

WHA Utilities and Power Public Company Limited

SUSTAINABILITY REPORT 2023



WHA : WE SHAPE THE FUTURE
The Ultimate Solution For Sustainable Growth

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CEO MESSAGE

To Shareholders,

WHA Utilities and Power Public Company Limited (WHAUP) is committed to being a leading provider of utilities and energy services. Since the establishment of WHAUP over 16 years ago, WHAUP has continuously developed and provided comprehensive services in both utilities and energy sectors in Thailand and Vietnam. WHAUP has demonstrated strong performance alongside the development of Environmental, Social, and Governance (ESG) responsibilities, ensuring that business growth is sustainable.

WHAUP, as a provider of utilities and power services, places significant emphasis on environmental aspects to ensure that our business operations fully comply with relevant environmental practices and meet the expectations of all stakeholders. In particular, the issue of climate change is a critical global agenda. Following the 28th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 28), there has been strong support for transitioning from fossil fuels to clean energy by reducing the use of fossil fuels and increasing the use of renewable energy (Energy Transition). This transition aims to develop an environmentally friendly energy industry in line with the goal of limiting global temperature rise to no more than 1.5 degrees Celsius. WHAUP achieved carbon neutrality in 2021. In 2023, WHAUP helped reduce indirect greenhouse gas emissions by 51,497 tCO₂e and has set a target to achieve net-zero greenhouse gas emissions by 2050.

In the utilities business, WHAUP has been committed to conserving natural resources through water recycling and wastewater management services. WHAUP has implemented water reclamation projects, turning reclaimed water into value-added products. These projects have been generating revenue for WHAUP continuously since 2018. Last year, these projects helped WHAUP reduce the extraction of water from natural sources by 10% of the total water used in 2023. This effort plays a crucial role in developing the national water industry, fostering growth alongside the creation of new innovations to sustainably enhance the value for WHAUP.

WHAUP is committed to sustainable business growth by creatively applying the principles of the Circular Economy (CE) to our operations. This involves optimizing the use of limited resources to maintain their value and circulation within the production and consumption processes for as long as possible through reuse or recycling. Last year, WHAUP planned to develop projects in collaboration with the WHA Group under the WHA Circular Innovation initiative, which aims to promote and drive innovation towards a Circular Economy. There are more than 40 projects planned for the future. Additionally, WHAUP has a comprehensive waste management strategy, aiming to minimize landfill waste and maximize the value of waste through reuse and recycling. Examples include converting sludge from wastewater treatment into soil conditioners, reducing operational waste, and implementing waste reuse and recycling projects. WHAUP is also investing in technology to explore waste disposal alternatives and related projects for sourcing essential resources and waste management systems for customers and communities. Engagement activities are organized to raise awareness, promote, and disseminate sustainability principles throughout the process, not only adding value within WHAUP but also extending benefits to customers, communities, and surrounding society. Moreover, WHAUP places significant importance on biodiversity, with continuous management plans to mitigate impacts on communities, society, the environment, and surrounding areas.

WHAUP operates our business sustainably in alignment with WHA Group's mission: WE SHAPE THE FUTURE. The Group is committed to fostering prosperity, creating jobs, and generating income for people and society to improve their quality of life, leading to sustainable growth for Thailand. WHAUP conducts our business with a long-term perspective on the impacts on all stakeholders, considering environmental quality, health, safety, and achieving the highest positive outcomes for communities and society. This approach is in line with the United Nations' Sustainable Development Goals (SDGs). Additionally, WHAUP adheres to principles of integrity, fairness, and transparency in our business operations. The Group fosters organizational values that emphasize a transparent work culture, adherence to ethics, and social responsibility.

In the past year, WHAUP has achieved significant success in emphasizing environmental, social, and governance (ESG) aspects. The company received the highest level of AAA in the SET ESG Ratings for 2023 from the Stock Exchange of Thailand. Additionally, WHAUP was selected as a sustainable stock for the fourth consecutive year. In terms of governance, WHAUP received an "Excellent" rating from the Corporate Governance Report of Thai Listed Companies (CGR), maintaining this level for the fifth consecutive year. Furthermore, WHAUP was awarded the Commended Sustainability Award in the Sustainability Excellence category at the Awards 2023. These accolades reflect WHAUP's commitment to sustainability, integrating environmental, social, and governance considerations into every step of our operations to create long-term business value.

Lastly, the commitment and strategies for driving sustainable business across economic, environmental, social, and governance aspects, as outlined in the operational framework, would not be possible without the support of all parties. This includes the Board of Directors, the management team, employees, partners, shareholders, and all stakeholders involved in our business operations. I am confident that WHAUP will be able to develop the environment and society alongside sustainable business growth. On behalf of the Chief Executive Officer of WHA Utilities and Power Public Company Limited (WHAUP), I extend my sincere thanks to all stakeholders for their continued confidence in our company's potential. The support we have received is a crucial force driving WHAUP to continue our business operations towards sustainable growth.



Mr. Somkiat Masunthasuwun

Chief Executive Officer

WHA Utilities and Power Public Company Limited

2023 AWARDS & MEMBERSHIPS

SET AWARDS 2023

SUSTAINABILITY EXCELLENCE - COMMENDED SUSTAINABILITY AWARD



WHA Utilities and Power Public Company Limited (WHAUP) received the “Commended Sustainability Award” in the Sustainability Excellence category at the SET Awards 2023, organized by the Stock Exchange of Thailand (SET) and Money & Banking Magazine. This award reflects the organization’s commitment and operations that integrated all dimensions of sustainability including environmental, social, and governance. WHAUP also prioritizes the accurate and complete disclosure of information along with fostering sustainable growth with all stakeholders in the value chain. WHAUP will continue to implement innovations and digital technologies to create value and sustainable growth for the organization, focusing on enhancing positive impacts and minimizing negative impacts in every aspect.

