

# 2018 Sustainability Report

Dow Thailand Group

**DOW**

®





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## Message from the President

After DowDupont spinoff, the new Dow has become a more focused and streamlined company aiming at three attractive consumer-driven segments; packaging, infrastructure and consumer care. We believe that nowadays, no company can thrive without thinking about sustainability. And for us, the needs of our customers are a value driver for our sustainable solutions.

In 2018, Dow Thailand has achieved good results in various areas. In terms of business and investment, we had inaugurated a new rigid polyol plant at Asia Industrial Estate, Rayong province. The new facility delivers key raw material for energy efficiency solutions to better support Asia Pacific customers and further response to sustainability trends.

For Environment, Health and Safety (EH&S), Dow Thailand received the “Triple Zero Awards”, for 2 consecutive years, the awards recognize outstanding EH&S performance for any Dow manufacturing site around the world that beats corporate EH&S targets in Life event, Personal Injury and Process Safety Containment Event (PSCE) for a full year.

In terms of corporate citizenship, we have continued to work towards the Dow’s Global Citizenship Strategy which focuses on three strategic priority areas: sparking sustainable innovation, cultivating inclusive leadership and developing a ready workforce. We have engaged customers, partners, communities and employees on various projects with 4,264 volunteer hours which resulted in 71,000 direct beneficiaries.

Finally, I would like to take this opportunity to sincerely thank all of our customers, business partners, communities and employees for the great support throughout the year. Dow Thailand truly hopes to earn the same trust and support from you in the years to come so that we can “seek together” for a better future and a better world.



**Chatchai Luanpolcharoenchai**

President  
Dow Thailand Group

# Who We Are

Dow Thailand Group comprises the companies of Dow Chemical Thailand and SCG-DOW Group.



Dow Thailand Group consists of a total of 15 wholly-owned subsidiaries and joint venture companies: 5 wholly-owned subsidiaries, 7 SCG-DOW joint venture group companies managed by Dow and 3 SCG-DOW joint venture group companies managed by SCG. In addition, there is a Solvay and Dow joint venture company managed by Solvay.

Dow Thailand Group has 15 world-class plants equipped with state-of-the-art technology and combined annual production capacity of more than two million tons of products for local and regional distribution.

To learn more about our business portfolio, please go to



To learn more about our location of operations, please go to



To learn more about our products, please go to



## Ambition

Become the most innovative, customer-centric, inclusive and sustainable materials science company in the world.



## Core Value

Respect for People

Integrity

Protecting Our Planet

## Financial Highlights

Total production of Dow Thailand Group\* (KT)

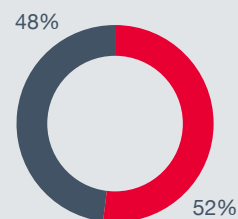


\* Dow and JV

Net sales of Dow Thailand Group\* (MM THB)



52% of our products were sold in Thailand and 48% were exported to the Asia Pacific region.





# 2025 Sustainability Goals

In 2015, Dow announced its 2025 Sustainability Goals, a set of strategic goals designed to redefine the role of business in society. These goals, the Company's third set of sustainability-related goals since 1995, build upon its previous two decades of goals. Dow's 2005 Environment, Health & Safety Goals resulted in \$5 billion in safety, waste, water and energy savings. Dow's 2015 Sustainability Goals have delivered more sustainable products and solutions to address global challenges in the provision of food, water, sustainable energy and improved health.

## 2025 Sustainability Goals

Dow's Thought Leadership and Actions

### Dow's Blueprint

Changes in technology, public policy and the value chain that lead human society toward sustainability

### 2015 Sustainability Goals

Product Solutions to World Challenges

### Dow's Handprint

Products and service that help customers meet their challenges

### 2005 EH&S Goals

Journey to EH&S Excellence

### Dow's Footprint and EH&S Culture

World-leading operations and supply chain performance

1995

2006

2016

2025

## 2025 Sustainability Goals

We have embarked on the third stage of our sustainability journey with our ambitious 2025 Sustainability Goals. We are collaborating with like-minded partners to advance the well-being of humanity by helping lead the transition to sustainable planet and society.



