TAKING OFF TO

# SUSTAINABILITY REPORT 2022



TIPCO ASPHALT PUBLIC COMPANY LIMITED







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Sustainable development is organization management that prioritizes on environment, social, and good governance under risk management and innovation culture for the organization's long-term sustainability







# ABOUT THIS REPORT

### About this Report

Tipco Asphalt Public Company Limited and its subsidiaries "the Group" prepared the Sustainability Report 2022, for the 5<sup>th</sup> edition. With regard to the Group's sustainable development strategies, the report is developed and presented to all groups of stakeholders, with an aim for them to understand the Group's business operations in accordance guidelines, strategic communication, management approach, and operational processes on key materiality issues affecting business operations and all stakeholders across the value chain in the year 2022. This includes progress and performance reports on sustainable development in accordance with the United Nations Sustainable Development Goals (SDGs).

In this Sustainability Report 2022, the contents on environmental and safety operation performances have been verified and assured by the Management System Certification Institute (Thailand) – MASCI. The document on MASCI data verification can be found in the section of Assurance Statement of this report, page 137.

### International Reporting Framework: Global Reporting Initiative (GRI) and Scope

This report is based on international reporting framework standard, or the Global Reporting Initiative (GRI Standard 2021: reporting in accordance with the standard) and quality control in report compilation following key reporting principles focusing on accuracy, data composition, clarity and comparability of data, completeness of sustainable development contexts, timeliness including verifiability of data.

This report provided information on the consolidated economic performance, encompassing all affiliated companies and subsidiaries in the business group, both in Thailand and abroad. In addition, the report summarizes action plans to implement sustainable development strategies in line with Vision 2025 corporate strategic plan.

The scope of the report includes implementation progresses on sustainable development strategies; i.e., Innovation (Economic), Eco-efficiency Operations (Environmental), and Safety (Social). The report encompasses the period from January 1<sup>st</sup> to December 31<sup>st</sup>, 2022.

### **Content and Key Changes**

In 2022, the Group reviewed the sustainable development materiality assessment and disclose 11 key sustainable development materiality topics in the Sustainability Report 2022, which encompassed the Group's sustainable development operations across economic, social and environment pillars. Meanwhile, other secondary sustainable development materiality topics will be disclosed through official website of Tipco Asphalt Public Company Limited at https://www.tipcoasphaltcom/sustainability/

In addition, there was key change upon the Group's report on greenhouse gas emission (GHG emission) which the GHGs Emission Factor (EF) was altered in the calculation, as per the announcement from the Thailand Greenhouse Gas Management Organization (TGO) dated 1<sup>st</sup> April, 2022. The Group thereby adjusted our GHG emission calculation method based upon the new EF as per TGO's announcement for time series data pertaining to base year up until present (2020-2022) for convenient data analysis and comparison.



### Sustainable Development Action Guidelines According to the United Nations Framework and Social Responsibility Guidelines

The Group is committed to being part of the global community in supporting sustainable development by constantly revising our business operations across value chain to ensure full alignment with the United Nations Sustainable Development Goals (UN SDGs). The Group expresses our strong commitments to sustainable development in our Sustainability Report, in accordance with the UN Global Compact which are the principles on human rights, labour, environment and anti-corruption.

The Group operates under the "ISO 26000" which is the guideline on social responsibility of the International Organization for Standardization (ISO). Since 2010, the Group has adopted such practice and regularly audited on voluntary basis (not certification).

### Scope of the Report

This Sustainability Report 2022 encompasses sustainable development information and performances pertaining to some of the different business entities under the Group, as per table below. As opposed to previous year's Report, there are key changes in environment and safety data revisions while the Group asked an independent certifying body: the Management System Certification Institute (Thailand) – MASCI to verify and assure environmental and safety performance data.



Business Group/ Company	Sharehold- ing <sup>1/</sup> (%)	Unit million <sup>1/</sup> (%)	Innovation Leader	Eco- Efficiency Management	Safety Awareness	Good Corporate Governance	Value for the future
1. Asphalt and Petroleum Related Business							
Tipco Asphalt PLC.	-	54.28					
Thai Bitumen Co., Ltd.	99.99	5.22					
Raycol Asphalt Co., Ltd.	99.99	1.90					
Ravana 1020 Co., Ltd.1/	99.99	0.22					
Tipco Asphalt (Cambodia) Co., Ltd.	100.00	2.42					
KOC and KBC and subsidiaries	100.00	2.65					
TIH and subsidiaries	100.00	3.15					
Highway Resources Pte Ltd. and subsidiaries	100.00	11.95					
PT Asphalt Bangun Sarana Group	99.99	5.30					
Tipco Asphalt Lao Co., Ltd.	75.00	0.70					
Total		87.79					
2. Marine Group							
Tipco Maritime Co., Ltd.	99.99	0.01		•2/			
Delta Shipping Co., Ltd.	99.99	-		•2/			
Alpha Maritime Co., Ltd.	99.99	0.78		•2/			
Bitumen Marine Co., Ltd.	99.99	1.04		•2/			
Tasco Shipping Co., Ltd.	99.99	1.18		•2/			
AD Shipping Pte. Ltd.	100.00	0.45		•2/			
Reta link Pte. Ltd.	100.00	-		•2/			
Pacific Bitumen Shipping Pte. Ltd.	100.00	0.97		•2/			
Elimination		(4.21)					
Total		0.22					
3. Construction Group							
Thai Slurry Seal Co., Ltd. (TSS)	62.50	1.50		• 3/			
Thanomwong Service Co., Ltd.	(99.99	9.54	•	• 3/			
	by TSS)						
Total		11.04					
Total Sales and service income		99.05					
Other Revenue income		0.95					
Total income		100.00					

Note : <sup>1/</sup> Illustrated information, refer to 56-1 ONE Report.

 $^{\scriptscriptstyle 2\prime}\,$  Report only GHG Emission page 78-79 and waste page 88-89

<sup>3/</sup> Report only GHG Emission page 78-80





Tipco Asphalt Public Company Limited

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MESSAGE FROM THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER



# MESSAGE FROM THE CHAIRMAN

Year 2022 marks another successful year for Tipco Asphalt Public Company Limited and its subsidiaries ("the Group") in driving our businesses toward sustainable development. This year, the Group expanded scope of sustainability to other businesses across value chain in accordance with Vision 2025, under a strategic goal "To become a Sustainable Organization."

Since 2003, the Group has embraced sustainable development concept into its way of doing businesses and as a key target for formulation of its long-term corporate strategy. This can be evidenced from all our asphalt plants in Thailand participated in the Corporate Social Responsibility projects during 2008-2009 and received CSR-DIW Continuous awards from the Department of Industrial Works for several years. In 2012, the Group adopted ISO26000 Social Responsibility Guidance Standard implementation. We have also developed several corporate policies relating to sustainability such as policy on Social Responsibility and Community Engagement, Environmental Policy, and policy on Sustainable Development while several sustainable development projects have been initiated and executed with satisfactory successes.

I am delighted to announce that year 2022 represented a great year for our sustainable development journey, with several distinguished awards and recognition as follows:

• The Group received the "5-star Excellent" rating from Corporate Governance Report of Thai Listed Companies (CGR) by the Thai Institute of Directors (IOD), for the fifth consecutive year.

• The Group also received the 2022 Sustainability Disclosure Award from Thaipat Institute, for the fourth consecutive year.

• All our production plants have received the Green Industry Award from the Department of Industrial Works, Ministry of Industry, in which our Phitsanulok asphalt plant received the highest level of recognition (Level 5) for the first time.

• Safety: The Group has received several awards and recognitions such as the National Occupational Safety and Health Award (National level), the Safety Transportation Award, and the Zero Accident Campaign Award (Copper level) from the Department of Labor Protection and Welfare, Ministry of Labour.

• Corporate Governance: In 2022, the Management System Certification Institute (Thailand) (MASCI) conducted audit on ISO 31000:2018 Risk management guideline implementation on our enterprise risk management practice. The result was at "Embedded" level indicating that our outstanding risk management system has become integral part of management systems, with targets, progress evaluation and constant monitoring to ensure risk management targets are met.

These recognitions reflected our strong commitments to sustainable development and business conducts with corporate ethics principle contributing to society, environment and good governance while continuing to create shared values across all stakeholders to fulfil their expectations, in line with our promise on "delivering innovative solutions for sustainable living for all societies."

Chainoi Puankosoom Chairman



# MESSAGE FROM CHIEF EXECUTIVE OFFICER

"By 2022, the Group has integrated an 'innovation philosophy' with the focus on cultivating a culture of innovation in the organization by creating a conducive working environment and encouraging employees to show their creative potential through various activities and projects."

In 2022, the world continued to experience major global economic slowdown amidst the Russia-Ukraine war which greatly impacted energy supplies feedstock and energy prices have become more volatile while inflation has steady risen in line with high interest rate environments across countries. As for Thailand, despite its efforts to be able to successfully maintain its economic growth momentum, domestic economy still remains fragile while most business sectors need to adapt quickly to ensure their continued business operations.

Even though Tipco Asphalt Group was impacted by key challenges such as volatile feedstock prices, the Group still maintains its sound business performances. This reflects the Group's sustainable business models with flexbible operations that can withstand against adverse situations very well. The Group continues to prioritize on sustainable develpment across economic, social and environment pillars together with promotions of innovation and sound risk management practice, with focus on sustainable development strategy as cornerstone of the Group's business operoations in the long-run.

### Economic Strategy: Innovation as Key Business Driver

Since 2018, the Group integrated innovations into our corporate straegy, with key objectives on establishing thorough knowledge, full understanding, and possibilities of innovation through initiatives. By 2022, the Group has integrated an 'innovation philosophy' with the focus on cultivating a culture of innovation in the organization by creating a conducive working environment and encouraging employees to show their creative potential through various activities and projects. This includes building an understanding of design thinking, innovation process through the Innovation Bootcamp initiative, the Innovative Solutions Award, and the Innovation Accelerator Program initiative to successfully commercialize innovation, initiatives from business units and individuals (Small Wins), and Total Productive Maintenance Awards. Details are as follows:

• The Internal Innovation project from 2019-2022 produced a total of 306 innovations which resulted in 47.9 million Baht in cost savings for 114 projects, and 14,689 hours worktime reduction.

• In 2022, we repeatedly conducted Innovation Bootcamp in 2022 registered a total of 105 participants, from Thailand and international subsidiaries. There were 16 innovative project ideas from all participants. Of this, 1 is completed, 11 are on-going, while 4 projects are new concept ideas.

 Innovation Accelerator Program is designed to provide key support needed to scaleup and quickly launch innovation projects to the market. All projects receive funding to develop product & service prototypes for customer trials. The program will continue throughout 2023.

• 10 initiatives from business units and individuals (Small Wins) from collaboration across units both internal and external to the organization. These projects resulted in 1.5 million Baht in cost savings and 230 hours worktime reduction per annum.

• In addition, the Group's Total Productive Maintenance (TPM) project supports the innovations from employees across all plants and terminals in Thailand. In 2022, the TPM helped the Group with cost savings and worktime reduction totaling 14.5 million Baht.

### Environmental Strategy: Eco-Efficiency Operations

Tipco Asphalt Group optimizes operation efficiency with least impacts to the environment. Our key highlights and achievements in 2022 are as follows:

• Greenhouse Gas Emission: The Group implemented the Greenhouse Gas (GHG) Management including GHG Scope 1 and 2 across headquarter and all our 5 Thai plants. This year the Group implemented several action plans to reduce GHG across several key projects. For instance, the hot oil pipelines heat efficiency improvement at Rayong plant to improve heat transfer efficiency and reduce fuel consumption during production and storage process. As a result, the Group can successfully reduce GHG emissions intensity by more than 23.2% as compared to base year 2020.

• Energy saving: in 2022, the Group constantly improved our energy management efficiency through innovative ideas related to fuel and energy savings. We focus on energy loss reduction 'in process' together with machinery efficiency improvements; for instance, insulation improvements of production and storage tank to reduce heat loss. As a result, the Group can reduce energy intensity by more than 22.7%, as compared to base year 2020.

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• Promotion of circular economy: Water Use and Wastewater Discharge The Group implements "3Rs" principle; i,e., Reduce, Reuse, and Recycle. 4 out of 5 of our plants utilized rainwater collected in the surface water reservoir located inside each plant to reduce water consumptions from community sources. Improvement of water supply pipeline system inside our Rayong plant was conducted to minimize water loss. In addition, wastewater is treated and then reused as raw material of asphalt emulsion so each of our plant records no wastewater released from plant premises.

### Social Strategy: Safety Awareness

The Group's sustainable development strategy recognizes social well-beings and safety as top priority. In 2022, the Group implmented several key initiativies to promote safety awareness pertaining to employees as well as related stakeholders as follows:

• Road traffic safety: For instance, knowledge sharing on road surface repairs using Tipco Premixes (Patching Pothole), Basic Life Support Training (CPR and AED Training) for community to local Village Health Volunteers, Local Administrative Organization, community and the Road Safety for School knowledge for children and youths. In addition, since 2017, the Group prioritized on road traffic safety and hence implemented the ISO 39001:2012 Road traffic safety management system to develop plans to prevent road accidents including effective solution measures.

• Employee safety: In 2022, the Group achieved several key highlights such as the adaptation of COVID-19 prevention and control measures including emergency response plan in accordance with safe work place, delivery route survey and risk assessment to develop manual for truck drivers, promotion of "Kaizen" continuous improvement activity for safety such as connectioninspection system between haulage truck and trailer.

• Defensive Driving Course for safety pertaining to customers, contractors, and outsourced logistics service providers.

This Sustainability Report 2022 summarizes the Group's sustainable development performances and accomplishments, with special analysis on key materiality topics and how we fulfil our stakeholders' expectations pertaining to each material topic. The Group strongly determines to drive our organization toward success with sustainable business operations that are friendly to the environment, for better life quality of the society, good corporate governance together with benefits to stakeholders in the long-run.

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Chaiwat Srivalwat Chief Executive Officer



Sustainability Report 2022



# **BUSINESSES OF TIPCO ASPHALT GROUP**

# Get to Know Tipco Asphalt Group: Leaders in the Asphalt Business

Tipco Asphalt Group was founded by Mr. Prasit Supsakorn, who started the petrochemical business from being a fuel station and fuel intermediary, and then began the asphalt business as a tanked asphalt carrier for the Department of Highways. The Group viewed asphalt as an important material in road construction and critical infrastructure development of a country. All processes including production, transportation, export, and other business were opportunities that allowed Mr. Prasit to decide to construct the first emulsion asphalt plant at Lat Krabang Industrial Estate in 1979. Since establishment, being a good member of society has been a goal which commits the Group to corporate social responsibility. The Group has focused on introducing and promoting the use of emulsion asphalt products in the construction and surface treatment of roads. Since the production uses water as one of raw materials, it does not require high heat during use nor cause pollution. Therefore, emulsion asphalt is more environmentally friendly than conventional asphalt.





### **Businesses of Tipco Asphalt Group**

# Regional Leader in Asphalt Solutions

Over the past 40 years, the Group has accumulated vast amount of knowledge and expertise, not only in asphalt manufacturing, but also in road application and construction across Asia. Through our experiences and specialized skills, we are offering a wide range of asphalt-based products and solutions so our partners, customers and communities can benefit in a sustainable manner. With a fully integrated value chain, we look forward to becoming our customers' "Innovative Solutions Partner" and meeting their unique needs, no matter where they are.

### Production



Every terrain has its own characteristics. Every road is unique and every solution is different. By working closely with our customers, this allows us to cater their needs and expectations. We are able to formulate products, customize mix type and specifications for asphalt pavements to be long lasting, durable and at the utmost, safe for commuters of all types, albeit roads, highways, bridges and runways.

### Asphalt Refinery

Located at the east coast of the Malaysian peninsula, Kemaman Bitumen Company Limited (KBC), Malaysia, is a specialized asphalt refinery designed to process naphthenic based crude oils. Through the straight-run distillation process, it has allowed us to closely monitor and guarantee the quality of asphalt being produced while other conventional refineries are treating asphalt simply as a by-product.

### Logistics

We have specialized land and sea logistics network to professionally handle and care for our asphalt based products throughout our customers' supply chain. Whether it is asphalt cement, asphalt emulsion or polymer modified asphalt, each has specific transportation requirement to ensure quality is maintained during delivery and application. To ensure our customer's satisfaction and product reliability, strict domestic and international handling standards, procedures and protocols are adhered to by our logistics network.

### Construction and Technical Support

By leveraging the knowledge through the strong partnership with Colas S.A. in France, a world leading construction conglomerate, and expertise within the Tipco Asphalt Group, our construction subsidiaries execute the applications of our asphalt products for road construction and maintenance with the high standards. With our integrated value chain, we are one of the few asphalt road construction leaders in Thailand that have the capability and expertise to work both in Thailand and neighboring countries as well. Our knowledgeable and fully staffed Technical Support team are ready to provide any assistance with the product's utilization and application techniques that our customers' desired. Rest assured that they will always be ready to assist.