HIGHEST RATING OF “AAA” IN SET ESG RATINGS 2023



WHA Utilities and Power Public Company Limited (WHAUP) have been selected for the list of sustainable stocks in the Resources sector by the Stock Exchange of Thailand (SET) for the fourth consecutive year. WHAUP received an “AAA” rating, the highest level, in the 2023 SET ESG Ratings. This reflects our commitment towards the sustainable growth in terms of risk management, opportunities, competitiveness, and acceptance from stakeholders. We consider the environment, social, and governance (ESG) as shown in our business strategies for utilities (water) and clean energy electricity operations, which are conducted within the ESG framework and aim to generate sustainable returns.

TRIS RATING REAFFIRMS WHAUP’S “A-” RATING WITH A “STABLE” OUTLOOK



TRIS Rating maintained the company’s rating and debentures of WHA Utilities and Power Public Company Limited (WHAUP) at “A-” with a “stable” outlook, reflecting the company’s strong business operations as a sole utility provider at leading industrial estates of WHA Group. The company also has steady cash flow from the power business and strong financial positioning.

MEMBERSHIPS

WHAUP is committed to adhering to sustainable business principles and has thus coordinated with and supported numerous organizations to build strong networks of partners, enhancing opportunities for sustainable growth. One of the significant achievements that demonstrate WHAUP’s dedication to integrity and business transparency is our certification as a member of the Thai Private Sector Collective Action Against Corruption (CAC) in November 2019, with our membership renewed in January 2023. Additionally, our success is also attributed to the associations collaborated with, as follows:

1. Thai Industrial Estate and Strategic Partner Association (TISA)
2. The Federation of Thai Industries (FTI)
3. Thai Photovoltaic Industries Association (TVPA Thailand)
4. Water and Environment Institute for Sustainability (WEIS)
5. Thailand Carbon Neutral Network (TCNN)
6. Thailand CCUS Alliance (TCCA)
4. Water and Environment Institute for Sustainability (WEIS)
5. Thailand Carbon Neutral Network (TCNN)
6. Thailand CCUS Alliance (TCCA)

ABOUT THIS REPORT

WHA Utilities and Power Public Company Limited (WHAUP) has published a sustainability report annually since 2019 to communicate the Group's management approach to stakeholders as well as to demonstrate practices of running business in a sustainable manner in terms of the governance/ economic, social and environment. This report is WHAUP's 5th sustainability report, which covers the period from 1st January to 31st December 2023, aligning with the financial disclosure in WHAUP Form 56-1 One Report 2023.

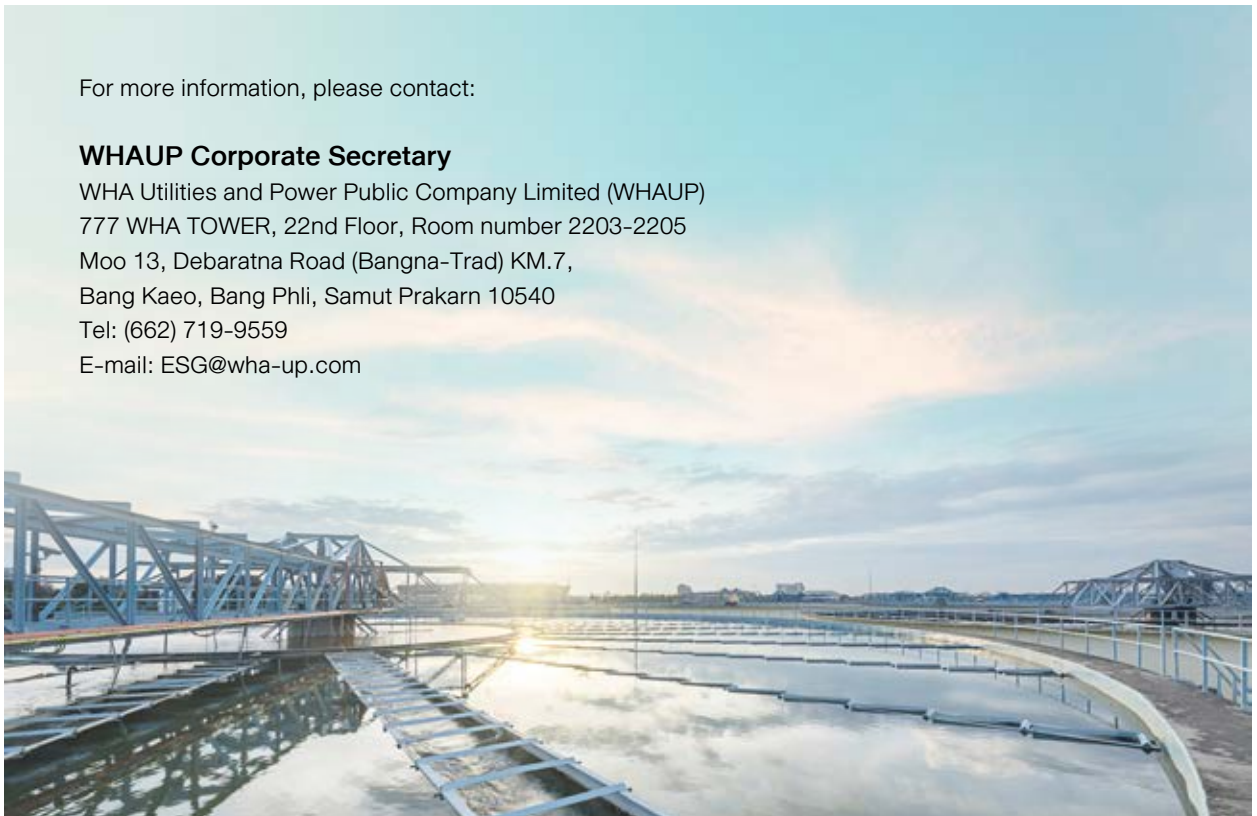
The report has been prepared in accordance with Global Reporting Initiative Standards 2021 (GRI 2021) since 2022. WHAUP has used a process to assess key sustainability issues that align with the Double Materiality Principle under the Global Reporting Initiative (GRI) framework and the organization's Enterprise Risk Management guidelines, which are effective and comprehensive. The assessment identified 8 significant sustainability issues, including Corporate Governance and Ethics, Risk Management & Compliance, Data & Cyber Security, Privacy Protection, Technology & Innovation, Water Management, Energy Management, Climate Strategy, Occupational Health & Safety. The report also highlights the progress and performance of WHAUP's sustainable development goals aligned with the United Nations Sustainable Development Goals (UN SDGs). The information in this report encompasses the business operations of WHAUP, including our subsidiaries in Thailand and Vietnam, where WHAUP holds a majority stake of over 50% and has managerial authority.

