



TEI THAILAND
ENVIRONMENT
INSTITUTE

ANNUAL REPORT 2021

Environmental Mastery

Strong expertise and excellent in the environment



Trusted Partnerships

Participation and responsible in working with all partners



Moral Integrity

Morality, integrity, career loyalty, social contribution



Serve Society

Emphasis on practical and sustainable policies for society at all levels





President's message

Dr. Wijarn Simachaya President of Thailand Environment Institute



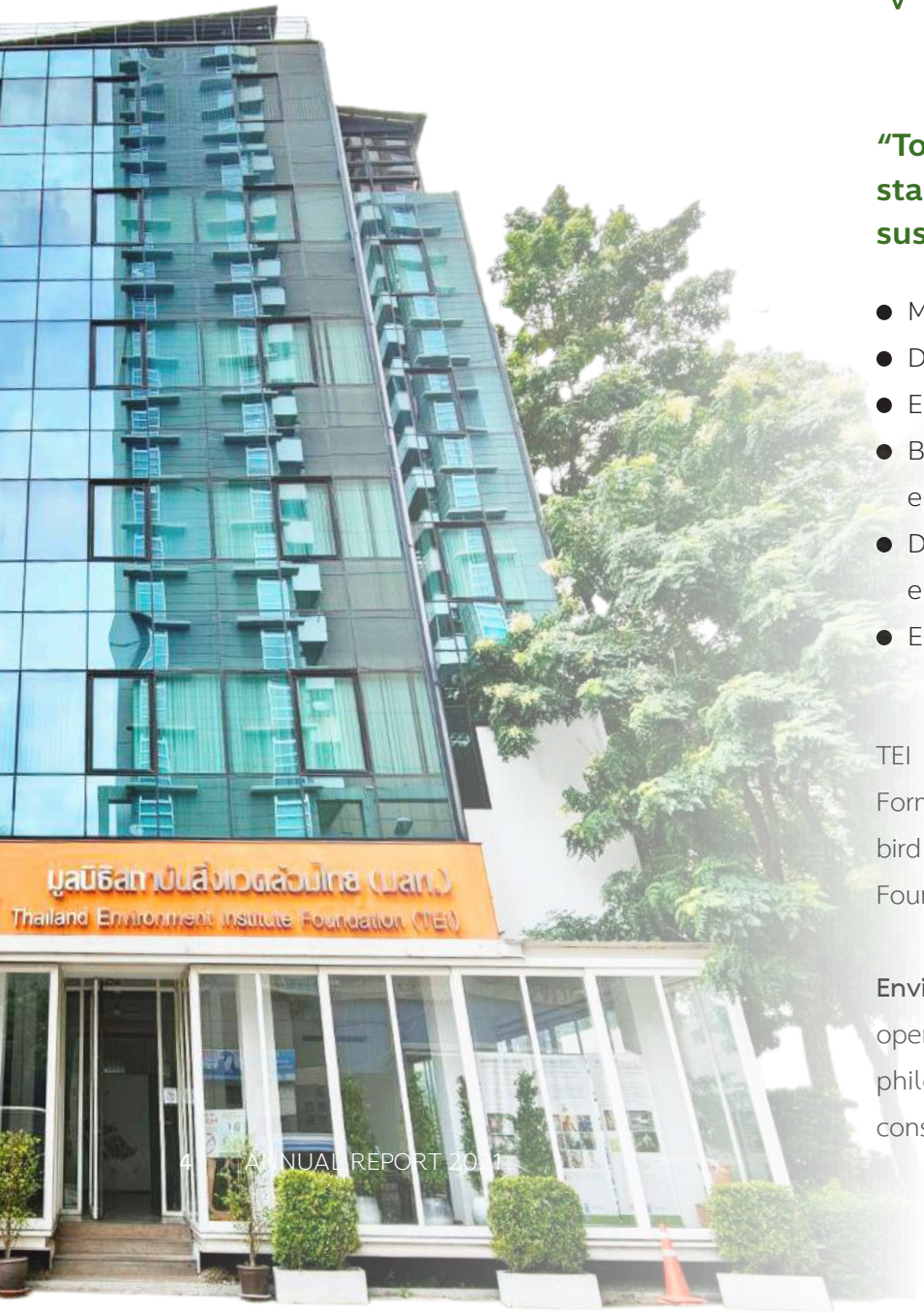
In the past few years, Thailand has faced with the pandemic of Coronavirus 2019 (COVID-19), which has greatly affected the livelihoods of the people despite the positive impact on the environment in terms of air and water quality. However, at the same time, the amount of plastic waste and masks is increasing. From such situations, it is imperative that Thailand Environment Institute (TEI) is proactively prepared by working with various networks focusing on disseminating knowledge, capturing lessons learnt and managing together with the network sector to prevent problems and impacts on the environment which is are expected to occur in the near future.

As a result of Thailand Environment Institute has been working with networks comprising the governments, private sectors, people, civil society, the media and academic institutions to connect the conservation and development of natural resources and the environment to achieve balance. This will be an important foundation for sustainable development both nationally and globally. The institute plays a role in providing and suggesting policies and participating in determining the direction of the country's environment and developing knowledge and environmental standards as a national reference. In addition, capacity building through cooperation with various networks and campaigns to communicate environmental information to society.

This annual report thus conveys the achievements and pride in the role of Thailand Environment Institute as well as lessons learned from problems and obstacles from operations over the past year. As a President of Thailand Environment Institute, I would like to thank all staffs and partner agencies for their cooperation in performing their duties with honesty and transparency until it is evident that Thailand Environment Institute is a leader in the knowledge of conservation of natural resources and the environment of the country and regional networks.

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Vision and Mission

“To be a leading organization in environment with respect to international standard, adhering to be a nonpartisan organization that helps to promote sustainable development.”

- Making recommendations on national environmental policy, strategy, and direction.
- Developing environmental knowledge, innovation and standard.
- Enhancing capability for sustainable natural resources and environmental management.
- Building partnership among leading environmental organizations and strengthening environmental network at all levels.
- Disseminating environmental information and knowledge to the public, and advocating environmental conservation and sustainable development.
- Empowering good governance in the organization management.

The Thailand Environment Institute Foundation (TEI) is a non-governmental organization. TEI registered as a Juristic Person Registration Number Kor Thor 115 on February 24, 1993. Formerly known as the Thailand Environment Foundation and used the logo of a leaf with bird pattern. In 2011, the name and logo were changed to the Thailand Environment Institute Foundation as present.

The board of Thailand Environment Institute Foundation resolved to establish “**Thailand Environment Institute**” as a working unit to accomplish the organization’s goal. TEI started operating on May 1, 1993, as a non-profit independent academic institute with a basic working philosophy of focusing on coordinating cooperation between different sectors to link the conservation of natural resources and sustainable development at the national and global levels.

Board of Thailand Environment Institute Foundation

Mr. Anand Panyarachun

Honorary Chairman

Former Thailand's Prime Minister

Mrs. Matana Watanalit

Chairman

Advisor-Corporate Communications, The Siam Cement Public Co., Ltd. (SCG)

Mrs. Nisakorn Kositratna

Vice Chairman

Former Secretary-General, Office of Natural Resources and Environmental Policy and Planning

Mr. Pree Buranasiri

Member

Former Governor, National Housing Authority

Dr. Piyasvasti Amranand

Member

Chairman, Energy for Environment Foundation and Former Minister of Energy Ministry

Mr. Winai Rodjai

Member

Former Deputy Permanent Secretary, Ministry of Education

Mr. Sunthad Somchevita

Member

Former Permanent Secretary, Ministry of Science and Technology

Mr. Cholathorn Dumrongsak

Member

Adviser of the Siam Cement Public Co., Ltd. (SCG)

Dr. Wijarn Simachaya

Member and Secretary

President of Thailand Environment Institute

Former Permanent Secretary of Ministry of Natural Resources and Environment

Mr. Montri Chamnanrot

Member and Treasurer

Former Director of Administration and Finance Department, Thailand Environment Institute

Executive Board of Directors of the Thailand Environment Institute

Mrs. Nisakorn Kositratna

Chairman

Former Secretary-General, Office of Natural Resources and Environmental Policy and Planning

Mrs. Matana Watanalit

Member

Advisor-Corporate Communications, The Siam Cement Public Co., Ltd. (SCG)

Dr. Witoon Simachokedeek

Member

Former Permanent Secretary for Ministry of Industry

Mr. Sakol Thinagul

Member

Former Director - General, Department of Environment Quality Promotion

Dr. Wattana Opanon-amata

Member

*Chairman of BCP Trading Co., Ltd. (Singapore)
Senior Advisor, Refinery and Trading Business Group*

Mr. Krissada Raungarreerat, D.D.S

Member

*Chairman of the International Network of Health Promotion Foundations: INHPF
Former Health Promotion Fund Manager*

