

2022 DOW THAILAND ESG REPORT

DOW



**SCGC-DOW
GROUP**



Message from President



Dow Thailand Group takes great pride in presenting this report, which highlights our ongoing Environmental, Social and Governance (ESG) journey through materials science expertise and partnerships, including the positive social impacts we are making.

Each day, we strive relentlessly to make innovations to our products, improve our processes, and assure and initiate collaborations that address carbon emissions reduction and the elimination of plastic waste in alignment with Dow's sustainability targets.

Dow is fully committed to achieving the 2050 carbon-neutral goal. We have implemented various measures to reduce our carbon footprint. Our continuous progress in this area showcases our unwavering dedication to protecting the climate.

Our commitment to fostering the circular economy in Thailand is exemplified by our successful establishment of model communities across various locations. Notable examples include the Wangwa Community in Rayong Province, the Paklad Community in Samutprakarn Province, and the Koh Klang Community in Bangkok. These model communities have made significant contributions to enhancing the local ecosystem and facilitating the annual recycling of more than 30 tonnes of materials. As a result, these endeavors have resulted in environmentally conscious communities equipped with the necessary knowledge to reduce waste and generate income by harnessing the value of waste materials previously deemed worthless.

We extend an invitation to our stakeholders, customers, and communities to join us in this transformative journey towards a more sustainable future.

Mr. Chatchai Luanpolcharoenchai

President, Dow Thailand Group



Dow Thailand Group

The largest manufacturing base of Dow in the Asia Pacific

Dow was established in 1897 by Herbert Henry Dow, one of the world's chemists and inventors, to deliver a sustainable future through Dow's materials science expertise and collaboration. In 2022, Dow distributed products to more than 150 countries and operated more than 100 manufacturing facilities in more than 30 countries with approximately 35,000 employees.

Ambition

To become the most innovative, customer centric, inclusive and sustainable materials science company in the world.

Purpose

To deliver a sustainable future for the world through our materials science expertise and collaboration with our partners.



Dow's Main Product Groups

1. Performance Materials & Coatings
2. Industrial Intermediates & Infrastructures
3. Packaging & Specialty Plastics



Dow Thailand Group's Key Markets

1. Packaging Industry
2. Building & Infrastructure Industry
3. Mobility
4. Consumer Care
5. Electrical Appliances Industry
6. Electronic Industry
7. Paints & Coatings Industry
8. Adhesives & Sealants Industry

Dow started its business in Thailand in 1967, collaborating with SCG Co., Ltd. to establish the SCG-Dow joint venture group in 1987 (rebranded to SCGC-Dow). Thailand's production base has 13 factories in Rayong province, located in Map Ta Phut Industrial Estate, Asia Industrial Estate, and WHA Eastern Industrial Estate (Map Ta Phut).



Learn more about Dow Thailand Group: www.dowfamilythailand.com/en/about_us.phpth.dow.com/en-us.html





Highlights of 2022 Sustainability Initiative

880 metric ton of CO₂

reduced from using steam as an offset material throughout the Polyethylene process.

50% less energy

through using new heat-production reactors at our Polyethylene plants.

Zero plastics from all our production processes escape into the environment by using our production reactors at our Polyethylene plants.

**16 Carbon Footprint Label products and
16 Carbon Footprint Reduction Label products
certified.**

30-40%

plastic waste replacement by natural wood proportionately.

>30

sustainability and contribution projects/initiatives.

**16 consecutive years
of PullingOurWeight**

event collecting a total of **130 Ton** (accumulated) of marine debris.

Employee's **physical, mental and financial health** promoted.

Skilled Listener program delivered to 30 employees
to help peers with personal challenges, relationship tension and work stress.

500
young adolescents
educated on reproductive health.

50,000 packs
of sanitary napkins donated for female
students and women in need.

2,086 total teachers recruited from **1,237 schools** to be trained on the Small Scale Chemistry Laboratory under the Dow Chemistry Classroom Project, which is conducted yearly.

1,000
youths

participated in FIRST®Tech Challenge and FIRST® LEGO® League for robotics development and computer programming.