To ensure accurate and complete compliance, WHAUP hires LRQA (Thailand) Limited to conduct an independent verification of the Group's performance annually. The certification statement is provided under the section "Independent Assurance Statement" of this report.

For more information, please contact:

WHAUP Corporate Secretary

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GETTING TO KNOW WHAUP

VISION

To be Asia's leader in utilities and power businesses providing total solutions to partners with good corporate governance as well as environmentally and socially friendly operations.

MISSION

- 1 To be Asia's leader in utilities and power businesses providing total solutions to partners with good corporate governance as well as environmentally and socially friendly operations.
- 2 To vertically integrate solutions in utilities and power businesses and expand other market segment to increase products and services in Thailand and other Southeast Asia Countries
- 3 To continuously develop human resources competencies to build talent and experience to enhance organizational core competency including encouraging workplace environment for employee wellbeing.
- 4 To nurture an innovative culture in the organization.
- 5 To add value to communities and the environment with good corporate governance and sustainable development strategies.

GOALS

WHAUP aims to be a leader in integrated utilities and power businesses and to operate in compliance with the principles of good corporate governance with responsibility for the community, society and the environment. It also plans to expand our customer base in the segments of utilities and power services, both domestically and in the Southeast Asia countries and expand to related businesses in order to widen its range of products and services.

STRATEGY

- 1 Continuously improving its utilities business and power business to ensure the constant and predictable generation of income, maximize profit and add value to shareholders.
- 2 Applying its expertise in management in respect of infrastructure, environment and good relationship with customers with the aim of expanding its business opportunities.
- 3 Efficiently using its human resources and financial assets to create the prospects of business investment.
- 4 Incessantly carrying out educational, community and environmental campaigns for the benefit of the community, society and all other stakeholders to maintain good relationship with locals.

CORE VALUE OF WHAUP

ADVANCED

Think, plan, and initiate new things to deliver values that help create sustainable growth for customers and contribute to the organization's breakthrough.

RESOURCEFUL

Determined to continuously develop ourselves to gain deep and thorough knowledge in what we do, diligently working to enhance our skills and experiences to boost confidence and deliver value to others professionally.

CHAMPION

Determined to create success in everything we do, not stuck on failure or success in the past but striving to push ourselves beyond the limits to overcome new challenges and create a sense of unity together.

INTEGRITY

Living with honesty, integrity, firm in our commitments to earn trust and confidence from others, and collaboratively build and maintain transparency in our working culture.

WHA Utilities and Power Public Company Limited (WHAUP)" was established on June 30, 2008 as a subsidiary of "WHA Corporation Limited (WHA Group)" and registered its securities with the Stock Exchange of Thailand on April 10, 2017. WHAUP operates utility and energy businesses, adhering to international standards, providing services to customers and partners both within and outside industrial estates. WHAUP's main businesses include (1) Utilities: sourcing and distributing raw water, producing and supplying industrial water, managing wastewater treatment, and developing raw water sources vertically integrated for manufacturers and operators within industrial estates and (2) Power: generating and distributing electricity, using both conventional fuels and renewable energy, including solar power plant projects, as well as investing in natural gas distribution and retailing. Each developed and operated project adheres to the principles of Operational Excellence and is committed to integrating technology significantly into utility and energy operations to meet the expectations of stakeholders and the environment in all aspects. WHAUP aims to become "The Ultimate Solution for Sustainable Growth" and has plans to expand its businesses broadly and deeply towards becoming a Global Company and advancing into a Tech Company alongside WHA Group by 2024.

WHAUP strictly abides by the regional regulations prescribed under the Ministry of Industry, Ministry of Labor, Industrial Estate Authority of Thailand (IEAT), Stock Exchange of Thailand (SET), Ministry of Natural Resources and Environment as well as internal standards such as the UN SDGs. In 2023, WHAUP received the highest rating of "AAA" in the SET ESG Ratings by the Stock Exchange of Thailand (SET), marking the fourth consecutive year since 2020 that WHAUP has been listed as a sustainable stock. This achievement demonstrates our commitment and dedication to driving sustainable business practices in line with our investment plans in utility and clean energy businesses, both domestically and internationally.

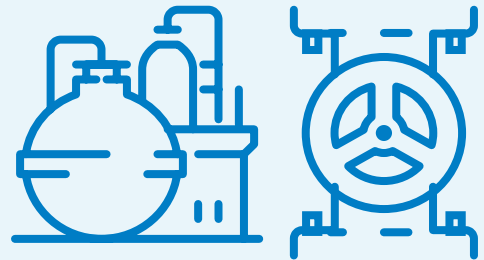


Utilities and Power

Utilities & Power Hub is operated through the Company's subsidiary, WHAUP Group, the provider of utilities in the WHAID Group's industrial estates/ zones i.e. raw water, industrial water, and wastewater treatment. WHAUP Group also has investments in power businesses, through joint ventures with both domestic and foreign power plants, who have expertise in the power business field. Our power plants include both Conventional Fuel and Renewable Energy power plants.



155 Million m³
**Water Utilities Sales
and Management.**



Continue to expand

The Value-added Water products

as well as develop the

Smart Water Platform.





“ **INTEGRATED INDUSTRIAL
UTILITIES & POWER PROVIDER
WITH SUSTAINABLE BUSINESS
GROWTH** ”

A total installed capacity
approximately

733 equity MW.



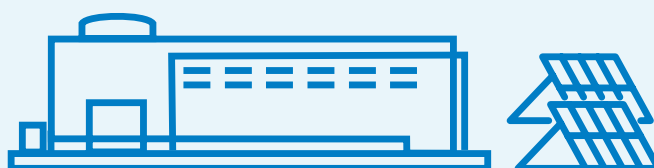
Obtain a right to develop

5 Solar Projects

with a Feed-in Tariff scheme (FiT)

Phase 1 with the installed capacity totaling

125 equity MW.



