of data disclosure	Performance										Page No. or URL	Note(s) /Omission(s)
SDGs	ISO	GRI		Unit	2017		2018		2019		2020				
					F	M	F	M	F	M	F	M			
					Employment										
Goal 5	ISO 26000 (8.3.7,8.3.10 6.4.3,6.4.4)	GRI 405-1	Total number of full-time and part-time employees (by gender, age group and position)	Total number of employees	187	545	192	520	194	478	328	1106	-		
Goal 10			Total number of permanent employees	Person			296	1038	302	1006	301	963			
			Total number of employees by region												
			• Full-time employees in Thailand - Bangkok	Person	NA	NA	103	109	107	112	109	108	-		
			• Full-time employees in Thailand - provincial areas	Person	NA	NA	88	398	87	364	87	338	-		
			• Full-time employees in foreign locations	Person	NA	NA	106	531	108	530	105	519	-		
			Total number of employees by level and age				189	507	194	478	196	1106		Note (3)	
			Director Level up (Level D1 – E2)	%			21%	3%	21%	3%	21%	3%		Note (3)	
			>=50 years	%	NA	NA	100%	71%	100%	77%	100%	89%	-	Note (3)	
			>30 – 50 years	%	NA	NA	0%	29%	0%	23%	0%	15%	-	Note (3)	
			<= 30 years	%	NA	NA	0%	0%	0%	0%	0%	0%	-	Note (3)	
			Manager Level (Level M1 – M4)	%			12%	7%	13%	8%	13%	9%		Note (3)	
			>=50 years	%	NA	NA	45%	34%	42%	31%	44%	31%	-	Note (3)	
			>30 – 50 years	%	NA	NA	55%	66%	58%	67%	56%	69%	-	Note (3)	
			<= 30 years	%	NA	NA	0%	0%	0%	3%	0%	0%	-	Note (3)	
			Employees (Level P1 – P4)	%			78%	28%	77%	32%	79%	34%		Note (3)	
			>=50 years	%	NA	NA	10%	17%	11%	17%	14%	17%	-	Note (3)	
			>30 – 50 years	%	NA	NA	67%	59%	63%	57%	60%	63%	-	Note (3)	
			<= 30 years	%	NA	NA	23%	24%	25%	26%	26%	20%	-	Note (3)	
			Employees (Level O1 – S2)	%			8%	61%	8%	57%	7%	54%		Note (3)	
			>=50 years	%	NA	NA	25%	24%	27%	29%	38%	33%	-	Note (3)	
			>30 – 50 years	%	NA	NA	69%	69%	73%	62%	62%	60%	-	Note (3)	
			<= 30 years	%	NA	NA	6%	7%	0%	9%	0%	7%	-	Note (3)	



## SUSTAINABILITY PERFORMANCE DATA REPORTING BY MATERIALITY TOPICS RELATED TO GRI, ISO AND SDGs

### Note :

NA (Not Available): No data collected

(1) Thailand and all foreign countries

(2) Full-time employees (Thailand and foreign locations)

(3) Full-time employees in Thailand only

(4) For the Group's subsidiaries that cannot hire any handicapped employees, the company then compensates through financial donations/contributions to the promotion and development of disability life-enhancing causes, according to requirements.

(5) Excludes product delivery truck drivers

(6) Next employee engagement survey will be conducted in 2021

(7) Includes all full-time employees with voluntary resignation (Thailand only)

(8) Includes all full-time employees with voluntary resignation (Thailand and foreign locations)