1,300 local volunteers and **200** schools, child development centers, nurseries and kindergartens participated in the Dow-Executive Functions (EF) Development for Successful Youth Program.

8,000 students per year benefited from TRC-Dow Clean Drinking Water Program.

23,346 mangrove trees were planted in mangrove forests.

E: Environmental

Sustainability Goals & Targets

Dow Thailand Group is committed to protecting our climate, accelerating the transition to a circular economy and innovating safer materials. Our actions are led by our global sustainable goals and targets. We are now implementing 2025 sustainability goals and three key sustainability targets.

2025 Sustainability Goals: Maximizing Economic, Environmental and Societal Value



Advancing a Circular Economy



Valuing Nature



Leading the Blueprint



World-Leading Operations Performance



Delivering Breakthrough Innovations



Safe Material for a Sustainable Planet



Engaging for Impact: Communities, Employees, Customers

Sustainability Targets



Carbon Reduction

1. Protect the Climate



By 2030, Dow will reduce its net annual carbon emissions by 5 million metric tons versus its 2020 baseline (15% reduction). By 2050, Dow intends to be carbon neutral.



Eliminating Plastic Waste

2. Transform the Waste



By 2030, Dow will transform plastic waste and other forms of alternative feedstock to commercialize 3 million metric tons of circular and renewable solutions annually.

3. Close the Loop



By 2035, Dow will close the loop by enabling 100% of Dow products sold into packaging applications to be reusable or recyclable.

2022 Environmental Performance Highlights

Adopting global sustainable goals and targets, Dow Thailand Group delivers a sustainable future through its materials science expertise by consistently improving its **processes** and **products** and **collaborating** with our partners.



Our Processes

Green House Gas (GHG) Reduction in Operations

Improve efficiency and reduce GHG in our operations

- ➔ **Using steam as an offset material** to minimize the amount of GHG released throughout the process & installing a heat-producing reactor at our Polyethylene facilities.

"880 metric tons of CO₂ reduction in 2022"

"Heat load process to utilize approximately 50% less natural gas"

- ➔ **Eliminating GHG emissions and promoting the circular economy** through alternating sludge treatment method to produce safe and nutrient-rich soil conditioners from the sludge as an alternative to burning in cement kilns.
- ➔ **Implementing an intensive monitoring system** at our Ethylbenzene Styrene Monomer Plant to minimize the amount of steam in specific operation areas while maximizing product quality.
- ➔ **Establishing a Bangkok-based hub** for logistical transportation to centralize Dow's logistics between Bangkok and Rayong, reducing lead time and minimizing carbon emissions.

Carbon Footprint of Organization (CFO)

- ➔ Dow's **Siam Polyethylene plant was awarded the Carbon Footprint Organization (CFO)** for exceeding the carbon reduction base year calculation in raw material processing & manufacturing procedures.

Redesigning the reaction process.

Reduced cost for energy consumption ~ **90,000 USD/month.**

Reduced **250 tons/month** in CO₂ emission.

Reduced medium-pressure steam (MPS) - **5%** of total consumption, **saving 57,000 USD/year.**

Operation Clean Sweep Program (OCS)

Hosted by the American Chemistry Council's Plastics Division and Plastic Industry Association (ACC)

"No plastic escaping into nature" from Dow Thailand production process.



Our Products

Dow's products not only help our company reach our ambitious sustainability goals and targets, they also offer benefits to our planet and assist customers to be more sustainable. Dow continuously improves our products, and offers a technology portfolio and application expertise to accelerate the transition to a low carbon society and sustainable world.