Asst. Prof. Dr. Kanongnij Sribuaiam

Member

*Lecturer of the Faculty of Law, Chulalongkorn University
Seminar on Law and Social Problems, Law and Society of the Faculty of Law Chulalongkorn University*

Ms. Duangkamon Chotana

Member

Former Director of the Nation Multimedia Group

Dr. Wijarn Simachaya

Member and Secretary

*President of Thailand Environment Institute
Former Permanent Secretary of Ministry of Natural Resources and Environment*

Management Team



Dr. Wijarn Simachaya
President of Thailand Environment Institute
Acting of Environmental Network and
Climate Change Program



Ms. Benjamas Chotthong
Director of Project Development and
Planning Program



Ms. Wilavan Noipa
Director of Natural Resources Program



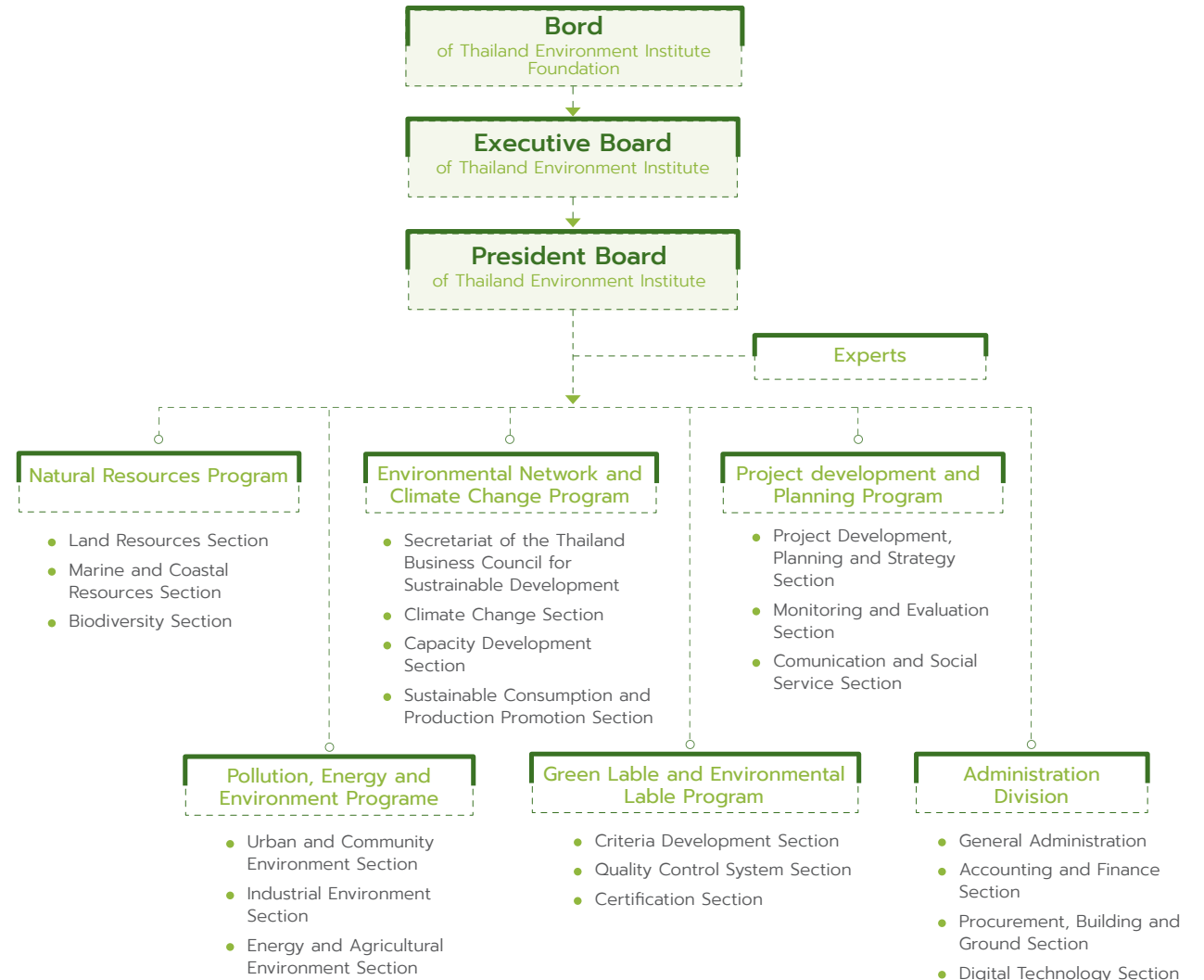
Ms. Warunee Puthachat
Director of Administration Division



Ms. Wisara Hunthaneer
Program Manager
Acting of Director of Pollution, Energy and
Environment Program



Dr. Chuttree Phurat
Project Manager
Acting of Director of Green Label and
Environmental Label Program



Success stories



For nine consecutive years, the Thailand Environment Institute (TEI) has been ranked among the world's top Think Tanks by the University of Pennsylvania. The awards are considered by the following:

- Quantity and quality of research
- Creativeness or the potential to come up with new ideas
- Research funding
- Academic references from a variety of institutions
- Public benefits of research
- Research's impact on policymakers and the public sector
- Influence of the knowledge source on the country
- Ability to attract top academics into the organization
- Electronic and media competence
- Research findings are widely reported in the press



Thailand Environment Institute received an excellent rating from the Green Office assessment by the Department of Environmental Quality Promotion. This award was considered by the following criteria:

- Making policy, operational planning, and continual improvement
- Communication and building awareness
- Resource and energy utilization
- Waste management
- Environment and safety
- Procurement



Dr. Wijarn Simachaya, President of Thailand Environment Institute was honored by the Office of the Prime Minister and the National Water Resources Office.

Thailand Environment Institute (TEI) is a leading organization that recognizes the importance of water. TEI plays a prominent role in developing a concept, implementing, and driving participation in water management.

Organization overview



Natural resources

The goal of natural resource management is to strengthen ecosystem integrity and services as a basis for productions to support people's livelihoods. There have been studies, expansion of the systems for sustainable natural resource management and resource utilization, as well as promotion of area-based cooperation along with community-based management, and linking policies and practices in sustainable management of natural resources.

Forest resources and climate change

Sequestration of carbon dioxide in the forest sector plays a critical role on climate change mitigation. The role of forest has been increasingly discussed at various levels. Thailand also recognizes forests as one of the key drivers towards the country's carbon neutrality.

In 2005, parties under the United Nations Framework Convention on Climate Change (UNFCCC) has initiated the REDD+ strategy with the aim of reducing carbon dioxide and greenhouse gas emissions caused by deforestation and forest degradation and motivating forest preservation and managing the forests through financial and other relevant incentives.

The preparation of REDD+ Strategy for Thailand was conducted in 2021 by the Department of National Parks, Wildlife and Plant Conservation together with National REDD+ Task Force and several Technical Advisory Committees as well as cooperation from relevant agencies and stakeholders. Thailand Environment Institute (TEI) has involved as a consultant throughout the process and facilitated participation from stakeholders to determine the direction of the initiative. The draft National REDD+ Strategy will support the reduction of greenhouse gas emissions from deforestation and forest degradation, enhancing forest carbon sequestration, enhancing the benefits of forests, and increase efficiency of the forest monitoring and certification systems.



At the same time, TEI has promoted sustainable management of peat swamp in Kuan Kreng peat swamp area, at Nakhon Si Thammarat Province in order to strengthen the peat swamp as a source of carbon sequestration and storage. The peat swamp forests can store carbon up to 10 times than other tropical forests. It is also a source of biodiversity of plant and animal species as well as a source of food and livelihoods for communities surrounding the forest. The various contributions by TEI are as follows:

- Sustainable management and utilization of Krajoood (sedge) plots
- Development of Kreng Trust Mark as quality assurance standard of the products
- Establishment of community welfare fund to support local livelihood security

- Conduct activities to strengthen linkages between people-livelihood-peat swamp forest ecosystem

Best practices and biodiversity indicators for agricultural sector

Biodiversity is one of the key components to maintain healthy ecosystem and environment. Maintaining natural integrity can contribute to the reduction of disaster impacts especially for rice production which is important agricultural commodity of ASEAN and Thailand.

TEI has been assigned by the Office of Natural Resources and Environmental Policy and Planning (ONEP) to conduct a study and prepare a guideline on best practices and biodiversity indicators for agricultural sector, a case study on paddy cultivation which is an important agricultural practice of the country. The study has reviewed land management, water sources, physical and biological practices for paddy, increasing of production, weeding and pest control or reduction of chemical use. The study also investigated living organisms found in the paddy fields and surrounding areas that have potentials for biodiversity conservation and benefits to the production and the environment.