### Leading the Blueprint

Dow leads in developing societal blueprints that integrate public policy solutions, science and technology, and value chain innovation to facilitate the transition to a sustainable planet and society.



### Advancing a Circular Economy

Dow advances a circular economy by delivering solutions to close the resource loops in key markets.



### Safe Materials for a Sustainable Planet

We envision a future where every material we bring to market is sustainable for our people and our planet.



### World-Leading Operations Performance

Dow maintains world-leading operations performance in natural resource efficiency, environment, health and safety.



### Delivering Breakthrough Innovations

Dow delivers breakthrough sustainable chemistry innovations that advance the well-being of humanity.



### Valuing Nature

Dow applies a business-decision process that values nature, which will deliver business value and natural capital value through projects that are good for the Company and better for ecosystems.



### Engaging for Impact: Communities, Employees, Customers

Dow people worldwide directly apply their passion and expertise to advance the well-being of people and the planet.

# Working to Keep Plastic Waste Out of the Environment



We are collaborating with government, NGOs, value chain partners, customers and other stakeholders to help make all stages of the plastics life cycle work more efficient.

## 1. Operations Clean Sweep Program

The Operations Clean Sweep (OCS) is a product stewardship program of the American Chemistry Council's Plastics Division and Plastics Industry Association (PLASTICS). The campaign's goal is to help every plastic resin handling operation implement good housekeeping and pellet, flake, and powder containment practices to work towards achieving zero pellet, flake, and powder loss, protecting the environment and saving valuable resources.

Since 2018, Dow Thailand has partaken in this program and implemented several key actions with strong support and cooperation from the Dow Integrated Supply Chain team and our suppliers. The team has been continuing to make great strides in ensuring that the plastic pellets, flakes and powders that pass through Dow manufacturing facilities and warehouses are handled with the care they deserve and do not end up in rivers or seas, resulting in litter and posing a threat to marine life such as sea birds, turtles, and fish.



### The key OCS Implementation includes

- Sharing the rationale of Operations Clean Sweep (OCS) and why it is important for responsible care and sustainability to related stakeholders to raise awareness and seek engagement and support
- Reviewing current operations in Site Logistics and Logistics
- Conducting risk assessments and defining gap closure plans
- Following up gap closure and implementation plans
- Defining KPIs to monitor OCS program effectiveness (i.e. monthly measurement of damaged product quantity, and adding OCS awareness in on-site and off-site inspection programs)
- Collecting findings to improve the OCS program using the Plan-Do-Check-Act concept

### 2. Successful Application of End-of-life Plastic in Road Construction

Dow Thailand Group and SCG announced a joint effort to turn recycled plastics into polymer modified asphalt roads which will help reduce plastic marine debris, enhance road performance and potentially reduce greenhouse gas emissions during road construction. This project combines Dow's knowledge and expertise in materials science with our close collaborations across the industry to result in something that is good for our communities as well as the environment.

We have partnered with like-minded companies to start plastic road pilot areas. In 2018 we have completed 5,570 m<sup>2</sup> of plastic road and diverted a total of 2.8 tons of plastic waste that would otherwise have gone to landfill. We have shared the recycled plastic road technology with collaborated companies i.e. AMATA Corporation Public Company Limited, SC Asset Corporation Public Company Limited, C.P. All Public Company Limited.