16 new products certified with Carbon Footprint of Product Label and Carbon Footprint Reduction Label

- **5 Polyethylene resins** used for packaging and film produced by Siam Polyethylene Co.,Ltd.
DOWLEX™ 2047G, ELITE™ 5220G, ELITE™ 5400G, ELITE™ 5401G, ELITE™ 5500G.
- **6 Polyolefin elastomer resins** used for automotive materials, solar cells and quality shoe soles produced by Siam Synthetic Latex Co.,Ltd.
ENGAGE™ 7467, ENGAGE™ 8003, ENGAGE™ 8180, ENGAGE™ 8200, ENGAGE™ 8407, ENGAGE™ PV8669.
- **1 Styrene monomer product** used materials for processing Polystyrene by Siam Styrene Monomer Co.,Ltd.
Styrene monomer
- **4 Polystyrene resins** used in the production of televisions, electrical appliances, and refrigerators produced by Siam Polystyrene Co.,Ltd.
HIPS STYRON™ 470/486M, XQ83180, GPPS STYRON™ 656D, STYRON™ 685D.



Our Collaborative Projects

Dow Thailand Group actively participates in national and international associations and collaborative platforms to maximize our positive impacts to the environment and promote sustainable development.

Our 2022 Collaborations/Associations



**United Nations
Global Compact**

Promoting environment, social and governance principles.



Fulfilling Sustainable Development Goals and Aichi Biodiversity Targets.



Tackling climate change, air pollution, plastic and electronic waste, and biodiversity challenges.



PPP Plastics

Driving sustainable plastic waste management and circularity.



Addressing circular economy of post-consumer packaging.



Petroleum Institute of Thailand

Enhancing sustainable development and competitiveness of the industry and the country.

Together with our collaborative partners, Dow Thailand Group led the development and implementation of collaborative projects falling into three categories.



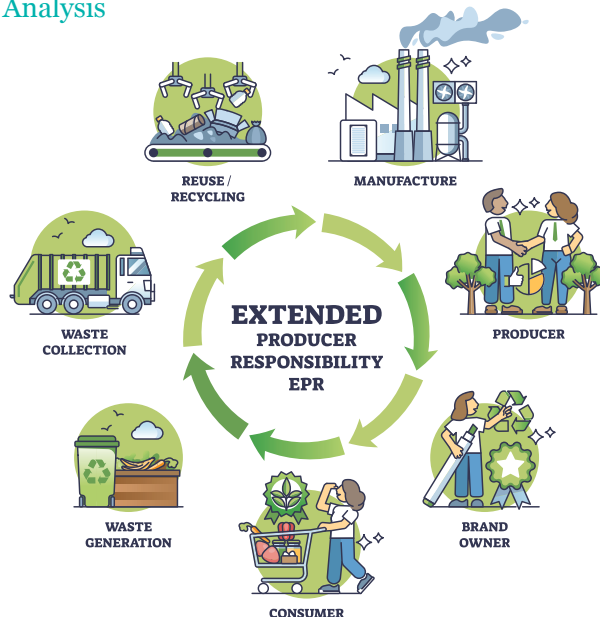
Policy Database Development for Sustainable Waste Management

Through collaborations and associations, Dow Thailand Group supported the development of the following policies and database:

- **Circular Economy Action Plan** under the National framework to drive Bio-Circular-Green Economy (BCG) development in Thailand (2021-2027)
- **Roadmap on Plastic Waste Management (2018-2027) and Phase 2 Action Plan**



- **Circular Economy and Extended Producer Responsibility (EPR) Laws**
- **Database on Material Flow Analysis**



Establishment & Innovation for the Circular Economy

For this priority, we focused on building an infrastructure and ecosystem to promote plastic circularity. To do so, we implemented the following pilot projects and models:

- **The Won x Magic Hands Project:** Initiating circular economy ecosystem for flexible plastics. 

>350

Place Used-Plastic Box

>40

Drop Point Contributor

7

Recycler & Picker

32,486

Kg. of cumulative used-plastic bag and film packaging

28,230

Kg. of CO₂ emission reduction

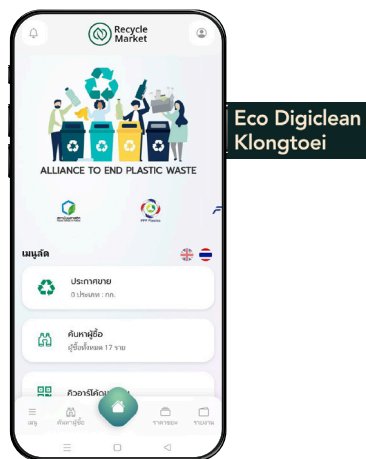
16

Rai of Teak



- **The Siam Pieces Project:** Implementing Zero-Waste to Landfill Model for malls and shopping centers and enhancing capacity of informal sector/junkshop.