### The Group's Businesses in 10 Countries



### Thailand

Tipco Asphalt Public Company Limited

Raycol Asphalt Co., Ltd.
Thai Bitumen Co., Ltd.
Thailand's foremost expert in asphalt manufacturing and application techniques, ensuring durability and longevity of road pavements



### Laos Tipoo Asphalt Lao Co. Ltd. A joint venture with a longtime commercial partner of Tipco Asphalt in Laos, Seneoudom, to become the country's first asphalt manufacturing plant for domestic distribution



Tipco Asphalt (Cambodia) Co., Ltd.
 Cambodia's leading asphalt manufacturer and distributor promoting asphalt mixing and paving mtechniques to support the country's logistic infrastructure development



### Malaysia

Kemaman Bitumen Company Sdn. Bhd. Borneo Asphalt Sdn. Bhd

Southeast Asia's only naphthenic asphalt refinery, is strategically located on the east coast of the Malaysian Peninsula, that has access to deep sea ports allowing it to conduct international trade shipments



### China

Langfang Tongtai Road Material Co., Ltd.

Tipco Asphalt (Xinhui) Co., Ltd. Operating in 2 regions (North and South) of the country with specialized product design and application techniques suitable

for different terrains and climates

### Philippines

 Phoenix Asphalt Philippines, Inc.
 A joint venture with Phoenix Petroleum of the Philippines, Phoenix Asphalt Philippines, started to introduce and supply of premium asphalt products and applications that suits the environmental conditions and terrain of the country



### India

Hindustan Colas Private Limited (HINCOL) Hindustan Colas Private Limited (HINCO For over 2 decades, Tipco Asphalt, Colas and Hindustan Petroleum through its joint venture, Hincol, has established itself as the foremost asphalt products manufacturing expert in India, with 10 production and depot facilities covering the urbal outbeautient. the whole subcontinent

Singapore • Asia Bitumen Trading Pte. Ltd. A joint venture established in Singapore, a strategic regional hub for trading and shipping of asphalt, with SK Energy of South Korea, to pool together our resources and commercial prowess as a consistent supplier of quality asphalt in the region



### Indonesia

Asphalt

terminal:

34

terminals

PT Asphalt Bangun Sarana Known for its premium asphalt products, ABS is well regarded for its knowledge of national road construction and infrastructure developments



### Vietnam

 Asphalt Distribution Co., Ltd.
 As one of the largest asphalt operators in Vietnam, ADCo has the distribution and supply capabilities to serve the country's extensive national road network and future growth

> Asphalt depots with total capacity of 308,000 metric tons

Asphalt emulsion and Polymer modified asphalt:

44 plants



1,200,000

tons per year

Asphalt port: 22

ports

Sales and distribution of asphalt products for more than 20 worldwide



# **AWARDS AND STANDARDS**



# Awards and Recognitions

Number Award/Recognition		Asphalt Business							
		Tipco Asphalt Public Company Limited	Prapadaeng Plant	Phitsanulok plant	Nakhon Ratchasima Plant	Raycol Asphalt Company Limited	Thai Bitumen Company Limited		
1.	2022 Sustainability Disclosure Award Thaipat Institute	4 <sup>th</sup> consecutive year	-	-	-	-	-		
2.	Outstanding Establishment Award for Labor Relations and Labor Welfare Department of Labor Protection and Welfare, Ministry of Labor	-	-	-	-	-	11 <sup>th</sup> consecutive year		
3.	Outstanding Establishment Award for safety, occupational health, and work environment Department of Labor Protection and Welfare, Ministry of Labor	-	Gold Level (2 <sup>nd</sup> year)	Diamond Level (5 <sup>th</sup> year)	Gold Level (1 <sup>st</sup> year)	Platinum Level (16 <sup>th</sup> year)	Platinum Level (10 <sup>th</sup> year)		
4.	Safety Transportation Award 2022 Department of Labor Protection and Welfare, Ministry of Labor	-	-	Outstanding	Outstanding	Outstanding	Outstanding		
5.	Zero Accident Campaign Award 2022 Institute for the Promotion of Occupational Safety, Health, and Work Environment (Public Organization), Ministry of Labor	-	Entry Level	-	-	Copper Level	Copper level		
6.	<b>CSR-DIW Continuous Award 2022</b> Department of Industrial Works, Ministry of Industry	-	16 <sup>th</sup> consecutive year	14 <sup>th</sup> consecutive year	14 <sup>th</sup> consecutive year	13 <sup>th</sup> consecutive year	16 <sup>th</sup> consecutive year		
7.	<b>3Rs and KAIZEN Award 2022</b> Department of Industrial Works, Ministry of Industry	-	-	-	-	- Rs - Zero waste - 3Rs+ (Economic)	-		
8.	<b>Green Industry Award</b> Department of Industrial Works, Ministry of Industry	-	Level 4	Level 5	Level 4	Level 4	Level 4		
9.	Low Emission Support Scheme (LESS): Letter of Recognition Thailand Greenhouse Gas Management Organization (TGO)	-	Waste management	Reforestation	<ul> <li>Renewable</li> <li>energy</li> <li>Waste</li> <li>management</li> </ul>	-	-		



### **Standards Recertified in 2022**

The Group has applied management systems in accordance with various international standards in operations by integrating practices, criteria, and requirements in various fields. The standards include quality, environment, occupational health and safety, and social responsibility, covering all processes and activities of the organization. As employees are able to work systematically and in a suitable working condition, this allows an increase in efficiency and effectiveness. When the delivery of products and services meet the needs and expectations of the stakeholders, the confidence in the reputation of the group is built. Additionally, this helps reduce risks and also increase business opportunities towards sustainable development.

			Asphalt Bus	iness Group		Maritime Business Group	Construction Business Group
Bus	siness Group/ Company	Tipco Asphalt PCL	Thai Bitumen Co.,Ltd.	Raycol Asphalt Co.,Ltd.	KBC Asphalt Refinery	Tipco Maritime Co.,Ltd.	Thai Slurry Seal Co.,Ltd.
	ISO 9001:2015 Quality	•	•	•	•	•	•
	ISO 14001:2015 Environment	•	•	•	•	•	
Certified Standards	ISO 45001:2018 Occupational health and safety	•	•	•	•		
ed Star	IMS Integrated Management	•	•	•			
Certifi	ISO/IEC 17025:2017 Laboratory	•			•		
	ISO 39001:2012 Road Traffic Safety	•	•	•			
	TLS 8001:2020 Thai Labor Standard	•					
	ISO 26000:2010 Social Responsibility	•	•	•			
Guidelines	ISO 31000:2018 Risk management	•					
Guiq	ISO 45005:2020 General guidelines for safe working during the COVID-19 pandemic	•	•	•			

### New Standard/Guideline in 2022

The Group commits to continual business improvements with emphasis on risk management practice. To ensure that the Group can conduct enterprise risk assessments to create stakeholders' confidence over our business operations and corporate governance, the Group has adopted an Enterprise Risk Management (ERM) practice since 2012.The ERM practice follows the guidance of the Committee of Sponsoring Organizations of the Treadway Commission (COSO) or ERM COSO framework and the scope encompasses the Group's domestic business units as well as international subsidiaries. Our ERM identifies and assesses risks across key categories such as operational, ESG financial and, strategic risks while the Group implements of internal risk control measures with regular monitoring and report.

With our ERM practice, in 2022 the Tipco Asphalt Public Company Limited was recognized with ISO 31000:2018 ERM Guideline for our enterprise risk management practice from the Management System Certification Institute (Thailand) – MASCI. The company received this recognition, with ERM maturity Level 4 (Embedded) and score of 81%. This reflects the Group's strong commitments to good corporate governance practice, with focus on risk assessment while promoting risk management culture accordingly.





# PERFORMANCE SUMMARY HIGHLIGHTS IN 2022





TIPCO



## **Sustainable Development Targets and Results**

Sustainable Development Strategy	Key Targets in 2025	Key Targets in 2022	Results in 2022
	Innovation Leader – For	10X exponential economic	growth
4 Several granden	<ul> <li>Reinforce "innovation" into the corporate culture and ≥25% profit increase from innovation as compared to base year 2018</li> </ul>	<ul> <li>Not less than 70% of Innovation Culture Survey Results from employees' perspectives</li> <li>Create new environmental and social innovations not less than 5 projects</li> </ul>	<ul> <li>Innovation Culture Survey Results: Organizational Capability 69% and Employee Capability 83%</li> <li>New 2 social and environmental innovation projects</li> </ul>
	Eco-Efficiency Op	perations – For better plane	t
12 martine CO	<ul> <li>Reduce not less than 6% of greenhouse gas emissions per ton of production from base year 2020 for Scope 1 and 2</li> </ul>	<ul> <li>No less than 3% of greenhouse gas emissions intensity reduction, as compared to base year 2020 for Scope 1 and 2</li> </ul>	<ul> <li>Achieved 23.2% of greenhouse gas emissions intensity reduction as compared to base year 2020</li> </ul>
	Safety Awarene	ss - Better safe than sorry	
3 minutes and a second	<ul> <li>Zero lost time accident and fatality of employee and outsourced logistics contractors</li> <li>Zero Loss Time Injury Frequency Rate (LTIFR) from work and product delivery is zero</li> </ul>	<ul> <li>No fatality accident of employees and outsourced logistics contractors</li> <li>No more than 0.74 time per million work hours on Loss Time Injury Frequency Rate (LTIFR) from work and product delivery</li> </ul>	<ul> <li>0 fatal accident from outsourced logistics contractors</li> <li>0 time per million work hours on Loss Time Injury Frequency Rate (LTIFR) from work and product delivery</li> </ul>

Sustainable Development Strategy	Key Targets in 2025	Key Targets in 2022	Results in 2022
	Good Corporate Governan	ice - For strong business f	oundation
8 Augustantin Augu	<ul> <li>The company is rated at the highest level under Good Corporate Governance Criteria</li> </ul>	<ul> <li>To be a model organization in corporate governance by maintaining a level not less than 5 stars</li> <li>Annual Shareholders Meeting Quality Assessment Project (AGM checklist) not less than 98%</li> </ul>	<ul> <li>CGR Score: 5 stars for the 5<sup>th</sup> consecutive year</li> <li>The results of the quality assessment of the annual shareholders' meeting was 98%</li> </ul>
	Value for the Fu	ture - Be ready for change	
A transformation A transforma	<ul> <li>Career progress planning which is made by individual development plan of the high potential employee is expected at not less than 75%</li> <li>There are potential successors in all positions as targeted</li> </ul>	• 24 hours technical and administrative training per person per year	<ul> <li>Average hours for all topic categories was 46 hours/person/year</li> <li>Average technical and administrative training hours was 32 hours/ person/year</li> </ul>



# 10 Sustainable Development Goals (SDGs) Performance Highlights in 2022







# TIPCO ASPHALT GROUP SUSTAINABLE DEVELOPMENT







# TIPCO ASPHALT GROUP SUSTAINABLE DEVELOPMENT

### **Tipco Asphalt Group Sustainable Development Definition**

The Group is committed to driving sustainable development in order to meet the expectations of stakeholder groups throughout the business value chain, in accordance with the guidelines for creating shared value in both economic, social, and environmental aspects, with Enterprise Risk Management, good corporate governance, and people development to ensure that employees are ready for changing conditions. The organization always strives to create and implement innovative solutions to drive long-term growth and sustainable operations.



### **Tipco Asphalt Group Sustainable Development Strategies**

Based on the 2025 mission and vision, the Group has established six strategic goals that incorporate sustainable development in determining the business direction of the Group. The Group aims to become a sustainable development organization through targeted efforts in its strategic goals. The Sustainable Development Framework of the Group is a fundamental operating principle that outlines best practices in accordance with international principles and standards to achieve the vision of sustainable development. The Group is committed to strengthening its potential and long-term operations through sustainable development with the following three sustainability strategies and principles:

- 1) Innovation Leader
- 2) Eco-efficiency Operations
- 3) Safety Awareness

By adhering to the principle of sustainable development, two important aspects are emphasized:

- 1) Good Corporate Governance
- 2) Value for the Future





### **Tipco Asphalt Group Policy and Governance on Sustainable Development**

Since 2017, Tipco Asphalt Group has developed a sustainable development framework, which includes the approval and implementation of strategies and goal settings. Our sustainable development vision, "Innovative solutions for sustainable living of all societies," is communicated to all employees and stakeholders to ensure their understanding of mutual development goals. Systematic monitoring and

controls on results are also in place. Sustainable development initiatives have been integrated with our business practices and directions, aligning all employees to follow strategic plans with continual development. This creates mutual benefits for both the Group and society, including clear communication with all employees to ensure their understanding and participation.






Scan QR Code to view our sustainable development policy

Scan QR Code to view our sustainability governance

## Tipco Asphalt Group: Governance Structure of Sustainable Development

Roles & responsibilities	Frequency
Approve sustainable development strategies, goals, and budgets	Quarterly (4 times)
<ol> <li>Screen policy, strategies, goals and action plans associated with sustainable development</li> <li>Follow up on sustainability performance and provide result updates to the Board of Directors</li> <li>Revie w sustainability policy of the Group and present to the Board of Directors</li> </ol>	Quarterly (4 times)
<ul> <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)
<ol> <li>Monitor operating results in the Management Review meeting, 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)
<ul> <li>Communicate framework, policy, strategy, goals, and action plans associated with sustainable development to employees and relevant stakeholders to ensure their acknowledgement and understanding</li> <li>Promote and coordinate, both within and outside the organization</li> </ul>	Monthly (12 times)
Implement action plans to achieve sustainable development goals together	



# **Tipco Asphalt Group Sustainable Development Milestones**

2012

- Studied the guidelines for the preparation of
- Enterprise Risk Management. • Adopt social responsibility
- guideline ISO 26000 was implemented in the organization

organization

## 2015

- Set the mission and vision 2020 by including sustainable social responsibility into the corporate vision.
- As risk management is one of the organization's strategic goals, risk registration according to the COSO standard was created.
- "5-star excellent" rating from the Corporate Governance Report of Thai Listed Companies: CGR for the first year.

# 2011

- Formulated mission and vision 2015 by including corporate social responsibility in the corporate vision.
- Established policy on Social Responsibility and Community Engagement.

# 2016

- - Implemented sustainability strategy in economic, social and environmental aspects in line with the corporate strategy plan.
  - "5-star; excellent" rating from the Corporate Governance Report of Thai Listed Companies (CGR) continuously.
  - Started an innovation project.

# 2017

The Company joined the membership of the Thai Private Sector Collective Action Against Corruption (CAC).

# 2018

- The first Annual Sustainability Report was launched and started to collect management data on key materiality for sustainability.
- The Group was awarded Sustainability Awarded (Rising Stars category).
  The Group's stock (TASCO) was
- included in the Thailand Sustainability Investment Index (THSI) for the first year.

# Phase 1

#### Lay Foundation (2016-2018)

- Developed people, adding basic values to sustainability
- Good corporate governance, as foundation for future sustainability
- Effective risk management, with execution according to plans
- Set of sustainable development goals, and effective communication
- Enhanced the organization's sustainability knowledge
- Education of the team and progress towards common goals



Tipco Asphalt Public Company Limited

# Phase 2

#### Drive Sustainable Business (2019-2021)

- Create value for products and services by using creative innovation
- Improve the work process to increase business competency as well as reduce environmental impact
- Focus on raising awareness of the safety of stakeholders
- Disclose sustainability information transparently, build business confidence strong business alliances relationship
- Cultivate a sustainable DNA throughout the organization

#### Phase 3

# Leverage on sustainability (2022–2025)

- Implement plans to continuously reduce Greenhouse Gas Emissions (GHG) through ongoing emission reduction efforts.
- Long-term Greenhouse Gas
   Management Plan
- Consider collecting analytical data on other important sustainability issues such as human rights, bio-diversity.
- Formulate corporate strategic
  - plan for the year 2030
- Expand the scope of work on
  - sustainable development to other business groups and subsidiaries

#### 2022

- Be a learning hub and leader in asphalt innovation for road construction, including new construction, road maintenance and advance applications
- Build a sustainability alliance network with various organizations both domestically and internationally
   Participate in the sustainability
- assessment program of international credit rating agencies.

SUSTAINABILITY REPORT 2022



The company was recertified by Thai Private Sector Collective Action Against Anti-Corruption Coalition Corruption (CAC).

# 2019

- Set mission and Vision 2025 in corporate vision.
- Established a policy on Social Responsibility and Community Engagement.
- The Group was awarded Sustainability Disclosure Award from Thaipat Institute for the first time.

# 2021

- Review and enact new environmental policy that is consistent with the organization's sustainable development strategy plan.
- ESG rating from an international rating organization such as S&P Global.
- Implemented personal data protection policy as well as appointed a data protection officer, responsible for Personal Data Protection Act (PDPA).
- Awarded Sustainability Award in the category 'Highly Commended'
- Reviewed of human rights policy.



# TIPCO ASPHALT GROUP



The Group employs a strategy of "**CUSTOMER-CENTRIC FOCUS**," and therefore, it is concerned with this value chain, which is consistent with the practice guidelines. By analyzing and incorporating customer needs as "**innovations**" into the process of finding responsive strategies, the Group not only meets customer demands, but also improves operations, increases efficiency, and streamlines work processes.





# **Top Corporate Risks and Emerging Risk**

The Group possesses a comprehensive business internal risk analysis process in order to determine the efficiency of internal operations as well as consider external factors affecting business operations. This includes changes in both domestic and overseas asphalt and petroleum businesses, and also other factors which have a significant impact such as changes in economy, politics, law, environment, society and technology.