UTILITIES BUSINESS

WHAUP serves manufacturers and operators, both within and operating outside, WHA Group's industrial estates and industrial lands across Thailand and Vietnam. The utilities business includes products or services as follows:

1. PROCUREMENT AND DISTRIBUTION OF RAW WATER

Raw water procured and distributed to industrial operators in WHA Group's industrial areas. WHAUP's core customers are operators in steel industry, IPPs and SPPs.

2. PRODUCTION AND DISTRIBUTION OF INDUSTRIAL WATER OF INDUSTRIAL WATER

Industrial water produced and distributed by WHAUP can be divided under 4 categories.

- (1) Process water is industrial water that has undergone the processes of sedimentation, filtration and chlorination for disinfection. The final product is used in the production process in industrial plants in general. WHAUP's core customers include those in the automotive industry (e.g. automotive assembly plants and auto part manufacturing plants), food industry and electronics industry.
- (2) Clarified water is produced through the processes of sedimentation, filtration and chlorination. Lower quantity and concentration of chlorine is used in chlorination process for clarified water, compared to process water, so that a very small amount of chlorine is left in the clarified water product when it is distributed to customers. This product is in great demand for customers in heavy industries such as petrochemical, given that chlorine may cause corrosion in machinery and equipment used in those industries.
- (3) Premium clarified water is the clarified water produced using the membrane technology (Reverse Osmosis) and has higher quality compared to the clarified water. In 2023, it was the first year that WHAUP began providing this type of water service at the Eastern Seaboard Industrial Estate (Rayong).
- (4) Demineralized water is the highly purified water that most of essential minerals are removed. It is used in some industry such as Power plant, Petrochemical, Electronics etc.



3. WASTEWATER TREATMENT

WHAUP provides central wastewater treatment ponds management services of industrial estates. Industrial plant releases wastewater together to ensure that the wastewater is treated in accordance with applicable standards imposed by the Ministry of Industry before being discharged into natural sources of water or being recycled into the production process.

4. RAW WATER RESOURCES DEVELOPMENT

WHAUP has initiated a water resource development project to enhance operational efficiency and strengthen the sustainability of our utilities business. In 2021, medium-sized water sources are being developed in the vicinity of WHA Group's industrial estate in the Eastern Economic Corridor (EEC).

WHAUP group has a policy to provide other types of utilities to the operators inside and outside WHA industrial estates. In 2022, WHA Water Co., Ltd. (WHAWT), a 99.99% owned subsidiary of the WHAUP Group, established a joint venture named "WHAUP Asia Reclaimed Water" (WHAUP AIE), a joint venture with Asia Industrial Estate Co., Ltd. to provide utility services within Asia Industrial Estate (Map Ta Phut) with production capacity for demineralized water about 1 million cubic meters per year. Water supply already began to distribute to customer in the fourth quarter of 2022. In addition, WHAUP Group has been certified for ISO 9001:2015 quality management system standards and ISO 14001:2015 environmental management system standards.

Since 2019, WHAUP had expand its business to Vietnam by investing in utility project which sell tap water in Vietnam in order to provide tap water in industrial estates of WHA Group. Moreover, WHAUP Group has partially invested in shares of the company operating the tap water business in Vietnam for two companies are Cua Lo Water Supply, which is the producer and the distributor of tap water in Nghe An and Duang River Surface Water Plant (SDWTP), which is one of the leading tap water providers of Hanoi with the shareholding ratios of 47% and 34% respectively.

LOCATION AND NATURE OF UTILITIES BUSINESS

WHAUP now operates utilities in the WHAID's area by leasing the right to operate utilities and providing utility management services in the WHAID Group's area. There are also some project that is not under the WHAID's right lease agreements or located outside WHA Group territory. WHAUP's business operations are as follows:

Location	The Land on Which the Property is Located		Property Ownership		Nature of Business ^{1/}
	Leased Land	Utility Land	The Company and Subsidiaries	Developer	
WHA Chonburi Industrial Estate 1					
Industrial Water Plant		✓		✓	50-year lease of operating rights
Wastewater Treatment Plant		✓		✓	50-year lease of operating rights
WHA Eastern Industrial Estate (Map Ta Phut)					
	✓ ^{2/}		✓ ^{2/}		Ownership
Industrial Water Plant		✓ ^{3/}		✓ ^{3/}	50-year lease of operating rights
Wastewater Treatment Plant		✓		✓	50-year lease of operating rights
Eastern Seaboard Industrial Estate (Rayong)					
Industrial Water Plant		✓		✓	25-year lease of operating rights ^{4/}
Wastewater Treatment Plant		✓		✓	Management agreement
WHA Saraburi Industrial Land					
Industrial Water Plant		✓		✓	50-year lease of operating rights
Wastewater Treatment Plant		✓		✓	50-year lease of operating rights

Location	The Land on Which the Property is Located		Property Ownership		Nature of Business ^{1/}
	Leased Land	Utility Land	The Company and Subsidiaries	Developer	
WHA Rayong Industrial Land					
Industrial Water Plant		✓		✓	50-year lease of operating rights
Wastewater Treatment Plant		✓		✓	50-year lease of operating rights
WHA Eastern Seaboard Industrial Estate 1					
Industrial Water Plant	✓ ^{5/}	✓ ^{5/ 6/}	✓ ^{5/}	✓ ^{6/}	50-year lease of operating rights
Wastewater Treatment Plant		✓		✓	50-year lease of operating rights
WHA Chonburi Industrial Estate 2					
Industrial Water Plant		✓	✓		50-year lease of operating rights
Wastewater Treatment Plant		✓		✓	50-year lease of operating rights
WHA Eastern Seaboard Industrial Estate 2					
Industrial Water Plant	✓		✓		50-year lease of operating rights
Wastewater Treatment Plant		✓		✓	50-year lease of operating rights
WHA Eastern Seaboard Industrial Estate 4					
Industrial Water Plant	✓		✓		50-year lease of operating rights
Wastewater Treatment Plant		✓	✓		50-year lease of operating rights
WHA Logistics Park 1					
Industrial Water Plant		✓		✓	Management agreement
Wastewater Treatment Equipment	✓ ^{7/}			✓	Management agreement
WHA Eastern Seaboard Industrial Estate 3					
Industrial Water Plant	✓	000	✓		50-year lease of operating rights
Wastewater Treatment Plant		✓		✓	50-year lease of operating rights
WHA Industrial Zone 1 Nghe An					
Industrial Water Plant	-	-	-	-	50-year lease of operating rights
Wastewater Treatment Plant		✓		✓	50-year lease of operating rights
Eastern Economic Corridor of Innovation (EECi)					
Industrial Water Plant	-	-	-	-	-
Wastewater Treatment Plant	✓		✓		50-year lease of operating rights
WHA Rayong 36 Industrial Estate					
Industrial Water Plant	✓		✓		50-year lease of operating rights
Wastewater Treatment Plant		✓		✓	50-year lease of operating rights
Asia Industrial Estate Map Ta Phut ^{8/}					
Industrial Water Plant		✓	✓		30-year of operating rights under throughput agreement