Zero waste to landfill.
33 metric tons of plastic waste was reused/recycled.



- **The Eco-digiclean Klongtoei Project:** Developing a national digital platform for a Recycling Market.



- **Extended Producer Responsibility (EPR) pilot project:** Demonstrating a “closed loop packaging system” for post-consumer packaging using an EPR approach.

- **Koh Klang Model (Bangkok):** Accelerating urban waste segregation and management.



230 residents in 56 households benefited.

7.09 tons accumulative of used materials recovered in the recycling system.

~107,400 baht, expenses reduced from utilizing used materials.

Up to 14,610 kgCO₂ eq of greenhouse gas emissions reduced.

- **The “Paklad Zero Waste” Project (Samutprakarn)** Establishing leader network and zero-waste school and community.

19,296.5 kg of post-consumer materials recycled.

67 green events for zero-waste promotion activities: zero waste schools participated in big cleanings at environmental camps.

457 youths and community members participated in the project activities.



- **Wang Wa Model (Rayong):** Enhancing community sorting hub, business model and learning center.



522 households with approximately **2,100** people benefited.

100,000 THB/yr additional incomes saved from utilizing post consumed materials.

5,000 visitors visited the community waste management center for training/knowledge sharing events.

>10 community products from utilizing post consumed materials.

- **The Rayong Less Waste Project:** scaling up community waste management at the provincial level.

68
Municipalities

50%
reduction of plastic leakage to the ocean

68
Municipalities
(signing MOU)

1,418 Tons

- **The Recycled Plastic Road project:** utilizing non-recyclable plastic scraps in road construction.

- **The Greenplas Pallet:** incorporating mixed plastics in artificial wood manufactured for industrial transportation.

30-40%
plastic waste (HD+M2F)
replacement of natural wood,
proportionately.

> 104 tons/yr
of waste utilized.

Climate Change, Biodiversity, and Waste Collection Initiative

Dow & Thailand Mangrove Alliance:

Promoting mangrove and biodiversity conservation.

557*
kilograms

of marine debris collected

23,346*
mangrove

trees planted

8,000,000
square meters

of mangrove forest in
2020-2024

*accumulative number



PullingOurWeight: International Coastal Cleanup Day Activity

20 consecutive years participation.

1,500 volunteers/yr.

130 tons of marine debris
collected (accumulated).

3.97 tons of waste recycled
(accumulated).





Social & Governance (S & G)

Dow Thailand Group prioritizes **inclusion, diversity and equity (ID&E)** for all. We have adopted Dow’s global ID&E Strategy “All IN 2025” with a vision to be a global leader in valuing inclusion, workforce diversity and fairness for all.



S: Social



Our Employees

Dow Thailand Group commits to being an “Employer of Choice” workplace. We offer **attractive remuneration, merit-based awards** and other incentives as well as a **solid career path**.

We encourage **leadership qualities** believing everyone can strive to deliver the utmost of who they are.

Employee Safety

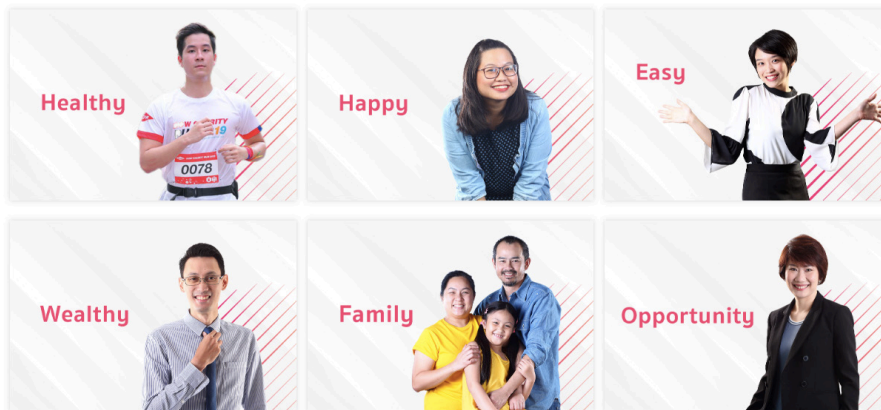
Zero

- **LIFE and P-LIFE injury** recording injuries / illness events
- **Process safety and containment events (PSCE)**
Compliance Deviation