Top corporate risk	Impacts	Risk Mitigation Measures
Uncertainty in crude oil supply and volatility in oil prices	<ul> <li>Refining operations and wholesale businesses in abroad are at risks due to the limited supply of feedstock and the imbalance in the demand and supply of asphalt in the market.</li> <li>Petroleum and related product prices increase in line with higher feedstock costs from the Russia- Ukraine war.</li> </ul>	<ul> <li>Purchase of feedstock from alternative sources</li> <li>Purchase feedstock from alternative suppliers with careful management of import and shipping.</li> <li>The Group's efficient risk management policy on feedstock price volatility</li> </ul>
Volatility of asphalt demand and prices in the international retail market due to local government budget cuts	Asphalt demand decreased in some countries such as China, Cambodia, Laos, Vietnam and Indonesia.	Join special construction projects between the state and the private sector, encourage usage of special asphalt, consider applying internal operational measures for product delivery.
Asphalt cement supply	Discontinuities in asphalt refining process and manufacturing.	<ul> <li>Consider purchasing from alternative suppliers in region.</li> <li>Maintain a good long-term relationship with refineries in Asia by using delivery contracts.</li> <li>Introduce asphalt cement direct distribution from the Group's refinery in Malaysia.</li> <li>Apply asphalt cement production and storage management of the Group's refinery in Malaysia.</li> </ul>



#### **Emerging Risk**

**Cyber Attacks** 



- The adoption of information technology to business operations can make it more vulnerable to various forms of cyber-attacks, such as fraudulent emails, ransomware, and etc. This could result in the loss of sensitive information of the company and its stakeholders, which may lead to a temporary business interruption.
- As for data security, there are risks on data leakage or misuse which could result in losses pertaining to businesses as well as stakeholders.

#### **Risk Mitigation Measures**

- Review the effectiveness of the IT management structure and operations that may be vulnerable to cyberattacks as prescribed in company policies and guidelines.
- Switch to more secure cloudbased platform.
- Implement Disaster Recovery Plan (DRP), principles for continuity of system service during emergency situations. The plan will help reduce risk to main activities of the business such as production, transportation, purchasing, finance and accounting, etc. Plan to raise awareness on IT security for employee and related parties to create mutual understanding upon roles and responsibilities employees need to comply with the Group's policies and work quidelines.
- Protect personal information by setting a personal information protection policy, appoint responsible officers for reviewing the operations of related departments under the policy, and communicate to relevant stakeholders.



# **Risk Management During the COVID-19 Pandemic**

From end of 2021 toward early 2022, there have been clear records of COVID-19 Omicron and other virus strains that can spread more effectively than those previous strains. Nevertheless, these new virus strains generate less severeness during infection while promoting natural autoimmune in those infected patients. These hence allows the COVID-19 pandemic to become more manageable while the society can better adjust their lifestyles to live with such pandemic situations.

However, the Group still emphasizes on security pertaining to employees and other related stakeholders and continue to implement the ISO/PAS 45005:2020 Occupational health and safety management — General guidelines for safe working during the COVID-19 pandemic, to protect our employees whose jobs involve direct contact exposures with product sales and delivery to customers. This also includes other related stakeholders on COVID-19 risk exposures from work conditions. With this challenging situation for the past 3 years coupled with our lesson learnt and adaptation, the Group has introduced new innovations that greatly benefit the business; for instance, the digital platform designed to provide employees with work conveniences, accommodate customers' needs and minimize pandemic risk accordingly.

# The Group's Management Guideline on COVID-19 can be summarized as follows:



#### **Situation Monitoring**

The Group has appointed a management committee to monitor and manage all internal and external risk concerns regarding the epidemic situation, under preventive guidelines and practices for effective and efficient rapid emergency response.



#### Perform COVID-19 Risk Assessment

The Group has appointed a management committee in the situation of the epidemic of COVID-19 to assess all risk concerns by the opportunity and severity of each work area.



#### Implement Risk Mitigation Measures

The Group has implemented an effective risk management plan to reduce all risks related to safety, work conditions and processes for its employees and stakeholders by assessing the level of risk in a particular place such as crowded places with many people nearby or closed spaces with poor ventilation.

## Tipco Asphalt Group: Stakeholder Groups Across Value Chain

In 2021, the Group announced the Stakeholder Participation Policy which was approved and signed by the Chairman of the Board of Directors on May 12, 2021. The Group recognized the importance of stakeholder groups in the business management, and we believed that good relationships are built on trust. Therefore, with continual development, all stakeholder's opinions and suggestions are valuable assets that drive our business toward the achievement of being a sustainable organization. In addition, an effective stakeholder management will promote our business to meet their expectations, and then return maximum benefits to us. At the same time, the management will also help mitigate the risk which could possibly affect the business image, reputation, and the opportunity that may lead to business interruption while creating benefits across all related stakeholder groups.



Please scan QR Code to view the Stakeholder Engagement Policy





# Tipco Asphalt Group: Stakeholder Relationship Management

The Group has implemented a guideline manual on stakeholder relationship management as a framework for identifying key stakeholders and management approaches to respond to their needs or reduce concerns, including assessment on whether such approaches are correct and adequate. This is to ensure great, mutual relationship between the Group and all relevant stakeholder groups. We arranged a series of activities to encourage stakeholder participation utilizing different methods depending on their needs, with suitable channels. Details are in the following page.



The level of stakeholder impact on the organization's activities

Stakeholder Group	Needs/ Expectations	Engagement channels/ frequency	Benefits to stakeholders	Highlights in 2022
Board of Directors/ Employees	<ul> <li>Drive business toward sustainable development</li> <li>Comply with legality, and ethics in business management</li> <li>Operate with transparency</li> <li>Great quality of life, career stability, and fair compensations</li> <li>Respect the rights of employees and stakeholders</li> </ul>	<ul> <li>Sustainability governance through board meetings at least 5 times per year</li> <li>Semi-annual Staff Meetings to communicate the Group's policy and operating results from the CEO as well as via online platform (MS teams)</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> <li>Good corporate governance in business management</li> <li>Integration of sustainability into corporate strategy and business plans</li> <li>Safe and happy workplace with work-life balance and daily lives</li> <li>Continuous skill and capability developments</li> <li>Career advancement and fair compensation</li> </ul>	<ul> <li>"5-star; excellent" rating from the Corporate Governance Report of Thai listed companies for the 5<sup>th</sup> consecutive year</li> <li>Membership re-certification from Thailand's Private Sector Collective Action Against Corruption (CAC)</li> <li>Zero lost time incident or fatality accident (5 Thai plants)</li> <li>22.2% promotion rate for high potential employees to management positions</li> </ul>
Customers	<ul> <li>Meet customer expectations by serving products and services they need</li> <li>Maintain customer confidentiality and data protection</li> <li>Fair treatment and respect for customer rights</li> </ul>	<ul> <li>Customer relationship management activities, customer satisfaction survey and complaint channel through Zoom</li> <li>Training and seminars in 2022 (through both online and physical channels) to provide knowledge to customers that are ready</li> </ul>	<ul> <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> <li>88% customer satisfaction survey results</li> <li>100% of 33 customer complaint issues were resolved and communicated back to the customers</li> <li>Zero incident of product recall due to poor quality</li> </ul>

# Stakeholder Engagement

# Stakeholder Engagement

TIPCO

Stakeholder Group	Needs/ Expectations	Engagement channels/ frequency	Benefits to stakeholders	Highlights in 2022
Suppliers/ partners	<ul> <li>Commit to a fair business practice</li> <li>Respect the rights of suppliers/partners</li> <li>Encourage business partners to continuously improve their work systems to increase efficiency</li> <li>Encourage suppliers/ business partners to join the green industry process</li> </ul>	<ul> <li>Provide suggestions to suppliers through online system, including consulting services through telephone</li> <li>Annual supplier visits; both physical site visit via online system, at least one time per year</li> <li>Joint conduct of social responsibility activities</li> <li>Provide a channel for complaints via the company's website or contact information</li> </ul>	<ul> <li>Suppliers have a safe working environment.</li> <li>Sharing of information, knowledge, operational guidelines and business conduct in accordance with international standards</li> <li>Increase business competency with effective business management</li> <li>Partners and alliances are able to develop their businesses with a sustainable self-reliance</li> </ul>	<ul> <li>Disclose supplier Cone of Conduct while promoting suppliers to follow business ethics and operations with focus on environment, social and good corporate governance</li> <li>94.16% Purchase of raw materials and containers of total volume per year was made within time requirement</li> <li>100% Purchase of raw materials and containers of total volume per year was made within standard requirement</li> <li>The value of purchasing and procuring environmentally friendly products (Green Product) in Thailand was totaling 153 million Baht</li> <li>Local purchasing value in Thailand totaled 62.95 million Baht</li> <li>4 supplier ESG assessments</li> <li>Zero lost time incident or fatality accident</li> </ul>
Road users/ communities	<ul> <li>Promote safe driving</li> <li>Create pollution- free community</li> <li>Provide education and career opportunities for community</li> <li>Promote health in the epidemic situation of COVID-19</li> </ul>	<ul> <li>Public interaction/ dialogue with communities and road users</li> <li>Survey overall satisfaction through community-based activities</li> <li>"Open house" project (plant tour)</li> <li>Channels to receive comments and</li> </ul>	<ul> <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> <li>The average community participation satisfaction survey result was 92.7%</li> <li>Zero ESG complaints from communities and road users</li> <li>There were 7 major social activities</li> </ul>

Stakeholder Group	Needs/ Expectations	Engagement channels/ frequency	Benefits to stakeholders	Highlights in 2022
Government agencies	<ul> <li>Full compliance with related laws and regulations</li> <li>Promote anti- corruption and infringement</li> </ul>	<ul> <li>Participate in meetings related to regulations</li> <li>Meetings/joint activities on social responsibility</li> <li>Plant visits</li> </ul>	<ul> <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> <li>Promoted the United Nations Sustainable Development Goals (UNSDG) through regular conduct of social activities</li> </ul>
Shareholders/ investors	<ul> <li>Opportunities for investment growth and business sustainability</li> <li>Governance and data disclosure pertaining to business directions</li> </ul>	<ul> <li>Annual general meeting under 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> <li>Receive reasonable investment returns</li> <li>Prudent business growth management with effective risk management through internal control measures</li> <li>Transparent business conduct, to promote good corporate image</li> </ul>	<ul> <li>1.25 Baht Dividends per share</li> <li>10.33 Baht Book Value per share, grew from 9.62 Baht per share in 2021</li> </ul>
Civil societies/ Academic/ Media	• Data disclosure with accuracy, clarity, and timeliness	<ul> <li>Keep update to the Stock Exchange of Thailand and other regulatory agencies</li> <li>Press release of the company</li> <li>Opportunity Day meeting</li> <li>Phone number and email investor relations for inquiries</li> </ul>	• Data disclosure with accuracy and timeliness	<ul> <li>Disclose information to the Stock Exchange of Thailand and other regulatory agencies as legally required</li> <li>Prepare press releases regularly</li> <li>Attend Opportunity Day meetings 4 times a year</li> <li>Quickly respond to investors' queries via investor relations channels</li> </ul>
Competitors	<ul> <li>Fair business practices</li> <li>Operational transparency</li> </ul>	<ul> <li>Exhibitions/ academic seminars</li> <li>Websites and social media</li> </ul>	• Fair and transparent competition, in accordance with the Group's ethics	<ul> <li>Complied with corporate ethics</li> <li>Complied with sales policy</li> </ul>

# Stakeholder Engagement



# KEY MATERIALITY FOR SUSTAINABILITY





# KEY MATERIALITY FOR SUSTAINABILITY

## Assessment of Key Materiality for Sustainability

#### Identification of Key Materiality for Sustainability

Tipco Asphalt Group constantly reviews data disclosure in our Sustainability Report. In 2022, we conducted a re-assessment and re-prioritization of key materiality issues for sustainable development by referring to the Sustainable Development Issues made in 2021 and taking global and regional external risk factors into consideration. The Covid-19 pandemic continues to pose serious challenges the world, meanwhile in many countries, vaccines were developed against the virus that has continuously mutated. In addition, the United States' sanction against Venezuela which directly impacted the Group's feedstock supplies source for our refinery in Malaysia, in which the aforementioned sanction still affects our business until present. At the same time, the world has turned its attention to climate change that contributes to extreme weather conditions due to the emissions of fossil fuels such as coal, oil and gas from human economic activities. In addition to considering risk factors, trends of changes, and developments of sustainability Index of the Stock Exchange of Thailand, The Global Sustainable Development Goals (SDGs) were also brought for business risk assessment. There are also various internal factors that may influence the direction of business management and sustainability goals, including strategy, vision, and critical issues raised by executives which focusing on human development, risks management, and opportunities. As all information are benefits to the sustainability development of the organization in both the short and long term, it has been taken into the Group's business decision and consideration.

Since various changes that have occurred directly affecting the business operation and may intensify, the Group has assessed the sustainability issues as follows:

**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 27 sample groups of internal/external stakeholders through in-depth interview approach via telephone, email, online video conference platforms such as Microsoft Team, or on-site meeting.

**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 for planning and implementation under effective and timely management for maximum benefits. These assessment and prioritization will be utilized as information sharing for collaboration among partners, customers and key stakeholders.

**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 2022 Key Materiality for Sustainability

According to the reviews, the management and Sustainability working team proposed the Group's Materiality issues to the Sustainable Development and Corporate Governance Committee (SD-CG Committee) who serves as representative of the Board of Directors to acknowledge and approve the reviews on 28th April 2022. It was found that there were 11 key Materiality issues presented in this report; namely, Excellence in asphalt road surfaces, Pollution and greenhouse gas management, Effluents and waste management/ spillage&leakage, Energy management, Employee health and safety, Participation in community and society development, Risk & crisis management, Government policies and budgets, Cyber security, Retaining potential employees & employee management and, Training and education.

With this regard, the Group conducted assessment with accordance with the Global Reporting Initiatives (GRI), GRI Standards.







# **Result of 2022 Materiality Assessment**

# 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. **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. This Report presents only information pertaining to 11 key materiality issues.

#### Innovation Leader For 10X exponential economic growth

- 8) Foster Innovation for Tipco Asphalt Dna
- 10) Excellence in asphalt road surfaces
- 18) Environmental Friendly Product & Service Development

#### Eco-Efficiency Operations For better planet

- 2) Pollution and Greenhouse Gas Management 15) Materials Management
- 3) Effluents and Waste Nanagement / Spillage & Leakage
- 21) Protection of The Environment, Biodiversity and Restoration of Natural Habitats

- 5) Energy Management
- 7) Opportunities And Risks From Changes
- Safety Awareness Better safe than sorry
- 11) Employee Health and Safety
- 13) Safety During Transportation and Deliverying Goods
- 19) Customer and Road User: Health and Safety

#### Good Corporate Governance For strong business foundation

- 4) Risk & Crisis Management
- 6) Good Corporate Governance, Transparency, and Anti-Corruption
- 9) News, Communication and Corporate Reputation
- 12) Government policies and budgets
- 16) Cyber Security
- 17) Marketing and Labeling
- 20) Customer Centric
- 22) Customer Privacy
- 23) Fair Labor Practices

- 24) Participation in community and society development
- 26) Dialogue with stakeholders
- 27) Fair business practices

30) Water Management

- 28) Assessment of social, environmental, and ethical issues in the supply chain
- 29) Sustainable supply chain management
- 32) Sustainable Purchasing
- 33) Respecting Human Rights
- 34) Procurement from local businesses

#### Value for the Future Be ready for change

- 1) Retaining Potential Employee & Employee Management
- 14) Training and Education
- 25) Diversity and Equal Opportunity
- 31) Employee Centric



# Key Materiality Issues in 2022 and Stakeholder Engagement

Tipco Asphalt Group prioritizes engagement with stakeholder groups, both directly and indirectly related to the Group's operations to encourage employees to work at full efficiency with happiness and be able to build and maintain relationships with customers. As customer comments are considered as key element in determining the direction of operations for the development of corporate sustainability, the Group has communicated 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.