### 3. Thailand's Public, Private and Civil Society Partnership to Solve Plastic Marine Debris Issue through Circular Economy

Dow Thailand in partnership with The Federation of Thai Industries (FTI), Thailand Business Council for Sustainable Development (TBCSD) and other leading organizations have launched the "Public Private Partnership for Sustainable Plastic and Waste Management" project declaring a mutual commitment to collaboratively reduce Thailand's plastic ocean waste by at least 50 per cent by the year 2027. This initiative aims to educate the public about using plastic in a sustainable way and managing waste by adopting the Circular Economy principle with the collaboration of 23 organizations from public, private and civil society sectors.

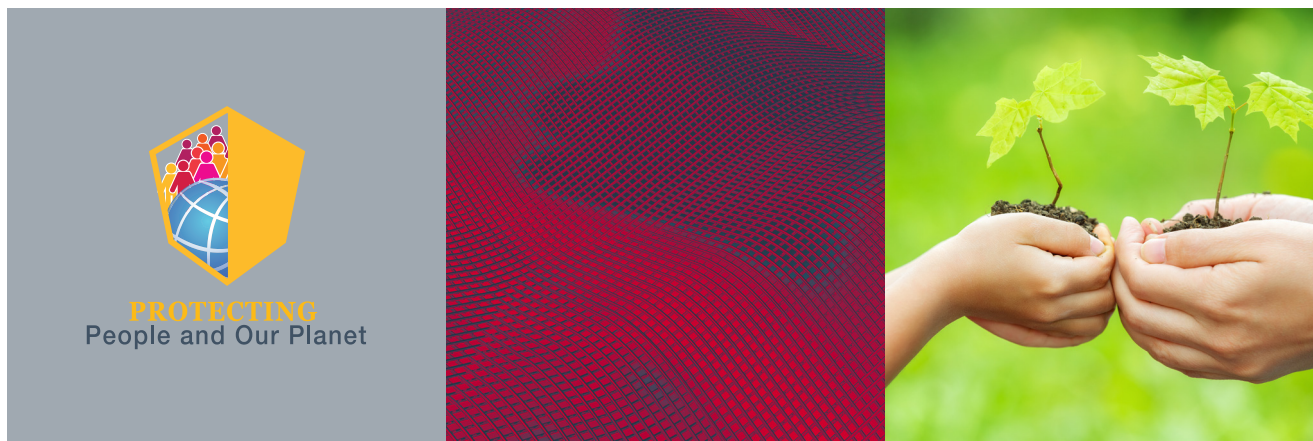


"PPP Plastic demonstrates Dow's true commitment to 2025 Sustainability Goals in developing societal blueprints that integrate public policy solutions, science and technology, and value chain innovation to facilitate the transition to a sustainable planet and society"

Chatchai Luanpolcharoenchai,  
President,  
Dow Thailand Group



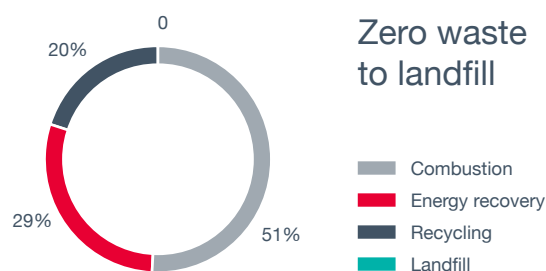
# Responsible Operations



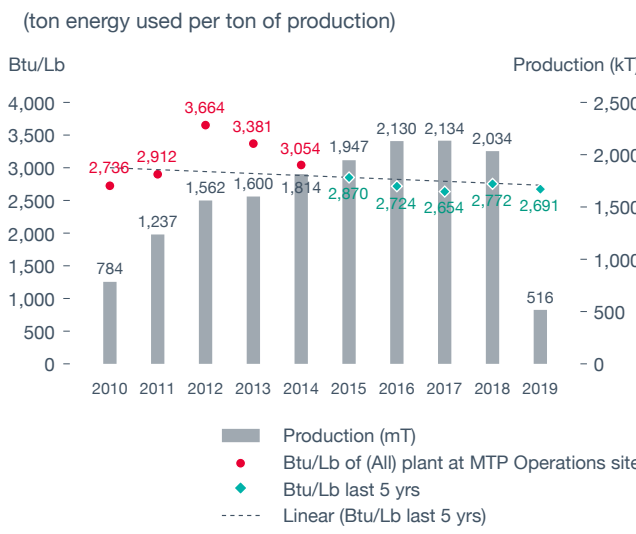
At Dow, protecting people and the environment is part of everything we do and every decision we make. Each employee has a responsibility in ensuring that our products and operations meet applicable government or Dow standards, whichever is more stringent. Our goal is to eliminate injuries, prevent adverse environmental and health impacts, reduce waste and emissions, and promote resource conservation at every stage of the life cycle of our products. We will report on our progress and be responsive to the public.