^{1/} In addition, the Company has leased the right to operate raw water supply and distribution business in the industrial estates of the WHAID Group for 50 years starting from 30 March 2016 (except Eastern Seaboard Industrial Estate (Rayong).

^{2/} WHA Water Company Limited ("WHAWT") has ownership in 2 Industrial Water Plants (water for chlorine-free production process) with total capacity of 86,400 cu. m./day.

^{3/} The Company has leased the right to utilize the water production plant for industrial purposes, which is located on the utility land. The plant has a capacity of 12,000 cu. m./day.

^{4/} The Company has leased the rights to produce and distribute industrial water, namely process water, and clarified water, from Eastern Seaboard Industrial Estate (Rayong) Company Limited.

^{5/} The Company has an Industrial Water Plant located on leased land with a capacity of 24,000 cu. m./day, as well as an Industrial Water Plant located on utility land with a capacity of 18,000 cu. m./day.

^{6/} The Company has leased the right to utilize the water production plant for industrial purposes, which is located on the utility land. The plant has a capacity of 12,000 cu. m./day.

^{7/} Wastewater treatment equipment for WHA Logistics Park 1 is located on each customer's leased land or sellable area.

^{8/} Operated under the JV company, WHAUP AIE Reclamation Water Company Limited.

Currently, WHA and its subsidiaries have 20 industrial water production plants and 13 wastewater treatment facilities located in 12 industrial estates and industrial lands operated by the WHAID Group including 12 industrial zones in Thailand and 1 industrial zone in Vietnam. The aggregate maximum industrial water production capacity is 383,576 cubic meters per day and the aggregate maximum wastewater treatment capacity is 135,456 cubic meters per day.

Industrial estates and industrial lands	Location	Industrial water production capacity ^{1/} (cubic meters/day)	Wastewater treatment capacity ^{1/} (cubic meters/day)
WHA Eastern Industrial Estate (Map Ta Phut) ("WHA EIE")	Map Ta Phut, Rayong	159,400 ^{2/}	60,000
Eastern Seaboard Industrial Estate (Rayong) ("ESIE")	Pluakdaeng, Rayong	53,200 ^{3/}	- ^{4/}
WHA Eastern Seaboard Industrial Estate 1 ("WHA ESIE 1")	Pluakdaeng, Rayong	57,800 ^{5/}	18,200
WHA Chonburi Industrial Estate 1 ("WHA CIE 1")	Sriracha, Chonburi	18,000	8,400
WHA Chonburi Industrial Estate 2 ("WHA CIE 2")	Sriracha, Chonburi	6,000	1,600
WHA Saraburi Industrial Land ("WHA SIL")	Nongkae, Saraburi	30,576	14,976
WHA Rayong Industrial Land ("WHA RIL")	Bankhai, Rayong	14,400	12,480
WHA Eastern Seaboard Industrial Estate 2 ("WHA ESIE 2")	Pluakdaeng, Rayong	12,000	10,000
WHA Eastern Seaboard Industrial Estate 3 ("WHA ESIE 3")	Banbung/ NongYai, Rayong	3,600	1,500
WHA Eastern Seaboard Industrial Estate 4 ("WHA ESIE 4")	Pluakdaeng, Rayong	11,600	1,500
WHA Industrial Zone 1 - Nghe An, Vietnam	Nghe An, Vietnam	12,000	3,200
Eastern Economic Corridor of Innovation ("EECI")	Wangchan, Rayong	-	600
WHA Rayong 36 Industrial Estate ("WHA Rayong 36")	Pananikom, Rayong	2,500	3,000
Asia Industrial Estate Map Ta Phut	Banchang, Rayong	2,500 ^{6/}	-
Total		383,576	135,456

Notes:

^{1/} Most of the industrial water production plants and wastewater treatment plants in the above table are owned by the WHAID Group. On 30 March 2016, the Company and the WHAID Group entered into the Right Lease Agreement, which allows the Company to use those facilities to conduct its business for 50 years from the signing date.

^{2/} Two Demineralized Water production plants and Wastewater Reclamation plant with total capacity of 12,000 and 25,000 cubic meters per day.

^{3/} On 1 July 2008, the Company and Eastern Seaboard Industrial Estate (Rayong) Company Limited entered into the Right Lease Agreement for the operation and distribution of industrial water in ESIE, which has a term of 25 years ending on 30 June 2033.

^{4/} The Company has not leased the right to conduct wastewater treatment in ESIE. However, the Company provides wastewater management services in ESIE having wastewater treatment capacity of 32,000 cubic meters per day.

^{5/} One Premium Clarified Water production plant with total capacity of 3,800 cubic meters per day.

^{6/} One Demineralized Water production plants with total capacity of 2,500 cubic meters per day. Which is a Wastewater Reclamation produce to Demineralized Water.