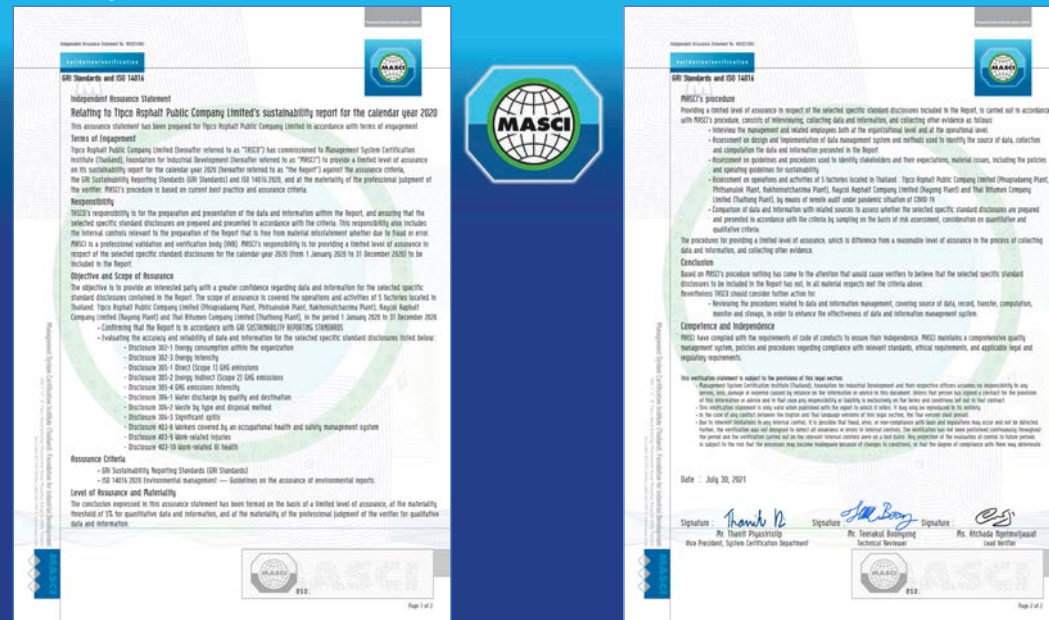


## Scope

The scope of this annual sustainability report covers certain information of the Group as listed below. There are several changes in the content compared to previous year's report. This is due to revision of materiality issues in environment and safety . Management System Certification Institute Thailand certified the Group by auditing information in this report for accuracy and further improvement.

Business group / company		Eco-nomic	Environmental				Social		Gover-nance	Human re-source devel-opment
			Green-house gas emissions	Waste	Energy	Water	Work safety	Trans- portation safety		
Domestic business	Tipco Asphalt Public Company Limited	●	●	●	●	●	●	●	●	●
	THAI BITUMEN COMPANY LIMITED	●	●	●	●	●	●	●	●	●
	RAYCOL ASPHALT CO., LTD	●	●	●	●	●	●	●	●	●
Maritime group	TIPCO MARITIME CO., LTD.	●					●		●	●
	TASCO SHIPPING COMPANY LIMITED	●					●		●	●
	ALPHA MARRITIME CO.,LTD.	●					●		●	●
	DELTA SHIPPING COMPANY LIMITED	●					●		●	●
	BITUMEN MARINE COMPANY LIMITED	●					●		●	●
Construc- tion group	THANOMWONGSE SERVICE COMPANY LIMITED	●					●		●	●
	THAISLURRY SEAL CO., LTD.	●					●		●	●

## Third Party Certification



## Implementation of the UNITED NATIONS GLOBAL COMPACT (UNGC)

รายงาน Report on progress in the management of the Group's operations, by referring to the UNGC principles on human rights, labor, environment and anti-corruption. ในการบริหาร กระบวนการดำเนินงานของกลุ่มบริษัท โดยอ้างอิงหลักการในขอบเขตของสิทธิมนุษยชน แรงงาน สิ่งแวดล้อม และการต่อต้านการทุจริต UNGC



Aspect	Principle	Details	Pages
<b>Human Rights</b> 	Principle 1	Businesses should support and respect the protection of internationally proclaimed human rights	<b>202–203</b>
	Principle 2	Businesses should make sure that they are not complicit in human rights abuses	<b>202–203</b>
<b>Human Rights</b> 	Principle 3	Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining	<b>216–219</b>
	Principle 4	Businesses should uphold the elimination of all forms of forced and compulsory labour	<b>202–203</b>
	Principle 5	Businesses should uphold the effective abolition of child labour	<b>202–203</b>
	Principle 6	Businesses should uphold the elimination of discrimination in respect of employment and occupation	<b>202–203</b>
<b>Environment</b> 	Principle 7	Businesses should support a precautionary approach to environmental challenges	<b>103–137</b>
	Principle 8	Businesses should undertake initiatives to promote greater environmental responsibility	<b>188–193</b>
	Principle 9	Businesses should encourage the development and diffusion of environmentally friendly technologies	<b>82–89</b>
<b>Anti-Corruption</b> 	Principle 10	Businesses should work against corruption in all its forms, including extortion and bribery	<b>196–167</b>