Scaling up of the study will provide useful information for the development of relevant policies, measures, and planning in order to encourage farmers to apply best practices on paddy cultivation which comply with conservation and wise use of biodiversity, and in the long run will help to maintain the integrity of biodiversity and ecosystem.



Management of rice straw in agricultural area to reduce burning

Burning of rice straw and stubble is still a big issue for rice production, especially in the central and northeastern regions. Rice straw, stubble and rice husk are often burned, although they are of great use. Farmers still find that it is cumbersome to collect, transport those residues, as well as lack incentives, and high costs of management. Therefore, the residues are burned because it is not worth to deal with transportation and collection. However, burning causes problems with haze and that smoke spread everywhere.

Because almost every part of rice straw is useful for agro-ecosystems and can be developed to related industries, for example biomass for energy or environmental-friendly packaging. Therefore, a study to analyze existing data and

presenting business models and approaches is needed.

In order to reduce burning of residues from rice production, a project under cooperation with PTT Booster Project has been initiated to enhance management from the farms, which is an important supply chain, to enable farmers to remove rice straw from the plot before burning. This project will also promote and support the utilization of agricultural residues for commercials through appropriate management process with effective logistical support system as well as linking relevant businesses to work as business partners. The result will clearly reduce $PM_{2.5}$ and other environmental issue as well as promote circular economy within business operators.





Climate change

Thailand Environment Institute (TEI) has implemented the Civil Society Collaboration for Urban Transformation Project (SUCCESS), a five-year project (Oct. 2019 - Oct. 2024), supported by the European Union (EU) with the goal of strengthening urban communities and supporting urban development which consider climate change impacts. The project focuses on enhancing knowledge and capacity of the civil society sector to enable civil society organizations' role and participation in driving urban development to response to climate change and disasters through intensive participation which equally involve people at all levels. In addition, the project helps to enhance operational mechanisms to support the exchange of knowledge among stakeholders. The project implementation is under cooperation of TEI, Songkhla Community Foundation, Center for Civil Society and Public Organization Management, Khon Kaen University, and local civil society organizations in 2 regions consisting of northeastern and southern regions.

Assessment of urban community's vulnerability to climate change

The project has been planned and collaborated with civil society organizations in the project area to conduct a study, improve the methodologies and tools used for assessing climate change vulnerability to suit with the regional contexts. The civil society organizations are responsible for developing project proposals, designing and planning for vulnerability assessment to identify causes and factors that contribute to vulnerability of the community, and analyzing how and why different groups of people have different vulnerabilities and determine the important factors affecting the urban vulnerability. There are 12 teams, involving 170 people, participating in the project; the southern region, consists of Phatong team, Padang Besar team, Khuan Lang team, and Bo Yang team of Songkhla Province; Tonod Duan team of Phatthalung Province; and La-ngu team of Satun Province; the northeastern region, consists of Khon Kaen

team, Ban Phai team of Khon Kaen Province; Sra Khai team and Nong Khai team of Nong Khai Province; Nong Samrong team and Sam Phrao team of Udon Thani Province.

TEI Songkhla Community Foundation, and the Center for Civil Society and Public Organization Management, Khon Kaen University are involved as technical support team to enhance understanding of the civil society on the impacts of climate change and urban development that contribute to vulnerability, as well as to enhance experiences and skills in proposal development, project management, project monitoring and evaluation, and the assessment of the vulnerability of urban to climate change.

Dissemination on projects' information to encourage participation of the policy makers

The document on “actions in complying with policies” has analyzed and identified key stakeholders related to plans, policies, and strategies of the institute and the agencies related to urban development and climate change in Thailand at the national and local levels. Moreover, to ensure that the project activities are complied with the policy, it is emphasized that implementation will be conducted by communities through cooperation with policy makers and relevant stakeholders in the area at all level. Such process could enable the integration of knowledge into the policy development and local planning process in order to achieve Sustainable Development Goals (SDGs). In addition, there are materials to disseminate knowledge and enhance understanding on climate change and



the guideline on assessment of urban community's vulnerability to climate change available on TEI's website. Another activity is publishing of a newsletter to report current activities and publish articles related to city's preparedness for climate change.





Livable community and city

Rapid expansion of urban communities has urged Thailand Environment Institute (TEI) to initiate several works on environmental management in the urban communities since the establishment of the institution. The continuous work under a concept of “livable city” is considered to promote residents to have a better quality of life along with sustainable environmental care and management.

In 2021, TEI has collaborated with Toyota Motor Thailand Co., Ltd. and National Science and Technology Development Agency (NSTDA) to support several projects to reduce pollution and mitigate climate change as well as facilitate the cooperation and participation of people and local administrative organizations and the operations which are appropriate to the context of the area.

Global Warming Learning Center

The Center was established under the project on Global Warming Mitigation through “Our Actions” in collaboration with local administrative organizations that are part of an environmental network to implement the project. The objectives of the learning centers include creating local learning resources to disseminate knowledge on global warming and climate change in order to increase awareness of the issues and proposing the solutions that are consistent with the local context, practical and considered long-term interventions. The Global Warming Learning Centers under the implementation of this project have been open to visitors since 1990, including Thung Song Global Warming Reduction Station under administration of Thung Song Municipality, Nakhon Si Thammarat province; Global Warming Reduction Tunnel under administration of Umong Sub-district Municipality, Lamphun province; and the development of community best practice at Ban Mae Pam under the Ping Kong Sub-district Municipality, Chiang Rai province which has received an excellence award from a project on Changing the World by Community’s Reduction in 2021.

Global warming and pollution reduction

A project on Changing the World by Community’s Reduction has selected 12 best practice communities to be part of the project, through working with local administrative organizations and partners from different sectors to

initiate and implement activities. The greenhouse gas emission reduction resulted from the project implementation is 903 tCO₂eq per year and the CO₂ sequestration from tree planting and forest conservation is accounted for 8,888 tCO₂eq per year.

Air pollution reduction: People in the communities are aware and taking collective efforts to reduce air pollution such as forest fire prevention volunteer groups, burning reduction farmer groups and bicycle groups to reduce pollution. There have been activities and campaigns to promote reduction of burning in agricultural areas including maize farms, paddy fields, etc. A total area that could reduce burning is 1,449 Rai and income is generated from using agricultural residues. In addition, the promotion of efficient use of electricity and energy have been conducted in parallel with supporting the use of renewable energy, increasing green area from planting more than 10,000 trees, conservation of existing green space through surveying, quantifying, recording of trees and forest ordaining (a ritual that trees are tied with an orange cloth, the symbolic acts to prevent the logging and deforestation) for up to 4,000 Rai of forest.

Soil pollution reduction: The communities are aware of dangers and impacts from agricultural chemical use. Therefore, there are a total of 292 households of farmers who have changed into organic farming including areas for field crops, paddies, and vegetables accounted for 803 Rai. There are also activities to promote organic fertilizer, reduction of chemical fertilizer, and producing compost and bio-fermented solution.

Water pollution reduction: The communities are aware of the importance of water and water sources, thus throwing garbage into the rivers is prohibited. In addition, the garbage traps are installed, and the primary wastewater treatment system is built using stones as filter as well as setting up artificial wetlands in the communities. Other activities include installing grease traps in the restaurants, cleaning up of local irrigation canals, building weirs and check dams in order to increase capacity of water storage and ensure availability of water all year round.