Dow Thailand received the “Triple Zero Awards”, for 2 consecutive years, the awards recognize outstanding EH&S performance for any Dow manufacturing site arounds the world that beats corporate EH&S targets in Life event, Personal Injury and Process Safety Constainment Event (PSCE) for a full year.

## Waste Treatment by Category



## Energy Consumption



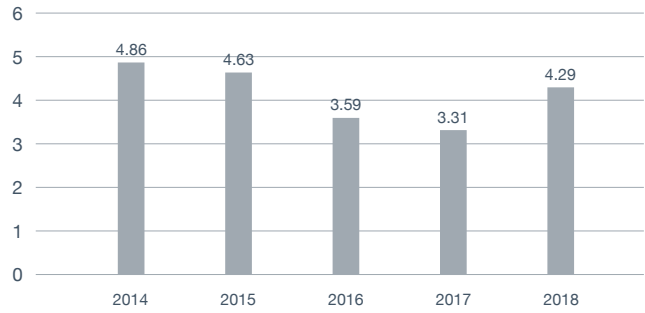




### Water Intensity

(a cubic meter of water per metric ton of production)

m<sup>3</sup>/ton production

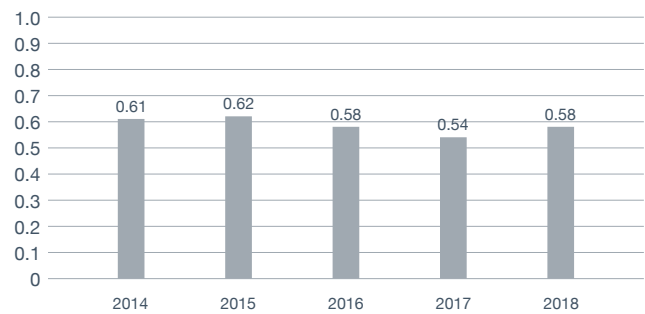


\* Water intensity increased in 2018 as a result of planned plant turnaround activities.

### Wastewater Intensity

(a cubic meter of wastewater per metric ton of production)

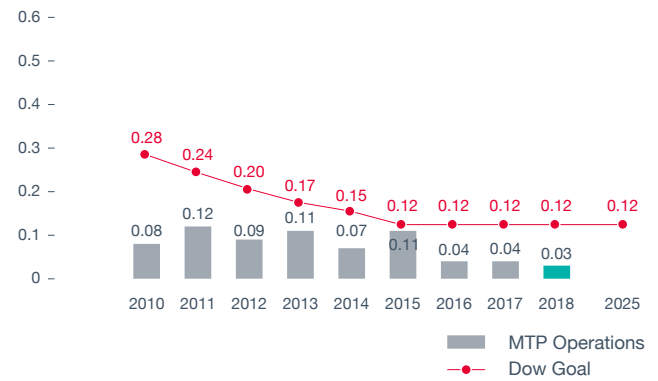
m<sup>3</sup>/ton production



\* Wastewater intensity increased in 2018 as a result of planned plant turnaround activities.