## Feedback Survey

Please spend some time to provide feedbacks and suggestions. Your contributions would be very helpful upon our future works and improvements on Sustainable Development Report.

Please mark ✓ in the ○ and express your opinions in the blanks.

### 1. Which stakeholder group do you belong to?

- ☐ Customer    ☐ Employee    ☐ Shareholder/investors  
☐ mass media    ☐ Supplier/Partner    ☐ Government agencies  
☐ Competitors    ☐ Community/Road user    ☐ Other: Please specify.....

### 2. From which channel(s) do you access the Sustainable Report 2020?

- ☐ Annual General Meeting of Shareholders    ☐ Seminar / Lecture / Exhibition  
☐ Employee    ☐ Official website of company  
☐ Other : (Please specify).....

### 3. Your purpose to use the sustainable Report 2020

- ☐ To gain better understanding upon the company's social activities  
☐ To serve as information source for your investment decision in our company.  
☐ To serve as example guideline for development of sustainable development report of your organization  
☐ To serve academic/research purposes

### 4. The integrity and reliability of the 2020 Sustainability Report

- By prioritizing the issues from 5 Most 4 Very 3 Moderate 2 Little 1 Very Low
- ..... How much do you understand the sustainability issues of Tipco Asphalt by reading the report?
- ..... To what extent are sustainability performance consistent with Tipco Asphalt's strategy?
- ..... How appropriate and credible is the content?
- ..... To what extent is the content relevant to what you want to know?
- ..... overall satisfaction with the report



You can make a survey.  
Reader's Comments by scanning  
this QR Code

### 5. Please identify key sustainability topics(s) that matter to you most (can choose more than one topic)

- ..... water management  
 ..... respect for human rights  
 ..... Customer centric  
 ..... Fair business practices  
 ..... Protection of IT network  
 ..... Stakeholder management  
 ..... Logistics and transportation safety  
 ..... Customer health and safety  
 ..... Respect customer rights and privacy  
 ..... Quality and responsibility to products/services  
 ..... Opportunities and risks from climate change  
 ..... Good corporate governance (anti-corruption)  
 ..... Human resource management and employee training and development  
 ..... Participation in community and society development through sustainable well-being development  
 ..... Waste disposal and emission management  
 ..... Efficient use of resources/ raw materials  
 ..... Energy management

### 6. Do you think the content of the event covers the key sustainability issues of Tipco Asphalt?

- ☐ covered    ☐ not covered

If you think that it is not covered Please specify additional

points.....

### 7. Please provide suggestions for improvement in the next Sustainability Report.

.....

### 8. We are very please to gain your additional comments and feedbacks.

.....



## “Sustainability is the outcome of everyone’s contribution”

Tipco Asphalt Group is determined to be a **sustainable organization** through our commitment to our corporate strategy in support of Vision 2025. Everyone in our organization plays an important role in achieving the goal of creating a sustainable organization within their roles and responsibilities.

For the past 3 years in the preparations of our annual Sustainability Report, we are confident that our employees realize the importance of moving together towards the direction of sustainability in the aspects of economic development, social responsibility, and environmental preservation. Our journey towards becoming a sustainable organization can be achieved through effective risk management. We believe that in the coming years, there will still be many things for us to learn indefinitely. Those lessons learned will be shared in our Sustainability Reports with the general public for greater benefits.

And thank you to Khun Thamrong Khaoruang from Mecca Media Management Co., Ltd. for supporting the video of National Highway No. 401, Coastal Road. Khao Plai Dam – Ao Thong Yee route. The most beautiful of the Gulf of Thailand for using in this report



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Annual Report 2020