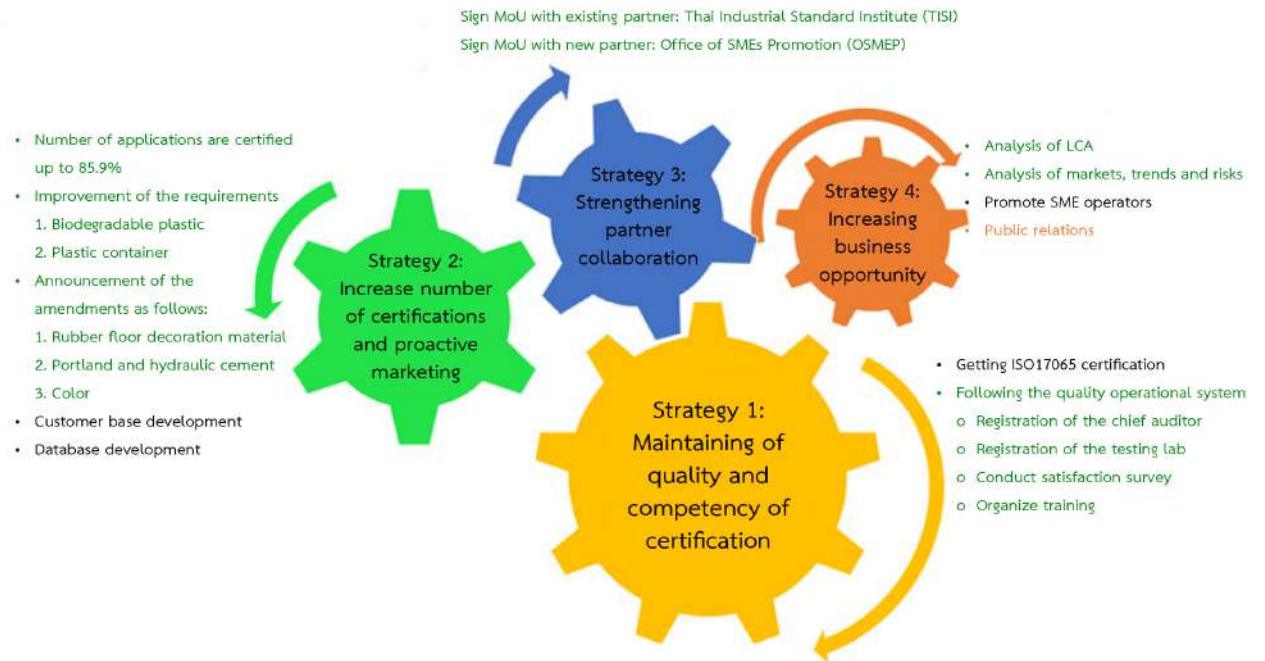
Waste pollution reduction: The communities' behaviors have been changed to be more environmentally friendly through keeping the surrounding environment clean. Some communities have committed to become a foam-free and safe-road community. Some could also earn income from reusable and recyclable wastes including making new materials or products, or making fertilizer from organic wastes, or selling recyclable wastes. Another result is establishing community fund to support group members and people in the community who are in needs. In addition, there have been activities to promote waste management, reduction of wastes from the source until the final management, and to encourage reusing of wastes as much as possible.





Sustainable production and consumption

The Green Label and Environmental Label Unit has been working according to the government's green procurement policy, which is having a strategy to promote the environmentally friendly market for products and services. Under this work, there are main activities include development of requirements for different kind of products and services to be certified with green label and environmental label in order to guide the manufacturers and service providers to consider reducing environmental impact, by providing information to the consumers to make decision to purchase environmentally friendly products and services so that will lead to sustainable production and consumption. There are 4 strategies of operation as shown in the picture.





The top **12** approved products and services



Paints



Photocopiers



Transformer



Kraft paper



Portable Fire Extinguisher



Printing and writing paper



Insulator



Steel Furniture



Automobiles



Faucets and Water Saving



Cleaning service



Surface Cleaners

Improvement and development of requirements

Requirements improved

1. Biodegradable plastic
2. Plastic container

Requirements amended

1. **Rubber floor decoration material:** by adjusting the amount of volatile organic compound emission in order to comply with the standards and capabilities of the testing machine.
2. **Portland and hydraulic cement:** additional remarks from the meeting on the announcement of requirement amendment. With recommendation that there should be a separate book considering only the type of cement due to the use of different standards and environmental impacts (greenhouse gas volume) that are not the same.
3. **Color:** volatile hydrocarbon aromatics testing standards have been revised from ASTM D3257 to be ISO 11890-1 as the original standard had been repealed.

Green Label certification

Green Label is Category 1 of environmental label that certifies products and services that have a lower impact on the environment than those that perform the same function, taking into account the standards, raw material sources, production processes, uses, and post-use material handlings. In the past, the most type of products and services that received the green label certification including color, photocopier, electrical transformer, craft paper, fire extinguisher with handle, printing and writing paper, car, insulation, tap and water-saving equipment, iron furniture, cleaning service and cleaning solution. In 2021, there have been green label certifications given to 28 products, 1 service, with a total of 810 models

Increase business opportunity

Market, trends and risks analysis was conducted to be used in planning and determining the direction of operations considering the future stable growth. Public relation of the green label was also conducted by designing public relation plans and producing media that can reach the target audiences.

In addition, cooperation has been expanded with domestic partners such as TISI and OSMEP, and has expanded cooperation with foreign partners. As well as improving cooperation with Eco Mark Japan, printer and copier products, and the promotion of small and medium-sized enterprises to enable them towards sustainable productions so that SMEs can manage and produce environmentally

friendly products that increase product value and can expand the market to Government Green Procurement platform.

The ceremony presented plaques and certificates of environmental labels and environmental certifications to over 100 manufacturers and service providers to congratulate and appreciate their continued support of environmentally friendly productions and services, and as an event to inform consumers of the choice to purchase products and use services. Moreover, it also creates value for products and services and increase competitiveness and trade opportunities, which is an important mechanism for driving low carbon economy.







Sustainable industry

Thailand Environment Institute (TEI) commits to promote environmentally friendly industrial development, as well as efficient use of natural resources. Therefore, it is promoting the reporting and information disclosure and has important role in the pollution prevention and controlling of the country. In addition, it facilitates the participation of people and civil society in 4P (People - Public - Private Partnership) which will ensure long term partnership and concrete solutions in addressing issues on natural resources and environment for the country.

Development of Public Private People Partnership (4P) in the management of waste to energy

The project is related to development of cooperation and capacity of the government, private sector, and people to be able to effectively manage community's solid wastes and use of electricity. It promotes participation and cooperation between government agencies, private sectors, and the people to properly generate electricity from wastes taking into account environmentally friendly approach for city and community development. A study was conducted on information related to waste to energy management, lessons learned, obstacles and key success factors from the case studies from the country and abroad. The information is used in the development of curriculum and cooperation between government, private sector and the people for sustainable management of waste to energy. The results will be expanded to other areas that have potential on waste to energy operation in the next phase.

Another project is the review and dissemination lessons learned on industrial environmental management aims at sharing information and the lessons of industrial development and environmental management to the target groups in Vietnam. The dissemination materials have been produced related to lessons of industrial development and environmental management of the Map Ta Put industrial estate of Thailand to provide guideline for industrial development, prevention and reduction of impacts to community and environment. Materials and lessons have been distributed to relevant stakeholders in Ba Ria Vung Tau industrial estate in Vietnam to be further applied in its planning of industrial development.

Consultant on accounting of carbon footprint

In 2021, TEI has registered as a consultant on carbon footprint accounting for organizations, and carbon footprint accounting for products following the guidelines of the Thailand Greenhouse Gas Management Organization (Public Organization). This enable TEI to perform as a consultant to any organizations to conduct data collection and assessment on (1) Carbon footprint for Product (CFP) which means providing advice for studying GHG emissions throughout the products' life cycle (from acquiring of raw materials, to production, transportation, distribution, usage, and post-utilization management). The number will be quantified into CO₂ equivalent per unit of product and (2) Carbon footprint for organization (CFO) which means providing advice on identifying GHG emissions and sequestration sources from the operations such as fuel combustion, electricity consumption, waste management, refrigerant usage, traveling, etc. The result will be reported in ton of CO₂ equivalent throughout the year.

Cooperation to reduce and prevent single-use plastic

The Collaboration Action on Prevention of single-use plastic in Southeast-Asia (CAP SEA) is a global collaboration implementing in Thailand, Malaysia and Indonesia, through introducing innovative business models and build capacity of stakeholders in Thailand.

Project activities comprise of exchanging of knowledge from different countries on the policies and instruments to prevent single-use plastic and application according to local contexts, as well as application of eco-design concept, development of recycle market through voluntary industrial development for plastic recycling and using recycled plastics. In addition, the project also supports reduction of single-use plastic in the urban areas.





Analysis of policy and plan

Participation in the country's environmental plans and sustainable development policies is an important issue of Thailand Environment Institute (TEI) as set out in the mission, with the aim to create a link between experiences in research study, work in the area and drive cooperation between different sectors, leading to policies and plans consistent with solving problems and developing the environment issues at both national and regional levels.

Driving the BCG economic model

TEI has actively involved in the driving of BCG economic model, as known as Bio-economy, Circular Economy, and Green Economy, as well as taking part in the preparation of an Action Plan for Thailand's development with the BCG Economic Model during 2021-2027. In addition, the staffs have provided technical supports as resource persons in executive trainings, conferences, seminars and discussions at the international, national and regional levels to enhance understanding on how to bring the plan into action.

In this regard, TEI has partnered with several organizations, both domestic and international, to address the issues on plastics and food wastes through improving productions and services to be more environmentally friendly. This also include the development of green label system for renewable products to promote efficient use of resources and energy, reduce wastes, reduce greenhouse gas emissions, add value to the products, and benefit to the country's economy.

Support the preparation of draft Action Plan on Marine Plastic Debris Management

Plastic waste is now widely affecting the environment and ecosystems, especially marine ecosystems and rare marine animals. Thailand is ranked among the top in the world to have problems on marine plastics. In 2021, TEI worked for the World Bank Group to study and analyze data along with collecting opinions from related sectors in order to support the drafting of the national action plan on marine plastic debris management in cooperation between the Pollution Control Department, Department of Marine and Coastal Resources, and related agencies including the government, the private sector, and civil society.