### Dow Thailand Group Operations Personal Safety Rate

Map Ta Phut Operations Personal Safety Rate (per 200,000 hr)

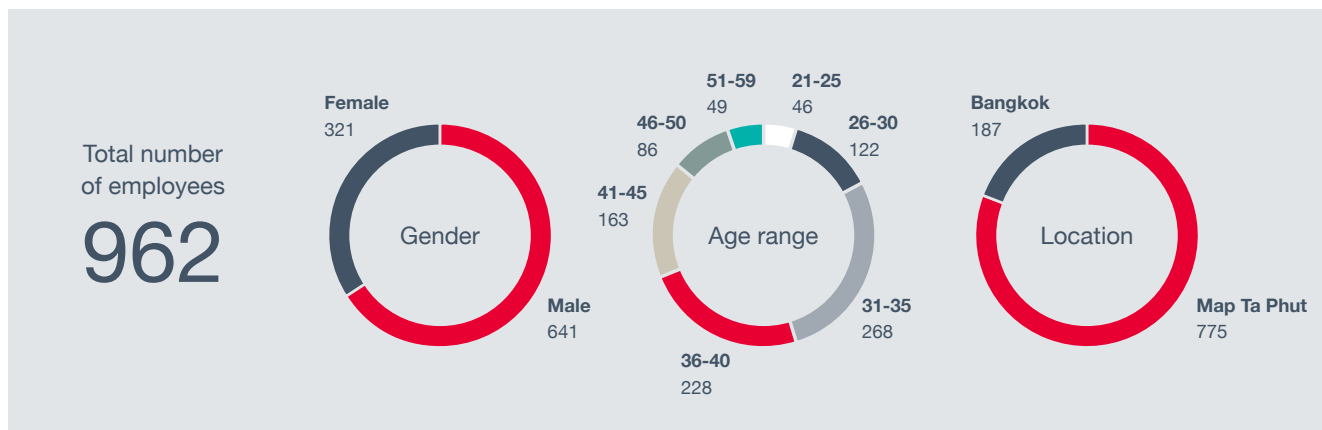


# Employment

## The Future Is ... Inclusive and Better for Everyone

Our world is changing at a pace never seen before. To continue to compete and lead, we need to think and act in new ways. A successful future for Dow and our employees will be built on learning. With a strong continuous improvement and learning culture, and in alignment with the Company’s focus on technology and innovation, digital platforms are continuing to be incorporated and expanded – beginning with a stronger digital hiring presence.

At Dow Thailand, our staff are our most important resource and have driven our growth. We emphasize the importance of people and teamwork. We are committed to taking care of and enhancing the capacity of our staff and creating a sense of family in the workplace. This helps us prosper in a sustainable way.



### Highlight HR Program in 2018

Dow STEM Ambassadors are a group of trained employees who are getting out into strategic Dow communities to inspire students and support teachers. School activities include career talks, guest lectures, science experiments, mentoring, Dow site tours, becoming a teacher partner, and science research. The STEM Ambassador program is directly aligned to Dow’s 2025 Sustainability Goals and more specifically, the Engaging Employees for Impact goal—through which Dow people are committing to positively impact the lives of one billion people.



Here are some of our STEM Ambassadors.



**Trirat Wisetrat**, Thailand Purchasing MROCE Resource Leader, has been sharing his expertise on “Presentation Skills” with junior students in the Faculty of Chemical Engineering at Chulalongkorn University. Trirat is an alumni from this Faculty, from which he graduated in 2007.



**Nattaya Boonsombat**, Production Leader, Polyethylene plant, **Sirawut Tawil**, Senior Instrument Technician, and **Pichet Ruengthong**, Polyethylene Operating Technician, collaborated with Rayong Technical College in delivering a special class on “Polyethylene Production Processes and Maintenance Control Systems and Instrumentation in chemical plants”. In this session students learned about advanced instrument technology in the chemical industry, and the variety of career paths with instruments available for students.