2	<ul> <li>Innovation Leader</li> <li>Excellence in asphalt road surfaces</li> </ul>	• Bringing reviews and feedback from customers and stakeholders for new products or services development allows business to meet their expectations. In addition, cooperation in an innovative manufacturing process among people in organizations, academics, students and related stakeholders also increase the potential organizational efficiency and steady growth based on sustainability.
	<ul> <li>Eco-Efficiency Operations (Environment)</li> <li>Pollution and Greenhouse Gas Management</li> <li>Effluents and waste management / spillage &amp; leakage</li> <li>Energy management</li> </ul>	<ul> <li>Manage risks to prevent and control pollution in business activities and take proactive action on requirements as prescribed in environmental laws and regulations</li> <li>Control the use of resources, reduce waste, and promote the recycling and reduce final disposal</li> <li>Increase energy efficiency and encourage alternative energy use in business processes</li> </ul>
	Safety Awareness (Social) • Employee health and safety	<ul> <li>Create a safe working condition and processes for occupational health in the industry with a pleasant environment to increase the efficiency of employees and stakeholders</li> <li>Committed to protecting employees, customers and communities through audit risk management and cyber security system</li> </ul>
	<ul> <li>Good Corporate Governance</li> <li>Risk &amp; crisis management</li> <li>Government policies and budgets</li> <li>Cyber security</li> <li>Participation in community development and society</li> </ul>	Focus on corporate risk management which may affect business strategies and operations along with creating value for the economy, society, community and environment
	<ul> <li>Value for the Future</li> <li>Retaining potential employees &amp; employee management</li> <li>Training and education</li> </ul>	• Emphasize customer- and employee-centered management to achieve efficiency maximization. As an effective people management creates a pleasant working condition, this help strengthen business relationships with customers

# Scope of Impacts from Key Materiality Issues to Stakeholders

Key materiality	Scope of impact					R	Reference standard used						
issues for sustainability	Interna in the organi	Report	Poport organization						in the Report				
	Board of Directors	Employees	Customers	Suppliers	Road Users/ Communities	Government Agencies	Civil Societies/ Academics/ Media	Shareholders/ Investors	Competitors	GRI	Standard	SDGs	page
Excellence in asphalt road surfaces	•	٠							٠	201	ISO 9001	SDG 9	59
Pollution and Greenhouse Gas Management	•	•	•	•	•	•				305-306	ISO 14001	SDG 12, 13	71
Energy management	•	•	٠	•						302	ISO 14001	SDG 12, 13	82
Effluents and waste management/ spillage & leakage	•	•	•	•	•	•				305	ISO 14001	SDG 12	86
Employee health and safety	•	٠	•	•	•					403	ISO 45001	SDG 3	95
Risk & crisis management	•	٠	•	•	•	•	•	•	٠	102	ISO 31000	SDG 11	107
Participation in community and society development	•	•	•	•	•	•	•			413	ISO 26000	SDG 3	113
Cyber security	•	•	•	•						102, 103	-	SDG 11	121
Government policies and budgets	•	•	•	•		•			•	102, 103	-	SDG 8	125
Retaining potential employees & employee management	•	•					•			401	TLS 8001	SDG 8	129
Training and education	•	•					•			404	TLS 8001	SDG 4	133



# **INNOVATION**



" For 10X Exponential Economic Growth

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KEY VALUE CHAIN KEY STAKEHOLDERS

8

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#### **Key Risks and Opportunities**

- Risk of substitute products with better technology
- Risk related to lack of knowledge transfer process
- Opportunity to pass on knowledge and experience
- Risk in response to customer needs.



## **Excellence in Asphalt Road Surfaces**

#### Management Approach

Tipco Asphalt Group constantly develops and improves asphalt quality to suit road applications in accordance with international standards for all asphalt use on road paving. We also adopted modern technology in collaboration with the Colas Group from France, our business partner that pioneered high road technology application. In addition, the Group utilizes technology in the development of asphalt road pavement that exhibits the highest level of safety features.

As we committed our businesses to innovations, this allowed us to experience exponential business growth. The corporate communication division is the main unit that drives the process of promoting internal innovation and creating an environment to promote creativity and continual development. The contribution of employees will allow the business to achieve the highest efficiency in all aspects through a proactive approach and lead the organization to overcome various types of crises in the midst of a challenging world. With digital technology adoption, this will help businesses to meet the customer expectation, increase speed of service with low error, reduce costs, and save time in their overall processes throughout the supply chain efficiently. Therefore, we expected to increase competitiveness as well as increase the capabilities of employee along with the new normal transformation.

After the construction business group became a part of our group, we have developed a learning and working system through an online platform, focusing on knowledge for product design. This enables contractors and all related people to learn through interactive mobile and station systems at any time, which achieves our business goal to be a leader of asphalt innovation for road construction.

#### Goal

#### Short-Term Goals in 2022

- Provide knowledge on the use of asphalt in road construction by the technical team 20 knowledge-sharing sessions
- Technical service satisfaction survey score ≥ 85%

#### Long-Term Goal in 2025

- Establishing a training platform which promotes interactive learning via mobile system and Station from anywhere and 24 hours for contractors and related parties to join seminars.
- Being a learning hub and a leader in asphalt innovation for road construction, including new construction, road maintenance, and advance applications.



Scan QR code to view Innovation Policy



Scan QR Code to view Tipco Asphalt Group Innovation Culture Support



#### **Key Results**

- The technical team organized 65 academic seminars, 15 on-site training sessions, and 50 online seminars to educate people on the use of asphalt for road construction. The average satisfaction rate from the training evaluations was 95%.
- Received technical service satisfaction survey score at 89%.
- Implemented E-Document system to keep knowledge, documents, and certificates to facilitate accessing and learning via mobile. The documents include product and delivery information as required by the standards of government agencies.
- Synchronized training data and satisfaction monitoring system through an online customer satisfaction assessment system to create channel for acquiring opinions from users and contractors.



# Uplifting the Safety of Road Surface Maintenance with the 'FIBROSEAL' Technique

The Group has introduced "FIBROSEAL," a microsurfacing pavement coating that combines fiberglass with abrasion and temperature-resistant properties to improve road safety and prolong the service life of road surfaces. It enhances adhesion efficiency and reduces the loosening of stone grains, making the road surface strong and durable. Additionally, it increases skid resistance for greater road safety and allows rapid traffic reopening within an hour. "FIBROSEAL" has been implemented in various important projects, as follows:

Project	Client	Contractors	Project Value	Start Date	End Date
Karnchana- phisek (South) Bangplee – Suksawat Expressway	Expressway Authority of Thailand (EXAT)	Thanomwongse Service Co., Ltd.	48 million Baht	December 2 <sup>nd</sup> 2021	December 2 <sup>nd</sup> 2022
Buraphavithi Expressway	Expressway Authority of Thailand (EXAT)	Thanomwongse Service Co., Ltd.	96 million Baht	April 29 <sup>th</sup> 2022	June 22 <sup>nd</sup> 2023
Chalermma- hanakorn Expressway	Expressway Authority of Thailand (EXAT)	Thanomwongse Service Co., Ltd.1	16 million Baht	September 16 <sup>th</sup> 2022	December 23 <sup>rd</sup> 2022

Remarks: <sup>1</sup>Chalermmahanakorn Expressway project was subcontracted by SECO TRANSPORT Co., Ltd.





# **Environmental-Friendly Products and Services**

#### **Asphalt Recycling Agent**

Tipco Asphalt Group focuses on product development and continually improving the quality of the products. One such product is the "Asphalt Recycling Agent", which is important for both economic and environmental reasons. This product is used to enhance the quality of asphalt cement in asphalt concrete, allowing the pavement to meet desired specifications even after deterioration. Department of Highways and Rural Roads have increased their use of Asphalt Recycling Agent in maintenance projects since 2020 with an effort to make the most of limited natural resources and reuse materials as much as possible. Sales of Asphalt Recycling Agent have seen significant growth in the recent years.





## **Key Construction and Maintenance Projects**

The Group is dedicated to developing a comprehensive range of products and services, including various road construction and maintenance projects, in order to continually enhance the quality of life for the community and ensure the safety of road users.

Through investment in the construction business group, the Group has strengthened its ability to provide value-added products and comprehensive asphalt services, including road construction and maintenance contracts with both government agencies and private sectors. The Group has also received technical knowledge and technology support from Colas, a shareholder who specializes in road infrastructure construction, to collaborate in the development of high-quality products suitable for various uses.

In 2022, the construction business group was able to proceed with its plans without significant interruptions due to intensive measures taken to ensure the safety and health of employees. The main focus of the construction business is currently on road surface improvement projects and construction projects for road improvements. Overall, the construction business is expected to continue growing. As of the end of 2022, the business had a total order book value of 3,276 million Baht, covering 10 projects. Notable projects include the major restructuring of Runway 21R - 03L at Don Mueang Airport, runway and taxiway surface repairment at Suvarnabhumi Airport, soil quality improvement in the aircraft parking area adjacent to the second concourse building at Suvarnabhumi Airport, runway extension construction with airport electrical systems and other components at Trang Airport, pavement repair project, Route 3020 Highway Intersection No. 340 - Ban Khlong Bang Luang Lat Lum Kaeo District, Pathum Thani Province, with recycling techniques, etc.





# Key Construction and Maintenance Projects

Project Name	Project Duration	Project Progress	Project Detail	Project Value (Baht)
<b>1<sup>st</sup> Project</b> Runway and taxiway surface repairment at Suvarnabhumi Airport	February 24 <sup>th</sup> 2021 – February 14 <sup>th</sup> 2024	Work in Progress, used of Modified Asphalt Concrete 8,358 Tons	Repair runway and taxiway surface with 8,400 Tons of Modified Asphalt Concrete	41,407,716
<b>2<sup>nd</sup> Project</b> Runway 21R - 03L surface improvement at Don Mueang Airport	October 27 <sup>th</sup> 2021 – July 23 <sup>rd</sup> 2022	Completed	Improve 21R-03L runway surface	331,197,100
<b>3<sup>rd</sup> Project</b> Soil quality improvement in the aircraft parking area adjacent to the second concourse building at Suvarnabhumi Airport (NT Joint-Venture)	September 1 <sup>st</sup> 2022 – February 16 <sup>th</sup> 2025	Work in Progress	Improve soil quality in the aircraft parking area adjacent to the second concourse building	3,080,000,000
<b>4<sup>th</sup> Project</b> Runway extension construction with airport electrical systems and other components at Trang Airport (NTH Joint-Venture)	September 24 <sup>th</sup> 2022 – January 5 <sup>th</sup> 2025	Work in Progress	Extend Runway with airport electrical systems and other components	1,775,721,300





# Road Surface Renovation Project with Pavement In-Place Recycling Technique (Recycling of Existing Pavement Materials)

1 <sup>st</sup> Project							
Project Name: Road surface repair on Route 3020, Highway Intersection No. 340 -							
Ban Khlong Bang Luang Lat Lum Kae	Ban Khlong Bang Luang Lat Lum Kaeo District, Pathum Thani Province						
Amount of materials recycled in new road construction	3,400 cu.m.						
Types of recycled materials in new road construction	Aggregate 15 cm. Original Road Surface 10 cm						
Value	1.28 million Baht						
Amount of aggregate recycled in construction	2,040 Cu.m						
Types of recycled materials in construction	Aggregate						
Value	0.76 million Baht						
2 <sup>nd</sup> Project							
Project Name : Asphalt surface renovation, Route 34,	Bang Wua-Bang Pakong Section 1,						
Chachoengsao Province							
Amount of materials recycled in new road construction	2,680 cu.m.						
Types of recycled materials in new road construction	Aggregate 10 cm. Original Road Surface 10 cm						
Value	0.68 million Baht						

Value	0.68 million Baht
Amount of aggregate recycled in construction	1,340 Cu.m
Types of recycled materials in construction	Aggregate
Value	0.34 million Baht

#### 3<sup>rd</sup> Project

#### Project Name: Asphalt surface renovation, Route 349, Phanat Nikhom-Nong Chak Section,

Chonburi Province	
Amount of materials recycled in new road construction	1,460 cu.m.
Types of recycled materials in new road construction	Aggregate 10 cm. Original Road Surface 10 cm
Value	0.38 million Baht
Amount of aggregate recycled in construction	730 cu.m
Types of recycled materials in construction	Aggregate
Value	0.19 million Baht

#### 4<sup>th</sup> Project

Project Name: Highway Network Renovation between Highway 3701, Srinakarin-Bang Kwai Section	
Amount of materials recycled in new road construction	2,310 cu.m.
Types of recycled materials in new road construction	Aggregate 10 cm. Original Road Surface 10 cm
Value	0.60 million Baht
Amount of aggregate recycled in construction	1,155 cu.m
Types of recycled materials in construction	Aggregate
Value	0.30 million Baht



# **Colas Asphalt Innovation Partnership**

Colas aims to be the world leader in innovative, responsible mobility solutions. The Group draws on its capacity for innovation and R&D to conceptualize, design, develop and offer its customers a range of infrastructure and mobility solutions and that are useful to users, environmentally friendly, optimized, integrated within a shared and secure public space, smart and connected, reversible and multimodal, and able to address climate change priorities.

Colas Innovation and R&D teams work with the Sustainability teams (Environment, Safety, Security, etc.) to form a single department – the Innovation & Sustainability department. This structure reflects the strong ties between innovation and corporate social responsibility (CSR) at Colas and encourages close collaboration between staff for a more coherent, efficient approach. It also reflects the paradigm shift in mobility and smart roads over the past few years. Today, mobility cannot be reduced to the simple notion of getting around. It encompasses the expectation of a high level of service in terms of comfort, efficiency, ease of travel and safety, and takes into account environmental considerations.

Innovation and R&D at Colas are mainly led by the Core Center (Colas Research) in Magnyles-Hameaux, in the Saclay cluster near Paris, by the BIMbyColas (Building Information Modeling) team, the Mobility by Colas team (new tailored service offerings underpinned by digital technology) and Colas teams responsible for the following:

- supporting innovative initiatives by the Group's operating entities around the world, as well as intrapreneurship programs;
- experiments with innovative solutions in an operating context, possibly including use of data, encouraging rapid adoption of new technologies and new procedures by the Group's business lines; and
- Open Innovation, to create relationships with global innovation ecosystems in order to

observe and understand key technology trends and identify start-ups offering pioneering solutions;

 strategic partnerships with major groups whose activities mostly offer a good fit with Colas, or with start-ups, and work with innovative SMEs.

This governance structure is overseen by the Executive Management Committee, which signs off on innovation, research and development priorities; supervises contributions from entities in the field; monitors ongoing developments; and measures progress made toward achieving targets. The Group's innovation, research and development priorities help Colas deliver on a number of corporate social responsibility commitments to its stakeholders, set out in the ACT corporate project. This applies in particular to:

- research into bio-sourced materials to reduce the Group's carbon footprint;
- creating responsible mobility solutions for customers and users; and
- use of groundbreaking technologies to improve the performance and acceptability of Colas' operations.



## Low Carbon Materials and Solutions

In response to climate change, Colas has adopted a strategy for decarbonizing its operations. In 2021, the Group's targets of achieving reductions of 30% in both direct greenhouse gas emissions (Scopes 1 and 2) and indirect upstream emissions (Scope 3) by 2030 (baseline: 2019) were approved by the Science Based Targets initiative (SBTi).

The carbon roadmap drawn up in late 2020, which includes in particular continued efforts to develop and promote low carbon solutions, began to be rolled out to operating entities.

Colas research and development policy has been oriented towards these subjects for many years, with teams at the CORE Center working primarily on cements, hydraulic binders and low carbon cements, bio-sourced materials, reducing mix production temperatures (warm, semi-warm and cold mixes), as well as in-place road recycling and increasing the proportion of recycled materials in mixes.

The Core Center reviewed its strategy and organizational structure in order to increase resources dedicated to the design and development of low carbon solutions, primarily by means of the following projects:

> green chemistry: actions to assess the use of bio-sourced raw materials as a partial or full substitute for oil products; other projects aim to encourage use of raw materials obtained from the circular economy;

- low carbon concretes: research efforts concern identifying and assessing low carbon hydraulic binders as a substitute for using Portland cements to produce concretes or other road products;
- control of urban heat island effects: scientific studies and life-size experiments with technology integration solutions are being conducted with a view to a commercial rollout; and
- products and solutions to support sustainable road maintenance: to improve and enrich the range of solutions in this area, new R&D projects are to be launched concerning semi-warm mixes and cold mixes.





# **Sustainable Mobility Solutions**

The sustainable mobility solutions developed and marketed by Colas aim to address customers' environmental and energy-related concerns, improve comfort for users and residents and provide solutions to road safety issues.



#### They include in particular:

- mobility by Colas solutions for local authorities, which can, for example, help provide streamlined, shared access to local mobility services (Moov'Hub digital solution), implement preventive management of road networks (Anaïs) and schedule and manage traffic flows around urban construction sites (Qievo);
- the Flowell solution, which allows for better sharing of public space and improved user safety;
- the Wattway Pack local energy autonomy solution, with Wattway photovoltaic road surfacing; and
- the inclusion of vehicle charging technologies in the surface layer. The last three examples help optimize the use of infrastructures. As such, they address the key issue of space management.



# Technologies to Improve the Performance and Acceptability of Operations

By combining digital technology with conventional processes, Colas is able to offer new services to customers while also boosting the performance and acceptability of its activities. Increased efficiency is beneficial for all concerned. In addition to its operational and technical excellence in its historic fields of expertise, Colas is developing data-sharing solutions to help improve process management. Building Information Modeling (BIM) is a prime example of this. Recognized as a major player in infrastructure BIM, notably through its active involvement in the MINnD project and through having received a number of awards in recent years, Colas has worked with start-up WiseBIM to develop Grid2BIM, a solution for converting building permit utility plans into 3Dcompatible models that can be integrated directly into digital construction site models.

Reducing the environmental impact, and in particular the carbon impact of infrastructures over their entire lifecycle, is now a priority. This will also help to control the overall cost of infrastructures over the long term. In this regard, Colas offers a range of solutions for optimizing road network maintenance, along with innovative structural inspection technology using specially developed sensors and tools using computer vision and artificial intelligence to analyze the data gathered. Colas' expertise lies in its ability to determine the predicted laws of evolution for infrastructure projects on the basis of construction data, traffic conditions and even weather conditions, and thereby be able to advise clients on the most economical multi-year predictive maintenance program in terms of the environmental impact and budget.