The result of this operation included a proposed model for managing marine plastic debris found mainly on the coast and in the sea which mostly are plastic bags, containers, packaging and single-use plastic equipment related to foods and beverages such as bottles, bottle caps, straws, cups, plates, spoons and forks, drink stirrers, and fishnet scraps, etc. The model applies comprehensive management principles and uses them to manage the design and production, consumption, post-consumption, and the reduction of impacts that could occur on the marine ecosystem. Principles of circular economy and principles of public-private-people partnership are also applied in order to manage the whole system towards the same direction.

Preparation of National REDD+ Strategy

REDD+ mechanism or “Reducing Emissions from Deforestation and Forest Degradation in Developing Countries” has initiated following the enforcement of the United Nations Framework Convention on Climate Change (UNFCCC) in 2005 as a voluntary mechanism to create incentives for developing countries to reduce

greenhouse gas emissions in the forestry sector. The REDD+ framework consists of reducing emissions from deforestation and forest degradation, conservation of forest carbon stocks, sustainable management of forests, and enhancement of forest carbon stocks. Thailand considers REDD+ as an important mechanism and has involved in REDD+ readiness process for some time.

In 2021, TEI has been assigned by the Department of National Parks, Wildlife and Plant Conservation under support from Forest Carbon Partnership Facility (FCPF) and the World Bank Group to prepare a draft of National REDD+ Strategy with various national and international experts. This is a part of REDD+ readiness process that emphasizes the role of the forest sector on climate change mitigation both through carbon sequestration as well as benefits from ecosystem services. The REDD+ strategy highlights equitable benefit sharing with the designed frameworks and information systems for social and environmental safeguard, and grievance redress mechanism in case of upcoming impacts from implementing REDD+ activities.



Preparing a draft report on the state of environment

Following the Enhancement and Conservation of National Environmental Quality Act, B.E. 2535 (1992), Section 13 requires the National Environmental Board to submit a report on the state of the country's environmental quality to the Cabinet at least once a year. This report is an analysis of statistics and academic data as a basis to determine environmental management policies, plans and guidelines of the country which are effectively response to the current situations. The Office of Natural Resources and Environmental Policy and Planning (ONEP) is a coordinating agency and in 2021, has assigned TEI to prepare a draft State of Environment Report for 2022 in cooperation with relevant agencies in support of current information under supervision of the Subcommittee on drafting the report.

The report contains information on changes and trends of global and regional socio-economic and environmental situations and operations, as well as national measures and environmental quality situation in each area. It also includes analysis of future trends and policy recommendations, using the DPSIR (Driver-Pressure-State-Impact-Response) framework with the aim to present and summarize the reflection of the overall situation related to environmental changes and preparation of designing effective measures and guidelines for future management.



Personnel training for environmental

For over 20 years of Thailand Environment Institute (TEI) experience in developing personnel potential in the industrial sector, business sector, and people's sector in environmental management to have knowledge, understanding and awareness in the natural resource management. Therefore, courses are developed and updated to keep up the current situation and in accordance with academic principles. From 2005 to present, there have been more than 70 courses of environmental personnel training developed and organized in the form of Public Training and In-house Training, and more than 5,000 people have passed the training. Additionally, it has also organized environmental training for factory employees, a total of 517 batches and more than 25,000 trained employees. The institute has been registered as a training agency with the Department of Industry and has organized training courses continuously.

In 2021, the environmental personnel training unit organized seven training courses for factory environmental personnel according to the Notification of the Ministry of Industry on determination of type and size of factory, determination of disposal controlling of waste, pollution or anything that has an impact on the environment, the qualification of supervisor and permanent worker, and registration criteria of supervisor for toxic environmental protection system. There were 1,153 employees trained in 2021. The seven courses are as follows:

- 1) Environmental manager
- 2) Supervisor of water pollution treatment system
- 3) Supervisor of air pollution treatment system
- 4) Supervisor of industrial waste pollution management system
- 5) Operator of water pollution treatment system
- 6) Operator of air pollution treatment system
- 7) Operator of industrial waste pollution management system





Thailand Business Council for Sustainable Development (TBCSD)

Thailand Business Council for Sustainable Development (TBCSD) has been established since 1993. It comprised of Thailand's foremost business organizations that are the leaders in sustainable development with over 41 membership organizations covering major industries in Thailand. The key objective is to promote and drive the business sector together with the government and other related sectors in solving Thailand's environmental issues. It also takes part in driving national policies in terms of economic, social development and environmental management which ensure fairness for all sectors and leading to sustainable development of the country.

TBCSD is a network of Regional Network of World Business Council for Sustainable Development or WBCSD in Southeast Asia which allows TBCSD to receive information on global trends of sustainable development. TBCSD members would be invited to participate in WBCSD's conferences both on Liaison Delegate and Council. TEI currently supports as a secretariat office of TBCSD and actively works with members to continuously implement activities and projects in order to maintain the commitment to become a leader of Thailand's business sector on sustainability which follow global trends and contribute to the national development agenda.



Since the beginning of TBCSD, it is now more than 2 decades. Over the past 29 years, many projects could achieve outstanding results and able to drive until its become a part of the country’s policy. TBCSD has also expanded its works to jointly address national environmental and development issues.

Particulate matter with a diameter of less than 2.5 micron (PM_{2.5})

TBCSD has proposed policy recommendations on addressing PM_{2.5} through setting up measures for the members to tackle PM_{2.5} issues, as well as providing knowledge and enhance understanding of the members and general public including the campaign on the roles of different sectors to prevent and solving the issue.

Climate Change

TBCSD is jointly driving the climate change issues through determining goals, measures, and activities for the business sector to implement in order to achieve the national targets. It is also committing to drive Thailand’s business organizations towards “Low Carbon and Sustainable Business”. A climate change working group has been set up and organized training for members to enhance their understanding on business operations towards the goal.

Circular economy on plastic management best practice model

Developed a comprehensive plastic waste management model for urban communities with the aim of enabling them to recycle more plastic waste and developed “Waste Management Guide for Organizations” for disseminating to interested agencies to apply. Digital technology platform has been adopted to create a complete waste management system from the beginning in the Eco Digiclean Klongtoei project. In addition, the success of the Rayong Model Project has been continued to increase the amount of clean plastics to be recycled.



There are other projects that promote and support plastic waste recycling such as project on Magic Hand x Loop which collect plastic bags, containers, and films that are clean, dried, and stretchable back into recycling process to produce new products; a project on Siam Pieces to develop a model as segregation center with capacity to collect all types of plastic wastes in the middle of retailing business place of the country; road building with recycled plastics to create a new standard on building road in Thailand which is strong and promote proper management of wastes and efficient use of resources; and PPP Plastics under cooperation with different agencies and organizations to develop curriculum and disseminate knowledge on the benefits from recycling plastic wastes, which will boost

the country's circular economy.

Additionally, there have been a database development on plastic wastes information following a concept on Material Flow Analysis to collect information on type and amount of plastic wastes in Thailand. Also become part of a Working Group on Mechanism Development of Plastic and Electronic Waste Management which is working to promote and campaign on plastic and electronic wastes management, and development of use of plastic wastes. The working group is under a Subcommittee on Plastic and Electronic Waste Management that has been established by the National Environmental Board under the PPP Plastics project.

Electronic Waste

Project on “Thai with Free E-Waste” is the management of electronic waste by collecting and sending it into the recycling and proper disposal processes. This can help prevent disposal of toxic compounds from the electronic wastes into the environment. There have been also Drop Points set up within the members’ buildings and business places in Bangkok, metropolitan areas, and other provinces to collect electronic wastes.

Capacity Building of the youth, for the future

Being a part of the Thai youth’s capacity building through a project on “Youth in Charge” in which TBCSD has been a key role on operations related environmental issues, one of these is involved in a special lecture on the topic “campaign for the new generation to pay attention and take a leading role in driving the environment” along with exchanging knowledge and experiences in addressing environmental issues with youth.

Knowledge exchange and social service

Activities consist of producing publications to share knowledge and inform social service activities in a journal called “Green Society” and a book “TBCSD Sustainable Development 2021”.

In addition, TBCSD members have played an important role in tackle the COVID-19 crisis through different operations. Another joint effort is tree plantation to develop and improve green area at Rama VI Army Camp, Phetchaburi Province as a sustainable storage source of carbon dioxide and oxygen production.