POWER BUSINESS



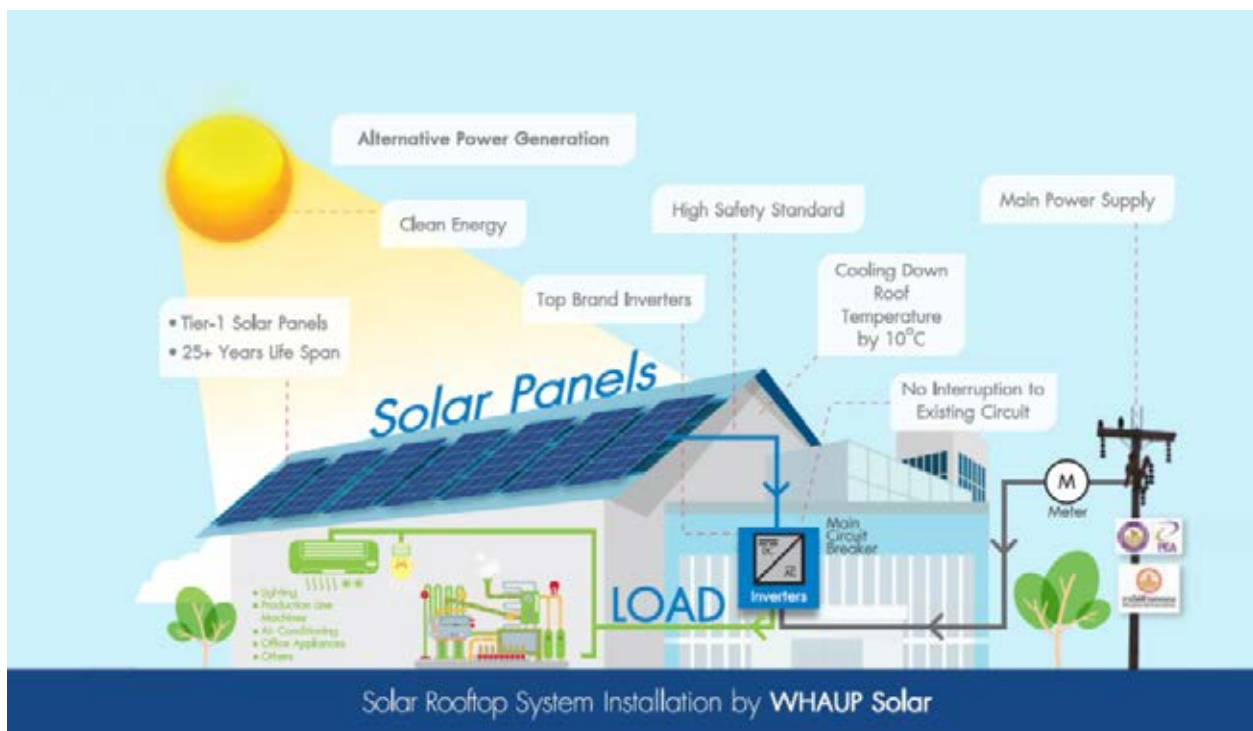
CONVENTIONAL FUEL

WHAUP collaborates with major independent power producer (IPP), small power producer (SPP), and very small power producer (VSPP) through investments in various companies. Commercially operational power plants, with a combined capacity of approximately 528 megawatts, are currently in operation according to the proportional shareholding. Additional details of these commercially operational power plants invested by WHAUP are provided in Form 56-1 One Report 2023.



SOLAR ENERGY

WHAUP is an experienced service provider in the installation of solar energy systems, offering installation of solar panels on warehouses of WHA Group and other companies. Besides its extensive experience as a service provider, WHAUP conducts its business in an environmentally friendly manner. WHAUP implemented a new technology e.g., Energy Storage by initiating the 820 kW solar rooftop with 550 kW Battery Energy Storage System (BESS) to distribute power to the utility system within Eastern Seaboard Industrial Estate (Rayong). The commercial operation date is November 2021. The said structure can reduce the energy cost by approximately Baht 4 million per year and reduce CO₂ offset emission by 10,500 tons.



WASTE TO ENERGY

WHAUP has partnered with Global Power Synergy Public Company Limited and Veolia Environmental Services (Thailand) Company Limited (formerly known as Suez Services (Thailand) Company Limited) in the Chonburi Clean Energy (CCE). CCE is located within WHA Chonburi Industrial Estate 1 (WHA CIE 1). It has the capacity to generate electricity by converting non-hazardous waste to energy at 400 tons per day, or approximately 100,000 tons per year, enabling a maximum output of 8.63 MW of electricity energy per year. From 2020 to 2023, a total of 2,041 tons of waste were diverted from landfilling or incineration to be converted into electricity, generating a total of 1,768 MWh. Specifically, in 2023, 316.39 tons of waste were utilized to produce 274 MWh of electricity.



NATURAL GAS DISTRIBUTION PROJECTS

Natural gas is a clean and cost-effective energy source, making it the primary fuel for industries in the present and the future. It serves as a substitute for fuel oil or diesel. Additionally, distributing natural gas through pipeline systems can help reduce transportation risks, decrease traffic congestion in the area, and provide a higher level of safety. Moreover, WHAUP's gas pipeline system is connected to PTT's natural gas pipeline system, enhancing the reliability and security of fuel supply for customers.

The natural gas distribution project of WHAUP is a collaboration between leading energy companies, including WHAUP, Gulf Energy Development Public Company Limited, and MITG (Thailand) Company Limited under the joint venture company name "GULF WHA MT NATURAL GAS DISTRIBUTION COMPANY LIMITED". Details of the natural gas power plant project in which WHAUP has invested are provided in Form 56-1 One Report 2023.

For the natural gas distribution and retail business, WHAUP has invested and commenced commercial electricity production in two projects: WHANGD2 and WHANGD4 projects are pipeline distribution and retail gas supply projects for industrial customers in WHA Eastern Seaboard Industrial Estate 2 (WHA ESIE 2) and WHA Eastern Seaboard Industrial Estate 4 (WHA ESIE 4). These estates are located in the Eastern Economic Corridor (EEC) region. Both projects have the capacity to distribute approximately 3,000,000 billion BTUs of natural gas per year, or estimated according to WHAUP's shareholding proportion at 1,050,000 billion BTUs per year.