KEY VALUE CHAIN KEY STAKEHOLDERS



# **OPERATIONS**

For Better Planet

#### **Key Risks and Opportunities**

- Opportunity for utilizing fuel and electricity efficiently
- Risk related to technology for renewable energy
- Climate-change related risks
- Risk from natural disaster
- Risk in technology and people capability
- Risk from changing in laws & regulations
- Risk of inhalation of vapors and chemicals
- Risk on working with improper posture
- Risk that exposure to heat and loud noise



## **Pollution and Greenhouse Gas Management**

#### **Management Approach**

Global warming and climate change remain a major issue which has a significant impact to all countries in the world. This vulnerable circumstance tends to become a natural disaster such as inclement weather, increasing frequency and intensity of floods and water scarcity. Nevertheless, this collective action has resulted in a pressure from investors towards a low-carbon industry and civil society or agencies running climate management.

Since 2016, Thailand has joined to the Paris Agreement which mentions about controlling the global average temperature rise by no more than 2 degrees Celsius. Currently, the agenda in the process of drafting the National Climate Change Act or the Global Warming Act and expected to be put into effect next years.

To cope with both short-term and long-term climate change, the Group has introduced the risk management process to business operations and assess risk factors and impacts on business including the potential climate change-related opportunities across the value chain, based on TCFD Good Disclosure Practices and corporate greenhouse gas management in line with the requirements of ISO 14064-1:2018, Greenhouse gases and GHG Protocol

The greenhouse gas emissions data of the domestic asphalt production business and its headquarters disclosed in the report have been verified sources, the way of recording history, and the calculations by the ISO Certification Institute Foundation Development Industry Network Institute of the Ministry of Industry. Goal

#### Short-Term Goals in 2022

- Review climate change risks in accordance with the processes in the business value chain.
- Reduce the rate of greenhouse gas emissions (Scope 1 and 2) per ton of production by at least 3% from base year 2020.
- The results of the measurement of air pollution, wastewater discharge, and noise were within the standard values prescribed by law.
- No environmental complaints.

#### Long-Term Goals in 2025

- Reduce greenhouse gas emissions per ton of production (Scope 1 and 2) by at least 6% by 2025 compared to base year 2020.
- Consider extending the disclosure of greenhouse gas emissions, scope 3, by 2025
- Set a goal for every community to be free from small dust problems.
- · No environmental complaints.



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### **Key Results**

- Risk Management Office reviewed climate change risks.
- Direct greenhouse gas emissions (Scope 1) was net of 11,368 tons CO<sub>2</sub> equivalent.
- Indirect greenhouse gas emissions (Scope 2) was net of 1,629 tons CO<sub>2</sub> equivalent.
- The amount of greenhouse gas emissions (Scope 1 and 2) was 12,996 tons CO<sub>2</sub> equivalent.
- The rate of greenhouse gas emissions per ton of production (Scope 1 and 2) was 0.024 kg CO<sub>2</sub> equivalent per ton of production, or a decrease of 23.2 percent compared to base year 2020, which achieved the target.

- Expanded scope of information disclosure into construction business group.
- Shifting energy use to more alternative energy.
- Energy efficiency enhancement with replacement machinery and technology.
- By collaborating with communities and the government to plant trees, restore, and continuously maintain forests as a reservoir for greenhouse gases.
- The results of the measurement of air pollution, wastewater discharge, and noise were above within the standard values prescribed by law.


### **Climate Change Risks and Opportunities**

The Group has considered risks related to climate change, including physical risks, policy and law changes, and other relevant changes throughout the Group's business value chain. These considerations have been integrated into the enterprise risk management and strategy formulation processes, including an analysis of the Group's financial impact.





# Climate Change Risks and Opportunities

Physical Risk	<ul> <li>Factors from climate change might trigger natural disasters would</li> <li>delay shipments</li> <li>affect health and safety of construction workers outdoors on site</li> </ul>
Transition Risk	<ul> <li>Policy and Legal related to GHG reduction mechanism</li> <li>Technology</li> <li>Higher production costs due to investments in new technologies to improve production processes to reduce greenhouse gas emissions</li> <li>Increasing of transportation costs and management fees</li> <li>Market</li> <li>Competitiveness and Sustainability in Business Operations in the Future</li> <li>Procurement of renewable fuels to promote greenhouse gas emission reduction</li> <li>Renewable fuels may rise unexpectedly in the future.</li> <li>Eputation</li> <li>Pressure from customers and investors towards a low-carbon industry</li> </ul>
Opportunity	<ul> <li>Energy Efficiency</li> <li>Taking measures to comply with laws or regulations on greenhouse gas reduction mechanisms. Including achieving the goal of reducing greenhouse gas emissions is an opportunity to create sustainability in business operations of the Group.</li> <li>Energy Source</li> <li>Switching to alternative energy production such as solar energy. It can help reduce greenhouse gas emissions and reduce annual energy costs.</li> <li>New Markets</li> <li>Due to the long summer, it has a positive effect on the sales volume and income of the Group.</li> <li>Demands of customers in providing road construction services of the Group</li> <li>Natural disasters such as heavy rain, heavy floods cause roads to deteriorate faster. It may be an opportunity for the Group to increase revenue from sales of asphalt products for road repair.</li> <li>Product and Services</li> <li>It is a business opportunity that promotes reputation and image. As an expert who can provide solutions to problems in construction and maintenance including asphalt products that meet the needs of use.</li> <li>Sustainable Finance</li> <li>It is an opportunity for the Group of Companies. With the implementation of projects to reduce or absorb greenhouse gases, it can make it easier to access sustainability loan, sustainability bond issuance, and have lower financial costs.</li> </ul>

### **Climate Change-Related Risk Management**

#### **Physical Risk**

Climate change factors can cause delays in the transportation of raw materials and products due to natural disasters. This can affect transportation cost management fees and procurement of renewable fuels to promote the reduction of greenhouse gas emissions. Additionally, climate change can also impact the health and safety of employees who must work in outdoor areas.

#### **Transition Risk**

Laws or regulations on greenhouse gas reduction mechanisms may result in higher production costs for the Group, which could affect competitiveness and sustainability in future business operations.

### Measures Taken in 2022

- Improve the centralized logistics center at Phra Pradaeng plant. to manage the distribution of products from 5 plants to reduce fuel consumption and truck service
- Improvement of heat pipes in production and product preheating to improve heat transfer efficiency, reduce fuel consumption in production, and product heating.
- Product storage tank thermal insulation improvement project to reduce the rate of product heat energy loss into the atmosphere
- Set up a Total Productive Maintenance (TPM) multiplicative maintenance policy to reduce energy consumption, greenhouse gas emissions, and costs
- · Set goals and promote short-term and long-term climate change management projects
- Increase efficiency in all processes by using the "3Rs: Reduce, Reuse, Recycle" principle to cope with climate change and reduce resource and energy consumption
- Hire external experts to conduct data reviews and audits as prescribed by international standards for continuous development of greenhouse gas reduction approaches



## **Climate Change-Related Risks**

Tipco Asphalt Group assesses the impact of potential climate change risks and opportunities on the continuity of the Group's business operations across the process of business value chain in 2022 as follows:







#### Sale

Heat wa	ave
Higher <sub>I</sub>	paveme

temperatures result in the need to improve product properties to suit changing temperatures such as asphalt for airport applications

ent

Legal & Policy

New laws or regulations may result in the needtoadapt business models and strategies to national goals (Net Zero/ Carbon neutral), including workflow changes such as carbon credit



# Distribution

Implemented

by 2025

Severe Flood Flash floods in truck routes caused delays in deliveries to customers and delayed purchases of key products used in production.



#### **Technical Service**

#### Heat wave

Extreme weather affects heat waves on the health and safety of outdoor workers on the job site.

#### Severe Flood

Flooding in the construction or maintenance area results in disruption of work and access to customer technical service personnel.

Implemented by 2025

#### Construction

#### Heat wave

- · Heat waves spread in construction and maintenance areas, affecting the health and safety of workers outdoors on site.
- The long summer results in an extended period of time for construction works

### Market

Long rainy season construction is a business opportunity thatpromotes reputation and image as an expert who provide solutions for customers



# **GHG Emission Throughout the Value Chain**

Tipco Asphalt Group recognized that the nature of the Group's business operations creates an environmental impact from greenhouse gas emissions in all activities across the business value chain. The emissions are from the use of fuel in the transport of raw materials, asphalt refining, production of goods and services that use electricity or fuel, the use of various chemicals in production, transportation of goods to customers who use vehicles, fuel, including the use of products from road contractor customers who use fuel.

Therefore, the Group has initiated the collection and analysis of greenhouse gas emissions data across the value chain so as to continually formulate an organization's greenhouse gas management plan. In 2022, the Group has expanded the scope of greenhouse gas emission reporting to the construction business group which are Bang Pakong pant, Wangnoi plant, and maintenance of Suvarnabhumi international airport runway as follows:



- Remarks: 1. Information on sales activities/office work and technical service with adding information on greenhouse gas emissions from fuel or energy use by the sales department and head office and technical service bodies have been verified and certified by external bodies (ISO Certification Institute: MASCI).
  - 2. Raw material logistics through maritime service and construction activity data is related to greenhouse gas emissions and the use of additional fuel or power, which has not been verified and certified by any third party.



### **GHG Emission for Each Business Group**



3. The Group has updated its greenhouse gas emissions information to reflect a change in the greenhouse gas emission coefficient (GHGs Emission Factor: EF) used in calculations. The new coefficient was announced by the Thailand Greenhouse Gas Management Organization (Public Organization) in their latest issue, dated April 1, 2022. The Group has adjusted its calculations to use the updated coefficient for the period spanning from the base year data to the current year (2020-2022), making it easier to analyze and compare data over time.



## **Energy Management and Greenhouse Gas Emissions Covering Construction Business**

In 2022, Tipco Asphalt Group expanded its scope of information disclosure to include energy management and greenhouse gas emissions for the construction business, which encompasses the Bang Pakong Plant, Wangnoi Factory, and the Suvarnabhumi Airport runway and taxiway surface repair construction project

By initiating the collection of fuel and energy consumption data and analyzing the energy consumption and greenhouse gas emissions from related activities in Scopes 1 and 2, it was found that the construction business had a net energy consumption of 67,830.77 gigajoules in 2022. The energy consumption per unit of product was 1 gigajoule per ton of production. The net GHG emissions in Scope 1 were equal to 5,056.80 tons of  $CO_2e$ , while the net indirect GHG emissions in Scope 2 were equal to 491.14 tons  $CO_2e$ . The GHG emissions in Scopes 1 and 2 combined were equal to 5,547.95 tons  $CO_2e$ . The rate of greenhouse gas emissions per ton of production in Scopes 1 and 2 was 0.08 ton  $CO_2e$  of production.



# ENERGY MANAGEMENT





## **Energy Management**

### **Management Approach**

Tipco Asphalt Group has committed its business operation and management to the consideration of environmental impacts across the value chain through promotion of natural resource and environment preservations to employees, suppliers, and business partners, to ensure that the present natural resources are sufficient for future generations. We implemented an environmental management system in accordance with ISO14001 standards, under the concrete energy conservation and environmental policies and in line with Group's Sustainable Development Policy. In addition, we conducted research and development on products, services, and processes so as to create and promote environmentally friendly innovations.

Tipco Asphalt Group places great emphasis on energy efficiency management encompassing the construction business: our new business in 2022. The Group continually launched several innovations, ideas and initiatives pertaining to fuels and energy saving along with greenhouse gas emissions reduction, in both direct and indirect business processes. Focuses were on minimizing energy loss 'in-process' and optimizing efficiency of machinery; for instance, improvement on heat insulation of product storage units to minimize heat energy loss to the atmosphere and switch to high efficiency hot mix production technology for road surface pavement application.

Nevertheless, in 2022 Tipco Asphalt Group disclosed information on energy pertaining to asphalt production/ distribution as well as construction businesses. Data has been verified and certified by external agency (ISO Certification Institute: MASCI), encompassing data from January to December 2022 (Verified data only covered those pertaining to asphalt production/ distribution, not construction business).

#### Goal

#### Short-Term Goals in 2022

• Reduce energy consumption (Energy Intensity), fuel, and electricity (Giga joules) decreased by at least 3% compared to total production (tons) using 2020 as the base year

#### Long-Term Goals in 2025

 Reduce energy consumption (Energy Intensity) by at least 6% compared to total production, using 2020 as the base year

### **Key Results**

- Total energy consumption in 2022 pertaining to asphalt production/ distribution businesses recorded 162,818 Gigajoules, while energy intensity was 0.31 Gigajoules per ton of production, a decrease of 22.7% compared to the base year 2020, well exceed the target
- Total energy consumption in 2022 pertaining to construction business recorded 67,831 Gigajoules, while energy intensity was 1.0 Gigajoules per ton of production
- Extend data disclosure scope to include energy consumption pertaining to construction business
- Improve heat insulation for storage unit to minimize heat energy loss to the atmosphere
- Revise production process of PMA, Para AC, AE to minimize heat loss
- Project on fuel reduction during product and raw material storage
- Switch to high efficiency hot mix production technology for road surface pavement application



### **Energy Efficiency Management Approach**

Tipco Asphalt Group strongly commits to environmentally-friendly business conducts that optimize most efficient consumption of resources and energy while developing businesses in conjunction with sustainable natural resource and environment preservation. At present, energy has been considered as core foundation for all human activity, both production and service. Therefore, Tipco Asphalt Group has placed top priority upon continual Focused Improvements (Fi) on production and services processes to reduce or eliminate energy losses across all operation process of the Group.

In 2022, Total energy consumption pertaining to asphalt production/ distribution businesses recorded 162,818 Gigajoules, while energy intensity was 0.31 Gigajoules per ton of production, a decrease of 22.7% compared to the base year 2020. This was mainly due to improvement of heat insulation for storage unit to minimize heat energy loss to the atmosphere.



Note: Data correction due to new calculation method in accordance with GRI302-1





## **Project on Energy Efficiency Improvement on Product Heating and Storage**

Tipco Asphalt Group aims on business development in conjunction with sustainable natural resource and environment preservation. The Group then focused on continuous improvements of efficiency, production process, product heating and other related activities to minimize unnecessary energy loss and greenhouse gas emissions from all processes. In 2022, we focused on energy reduction pertaining to asphalt product heating from product storage which is well considered as key plant's activities that consume lots of energy. The process begins with flexible time controls of Hot Oil boiler using Scada system which can analyze, control and monitor data to minimize unnecessary energy consumption. Total energy consumption pertaining to asphalt product heating for storage reduced by 1,521.3 Gigajoule, representing 16% reduction per ton of asphalt storage, and 113.1 tons  $CO_2$  equivalent of greenhouse gas reduction, or 16% of GHG emission from asphalt product heating for storage activity. This hence resulted in 1.7 million Baht worth of fuel saving, accordingly.



# EFFLUENTS AND WASTE MANAGEMENT/SPILLAGE & LEAKAGE





# Effluents and Waste Management/Spillage&Leakage

### **Management Approach**

Tipco Asphalt Group applied concept of circular economy as key tool to optimize eco-efficiency upon resource use and waste management. The Group integrated this into a policy as well as Environment strategy. Several action plans have been implemented to achieve this: creating knowledge and understanding for employees, management of effluents from production and other related processes such as transportation, maintenance, quality control including activities occurred in office area (at plant) such as accounting and human resource. Each work unit implemented the Total Productive Maintenance (TPM) as tool to manage and minimize all work process that lead to losses. In addition, the Group implemented ISO14001 to improve management efficiency.

Nevertheless, the Group still conducted policy on waste sorting prior to disposal and promoting innovation ideas of minimizing waste to disposal following Mitigation Hierarchy measure; i.e., Avoid, Minimize, Reuse and Recycle through processes to determine best benefits prior to disposal. At present, the Group encourages employees to participate in recycling initiative to ensure more employee engagement more in waste sorting. Waste and effluent management processes are under control measures set forth by the Department of Industrial Works.

#### Goal

#### Short-Term Goals in 2022

- Zero Hazardous waste disposal to landfill.
- Ratio of reused waste or unused materials represents 85% of total waste
- Zero significant product spillage during transportation

#### Long-Term Goals in 2025

- · Zero Hazardous waste disposal to landfill.
- Ratio of reused waste or unused materials
   represents 90% of total waste
- Zero significant product spillage

### **Key Results**

- Zero Hazardous waste disposal to landfill, hence meeting the target
- Reuse of waste or unused materials according to Mitigation Hierarchy represented 89.7% of total waste, hence meeting the target
- Waste management under Mitigation hierarchy guideline; i.e., Avoid, Minimize, Reuse and Recycle to minimize waste at the source
- Zero spillage of raw materials, chemicals or products that impact the environment or local communities



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# Flowchart: Road to Zero Waste Disposal: Asphalt Business





# **Business Operations and Waste Management Across** Value Chain







3.13 ton	0 ton	0 ton	Data disclosure by 2023
0 ton	33.16 ton	0.51 ton	Data disclosure by 2023
4.26 ton	0 ton	0 ton	Data disclosure by 2023
27.57 ton	0 ton	0 ton	Data disclosure by 2023
0 ton	0 ton	0 ton	Data disclosure by 2023

Tipco Asphalt Group ensures that the Group's approach on unused materials are continually improved and developed so we prioritize on waste data analysis encompassing our value chain. All employee will be informed about mutual target on work process improvement to reduce waste or unused material, as per details in table above illustrating volumes and management methods of waste or unused material across our value chain. ТІРСС

# Industrial Waste Management Efficiency Improvement Project



The Group focused on industrial waste management process improvement coupled with environment care, through implementation of 3Rs and KAIZEN principles. Our Rayong plant won 3 industrial waste management efficiency improvement against illegal waste dumping awards in 2022 (using 3Rs and KAIZEN); namely, 3Rs Award, Zero Waste Achievement Awards and 3Rs+ Awards (gold medal) from the Department of Industrial Works, Ministry of Industry.