New breakthrough record of LIFE and LIFE - potential - altering health incidents (LIFE and P-LIFE) 63.1 million hours or

4,308

 days



Employee eXperience (EX)

Dow Thailand Group's Employee eXperience (EX) includes:

<p>Healthy สุขภาพดี</p> <ul style="list-style-type: none"> - Safety Programs and Equipment - Healthy and Nutritious Meal Selections - Sports Activities and Clubs - Ergonomic and Defensive Driving - Annual Check-ups and Vaccinations - Fit Me Shape 	<p>Happy ชีวิตดี</p> <ul style="list-style-type: none"> - Company Trip - New Year's Party - Recreational Clubs - EAP, CSR Programs - Recognition Program - Service Year Celebration - Inclusion Program - Employee Resource Group 	<p>Easy สะดวกดี</p> <ul style="list-style-type: none"> - Technology and Virtual Connections - Ergonomics - Facility Services
<p>Wealthy พอดี</p> <ul style="list-style-type: none"> - Compensation and Benefits - Wealth Management Education - Retirement Planning - Happy Retirement Programs 	<p>Family อบอุ่นดี</p> <ul style="list-style-type: none"> - One Family@Dow - Flexible Benefits - Family Day - Kids' Workshops 	<p>Opportunity มีดี</p> <ul style="list-style-type: none"> - Internships - Overseas Training and Assignment - Exposure to International Teams - Internal Job Announcement - Soft and Technical Skill Training - Leadership Development Program - On-the-job Training - Learning Resources Online - Coaching and Mentoring

Our 2022 key projects were

- **Employee Overall Well-Being:** Educational resources supporting employees' physical, mental, and financial health such as medical insurance coverages for mental health, professional financial planning and hormonal impacts at different stages of life.
- **Psychological Safe Workplace:** promoting Psychological Safety Behaviors and Environment through leadership workshops, leadership commitment, employee webinars, and role model recognition.

| **80 employees served as Psychological Safety Advocators** |
| **to enhance a safe space for open discussion in the workplace.** |

- **Hearing Heart Listening Champions:** training to develop skilled listeners to help peers mitigate personal challenges, relationship tensions, and stress at work. **30 skilled listeners** certified

Employee Resource Groups (ERGs)

In 2022, Dow Thailand Group adopted 6 (out of 10) Dow's employee resource groups (ERGs), which are networking clubs to promote the understanding and acceptance of diversity among all.



Asian Diversity Network

ADN (Asian Diversity Network): A Network for employees who are interested in Asian societies and cultures.

- Fortune Cookies Game on Chinese New Year
- Songkran Festival or Thai New Year



DEN (Disability Employee Network):

A network to support physical and mental challenged employees.

- Old calendars donation as materials for braille book to the Foundation for Blind under the Royal Patronage of H.M. the Queen
- World Autism Awareness Day
- Hearing Heart Program



GLAD:

- Happy Pride Month program



PRIME:

- Thailand Sustainability Project Competition sending the winner to Asia Pacific Sustainability Competition
- Prime Webinars on retirement plan and financial well-being



RISE:

- Peer-to-peer assistance to get started at Dow



WIN:

- ALL In ERG Fund: Freedom Project

Our Community

Dow Thailand Group adopts **Global Citizenship Priority Areas** to advance our communities and promote positive social changes.