PPP Plastics collaboration

A partnership of government, private sector and civil society organizations towards sustainable management of plastic and plastic wastes or so-called PPP Plastics (Public Private Partnership for Sustainable Plastic and Waste Management) has been established in 2018 and led by TBCSD in cooperation with plastic industry group, The Federation of Thai Industries as well as other sectors, to support the operations to reduce marine plastic debris in Thailand following the Roadmap on Plastic Waste Management 2018-2030 and the related action plans of the country. In the past years, it has participated in formulating relevant measures and policies, pushing for a comprehensive plastic management through pilot projects in Bangkok and Khlong Toei areas, and in Rayong province, collecting plastic wastes by Won bins, using innovation and technology in sustainable plastic waste management, as well as data development through Plastic Material Flow, and public communications and relations.

With strong cooperation of the members and working with relevant partners, TBCSD has become a leader to widely enhance sustainable business operations and support Thailand to move towards low carbon society and sustainable development. Achievements and results from the previous activities and projects, TBCSD has promoted the business sector and networks to cooperate in addressing problems and creating sustainability for the country.



“Power of cooperation promotes the Thai business
to be successful and transformed towards sustainable development”



TEI's social services

Thailand Environment Institute (TEI) is a non-governmental organization with more than 29 years of environmental works jointly launched an activity with Western Digital (Thailand) Company Limited on “Planting Trees to Boost the World’s Oxygen” to provide opportunity for the staffs to take part in environmental care by planting 200 India rubber plants for air purifying through reducing particulate matter (PM_{2.5}) and air pollution. The plants were given to the elderly at the Center for Development of Social Welfare for the Elderly, Wasanawet, Nakhon Luang District, Phra Nakhon Si Ayutthaya Province.

In addition, tree planting activity was also launched to increase the green area and reduce PM_{2.5} under an event entitled “KUBOTA RUN, zero-burning agriculture for dust-free society”. The event which TEI encouraged coordination and collaboration of various sectors in the conservation and sustainable use of nature. In collaboration with Siam Kubota Corporation Co., Ltd. and Bangkok Metropolitan Administration, 1,000 trees were planted including Yang Na (*Dipterocarpus alatus* Roxb.), Makha (*Azalia xylocarpa*), Nonsi (*Peltophorum pterocarpum*), Takhian (*Hopea odorata*), Peep (*Millingtonia hortensis*), Indian gooseberry, bamboo, and jackfruit. Planting these trees helps to absorb carbon dioxide from the atmosphere through photosynthesis and thereby sequestering carbon in the wood and releasing oxygen. This is another good way in reducing global warming through natural processes.







International Cooperation

Thailand Environment Institute (TEI) has continuously cooperated with many international organizations and in 2021, the cooperation contributed to policy implementations and preparation of the country's environmental plans. In addition, there are research and studies conducted on important environmental issues, as well as the field operations and information disseminations to the society following the concept of conservation and sustainable use of resources, pollution management at the source, promotion of circular economy, and sustainable production and consumption.

ERIA - Economic Research Institute for ASEAN and East supports the operation of Regional Knowledge Centre for Marine Plastic Debris (RKC-MPD) and the private sector network in managing marine plastic debris in Thailand.

EU - European Union helps to strengthen the operational mechanism for sustainable urban development towards addressing climate change issues and inclusive development by focusing on enhancing technical knowledge and skills for the civil society sector.

GIZ - Deutsche Gesellschaft für Internationale Zusammenarbeit supports several projects including the analysis of green procurement and environmental label in five target countries, development of manual on social and environmental responsibility to address climate change for the private sector. As well as, development of technical documents to support ecosystem-based water management, and driving actions to reduce and reuse of single-use plastics at policy and field levels.

IUCN - International Union for Conservation of Nature joins in driving biodiversity networks of the private sector, jointly publish the World Biodiversity Assessment Report, and develop good practices for waste management in the island areas. In addition, TEI representatives were given opportunity to attend the latest World Conservation Congress in France as an IUCN member organization.

JICA - Japan International Cooperation Agency jointly promotes the exchange and dissemination of knowledge on industrial development and environmental management in Map Ta Put Industrial Estate, Rayong province to relevant agencies and stakeholders in Ba Ria Vung Tau Industrial Estate, Vietnam.

Pure Earth supports a study of the situation and case studies on burning management in agricultural sector, and develops guideline and policy recommendations to address agricultural burning issues in Thailand.

UNDP - United Nations Development supports activities to promote the role of women, the elderly and youth in the Kuan Krengeat peat swamp area, Nakhon Si Thammarat Province, as well as establishing the community welfare fund, developing of Krajoed product quality and marketing opportunity in the digital age. In addition, TEI was invited to be a member of the UNDP Civil Society Advisory Committee of Thailand.

UNEP - United Nations Environment Programme collaborates to study and analyze data related to eco-design in Thailand and Asia and study and disseminate the use of technology to reduce resource use and food waste in urban areas together with the cities in other regions of the world.

WB – The World Bank Group supports the actions to tackle the problem of marine plastic debris, and the preparation of Action Plan on Marine Plastic Debris Management of the country. Another project on preparation of National REDD+ Strategy as a basis for REDD+ implementation which will operate with incentive measures to reduce greenhouse gas emissions from the forest sector.





Communication materials and publications

In 2021, Thailand Environment Institute (TEI) worked with different organizations to produce communication materials and publications covering the key issues, which can be searched from <http://www.tei.or.th/th/index.php>.

1. Natural resource and biodiversity

- Economic valuation of direct utilization from bioresources of Kuan Kreng Peat Swamp Forest, Nakhon Si Thammarat Province (Thai and English)
- Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (Thai translation)
- Bamboo Value Chain Analysis in Thailand (Thai and English)

2. Environment, pollution and energy

- Solution of waste to energy management (Thai only)
- Lesson Learned and Recommendations on Industrial Environmental Management from Map Ta Phut, Thailand to Vietnam's Industrial Area (Thai and English)
- Role of PPP Plastics for solving the plastic waste problem in Thailand (Thai and English)

3. Sustainable production and consumption

- Introduction manual of Green Label (Thai only)
- Consumer Information for Sustainable Consumption and Production in Food Supply Chain in Bangkok (Thai and English)

4. Climate change

- Manual on assessment of climate change vulnerability in the urban context as preparedness for sustainable city (Thai only)
- Update knowledge on climate change (Thai only)

5. Green Society Journal by TBCSD

- Green Society Journal by TBCSD Vol 13 No 1 (Thai only)
- Green Society Journal by TBCSD Vol 13 No 2 (Thai only)
- Green Society Journal by TBCSD Vol 13 No 3 (Thai only)

TEI's communication channels are listed below, for partner organizations and public to receive more information and updates about TEI.

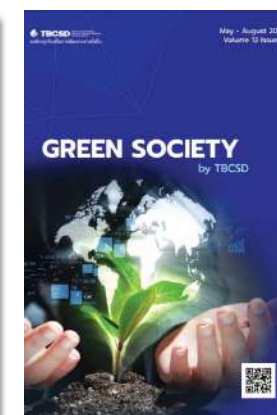
website : www.tei.or.th

Facebook : <https://www.facebook.com/tei.or.th>

YouTube : <https://1th.me/GmSpQ>

Twitter : www.twitter.com/TEIthailand

Instagram : <https://www.instagram.com/tei.or.th/>







List of projects and donor organizations

Consulting for Environment Technology Research Team, the Composite Materials and Nano coating Research Group

Providing advice for the research team and staff, as well as giving recommendations on management and creating strategic plans for to work effectively as planned.

Supported by: National Science and Technology Development Agency (NSTDA)

Hiring to develop tools and public relation materials for promoting environmentally friendly restaurants

This is an extension of last year's green restaurant operations by developing websites, applications and databases to facilitate operations and producing brochures and VTR to promote recruitment and selections the restaurants and providing academic advice to at least 35 restaurants.

Supported by: Department of Environmental Quality Promotion (DEQP)

Administrative support to the project on SWITCH-Asia Regional Policy Advocacy Component (RPAC)

Collecting opinions on eco-design operation in Thailand and identifying stakeholders involved in eco-design operation in Thailand and the region, in order to invite them to participate in the webinar and join the network for future cooperation.

Supported by: United Nations Environment Programme (UNEP)

Developing Public-Private-People Partnerships (4P) on waste to energy management part 1

Study on the management of electric power from waste and lessons learned from problems and solutions, and success factors arising from the project implementation from case studies in the country and aboard aiming to develop curricula and cooperation among public-private-people in the sustainable management of electric power from waste.

Supported by: Energy Regulatory Commission (ERC)

Developing Public-Private-People Partnerships (4P) on waste to energy management part 2

Enhancing the knowledge and ability to manage electricity from waste for public-private-people to be able to manage community solid waste and use energy efficiently in 8 target areas through cooperation between various sectors.