In addition, there were community involvement upon waste management following 3Rs principle through knowledge and experience sharing on waste sorting (3Rs) to 85 local community representatives to create and promote as example community upon sustainable organic and plastic waste management under "Waste for the children" and "Rayong Less Waste" initiatives, hosted by the Office of the Promotion of Local Administration, Rayong province. These activities reflected great mutual relationship and engagement among the Group, the local administrations, and communities.



# **Project: Minimizing Bitumen Loss through Bitumen** Heat Box

In accordance with the Group's Environment Policy, our business operations are conducted in conjunction with environment impact management across value chain, in particular the reduction of waste and unused material from the source.

In 2022, our employees in Construction business who worked on construction and maintenance of the Suvannabhumi Airport runway, taxiway came across opportunity to minimize bitumen loss incurred from bitumen discharge from delivery truck to storage unit. The bitumen serves as raw materials for further production of bitumen for construction works. The employees then initiated "minimizing bitumen loss through bitumen heat box project." Prior to this project, bitumen left after discharge will be transferred to 200-liter container, and collected for further disposal as the leftover bitumen will become harden and cant be re-used in production. The Bitumen Het Box was designed to collect all remaining bitumen residue in discharge tube, heat up and then later can be transferred to raw material storage unit for further production. The initiative has been implemented since 1<sup>st</sup> October 2022, with more than 5.2 tons of bitumen residue can be re-used, hence generate 72,000 Baht worth of saving on raw material purchase and waste disposal expense.



### **Prevention of Product and Chemicals Spillage**

Developments on safety and environment preservation have been the Group's top priorities embedded across all our operation activities including asphalt production plants and terminals. This includes asphalt discharge through asphalt tankers to product storage units, production process, distributions to production plants and customer sites, ensuring that no adverse impacts are incurred to communities and the environment. We also conduct risk assessments together with regular reviews on risk control measures and development of safety guideline manual to prevent adverse incidents. The Group focus on raising our capability on adverse incident suspension and recovery using sufficient and standard tools and equipment. Also included is efficiency improvement of emergency response team through intensive training and recovery drills for case of product and chemical spillage, at least once a year, to minimize adverse impacts to both safety and environment. This helps upon effective management of spillage incidents while minimizing time to recovery, accordingly.

Tipco Asphalt Group collects information on number of product and chemical spillage incidents, classified into three levels; namely, non-significant, medium and significant spillage. These statistics data is used for planning on proper control, prevention and management. Total number of product and chemical spillage incident (case) can be found in the table below:

	2020	2021	2022
Spillage of products and chemicals more than 20,000 kg per case	0	0	0
Spillage of products and chemicals between 200 - 20,000 kg per case	3	4	3
Spillage of products and chemicals less than 200 kg per case	NA	12	8

# Project on capability improvement on adverse incident suspension and recovery via standard tools and equipment

The Group's risk assessment process encompasses emergency risks pertaining to product and chemical spillage incidents which might incur contaminations to the environment.

The Group revises emergency response plan to ensure effective management of any emergency incidents or crisis.

In addition, we initiate a project to raise capability on adverse incident suspension and recovery using standard tools and equipment. This includes annual emergency and crisis response drills and business continuity plan. This aims for those related individuals to gain understanding and expertise upon emergency and crisis management while ensuring business continuity without interruption.



## Project on Improvement of Drum Asphalt Packing Facility and Product Supply Control Valve to Prevent Product Spillage

The Group's risk assessment process encompasses emergency risks pertaining to product and chemical spillage incidents which might incur contaminations to the environment. The Group therefore provides a budget allocation for preventing and controlling raw material and product spillage to minimize likelihood of spillage together with controls of degree of spillage. This project well serves as preventive measure for raw material and product spillage to external areas which could cause adverse impacts to the environment. In 2022, there have been several project initiatives conducted across plants. For instance, the project on improvement of drum asphalt packing facility and product supply control valve at Nakhon Ratchasima plant. The project's capital expenditure stood around 0.9 million Baht most of which were spent on pipeline system improvement to minimize chance of product spillage and drain gutters to control product spillage. In addition, the Group places top priority on all stakeholder groups and continually improve business operations to ensure maximum safety without adverse impacts to communities, society and the environment.





# SAFETY AWARENESS

Better safe than sorry

#### KEY VALUE CHAIN KEY STAKEHOLDERS



#### Key Risks and Opportunities

- Risk from working at heights
- Risk from inhalation of vapors and chemicals
- Risk of poor posture at work
- Risk from heat exposure
- Risk arise from working with machine
- Risk of getting serious contagious disease in risk areas



### **Employee Health and Safety**

#### **Management Approach**

The Group promotes and develops safe work environment in accordance with the ISO45001: health and Safety Management standard and the ISO 39001: road traffic safety management system as well as other prevailing laws and regulations, to prevent accidents, injury, and illness related to work operations of employees, contractors and outsourced service providers working in the Group's premises. We promotes safety awareness of product distribution, from within plant areas throughout delivery route to ensure our safe and punctual product delivery, with full product quantity as per the customers' expectations with no adverse impacts to road users. We also focus on improving our employees' quality of life through occupational health and safety risks assessment, from planning through system development and continuous control measures.

With all our measures that aims to promote safety culture for employees, in 2022 the Group still can maintain our operational safety standard. All 5 of our Thai plants won several awards and recognitions. For instance, the Outstanding Establishment Safety Award, the Outstanding Occupational Safety Award (Miss Hatairat Pechnil), the "Safe Transport, Safe Life" 2022 Award from the Department of Labor Protection and Welfare, Ministry of Labor. The Group strongly commits to work accident preventions, which can be seen from our total accumulative number of days without lost time accidents, and won the Zero Accident Award from the Thailand Institute Of Occupational Safety And Health (Public Organization) (T-OSH). These awards and recognitions reflect the Group's awareness upon systematic management of occupational health, safety and work environment following work procedures in accordance with international standards.

#### Goal

#### Short-Term Goals in 2022

- Zero fatality from works and distributions pertaining to employees and contractors
- No more than 0.74 time per million work hour of Lost Time Injury Frequency Rate (LTIFR)
- Zero work-related illness
- Zero safety complaints on our delivery trucks from road users
- Zero product spillage during delivery

#### Long-Term Goals in 2025

- Zero severe accident (with lost time) and fatality from works and distributions pertaining to employees and contractors
- Zero Lost Time Injury Frequency Rate (LTIFR) from works and distributions
- · Zero work-related illness
- Zero complaints from customers and stakeholders related to road safety on our delivery trucks
- Zero product spillage during delivery
   Information disclosed in this report has been verified for accurate data sources, record and calculation methodology by the Management System Certification Institute (Thailand)



Please scan QR Code to access Road Traffic Safety Policy



Please scan QR Code to access Policy Integrate Management System (IMS)

### **Key Results**

- Zero fatality from product distribution of the Group as well as contractors
- 0 time per million work-hour lost time injury frequency rate (LTIFR), for works and distributions
- No employee with lost time injury, both from within the Group and during product distributions
- Zero safety complaints from road users on the Group's distributions
- No product spillage during distributions
- Promote employees to identify risks from unsafe act (UA), unsafe condition (UC) and near-miss, to minimize likelihood for accidents that could have taken place from similar factors

- Promote employees to analyze root causes for accident, incidents or near-miss to formulate control measures
- Appoint 10 transport safety manager (TSM) encompassing 5 asphalt plants in Thailand, according to the transportation regulation
- Closely work with the Department of Labor Protection and Welfare to enhance systematic management of occupational health and safety and work environment toward international standard



### **Management of Occupational Health and Safety**

The Group encourage safety culture within the organization, encompassing employees and contractors. This serves as foundation for works and other operations to ensure safety, both during works as well as daily lives.

In 2022, the Group's asphalt business recorded no employee with lost time injury, together with zero employee with work-related illness. The Group has continually won the Outstanding Establishment Safety Award from the Department of Labor Protection and Welfare, Ministry of Labor including the Zero Accident Recognition Award from the Thailand Institute Of Occupational Safety And Health (Public Organization). As for our Construction business, the TN Joint Venture and our construction companies have worked on the Suvarnabhumi Airport 3<sup>rd</sup> Runway project in which staffs at all levels participated upon driving work safety effectively through key initiatives. For instance, the Tool Box Talks; employees and contractors co-assess and analyze risky spots prior to actual work implementation. The Patrol activity identifies risky spots as well as unsafe conditions within construction sites, followed by action plans to prevent such risky spots to become root cause for accidents. There have been also safety knowledge training and workshops. With these safety operations, our Suvarnabhumi Airport 3<sup>rd</sup> Runway project achieved 5 million cumulative work-hours with no lost time injury.





## **Management of Employee's Occupational Health**

The Group emphasizes on employee's health and well-beings. We constantly provide safe work environment that prevents illness and contagious disease that relate to works and/or work environment of employees and stakeholders. For instance, physical health checkup for new staffs prior to their work or with their new job assignment/ rotation. The annual physical checkup and employee health checkup by occupational medicine, the results of which would be analyzed together with work natures and environment conditions to ensure proper work and environment which are not risk factors that could adversely impact the health and well0-beig of employees and related parties. Provision of necessary medical facility and supplies for services to employees and related parties upon their work conducts. Provision of nurses or medical staffs to conduct medical treatment or first aid including medical advice on occupational health. In addition, automated external defibrillator (AED) units are installed at locations to provide life saving assistance in case of cardiac arrest emergency.

# The following table represents information pertaining to asphalt business and head office:

Work-related injury and illness	unit	2019	2020	2021	2022
Number of fatalities (domestic employees)	Persons	1	0	0	0
Number of fatalities (contractors) (product distribution)	Persons	0	0	1	0
Number of lost time injury (domestic employees)	Time	1	0	0	0
Number of lost time injury (contractors)	Time	0	0	1	1
Lost Time Injury Frequency Rate (LTIFR) (domestic employees)	Time/ million work hour	0.74	0	0	0
Lost Time Injury Frequency Rate (LTIFR) (contractors)	Time/ million work hour	0	0	3.35	3.70
Total number of injury incidents with full records (beyond first aids)	Time	0	0	0	0
Occupational illness (domestic employees)	Time	0	0	0	0
Occupational Illness Frequency Rate (OIFR) (domestic employees)	Time/ million work hour	0	0	0	0
Number of complaints related to occupational health and safety	Time	0	0	0	0
Number of fatalities as a result of accidents: product distributions (domestic employees)	Time	0	0	0	0

### Participations in Occupational Health and Safety

The Safety Committee serves very important role upon communication of safety issues across employees and the management. The Committee comprises representative from employees (through voting: each representative serves 2-year term) and supervisors. Their roles and responsibilities are as follows:

- Review safety policies and action plans including safety during off-work hours to prevent and minimize accidents, hazardous incidents, injury or annoyance resulted from works or unsafe work conditions.
- 2. Report and propose measures or improvement guideline while promoting and monitoring results on safety management
- 3. Participate upon investigation or fact verification upon incident case
- 4. Determine guideline to prevent recurring adverse incidents. Report work safety progresses annually

# Promoting Safety Mindset and Culture

- Conduct trainings on safety knowledge and necessary skills required for safe work conduct through online trainings, VDO clip, assessment meeting once an accident or near-miss takes place including other supporting activities.
- Create awareness and good attitude toward safety through dialogue on safety issues. Focus should be on co-analysis on risky spots and corrective actions to minimize risks on accidents, recognition of employees with outstanding safety practices.
- 3. Prevent, control and, monitor in line with current situations; for instance, update on safety rules and regulations and regular review on risky activities.
- Conduct employee's health and well-being promotion activities in accordance with "Healthy, Safety and Happy Workplace" project to prevent work-related illness and injury.





# **Encourage Employees to Participate upon Safety Risk** Assessment

The Group implements proactive accident prevention through management system on potential risk that could cause severe accidents, emergency response plan including work-related illness. The Group determines a guideline on key risk assessment pertaining to all work process and activities. Each employee participates upon the risk assessment according to the ISO45001 as guideline to minimize likelihood and impacts from those risks. Risk identification and assessments will take into considerations resource required, work nature, work process design, site location, work environment, historical incidents, projection of potential hazardous incidents and changing work procedures in order to design risk control measures and preventions.

The Group implements Hierarchy Control as guideline for formulating risk control measures; for instance,

procedure revision, machinery maintenance, search of alternative raw materials, issue of safety related rules including providing safe work environment. Risk assessment and control measures are reviewed at least annually, with risks related to contractors will be co-reviewed together with contractors. In case of long-term project, both supervisors and contractors must co-conduct safety meetings with collection and report of safety statistics pertaining to contractors in similar manner to those conducted pertaining to the Group's employees.

The Group also encourage employees to identify risks from unsafe acts, unsafe conditions and near-misses to minimize likelihood of accidents from similar factors, hence promoting more work safety with less accidents. Example of risk identified by employees can be seen as follows:

Example of risk	Control measure or prevention guideline
Fire around oil storage units	Consideration of work license issue upon risky areas Provision of fire-fighting system and automatic fire hydrants
Accident from product distribution truck at low speed; for instance, during vehicle back up within plant	Additional measure to appoint an employee to help navigating while backing up vehicle Measure on designation of distribution truck parking space
Product spillage from transfer pipe system maintenance	Implement Log-out, Tag-out system during main- tenance
Accidents from working with machine (pump) pivot point, clamping point	Protective guard for the machine pivot points Install safety interlock switch
Dangerous chemical fume during transfer pumping	Install polluted air treatment (wet) or wet scrubber system
Accidents from broken transfer pipeline	Implement system test and maintenance on safety release value of distribution truck
Accidents from moving asphalt drums	Use trolley to assist upon moving asphalt drums

### **Continuous Improvement on Operating Points**

With regard to product delivery to customers via 200 kg drum containers, we found that there were no equipment that assist employees upon moving asphalt drums while they have to do manually which require exhaustive energy and could result in muscle pains together with potential accidents from working at heights. Our employees assessed such risks and revised corresponding work procedures utilizing KAIZEN principle that focus on work improvement with series of marginal investments while gaining knowledge and expertise overtime for continuous work improvements.

The warehouse unit, Nakhon Ratchasima plant initiated process in accordance with KAIZEN principle to optimize safety while minimizing risks on employee's muscle fatigue during moving asphalt drums. They used idea from a golf trolley, which offered leverage on moving objects across slope areas in gold course, to develop a trolley prototype tailored made to provide convenience in moving asphalt drums. The trolley was made from thick steel frame, with large front wheels and durable. Rear wheels can be freely rotated hence suitable for navigating the objects in any directions. The trolley is also equipped with asphalt drum edge-locking mechanism that prevents drums from slipping or falling off the trolley while moving. In addition, the trolley height can be manually adjusted to suit each induvial user.

From real test, it was found that the trolley equipment greatly could help employees to reduce muscle fatigue from moving asphalt drums while minimizing risk of accident, accordingly. In addition, the device can improve work efficiency trough 50% reduction product delivery time with no damage to asphalt drum during delivery.





# Activities to Promote Safety Awareness during Works and Product Distributions

#### **Toll Box Talks Activity**

The Group implements safety practice guideline and plan upon operations. For construction business on Suvarnabhumi Airport 3rd Runway project, employees at all levels co-design operation safety protocols for work efficiency and initiate the Tool Box Talks: activity in which both employees and contractors share their analysis on risky spots prior to work operations. With this activity, communications were conducted to employee via SSHE News with Patrol activity to search for risky points and other unsafe conditions within construction sites together with corrective actions. Knowledge training and workshops were also conducted. With our strong implementation on safety operations, the Suvarnabhumi Airport 3rd Runway project achieved remarkable 5 million cumulative hours with no lost time injury, hence reflecting the Group's strong safety culture.

# The "More You Share, The More You Gain" Activity

The Group has placed high emphasis upon road accidents related to product distribution. There are several factors associated with such accidents; namely, readiness of drivers, vehicle condition and, environment condition.

It is then very crucial to promote employees to have safety mindset. The "More You Share, The More You Gain" activity was conducted to equip employees with skills pertaining to risk assessments of risky spots and dangerous areas while employees can share all potential risky spots that could lead to danger which hence could help minimizing accidents related to driving and during works.





### Example: The More You Share, The More You Gain Category: Unsafe Conditions



Vanitchai Construction Company Limited, downtown Chacherngsao province. Entrance to customer's site is very narrow therefore the driver needs to go through local village where there are several sharp turns which requires extra carefulness during driving while these could lead to accidents.



Traffic light in front of steel plant: Normally, it is used as main route for staffs pickup. But the location represents intersection of 3 traffic lights as well as highway exists. Drivers needs to make sharp lane switch to ensure they can pickup staffs. This condition could lead to road accidents.



# GOOD DRIVER FOR ALL Project

The Group realizes significance of safety on road transportation and strongly commits to conduct distribution activities with great safety while minimizing risks for accidents or adverse impacts to stakeholders along delivery routes. The Group develops social responsibility management system and receive ISO39001:2012 Road Traffic Safety Management System. The Group proudly contributes to reduction of road accidents in line with the government's policy which ais toward decade of road traffic safety. According to the Group's dialogue sessions with the stakeholders along delivery routes in 2022, the Group initiated the "Good Driver for All" project with social development principle on creating shared value (CSV) concept.