**Kriengkrai Chaikul**, currently a Dow chemist whom supports our Polyethylene and Special Elastomer plants, had the opportunity to give a lecture on “Polymerization” to vocational students in the Petrochemical Technology Faculty at Rayong Technical College. Kriengkrai graduated with a Masters degree in Polymer Science (International Program) from Chulalongkorn University.

### Employee Resource Groups

Ten Employee Resource Groups (ERGs) – each with a senior executive sponsor – are bringing together people with a common interests to share experiences, find mentors, seek professional development, and gain access to senior leadership.

- Asian Diversity Network
- GLAD
- PRIME
- RISE
- Women’s Innovation Network



# Corporate Citizenship

## Engaging for Impact at the Intersection of Sustainability, Innovation and Citizenship

As part of our efforts, we look for solutions to enable economic development, sustainability and education that lead to socially healthy and resilient communities, while also supporting and furthering business success, in alignment with the Company's 2025 sustainability goals.

Throughout our years of business in Thailand, Dow Thailand Group has strived to put into action the company's commitment to advancing human progress by working to create sustainable communities. Our holistic approach promotes relevant, long-term change for communities by applying integrated solutions and cross-sector collaborations.

In 2018, we continue to expand our corporate citizenship projects to impact more people in broader areas, intensified existing projects to create greater impact while strengthening collaboration with government and non-governmental organizations in helping lead the transition for sustainable society as detailed below.


Seek Together™

Innovative | Customer-Centric | Sustainable | Inclusive

|  |   |   |
|--|---|---|
| <p><b>Cultivating Inclusive LEADERSHIP</b></p>  <p style="color: red; font-weight: bold;">How can we use the power of collaboration to develop inclusive leaders who inspire positive change?</p> | <p><b>Sparking Sustainable INNOVATION</b></p>  <p style="color: red; font-weight: bold;">How can our science and innovation help transform more lives?</p> | <p><b>Developing a Ready WORKFORCE</b></p>  <p style="color: red; font-weight: bold;">How can we create the next generation of diverse leaders and innovators?</p> |
| <p><b>Engaging for Impact: Employees, Communities and Customers</b></p> <p style="color: red; font-weight: bold;">Led by company ambition. Fueled by volunteer service.</p>  |   |   |

### Employee Engagement





## 2018 Corporate Citizenship Projects Highlights

**Dow-EF Development for Successful Youth & Rayong Happiness** – a program to develop Executive Functions (EF), a set of cognitive processes located in the prefrontal cortex of our brains which control thoughts, decision-making, emotion, expression and action. EF development is considered one of the mechanisms for building a strong community while preventing social problems.

- Developed 360 community volunteers to promote EF development in 2018. Total 715 volunteers.
- Enlisted 36 EF Facilitators to lead EF training
- Conducted more than 100 EF activities
- Benefited more than 200 organizations



**Dow Chemistry Classroom** – a program to promote science teaching and learning through small-scale chemistry laboratory techniques. The techniques are considered highly efficient and safe, using 2,000 times less chemical compared to traditional chemistry laboratory experiments.



- 25% increase in the number of students who experienced first-hand chemistry laboratory experiments using the small-scale technique since 2017. (from 52,000 in 2017 to 65,000 in 2018)
- 1,270 teachers from 701 schools nationwide were trained in applying the techniques.

## WE Are Innovators

WE Are Innovators was created by Dow and WE to inspire the next generation of innovators and change makers to learn about global issues, and through the application of chemistry and science, bring to life innovative ideas to solve some of their community's most pressing challenges, and empowering youth to be part of a global community working towards sustainable change.

In 2018 representatives from Thailand and other nations were given the opportunity to gain hands-on volunteer experience on a study tour to Ecuador. A teacher and two students from Rayongwittayakom School, Kanyanisa Narksawat, Project Advisor, Suthatchaya Muangpare and Arnon Ronsiri presented their invention, a "Food Waste Converter" which produces biogas from food waste at schools.