Supported by: Energy Regulatory Commission (ERC)

Preparation of Dissemination Materials for Vietnam (PRTR)

Preparation of materials related to lessons learned of industrial development and environmental management in Thailand especially in Map Ta Put Industrial Estate, Rayong province with the purpose of disseminating the knowledge to relevant stakeholders in Ba Ria Vung Tau Industrial Area in Vietnam.

Supported by: Japan International Cooperation Agency (JICA)

Promoting Green Airport in 2021

Promoting environmentally friendly service for both aviation operators and the participation of service recipients by providing technical advice to at least 5 airports and auditing according to Green Airport Accreditation Criteria.

Supported by: Department of Environmental Quality Promotion (DEQP)

Changing the world by Community's Reduction 15/16

Encouraging communities and local administrative organizations to work together to reduce emission of pollution in the area, giving award to communities with good performance and support them to be learning centers as a means to promote emission reduction activities towards sustainable mitigation of global warming.

Supported by: Toyota Motor Thailand Company Limited

Study and analysis of bamboo value chain in Thailand

A data study and analysis of bamboo value chain, which combines the potential and challenges of promoting bamboo in social and economic development and environmental conservation, and providing policy proposals for sustainable development of bamboo resources in Thailand

Supported by: Faculty of Forestry, Kasetsart University

Support the development of Thailand's National Action Plan on Marine Plastic Debris

An analysis of the barriers and gaps in the existing plans, including an analysis of domestic and international case studies and related studies, and organizing meetings to gather opinions that were beneficial to the “Action Plan on Marine Plastic Debris Management ” with the cooperation of the public, private sectors and related stakeholders.

Supported by: The World Bank Group

Developing guideline for agricultural residues burning control to tackle PM_{2.5} in Thailand

Study on the situation to manage problems derived from agricultural burning, as well as lessons learned, obstacles, and response generated from the case studies. The obtained result was used to create a manual on agricultural burning management and policy proposals for solving such problems for Thailand.

Supported by: Pure Earth

Global warming mitigation through our actions: establishing learning centers on global warming

Establishment and consulting on the operation of three global warming learning centers (Thung Song, Umong and Mueang Klaeng) by supporting local administrative organizations to administer the centers.

Supported by: Toyota Motor Thailand Company Limited

Strengthening vulnerable group's resilience through sustainable peat swamp

Promoting roles and creating opportunities for women, the elderly and youth affected by the COVID- 19 epidemic through conservation and sustainable utilization of Kuan Kreng Peat Swamp resources related to community lifestyle and environmentally friendly.

Supported by: United Nations Development Programme (UNDP)

Developing good practices guidelines and biodiversity indicators

Promoting the integration of operations between biodiversity conservation and agriculture to provide farmers with alternatives to farming, especially rice farming. Moreover, it has created a network of farmers and consumers who are aware and cooperate to conserve biodiversity in the agro-ecosystem.

Supported by: Office of Natural Resources and Environmental Policy and Planning

Civil society collaboration to transform the city (SUCCESS)

Strengthen operational mechanisms to achieve sustainable development by considering climate change response and inclusive urban development for people at all level by building capacity of the civil society

Supported by: European Union (EU)

Planting trees to boost the world's oxygen

WD environmental action program, the participation in helping society aims to carry out the mission of Western Digital in the form of volunteer activities for employees to show their social responsibility by using this activity to reduce pollution and global warming and enhancing environmental values in real practice.

Supported by: Western Digital (Thailand) Company Limited

Public Private Partnership for sustainable plastics and waste management (PPP Plastics)

Cooperation to drive the project to achieve the goal of reducing the amount of plastic waste in the ocean by at least 50 % by 2027 for the purpose of increasing recycling rates, driving policies and disseminating knowledge to the public and creating the habit of littering and separating waste.

Supported by: Private sector

Corporate Social Responsibility (CSR) guideline for climate actions

Developing a guideline on “Corporate Social Responsibility on climate change mitigation or CSR Guideline on Climate Actions” for the private sector and also a short film was produced to introduce about the guideline.

Supported by: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Collaborative action on prevention of single-use plastic in Southeast Asia (CAP-SEA), Thailand

Supporting plastic reduction through the development of policy and business tools and driving the reduction of single-use plastics and promoting reuse.

Supported by: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Preparation of National REDD+ Strategy and the Strategic Environmental and Social Assessment for the REDD+ Mechanism in Thailand, and extension period to evaluate lessons learned and achievements from REDD+ readiness project

Analysis of drivers of deforestation and forest degradation, preparation of National REDD+ Strategy, including developing the grievance redress mechanism and sharing benefits and assessing social and environmental impacts at a strategic level for the REDD+ mechanism in Thailand

Supported by: Department of National Parks, Wildlife and Plant Conservation

Building political support for IPBES Global Assessment result in Vietnam, Thailand, and Bangladesh

Analysis of key issues from the IPBES Global Report 2019 for the operations in Thailand by organizing discussion forum for policymakers on the essence of the report, producing a Thai version of the document on the topic “Brief IPBES Global Report 2019 for Policymakers” including case studies on biodiversity management in Thailand.

Supported by: International Union for Conservation of Nature (IUCN)

Build Back Better: using green technologies to reduce food waste at consumer level

Encouraging government, business, community and household to use technology for the purpose of reducing resource use and waste from the consumption of food in Bangkok area through the preparation of reports, conferences, the development of technology and communication strategies.

Supported by: United Nations Environment Programme (UNEP)

Capacity building of the personnel on environmentally friendly production, service and consumption for 2021

Developing 10 training courses on eco-friendly production, services and consumption and providing 2 online training courses to target groups for the purpose that they can apply their knowledge, understanding and skills effectively.

Supported by: Department of Environmental Quality Promotion

Developing a model in Thonburi area with eco-landscape mapping and knowledge hub for sustainable development of green economy

Supporting the development of 3 targeted areas in Bangkok in cooperation with educational institutions to strengthen small enterprises in business operation and lead to the development of a self-reliant economy.

Supported by: Administration and Management Unit of Research and Innovative Fund for Area-based Development and the Ministry of Higher Education, Science, Research and Innovation

Evaluation of the Master Plan of Thai Rak Pa Foundation 2017-2021

Assessing the implementation of the Master Plan in the target areas in Chiang Mai province, Nakhon Sri Thammarat province, and Chaiyaphum province, the data were collected from document reviews and interviews with the foundation's administrators, field managers and staff including local partners and beneficiaries.

Supported by: Thai Conservation of Forest Foundation

Ecosystem-based Adaptation CoP

The Development of EbA Code of Practice (CoP) Compendium aims to support the management of water resource practitioners in Thailand.

Supported by: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Capturing lessons learned on plastic waste management under the Roadmap on Plastic Waste Management 2018-2030

The study and collection of operational data related to plastic waste management of PPP Plastics and related agencies, and data analysis in accordance with Plastic Waste Management Roadmap and the Action Plan Phase 1, and lessons learned on plastic waste management along with providing appropriate recommendations for the management.

Supported by: Plastic Institute

Developing an environmental label system for renewable products from material recycling to drive Thailand's circular economic policy

The development of regulations and environmental labeling systems for Thailand's renewable products and the policy recommendations for the objective in driving the CE policy into practice.

Supported by: Capital Management Unit for Enhancement of the Country's Competitiveness

Study and development of the well-being of civil society organizations

Study and analysis of factors affecting various problems of civil society in order to develop a model and organization of health that is appropriate and consistent with the context for linking and expanding networks and disseminating good health to other civil society sectors.

Supported by: Thai Health Promotion Foundation

KUBOTA RUN Campaign to Keep Farmers Burn-Free and We're Dust-Free

1,000 trees planting activity at Nong Khaem Solid Waste Disposal Center, Phutthamonthon Sai 3.

Supported by: Siam Kubota Corporation Company Limited

Eco-design for SMEs in Asia

A study on the current state of eco-design among SMEs group with a study scope in the Asian region of 18 countries, aims to support eco-design based implementation through seminars to exchange knowledge from experts at regional and sub regional levels. The gained knowledge can be applied to support SMEs.

Supported by: United Nations Environment Programme (UNEP) and Asian Institute of Technology (AIT)

Waste-free Vibhavadi Road (Phase 2): Working together to drive Thailand's capital market towards sustainability

Continuing and expanding the project implementation to develop into a model to be used in the management of waste within the organization.

Supported by: The Securities and Exchange Commission of Thailand

Analyzing the data and proposing business models and approaches to reduce burning of crop residues from rice harvesting to reduce environmental pollution

Study and analysis of data and presentation of a business model to reduce burning of crop residues from rice harvesting in the case study area of central provinces and promoting the development of cooperation in business related to management and utilization of crop residues in order to reduce PM_{2.5} problems with cooperation from stakeholders, agencies and farmers.

Supported by: PTT Public Company Limited.