Global Citizenship Priority Areas: How We Make an Impact



Advancing Sustainable Solutions

Collaborating to address circularity, climate protection and resiliency



Building Inclusive Communities

Inspiring Employee Resource Groups (ERGs) to tackle inclusion, diversity and equity (ID&E) needs and partnering to address systemic discrimination



Developing Tomorrow's Innovators

Equipping a diverse science, technology, engineering and math (STEM) pipeline for the jobs of tomorrow



Collaborating with Communities

Taking action to help our communities in need



Engaging Employees for Impact

Promoting a positive employee experience and creating meaningful impact through service and volunteerism



Small-scale Chemistry Laboratory Kits

Dow Chemistry Classroom

Developed in collaboration with the Chemical Society of Thailand and the Office of the Basic Education Commission (OBEC), with an aim to improve Thailand's scientific learning classrooms by utilizing the Small-Scale Chemistry Laboratory Kits.

Key activities included.

Workshops for secondary-level science teachers experiment contests.

Trainings of role-model teachers and instructors.

Methodologies, guidelines and learning materials.

2,086 teachers from **1,237** schools trained.
310,120 students benefited.



FIRST® Lego® League & FIRST® Tech Challenge

Promoting STEM education and developing critical thinking, problem-solving, designing, innovation and invention among Thai youth via robotics development and computer programming competitions.

> **1,000** school children (6-16 years old) from **145** teams participated in FIRST® Lego® League & FIRST® Tech Challenge



Dow-EF Project

Partnering with Rakluke Learning Group to promote the development of brains Executive Function (EF) through systematic learning methods and activities for small children. The executive function of the brain, responsible for self-control and emotional intelligence, is most effectively developed between the ages of 0 and 6, reaching full development by 25.

Collaborating with ~ **20** government agencies, the civil society organizations, and local institutions

> **200** child development centers, nurseries, and kindergartens, and > **1,300** local volunteers participated in the project.



The Freedom Project

Promoting reproductive health education in Rayong and Chanthaburi in collaboration with the World Vision Foundation of Thailand and Kao Industrial (Thailand) Co., Ltd.

> 500 young adolescents participated in the project.
50,000 packs of sanitary pads donated for female students.

Thai Red Cross-Dow Clean Water for Students Project

Working with the Relief and Community Health Bureau, Thai Red Cross, to promote good health in schools by installing and maintaining drinking water filters in 10 provinces (Rayong, Chachoengsao, Phra Nakhon Si Ayutthaya, Nakhon Nayok, Nakhon Sawan, Kanchanaburi, Singburi, Chainart, Nakhon Pathom, and Uttaradit). **8,000** students benefit each year.



Neighbor care projects

Engaging our employees in improving communities around our factories.

9 activities implemented under neighbor care project by more than **200** Dow volunteers, reaching out to over **6,000** people:

- Safety awareness training/safety improvement, Wat Chaklookya School
- Waste separating training/drop off point installation, Banchang Kachanakulwittaya School
- Recycled plastics concrete blocks walkway construction, Chonlathi Tharam Temple
- Restroom area renovation, Phayoon Fishery Network
- Playground renovation, Phala Child Development Center
- Toothbrushing station renovation, Prachummit Child Development Center
- Playground renovation, Prachummit school
- Walkway painting, Banchang
- Walkway painting, Huaypong Police Station



Community Partnership Association (CPA)

Dow Thailand Group is a founding member of CPA- the first collaboration between industrial entrepreneurs in Thailand committed to developing environmentally friendly industries and promoting sustainable communities.

2022 CPA Highlights

- Rayong Industrial Estates reached **the highest eco-industrial city scores** in Thailand.
- **100%** of CPA's member company facilities renewed Eco Factory Certification.
- **52** community enterprises benefited through Thammasat Model, and around **16 million-baht** additional income generated.
- **2,200** people/yr benefiting from 'Mobile Clinic' (since 2011).
- **6,200** students and teachers from **24** schools in Rayong participating in career and higher education guidance seminar.
- **> 1,000** fellowships and scholarships provided to nursing/ undergraduate/ vocational students in Rayong (since 2011).



Engaging with Our Communities' Activities

Dow's employees participated in local cultural events, religious rituals, school activities, and charity programs to strengthen relationships with the communities and enhance understanding in the neighborhoods.