With an aim to improve distribution services of contractors up to international standard, there were 81 contractor drivers enrolled in this training program, representing 78.6% from 7 contractor companies (103 drivers) with 92.08% overall participants' satisfaction.

# Driver Monitoring System Web on Mobile Project

Regarding control and monitoring delivery trucks, both pertaining to the Group and contractors, Centralized Logistic Department developed a webpage in conjunction with MapPoint for drivers to check and plan their delivery route by examining customers' site location, available rest areas and hence can do delivery safely, on time and complete as per customer's expectations.





### **Transport Safety Manager (TSM)**

The Group acknowledged significance of safety during product delivery including road traffic safety and appointed transport safety manager (TSM), in accordance with announcement of Department of Land Transport on qualification, training course, training duration, roles and responsibility of transport safety manager (2021), to enhance transportation safety. The announcement helps road transportation sector in Thailand toward standard with safety while minimizing road accidents, promoting and regulating transportation businesses to have road transportation management and safety. The Group closely worked with the Department of Land Transport to ensure road transportation safety within framework set forth by the regulation in sustainable manner.





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# GOOD

**KEY VALUE CHAIN** 

**KEY STAKEHOLDERS** 



# **CORPORATE GOVERNANCE**

For strong business foundation

#### **Key Risks and Opportunities**

- Risk related to knowledge of Enterprise Risk Management
- Risk of recruiting and developing top executives
- Risk of respect for human rights and communities
- Risk of complaints from the community
- Transparent Disclosure
- Anti-Corruption Risks
- Fair Competition Risk

### **Risk and Crisis Management**

### Management Approach

The Group focuses on the principles of risk management and encourages employees to apply into their operations with continuous improvement. The principles are based on the concept of creating a risk culture organization which is embedded in the DNA of TIPCO Core Values in prudence thorough considering the risks and responsibility for the work.

Effective risk management is essential to sustainable growth which enables organizations to adjust their business strategies and operational plans among volatility of internal and external factors, including various changes in the future. The effective management allows our business to achieve the set goals and leads to the creation of long-term value for the Group and stakeholders. Therefore, the Group has adopted the principles of corporate risk management in accordance with international standards and applied to our risk management by integrating into the operations and corporate culture at all levels.

#### Key Changes in 2022

- The organization's risk management policy is reviewed and updated on annual basis
- Organized training sessions for executives and employees on corporate risk management (online)
- Work with independent certification bodies to integrate enterprise risk management practices in accordance with international standards



Scan QR Code to view Enterprise Risk Management Policy

#### Goal

#### Short-Term Goals in 2022

- Monitor and review risk management and prepare a quarterly risk management report.
- Conduct additional risk assessments to expand to construction business groups and subsidiary in Cambodia (TAC)
- Review the risk assessment and internal risk control measures related to epidemic risks.
- Be recognized by international standards (ISO 31000: 2018 Risk management guidelines) in our Enterprise Risk Management Processes.
- Implemented emergency response measures for emerging risks to protect safety and health of employees, customers, and business partners for continuity of business operations

#### Long-Term Goals in 2025

- Monitor and review risk management, internal control measures, and the effectiveness of risk management processes throughout the organization on an ongoing basis
- Apply international standard risk management principles to improve and develop work systems and corporate strategies for long-term sustainability.
- Set a goal to undergo the verification of the international standard ISO 31000:2018 -Risk management guideline for the second time.
- 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

### **Key Results**

ТІРСС

- Be audited by an independent certifying body on the application of ISO31000, Risk management guidelines.
- Monitored the risk management and key risk indicators on a quarterly basis and present to the Risk Management Committee.
- Reviewed the risk assessment and internal risk control measures related to the management of the situation during COVID-19 Pandemic according to ISO/PAS 45005: 2020, Guidelines for work safety during the COVID-19 pandemic continuing from previous year.

- Expand the scope of risk assessment process of overseas subsidiaries and construction business:
  - Indonesia (PT Asphalt Bangun Sarana) completed in 2022
  - Cambodia (Tipco Asphalt (Cambodia) Co., Ltd.) expected to be completed in 2023
  - Thai Slurry Seal Co., Ltd. and Thanomwong Co., Ltd. expected to be completed in 2023


### **Instill a Risk Culture**

The Group adopted the concept of 3-level risk management (3 Lines of Defense) to apply in corporate risk management under governance structure which consists of the Board of Directors, which is responsible for an approval of risk management policy risk appetite, the Risk Management Committee, consisting of directors and senior executives, who are responsible for supervising and monitoring risk, operational internal control, the Internal Audit Department, which is responsible for reviewing the efficiency and adequacy of the risk management process. The Group encourages its employees to apply risk management principles to their operating processes to prevent and mitigate risks with understanding, as well as continually look for opportunities to improve their work processes along with our business direction and goals. We cultivated the awareness of employee duties and responsibilities in managing risks related to their own operations and those involved (Risk Ownership), and ensure internal communication and risk management by arranging internal training, knowledge sharing to employees through various channels, including risk assessment training and brainstorming activity so as to improve and develop a joint operation system.



2022 annual meeting of the Department of Risk Management, reviewed corporate risk management policies, all risk concerns, plans and control measures, including top corporate risks



# Effective Risk Management Processes Promote Long-Term Corporate Sustainability Management

The Group performs a risk management process by identifying corporate risks and unit risks along the value chain corresponding to the business direction and organizational goals including risk assessment, risk monitoring and control, reporting and communication, and regular review of the sufficiency and effectiveness of risk management of each unit involved. We established a Risk Management Committee to be responsible for the implementation under the supervision of the Board of Directors.





# **Business Continuity Management**

Tipco Asphalt Group fully emphasizes the importance of business continuity management in order to ensure the business operations proceed during a disruption, including stakeholders benefit as well as business sustainability. We implemented a business continuity management plan by identifying key activities and locations that impact on business operations and running emergency drills with relevant agencies. In an emergency, there is a process and protocol of monitoring news and situation for assessing the impact on the company and the safety of employees, customers, and relevant stakeholders on an ongoing basis. As we adopted a flexible strategy framework for managing business continuity, we were able to adapt our plans to a particular circumstance timely with the support of a special team which is responsible for internal coordination and emergency management.

Business Activity	Emergency Plan						Terminal Safety	Truck Accident	
	Fire	Spilled Chemical	Flood	LPG Leakage	Rescue from Confined Space	IT System Recovery		Road Recue Plan	Oil Spill Clean-Up
Construction Business	3 <sup>1</sup>								
Refinery in Malaysia	3	1				2 <sup>2</sup>			
Marine Business						1	2		
Head Office in TH	1 <sup>3</sup>					1			
5 Plants and Depot in TH	6	6	5				9	5	

#### **Emergency Drills in 2022 (times)**

Remarks:

- <sup>1</sup> Number of times performed fire emergency drills lower than last year because the locations of ongoing projects and plants were combined with one completed project last year.
- <sup>2</sup> Annual planned drills 2 times per year with zero in-place emergency drill performed as there was no IT critical system unexpectedly down last year.
- <sup>3</sup> With basic firefighting training for all employees.



# PARTICIPATION IN COMMUNITY AND SOCIAL DEVELOPMENT



# **Participation in Community and Social Development**

#### **Management Approach**

Tipco Asphalt Group is fully aware that our business operation must take into account the importance of all stakeholders. We therefore express our priority for the community and society through the concept of "Sustainable Business Operations with Social and Community Responsibility" by defining a social responsibility policy under the ISO 26000 standard, which focuses on access and deep understanding of the environment and community problems. We aim to find and develop solutions together with communities and stakeholders to strengthen the community in economic, social and environmental aspects.

In 2022 as the COVID-19 pandemic situation became resolved since mid-year, the Group can resume more of our social responsibility activities for the communities. All activities were conducted under strict pandemic prevention measures in sync with the government's measures that focused on continuous social supports to communities. We closely worked with the local government and agencies and business entities around our 5 plants in Thailand, to ensure we all can go through these challenging times together.

Key operations in 2022 were the ongoing projects, including the Patching Pothole Project with Premix, which was designed to make it easy to repair small potholes. There was also a Safety Road for Kids project to raise public awareness on road safety for the youths. The Basic Life Support program to reduce the rate of death from sudden cardiac arrest: this was an ongoing project since 2019 with cooperation with a network of partners from public health agencies in the community and the private sector.



Please scan QR Code to access Social Responsibility Policy

#### Goal

#### Short-Term Goals in 2022

Satisfaction with social activity project 85%

#### Long-Term Goals in 2022

• We are committed to implementing CSR/CSV projects, especially direct activities, and responding to community needs according to the principle Corporate Ethics and Sustainable Development Strategies

#### **Key Results**

- Communities' satisfaction with CSR projects was 92.7%
- Participation rate through volunteering in social activities (CSR/CSV) of employees was 81.5%
- The number of volunteer hours was 5,464 hours
- 4,280 stakeholders participating in the projects
- Premix product demonstration: Knowledge Sharing project for 328 students and participants from government agencies and communities
- Road Safety Knowledge project for children and youths (745 participants in 5 schools)
- Basic Life Support project (343 participants)
- Bueng Thakreng Integrated Development project; with registered 107 'large' trees in 2022 (trees with more than 4 meters in height)
- Ban Bang Krasob reforestation project, with registered 12,432 trees
- Road repair projects for road safety totaling 8 routes encompassing 7.2 milometers across local communities nearby our 5 Thai plants
- Trampoline equipment donation for special children at Special Education Center, Phitsanulok province



# **Results of the Social Activities Projects in 2022**

Tipco Asphalt Group has conducted social activities projects by collaborating with communities under the principle of "Access, Understand and, Develop Together" for a better quality of life for communities. Despite the situation of the epidemic of Covid-19 has been improved, the Group places top priority to alleviating the crisis so that the society can get through difficult times with continuous community supports via social activities including implementation of sustainability strategy. Our social activities projects such as Road Safety for Kids, Patching Pothole, Basic Life Support, and Knowledge Sharing still have been implemented under social distancing protocol and government's measures.





#### **Employees' participations**







# **Community and Social Concerns Related to the Group's Operations**

The Group committed its business on social responsibility and aim to be a good member of the community and society. Our office and operations department have developed complaint channels for the communities surrounding the company and factory areas by communicating all related information of channels and contacts via dialogue with the community. We assigned a sustainability officer of each plant as a representative of the Group to organize

a meeting and encouraged local people to participate in community development projects. We also set the monitoring process and project inspection as well as the satisfaction assessment after the project is completed. For the factories built near to the river, an environmental impact assessment and annual analysis will be carried out so as to prevent the negative impact on the environment.

Concerns raised	Management	Result	
1. Odor nuisance from production	Set up deodorization system and develop raw materials that cause reduced odor	No complaint	
2. Product leakage during delivery	Provide safety logistics training	No complaint	
3. Fire incident	Provide fire prevention training and drills	No incident	
4. Public road safety and road damage	Provide safety logistics training	No complaint	
<ol> <li>The spread of COVID-19 in the community</li> </ol>	Dialogue with the community on the need for assistance during the COVID-19 crisis	No concern	







# **Contributions to Develop and Solve Social Problems through Business Processes**

For responding to an accident, the Group places importance on basic life support because road accidents can happen anytime. Therefore, if we are able to provide the knowledge of the basic life support to communities, the fatalities of accidents can be reduced. Therefore, the Group in collaboration with the Heart Association of Thailand organized the Basic Life Support project to educate people in communities on CPR. In 2022, Miss Chaunpit Jitaree, Head of Warehouse unit, Rayong Company Limited, a subsidiary of the Group helped a cardiac arrest patient via performing CPR. In addition, Miss Kan Kam-In a volunteer officer from Makhamkhoo District, Nikom phattana Royong province saved lives of 2 of her own family members from foreign objects obstructing respiratory tract.



Miss Chaunpit Jitaree, Head of Warehouse unit, Rayong Plant



Miss Kan Kam-In a volunteer officer Moo 3, Makhamkhoo District

Please scan QR Code

for the interviews

#### **Business Metrics**

- Strengthen the image of social and community responsibility, minimizing casualty, as a result of accidents
- Alliances supporting basic life support training program are government agencies, public health agencies, private agency, community volunteers, rescue teams nearby 5 plant locations

# Social and Environmental Benefit Indicators

- SROI = 189.7% an increase from 2021 due to 3 real-life cases where participants could successfully saved lives of the victims
- There are 38 Instructors to train the community.
- 343 trained providers, with 2,237 cumulative BLS trained participants
- Community trained in 5 provinces



# **Contributions to Develop and Solve Social Problems in a Sustainable Way through Business Processes**

Driving an organization towards sustainability is not about one person or one department's responsibility, so is the sustainability of the community. Therefore, it is important for the Group to reach the people in the community and understand the problems they are facing. We can promote community development by empowering them in different activities and projects through dialogue with communities in a particular area where our factories are located. From the dialogue with the community, it was found that community needs are safe roads, which is one of our projects under sustainability strategy plan. We provided knowledge of safe transportation by creating projects such as the Road Safety for Kids, a project which encouraged students to use roads safely and reduce accidents, Patching Pothole, a project which was implemented with community partners for repairing of damaged roads by using Asphalt Premix, and Basic Life Saving, a project which was a collaboration with volunteers in the community and rescuers to save the lives of road accident victims.

From the Group's sustainability strategy in the social aspect, we focus on raising awareness of safety to society through collaboration with the community and society. As the pillars and framework for road safety, which mentioned roads and safe traffic, a project of repairing road pits with mixed asphalt was therefore implemented with a network of public and private alliances in surveying and repairing roads with Premix. For the operation results in 2022, a total of 8 routes with a total length of 7.2 kilometers were carried out with the collaboration of business partners, local government and communities in Nakhon Ratchasima, Surat Thani, Phitsanulok and Rayong provinces. The project has made the community know more about Premix and this resulted in an

increase in premix sales accordingly.



Please scan QF Code to view Patching Pothole with Asphalt Premix project

#### **Business Metrics**

- · Enhance the competency to develop innovative products and services that are environmentally friendly
- Promote the business image of being an innovation leader in asphalt business
- Strong business alliances for disseminating knowledge and using products in 5 plants

#### Social and Environmental Benefit Indicators

- SROI = 9.56%
- 328 persons were trained on road repair demonstration
- 8 routes on roads repaired







Tipco Asphalt **Group's Activities** 





Saving



# **Contributions to Develop and Solve Social Problems through Business Processes**

In 2022, Bang Rakam district implemented a road expansion to accommodate traffic, and it was necessary to cut down trees. However, the Group fully recognized the importance of trees so they were brought into the "Thanon Ma Pa Yang Yu" project consideration. We then relocated large trees that were affected by road expansion projects in Phitsanulok, to be re-planted at Bueng Thakreng area. In 2022, 107 trees were relocated so this became a new "green lung" area of Phitsanulok. Moreover, we also provide history information of each tree such as the area of origin, the former owner, through QR Code system which allows visitors to study about each plant such as Trumpet tree, Pradu, Thong Kwao, etc. This project helps prevent environmental impact and also conserve natural plants. At present, 3,403 trees have been relocated from 4 projects such as the Trees Saves Earth Around our House, Our Trees, Our Forest (roads surrounding the lake), the "Thanon Ma Pa Yang Yu" (large island) and, Local Plants to Bueng Thakreng (smaller island). With our focus on natural resources and trees, the Group could successfully absorb more than 366 tonsCO2 equivalent of greenhouse gas emission (data from the Low Emission Support Scheme project (LESS)).

#### **Business Metrics**

- Promote the Group's greenhouse gas reduction goal
- Enhance the business image in respect of environmental stewardship
- Build a network of environmental alliances

#### Social Benefit Indicators and Environment

 Absorbed total greenhouse gas emissions of 366 tons CO2 equivalent (since tree relocation date to 31st May 2022).



# **Highlights of Social Activities/Projects**

The Group has continuously conducted social activities. In 2022, while the COVID-19 situation in Thailand was greatly improved due to government's measures coupled with supports from private sector and mutual cooperations from the general public, the

Group can resume its social activities/ projects in accordance with the sustainable development strategies while we still place top priority on safety and COVID-19 prevention protocols for all participants of the activities.

#### Patching Pothole with Asphalt Premix

The project aims to enhance safety for all road users and public at large and prevent road accidents. Tipco Asphalt Group launches this project initiative through road surface repairs including potholes that could cause road accidents to minimize accidents. There were 8 patching pothole route projects implemented in 2022.



#### Road Safety for Kids

The knowledge sharing project aims for road safety including traffic rules for youths while enhancing good experiences on safe traffic journey with parents or by themselves through series of games and activities that promotes understanding. There were 6 trainings conducted during 2022.



#### **Basic Life Saving**

The project aims to provide basic life-saving training and how to use defibrillators for benefits of general public, based on guidelines by the Life Saving Standards Committee and The Heart Association of Thailand. Since 2018, there has been more than 2,237 participants in this project.



#### SMART Knowledge Sharing

This initiative promotes the development of skills in various fields such as knowledge of safety management in factories and transportation, CSR project design, and etc. In 2022, one project was implemented with 15 students of Walailak University participating.