Country data collection, analysis and private sector network support

Collecting and analyzing data on roles and responsibilities of agencies/organizations involved in the management of marine plastic debris in Thailand with an aim to support the operation of Regional Knowledge Centre for Marine Plastic Debris (RKC-MPD) and support a network of private sector in management of marine plastic debris.

Supported by: Economic Research Institute for ASEAN and East Asia (ERIA)

Developing a value chain collaborative model on waste and plastic waste management through circular economy approach in the Thailand's island, a case study of Lanta Island

The study and analysis of data on the quantity and value of various types of plastic waste to facilitate a process of participation and to develop best practices in plastic waste and waste management by the cooperation of stakeholders, including the development of the value chain model and CE guidelines to drive community waste management.

Supported by: Capital Management Unit for Enhancement of the Country's Competitiveness

Capturing lessons learned and proposing best practices for plastic waste management in the island

The study of the situation of waste management in the islands of Thailand and capturing lessons learned from case studies, synthesizing best practices for local management, drafting local and national policy proposals on island waste management, proposing best practices and preparation document to publish the guidelines.

Supported by: International Union for Conservation of Nature (IUCN)

Preparation of the State of Environment Report 2022

The study, collection and analysis of economic and social data, policies, plans and measures, including regional and global operations and the natural resource and environmental situation occurring between 2021 and 2022 in 10 sub-sectors and developing policy proposals for resource and natural management.

Supported by: Office of Natural Resources and Environmental Policy and Planning

Capturing lessons learned, knowledge and achievement of the projects received funding support from the Environmental Fund

Evaluating the knowledge, the lessons learned, innovation and achievements of the projects that received funding support from the Environmental Fund by sharing and disseminating the knowledge gained to target groups and the general public with the purpose of raising awareness of the importance on sustainable management of natural resources and environment.

Supported by: Office of Natural Resources and Environmental Policy and Planning

Capturing lessons learned on development approach towards Sustainable Urban Environment ASEAN Award

Evaluating the lessons learned of the municipality's implementation of ASEAN Environmental Sustainable Award to develop the approaches to drive efficient and effective urban environmental management, which facilitates readiness and development of the city's potential to become an environmentally friendly city.

Supported by: Department of Environmental Quality Promotion



INDEPENDENT AUDITOR'S REPORT

To The Board of Directors of
Thailand Environment Institute Foundation

I have audited the financial statements of Thailand Environment Institute Foundation (the Foundation), which comprise the statement of financial position as at 31 December 2021, the related statement of revenues and expenditures and statement of changes in fund balances for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In my opinion, the accompanying financial statements present fairly, in all material respects, the financial position of Thailand Environment Institute Foundation as at 31 December 2021, the financial performance and changes in fund balances for the year then ended in accordance with Thai Financial Reporting Standards for Non-Publicly Accountable Entities.

Basis for Opinion

I conducted my audit in accordance with Thai Standards on Auditing. My responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of my report. I am independent of the Foundation in accordance with the Federation of Accounting Professions' Code of Ethics for Professional Accountants together with the ethical requirements that are relevant to my audit of the financial statements, and I have fulfilled my other ethical responsibilities in accordance with these requirements. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with Thai Financial Reporting Standards for Non-Publicly Accountable Entities, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Foundation's ability to continue as a going concern, disclosing, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Foundation or to cease operations, or has no realistic alternative but to do so.

Auditor's Responsibilities for the Audit of the Financial Statements

My objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Thai Standards on Auditing will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with Thai Standards on Auditing, I exercise professional judgment and maintain professional skepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Foundation's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Foundation's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Foundation to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

I communicate with management regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

The engagement partner responsible for the audit resulting in this independent auditor's report is Miss Sulalit Ardsawang.

(Miss Sulalit Ardsawang)
Certified Public Accountant
Registration No. 7517

THAILAND ENVIRONMENT INSTITUTE FOUNDATION
STATEMENT OF FINANCIAL POSITION (CONT.)
AS AT 31 DECEMBER 2021

	<u>Assets</u>			<u>Liabilities and fund balances</u>	
	Baht			Baht	
	2021	2020		2021	2020
Current assets			Current liabilities		
Cash and cash equivalents	50,116,946	41,292,436	Trade and other payables	43,823,505	38,592,779
Short-term investments	-	77,450,000	Total current liabilities	43,823,505	38,592,779
Trade and other receivables	13,095,559	14,920,393	Non-current liabilities		
Total current assets	63,212,505	133,662,829	Employee benefits obligations	4,416,133	3,807,150
Non-current assets			Total non-current liabilities	4,416,133	3,807,150
Long-term investments	257,034,005	169,692,850	Total liabilities	48,239,638	42,399,929
Restricted cash	5,439,775	4,820,178	Fund balances		
Property, plant and equipment	19,589,938	23,863,116	Unrestricted funds	99,216,904	100,764,344
Computer software	830,893	1,307,679	Restricted funds		
Total non-current assets	282,894,611	199,683,823	Sponsored program fund	21,569,880	15,584,012
Total assets	346,107,116	333,346,652	Capital and reserve funds	177,080,694	174,598,367
			198,650,574	190,182,379	
			Total fund balances	297,867,478	290,946,723
			Total liabilities and fund balances	346,107,116	333,346,652

THAILAND ENVIRONMENT INSTITUTE FOUNDATION
STATEMENT OF FINANCIAL POSITION (CONT.)
AS AT 31 DECEMBER 2021

	Baht			Baht	
	2021	2020		2021	2020
Revenues					
Sponsorships for research activities	57,912,238	42,436,323	Publication expenses	2,093,074	1,664,365
Membership fee income	9,913,906	9,982,230	Promotional materials	1,941,045	1,695,324
Other income	5,770,809	6,683,069	Library expenses	122,850	104,660
Total revenues	<u>73,596,953</u>	<u>59,101,622</u>	Stationery supplies	856,883	704,198
			Computer system development cost	1,015,590	454,349
Expenditures			Bank charges and duty stamps	119,530	159,503
Salaries and related staff costs	29,316,261	29,184,746	Professional consulting and audit fees	342,407	300,656
Sub-contracts for researches	11,605,036	5,150,194	Depreciation and amortisation	5,789,197	6,582,386
Rental expenses	410,508	878,263	Contributions for project activities	5,308,222	2,779,912
Utility expenses	787,868	797,718	Miscellaneous expenses	1,422,242	1,422,567
Communication expenses	1,009,483	866,758	Total expenditures	<u>66,676,198</u>	<u>61,492,060</u>
Travelling and related costs	1,552,548	2,851,940			
Meeting and seminar expenses	2,983,454	5,894,521	Excess of revenues over (under) expenditures	<u>6,920,755</u>	<u>(2,390,438)</u>

THAILAND ENVIRONMENT INSTITUTE FOUNDATION STATEMENT OF CHANGES IN FUND BALANCES
FOR THE YEAR ENDED 31 DECEMBER 2021

	Baht	
	2021	2020
Fund balances brought forward	290,946,723	293,337,161
Excess of revenues over (under) expenditures	6,920,755	(2,390,438)
Fund balances carried forward	<u>297,867,478</u>	<u>290,946,723</u>

Note: Please scan QR code to access the financial report for the year ended 31 December 2021. If you have any question, please contact info@tei.or.th.



Sharing thoughts on TEI

Thank you for environmental development and for campaigning in environmental conservation. I wish all TEI executives and staff happiness, good health and staying with the Thailand Environment Institute in order to serve the interest of Thai society forever.

Kroranich Lasa

I wish the Thailand Environment Institute remain with Thai society as long as possible to encourage sustainable nature and environment and to publish credible environmental information to encourage Thai people to conserve environment for our beautiful and livable country.

Surachai Saysangthong

I hope the Thailand Environment Institute stay with Thai society forever. I am proud and appreciated the TEI for their works on environmental protection for next generation. Furthermore, TEI also cultures consciousness to Thai people with the natural preservation that lead to pollution and waste free.

Kate -ja

I am thankful for all project of TEI particularly “Reducing Rice straw burning” project because it reminds me my childhood that burning rice straw is the common practice. Although I am not understand the project thoroughly but I am supporting all the project implementing by TEI.

Por Pantip Vittayaphat

Thank you so much TEI for voicing information on environmental protection and human resource development activities. Here, there are many TEI’s projects that impressed me, for instance, a prototype project to reduce the single-use plastics and business development project to reduce open- burning and business model for burning reduction. These projects clearly demonstrated the benefit to environment. I wish TEI keeps develop and create beneficial project for sustainable environment.

Fai Kung

Thank you for taking care the Thai people for long time. TEI’s works are not only research but also grassroots projects implemented with local communities. By following TEI’s webpage, I receive the credible and beneficial information from TEI that I could not find in classroom.

Anata Oho



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