The 'Food Waste Converter' is an invention derived from STEM learning. The idea was inspired from food waste at the school where students noticed that a large portion became leftovers for farm pigs. The rest remained unused and could be a source of germs and bacteria. Therefore, they developed a 15-20-day fermentation process in which gas is released from food waste as a result of anaerobic digestion. They applied a scientific process to turn the waste into biogas – methane – which can be used for cooking gas and generating fuel as well as organic fertilizer. The team was awarded a \$1,500 grant to improve their project and pass on their knowledge to other schools and nearby communities.

**Vocational Chemical Engineering Practice College (V-ChEPC)** – A collaboration between the Petroleum Institute of Thailand, the Petrochemical Club of The Federation of Thai Industries and Petrochemical companies aims to prepare potential students for employment in the petrochemical industry by promoting the project-based learning through the learning-by-doing concept under the supervision of experts and skilled employees in leading petrochemical companies.

- Total 9.5 million baht support for the project since 2008
- 44 interns trained, 17 of whom have become employees

**Community Partnership Association (CPA)** – Thailand's first collaboration among industrial companies in the Map Ta Phut area since 2010. Dow is one of the five co-founder companies who have committed to developing and enhancing green industrial businesses, while developing a sustainable environmental management network with the ultimate goal of turning Rayong province into an Eco Industrial Town.

- 17 visits of the mobile clinic to Map Ta Phut and Ban Chang communities.
- 30 scholarships awarded to nursing students for 7 consecutive years.
- 40 scholarships awarded to undergraduate students of Rayong province for 8 consecutive years.

### Other Corporate Citizenship Projects

- **English training** classes for more than 240 students and 115 elementary school teachers in Rayong province to enhance their English skills
- Collaborated with local authorities and manufacturers to collect a total of 5.8 tons of debris along 15.1 km. on **the 16<sup>th</sup> International Coastal Clean-up (ICC)**
- Collaborated with the Pak Nam Prasae Sub District Municipality, communities and tripartite committee to conserve Rayong's coastal line by planting 2,000 mangrove trees at Pak Nam Prasae mangrove forest under **the 10<sup>th</sup> mangrove planting project**
- Provided one sanitary house for underprivileged family in Rayong Province, under **the Habitat for Humanity project.**
- **5 Neighbor Care Projects** for improvement in community well-being:
  - Renovated playground of Prachummit School for safety of students
  - Organized Safety School activities to promote safety at Samnakthon Elderly School
  - Cleaned and renovated the "Hall of the Scriptures" at Pala temple, Ban Chang district
  - Renovated toilets and sanitation for Map Chalut temple's elderly club in Map Ta Phut district
  - Renovated the Ban Chang community enterprise building



## 2018 Awards and Recognition

In 2018, we were recognized for our works to create a sustainable future. Here are samples of our 2018 awards and recognition:



### 2018 Good Governance Awards for Environmental and Safety Excellence (Green Star Award and Gold Star Award)

Industrial Estate Authority of Thailand (I-EA-T)  
All Dow Thailand's plants are awarded Gold Star Awards and Green Star Awards.

### Eco Factory Award

The Industrial Environmental Institute, The Federation of Thai Industries  
All Dow Thailand's plants are qualified for the Eco Factory Award.

### Vendor Performance Award

from Kang Yong Electric (KYE)

### Award for Serving Children and Youth in Mathematics, Science, Computer and Technology

The Department of Children and Youth under the Ministry of Social Development and Human Security

### CSR Excellence Recognition Award at Gold Level (8 consecutive years)

AMCHAM

### Green Industry Level 4 Award

Ministry of Industry  
All Dow Thailand's plants qualified for the Green Industry Level 4 Award.

## **Dow Thailand Group**

### **Head Office**

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### **Manufacturing Sites**

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 Dow Thailand

 Dow Thailand Group