#### **Higher Educational Innovation Contest project**

This project aims to apply current technology to enhance work efficiency. In 2022, the project was under reviewed and postponed, with potential long-term targets by 2030.



#### **Bueng Takhreng Integrated Development**

The project was implemented with the purpose of creating an ecosystem conservation and restoration of water resources. The project has been designed to be an integrated tourism and learning center, promoting reforestation. At present, there were a cumulative total of 3,403 large tree relocated under this project.



#### Bang Krasob Forest Tourism Development

This project aims to conserve nature by saving forest areas, improving the area to promote tourism, and participating in recreational activity design such as cycling, tree photography contests, and etc. In 2022, there were 50 tourists participating in the project.



# **CYBER SECURITY**



# **Cyber Security**

#### **Management Approach**

Tipco Asphalt Group commits to develop an information technology security system and operates its business prudently and transparently under the ISO 27001 Information Security Management Standard, a guideline for systematic management. We fully recognize the importance of personal data from the process of collection, processing, and applying. The collected personal data can only be used for the purposes for which the Group Company has obtained permission from the data owner. In addition, the Group also pledges that personal data will be stored securely in the Group's information system. The owner of the data still has the right and can request to exercise his or her rights at any time.

#### Goal

#### Short-Term Goals in 2022

- · Zero cyber threat incidents
- Zero data insecurity complaints
- IT service availability at 99%

#### Long-Term Goals in 2025

Achieve the IT security roadmap

#### **Key Results**

- Zero cyber threat or complaints about data insecurity
- IT service availability at 99%
- Announcement the IT Security Policy in consistent

with the personal data protection policy

 Implement projects on technology and work process development such as e-Withholding Tax, Transport Management System and e-Signature



Please scan QR Code to access policy on use and security of information technology system





# **Technology and Work Process Developments**

- e-Withholding Tax system development to improve efficiency and benefits from withholding tax down to 2% with 90% time-saving and lower cost of documentations to partners. The system exhibits information security protection, in consistent with prevailing Electronic Transactions Act while reducing cost pertaining to document storage (hardcopy).
- e-Signature system development within the organization to achieve 100% implementation of "paperless" work procedure. This also enhances convenient business conducts through Automated Workflow which could result up to 90% time reduction across work processes.
- 3. Transportation Management System development to optimize efficiency on logistics plan management while accommodating more customers' needs. The project aims to minimize "manual" process by replacing them with more "automated" process.
- 4. Developments of information interface and exchange between Transportation Management System and Enterprise Resource Planning. This initiative is to ensure real-time connection of accurate data while raise the system's capability to accommodate more work order and delivery status report via driver's smartphone device. This is to ensure the Group can deliver products and services as per customers' requirements.



# Security Development to prevent Cyber-Threat on Information Technology Network and Personal Data

The Group places great emphasis upon continual security development of information technology system. A long-term IT Security Roadmap was formulated with several key development steps starting from Advance Threat Protection (ATP), Identity Management, Endpoint Management, Information Protection and, Security Management. The Group aims to achieve the ISO/IEC 27001: 2022 international standard for information security by 2025

In 2022, the Group enhanced capability of IT devices and IT infrastructure capacity to ensure no data leak and cyber-attacks. The Secure Protocol SSL/TLS standard was added to Application work system to ensure security of business and personal information through code encryption. The IT department prepares readiness for the audit of ISO27001:2022 standard.



## **Technology Knowledge Development for Employees**

The key to sustainable business competitiveness in digital work relies on the employee's skills and capability upon utilizing existing information to create new opportunities or predict key upcoming trends in business development. The Group conducted knowledge training for employees on Data Analytics in conjunction with Oracle Corporation (Thailand) Co., Ltd. To analyze on inter-linkage of data and business across different parts and potential business implications. Data Analytics workshop were also conducted.





# GOVERNMENT POLICIES AND BUDGETS



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# **Government Policies and Budgets**

#### **Management Approach**

The implementation of government policies and budgets on infrastructure development directly affects the sales target of asphalt products in terms of both product consumption and sales revenues. Therefore, the Group needs to be responsive to the implementation, understand practice guidelines and detail of government budget allocations to ensure the efficient work planning and asphalt sales.

The Group analyzes government budgets allocated to infrastructure development such as roads, expressways, which are categorized as construction, reconstruction or maintenance, and may have yearto-year details and uncertainties. The work plan will be derived from the direction and framework of the current National Economic and Social Development Plan and the United Nations' Sustainable Development Goals (UN-SDGs): 9th goal on "Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation", with Target 9.1: "Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure".

In 2022, the Group by the domestic market department (DMK) continued construction project data analysis using Robot Improvement Process.

#### Goal

#### Short-Term Goals in 2022

 Continue construction and maintenance project data analysis using Robot Improvement Process while utilizing information pertaining to signed projects, for preliminary assessment of asphalt consumption demands over time to accommodate sale plans in line with government project or budgetary changes.

#### Long-Term Goals in 2025

- Keep updating government infrastructure construction budget information, and bring innovations to help analyze relevant data in an efficient and timely manner for the projection of the country's asphalt demand.
- Monitor, analyze and adapt production and sales plans in response to government policy and long-term global trends such as road safety, environment and road efficiency (Performance-based)



Please scan QR Code to assess Sales Policy



### Key Results

- Acquired government budget information and road maintenance projects data from e-bidding, announced by the Comptroller General's Department.
- Developed and applied Automated Workflow by Robot to a platform for collecting data on government construction projects.
- Brought data for analysis and established a sales plan for asphalt products, including identifying that use asphalt (lead generation).
- Assessed and adjusted sales plans to be in line with project changes or increasing or decreasing the budget of the government on a regular basis and in a timely manner.
- Analyzed government budgetary changes and impacts to product mix including trends on asphalt recycling that may create impacts to asphalt consumptions
- Analyzed and assess information pertaining to rural road construction and maintenance projects, to enhance sales opportunities in 2022



### **Roads, Expressways and Infrastructure Trends in the Future**

According to the government's budget on road construction and maintenance in 2022, it was found that the COVID-19 situation since 2021 resulted in lower budget allocation for new road construction projects but only marginal impacts to overall asphalt sales in 2022 as there were still maintenance works and existing construction project carried over from 2021.

Road construction will focus more on creating innovations that promote safer road use. At the same time, it must consider the impact on the environment and natural resources utilization, such as the selection of alternative materials, recycling of road materials, and etc. Road construction in the future must focus primarily on performance, such as having a longer service life, can withstand temperature conditions; high heat, moisture, as well as supporting the increasing traffic volume.





# VALUE FOR THE FUTURE

Be ready for change

#### Key Risk and Opportunities

**KEY VALUE CHAIN** 

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- Risk of employment that are consistent with corporate culture
- Risk of human rights and equality
- Risk in complying with labor laws and standards

**KEY STAKEHOLDERS** 

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- Risk from inadequate succession planning
- Risk related to physical and mental health
- Risk associated with personal privacy and data



# **Retaining Potential Employee & Employee Management**

#### Management Approach

Tipco Asphalt Group envisions a human resource management approach that fosters career advancement and personal happiness for its employees, especially in light of the COVID-19 epidemic that has affected both Thailand and international offices since 2020. To take care of its employees and minimize the risk of exposure to the virus, the Group has implemented additional measures such as providing guidelines to all offices on how to support the provision of COVID-19 vaccines as soon as possible, as well as offering protective equipment and disinfectant cleaning. The Group is also continuously improving its operational systems to enhance work efficiency and employee well-being.

The Group benefits from having a standardized human resource management information system, which includes a clear and verifiable performance management process with procedures for both assessors and assesses. The Group sets performance plans and expectations with clear guidance and advice using standard measurement and calculation criteria, and records evidence in the employee information system. This standardized approach makes human resource management more efficient, allowing the Group to conduct its business smoothly and effectively.

Between January and September, the government maintained its measures to control the spread of COVID-19, a dangerous communicable disease. Even after the announcement of the relaxation of control measures starting from October 1, 2022, the Company Group still allows employees to take sick leave if they are infected with COVID-19, even if they have only mild symptoms. This policy is in place to ensure the health and safety of employees in the workplace.



Scan QR Code to view Thai Labor Standards Policy

#### Goal

#### Short-Term Goals in 2022

- 25% promotion rate of high potential employees to be an executive level
- No more than 10% resignation rate
- 100% rate of resuming work, after maternity leave

#### Long-Term Goals in 2025

- 120-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

#### **Key Results**

- The job promotion rate of high potential employee to be executive level was at 22%
- 100% rate of high potential employee retention
- The voluntary turnover rate of corporate employees in the organization was 10.4%, with the primary reasons being compensation and self-employment. This is in comparison to the industry average voluntary turnover rate of 12.2%.
- 100% rate of staffs resuming work, after maternity leave
- The average time to fill in recruiting employees at the manager level was 86.3 days.
- Performance evaluation for new employees at the manager level and above, who joined in the year 2022, will be based on their goals for the first six months. However, in cases where an employee resigns before the end of the six-month period for personal reasons, there will be no performance evaluation available.



# Employee Competency Development via Performance Management System

In the context of the relationship between employees and the Group, the belief in fair consideration is a cornerstone without discrimination; work performance and processes corresponding to the core values of [the organization.

Therefore, the management of compensation and rewards, as well as career opportunities under the same organization standard will reflects the equal treatment in employee management and development.

The Group applies employee performance management system with the same standard of operation and processes throughout our businesses, both domestic and international group. The process



Percentage of Job Promotions for

includes work and operation planning, quarterly review and tracking of goals and performance, group discussion between supervisors and subordinates to exchange ideas and opinions, and assessments. The assessments consist of self-assessments, evaluated jointly with supervisor and approved by the higher-level supervisor.

## **Succession Planning**

#### Risk Management in Manpower of Corporate Critical Position.

The Group identifies critical positions and evaluates employees in order to determine successors in the targeted positions, at all director to c-suite levels in the organization. By supporting employees who are successors to have the opportunity to develop their competencies and necessary skills through joint planning between supervisors including management and employees, Human Resources Department is responsible for providing advice and providing tools to develop successors for important positions of the organization.



#### Status on Successions for Corporate Critical Positions

Position	No. of Planned Successors (Employee)	No. of Current Successors (Employee)	
Top Executive (B1-E2 Level)	24 (Ready later 2-5 Years)	6 (Ready now)	

# **Employee Motivation and Engagement**

In 2021, the Group conducted a survey on organizational innovation readiness, which assessed employees' perceptions of the organization's efforts to provide resources and activities that foster innovation. These included initiatives such as Total Preventive Maintenance and innovative development projects, as outlined in the chapter on Innovation Leaders.

Based on the results of the surveys, including suggestions from staff meetings, the Group improved its project communication plan and allocated resources to support innovative behaviors in 2022. One such initiative was the organization of TPM Happy Workplaces at all plants at least twice a month, where employees could discuss projects and organize contests. As a result of these activities, the latest organizational innovation readiness survey at the end of 2022 showed that 56% of employees felt they





were involved in proposing new solutions to problems to colleagues, resulting in better work efficiency and a higher level of commitment to delivering results to end users with 64% increase from the previous year. Most importantly, the opportunities for expressing opinions and presenting new ways of working resulted in the perception among employees that they had improved workflow and created efficiencies to promote the company's growth with a 57% increase from the previous year.

The Company Group is currently in the process of selecting a survey approach to measure employee engagement and general factors that impact employee performance. The survey results will be used to identify areas for improvement in the year 2023.



# TRAINING AND EDUCATION



# **Training and Education**

#### **Management Approach**

To align with the organization's strategic goal of becoming an innovative organization focused on employee development, the Company Group adheres to the fundamental belief of the Growth Mindset that human can enhance their abilities by empowering their potential through continuous learning.

The main goal of creating an innovative organization is to develop the potential of employees to become innovators. The Group offers two approaches to achieve this goal.

The Innovation Bootcamp, which is a course on inno vation project development from the basics, and the Innovation Accelerator, which is a business-oriented course. These courses are open for applications at all levels of the organization, including subsidiaries abroad.

Additionally, the Group also offers courses in Total Productive Maintenance that focus on employee development across all lines of operations.

The strict COVID-19 control measures and epidemic situation in 2022 continued to affect operations in the first half of the year, limiting the form of training to online sessions. This had limitations in exchanging experiences.

The organization developes activities that require participation in prototype creation experiments, data collection, and exchange of ideas for innovation development slowed down in the first half of the year due to limitations in online training, but started to resume normally in the second half of the year, especially from October when the government announced the cancellation of COVID-19 as a dangerous communicable disease and designated it as a communicable disease that must be monitored.

#### Goal

#### Short-Term Goals in 2022

• 24 hours technical and administrative training per person per year.

#### Long-Term Goals in 2025

- Each employee participates in at least one annual innovation project
- Career advancement planning which is measured by the achievement of the individual development plan of at least 75% of high-potential employees
- There are potential successors in all target positions.



Scan QR Code to view Thai Labour Standards Policy



### **Key Results**

- Average training hours for all topic categories was
   46 hours/employee/year
- Average 32 hours/employee/year of technical and administrative training
- The type of training with the highest average number of hours per employee per year is related to professional techniques and fields of work, accounting for 25.97 hours or 56% of the total training hours. This includes core courses in innovative project development and TPM mentioned above.
- The second highest ranking type of training in terms of average number of hours per employee per year was related to maintaining legal practice licenses or qualifications in the quality system (21%), followed by topics for developing management competencies (13%).
- Training on environmental topics had 2.31 hours/ employee/year in average.

- The Group determines the content of training topics to develop management potential in line with the goal of becoming an innovative organization. The training is focused on employees at the supervisor level and above, with the aim of developing four skill groups that will enable them to respond and cope with rapid changes in the current situation which are Leading, Analytical Thinking, Critical thinking, communication, and collaboration & building relationships.
- At the operational level, the Group places a strong emphasis on developing employees' ability to adapt to change, learn new skills, and effectively manage their own mindset. As technology continues to transform the learning process from theory to practice, it is increasingly important for employees to be equipped with the tools to continually learn and improve in a dynamic environment. By prioritizing the development of these foundational skills, the Group is fostering a culture of sustainable growth and empowering employees to thrive in an ever-changing world.



### **TPM: Total Productive Maintenance**

The Group has recognized the importance of adaptation and development of employee knowledge and potential in the face of changes and high competition in the asphalt production and distribution business. In order to drive the organization and prepare for continuous changes, the Group has implemented the TPM project implementation guidelines to develop the production line at the plants in Thailand since 2021. The main goal of this initiative is to promote skill training and knowledge among employees, especially in the areas of maintenance of machinery equipment. This will help to reduce wastage and redundant work steps, which in turn will reduce costs and maintain product quality with efficiency and safety. Overall, the implementation of TPM is expected to be an effective way for the Group to address the challenges in the industry and stay competitive.

Currently, all plants in Thailand are operating under the principles of TPM. Employees in operating production have 100% activity participation rate.





Scan QR Code to view Total Productive Maintenance Policy

Scan QR Code to view Thai Labour Standards Policy





# Plants Exchanging Knowledge and Project Development **Advantages**

The development activities under the three pillars of the TPM project have resulted in the operational staff acquiring job-specific skills based on their levels of responsibility and forming learning groups. Furthermore, each plant has designated a day for promoting learning called TPM Happy Workplace, where all departments come together to share their experiences.

Under the TPM pillar of Focus Improvement, a total of 78 projects were undertaken to reduce production costs. These activities resulted in a cost savings of 14.5 million baht.

The TPM pillars that have the main goal of employee development at the operational level. It is a group learning activity, including Autonomous Maintenance and Planned Maintenance, which results in 885 topics of continuous improvement (Kaizen) to increase performance and reduce equipment crashes.



#### **Nakhon Ratchasima Plant TPM Co-Working Space** % Participation: 87.73%

- OPL and KAIZEN Sharing
- · AM Awards
- · AM Knowledge Sharing

#### **Rayong Plant TPM D Day**

#### % Participation: 100%

- AM Workshop Step 0-1-2
- FI Workshop KAIZEN Sheet
- · OPL Knowledge
- · Loss Discovery

#### **Pitsanulok Plant TPM Fun Day**

- % Participation: 81.5%
- AM step 0 AE Mill, AC pump with OPL
- · AM step 1 AE pump issue TPM Tag on

#### Surat Thani Plant **TPM Happy Workplace**

- % Participation: 86.21%
- Role Sharing Forklift and Tag Van AM Step 0 and 1 for LPG Burner,
- Power Pump, Van and Forklift
- · AM Small Group Plant Tour
- · OPL and KAIZEN Sharing

## **Prapadang Plant**

#### **TPM's Happy Driven** % Participation: 100%

- · Failure Analysis Hot Oil Boiler TP30 Break trip
- · OPL, Kaizen Award
- OPL, Kaizen Sharing
- · Training: AM Step 2-3, PM
- · TPM Follow up
- · OPL, Kaizen Workshop

**Thailand Operation TPM Happy Work** Place participants : 91.1%

# ASSURANCE

# STATEMENT



Scan QR code to view Assurance Statement





# GRI CONTENT INDEX



Scan QR Code to view GRI Content Index



# OPINION QUESTIONNAIRE



#### **Opinion Questionnaire**

We welcome comments and suggestions from stakeholders regarding the preparation of this Sustainability Report as a guideline for improving the report in the coming year. Please leave your comments and suggestions on the questionnaire by scanning the QR Code here



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