Our 2022 activities include:

Boon Khao Lam: Communities came together in the 3rd month of the lunar calendar to make Khao Lam, sticky rice with coconut milk in bamboo tubes.

Kathin Ceremony: Rope offering to monks at the end of Buddhist Lent.







Loy Krathong: Light festival taking place on the night of the full moon in the 12th month of the Thai Lunar calendar to worship the Goddess of Water. Our volunteers celebrated the festival with more than 10 communities.



G: Governance

Dow is committed to ensuring high standards in our work, our products and the way we conduct ourselves in the world. We operate with the highest ethical standards with our core values of Respect for People, Integrity, and Protecting Our Planet. We take pride in our strong corporate governance and trust that it creates impacts for our stockholders and builds trust in our company.

The approaches we take:

 <p>Independent Board oversight of strategy, risks and opportunities</p>	 <p>Aligning ESG approach and goals with the company's largest areas of enterprise risk and opportunity.</p>
 <p>Maintaining a Board with diverse backgrounds and relevant skills and experiences.</p>	 <p>Designing compensation programs to support our business and ESG priorities</p>
 <p>Engaging regularly and receiving feedback from a wide variety of stakeholders, including stockholders, customers, suppliers, and employees</p>	 <p>Ensuring a culture of integrity through an effective code of conduct and ethics program.</p>

The approaches we take:



The Public
General Public, Provinces, and Local Communities



Customers
Potential, New, and Existing Customer



Dow World
Global Dow and APAC region



Employees
Labor Market, Potential Candidates, and Employees



The framework of integrity:

Dow Code of Conduct

Providing a framework to make good choices to abide by the law and be highly principled and socially responsible in all of our business practices.

Dow Code of Conduct consists of 4 key elements:



People



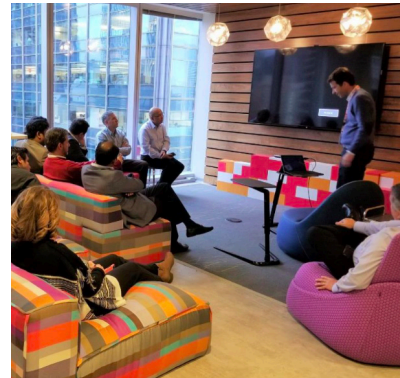
Business



Citizenship



Administration of the Code



Be a part of the conversation
Code of Conduct



Download Dow Code of conduct:
<https://golink.icu/GoJKR56>

Please visit the following link for more details of our framework for integrity



Dow Code of Financial Ethics

<https://golink.icu/ugMZFE1>



Dow Position on Human Rights

<https://golink.icu/8Dcnlfr>



Dow Position on Respect and Responsibility

<https://golink.icu/DBFjkB7>



Dow Position on Anti-Bribery & Anti-Corruption

<https://golink.icu/L2ACIHL>

Awards & Recognition in 2022

Dow is committed to working with society, the environment, and for the safety and welfare of employees, communities, and all stakeholders. Dow would like to thank every organization for bestowing valuable awards that support our team members, who are always behind our success.



Good Organization Award “องค์กรคนดี”

The Committee on Religions, Morals, Ethics, Arts and Culture, The Senate.



Princess Environmental Health Award

Department of Health,
Ministry of Public Health



Dow Thailand Group

Head Office

111 True Digital Park West, Unicorn Building,
8th Floor, Sukhumvit Road, Bangchak,
Prakanong, Bangkok, 10260
Tel: 0 2491 7000

Manufacturing Sites


Map Ta Phut Industrial Estate
8, I-4 Road, Map Ta Phut Industrial Estate,
Muang District, Rayong 21150
Tel: 0 3867 3000
Fax: 0 3868 3991

Asia Industrial Estate

10 Moo 2, Asia Industrial Estate
P.O. Box 71, Banchang Sub-District,
Banchang District, Rayong 21130
Tel: 0 3892 5500
Fax: 0 3860 5903

 www.dow.com/thailand

 Dow Thailand

 Dow Thailand Group