LOCATION AND NATURE OF POWER BUSINESS

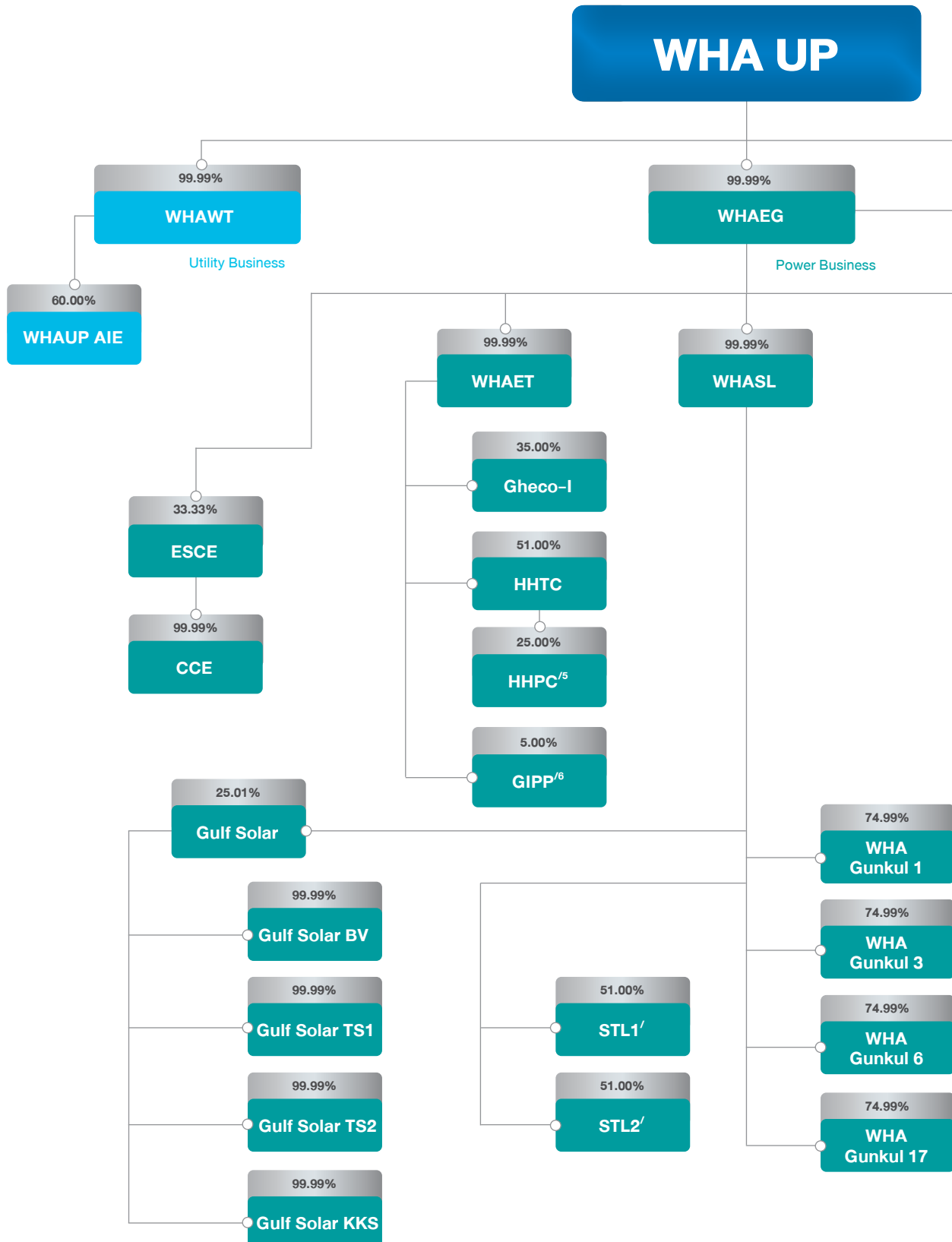
WHAUP conducts power business itself or by holding equity in other power generating and distribution companies, both domestically and abroad, and also runs its own solar power generation business. Additionally, WHAUP invests in the natural gas distribution and retail business. The details of the locations of power plant projects and natural gas distribution pipeline system projects are as follows:

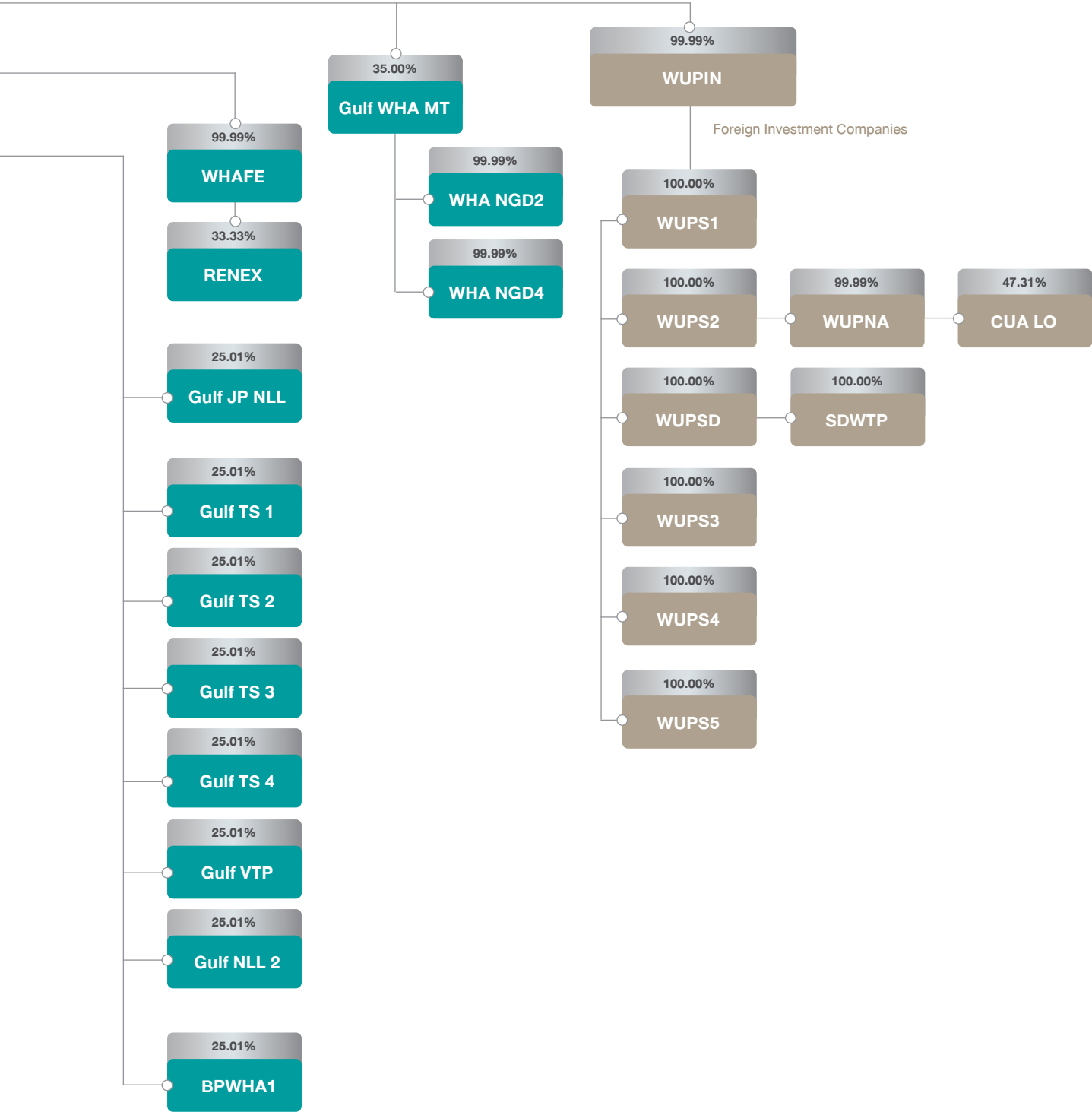
Power plant	Location	Type of power	Cate- gory of Plant	Equity holding (percent.)	Installed power generating capacity			Capacity in proportion to equity		COD
1) Information about the commercially operating power plants in which the WHAUP Group has investment										
Joint venture with the GPSC Group										
Gheco-I	Map Ta Phut Industrial Estate	Coal	IPP	35.00%	Power	660	MW	231	MW	August 2012
Glow IPP	WHA CIE 1	Gas-fired cogeneration	IPP	5.00%	Power	713	MW	36	MW	January 2003
Houay Ho Power	Lao People's Democratic Republic	Hydro power	IPP	12.75%	Power	152	MW	19	MW	September 1999
Joint venture with the Gulf Group										
Gulf JP NLL	WHA RIL	Gas-fired cogeneration	SPP	25.01%	Power	123	MW	31	MW	May 2013
					Steam	8	TPH	2	TPH	
					Chilled water	4,600	RT	1,150	RT	
Gulf Solar KKS	WHA LP 1	Solar power	VSPP	25.01%	Power	0.25	MW	0.06	MW	December 2014
Gulf Solar BV	WHA CIE 1	Solar power	VSPP	25.01%	Power	0.13	MW	0.03	MW	June 2014
Gulf Solar TS1	WHA ESIE 1	Solar power	VSPP	25.01%	Power	0.13	MW	0.03	MW	August 2014
Gulf Solar TS2	ESIE	Solar power	VSPP	25.01%	Power	0.09	MW	0.02	MW	January 2015
Joint venture with the Gunkul Group										
WHA Gunkul Green Solar Roof 1	WHA Mega Logistics Centre, Bangna-Trad KM.18	Solar power	VSPP	74.99%	Power	0.64	MW	0.48	MW	April 2014
WHA Gunkul Green Solar Roof 3	WHA Mega Logistics Centre, Bangna-Trad KM.18	Solar power	VSPP	74.99%	Power	0.83	MW	0.62	MW	April 2014
WHA Gunkul Green Solar Roof 6	WHA Mega Logistics Centre, Bangna-Trad KM.18	Solar power	VSPP	74.99%	Power	0.83	MW	0.62	MW	July 2014
WHA Gunkul Green Solar Roof 17	WHA Mega Logistics Centre, Wangnoi 61, Ayutthaya	Solar power	VSPP	74.99%	Power	1.00	MW	0.73	MW	July 2014

Power plant	Location	Type of power	Cate- gory of Plant	Equity holding (percent.)	Installed power generating capacity			Capacity in proportion to equity		COD
Joint venture in power plant projects with B.Grimm Power Group										
BPWHA-1	WHA CIE 1	Gas-fired cogeneration	SPP	25.01%	Power	130	MW	33	MW	November 2016
					Steam	30	TPH	8	TPH	
Joint venture with Gulf MP Company Limited										
Gulf VTP	ESIE	Gas-fired cogeneration	SPP	25.01%	Power	137	MW	34	MW	May 2017
					Steam	20	TPH	5	TPH	
Gulf TS1	ESIE	Gas-fired cogeneration	SPP	25.01%	Power	134	MW	34	MW	June 2017
					Steam	30	TPH	8	TPH	
Gulf TS2	ESIE	Gas-fired cogeneration	SPP	25.01%	Power	134	MW	34	MW	September 2017
					Steam	30	TPH	8	TPH	
Gulf TS3	WHA ESIE 1	Gas-fired cogeneration	SPP	25.01%	Power	130	MW	32	MW	w.ŷ. 2560
					Steam	25	TPH	6	TPH	
Gulf TS4	WHA ESIE 1	Gas-fired cogeneration	SPP	25.01%	Power	130	MW	32	MW	January 2018
					Steam	25	TPH	6	TPH	
Gulf NLL 2	WHA RIL	Gas-fired cogeneration	SPP	25.01%	Power	127	MW	32	MW	January 2019
					Steam	10	TPH	3	TPH	
Joint venture with GPSC Group and SUEZ										
CCE	WHA CIE 1	Waste-to-Energy	VSPP	33.33%	Power	8.6	MW	2.9	MW	November 2019
2) Information about the commercially operating power plants by WHAUP Group (Sole Proprietorship)										
Solar power plants	-	Solar Power	Private PPA	100%	Power	105	MW	105	MW	May 2018 - December 2022
Total Combined 1) and 2) Consisted of: Commercially operating power plants in terms of JV and WHAUP sole proprietorship					Power	2,687	MW	733	MW	
					Steam	148	TPH	38	TPH	
					Chilled water	4,600	RT	1,150	RT	

Business Structure of WHAUP Group

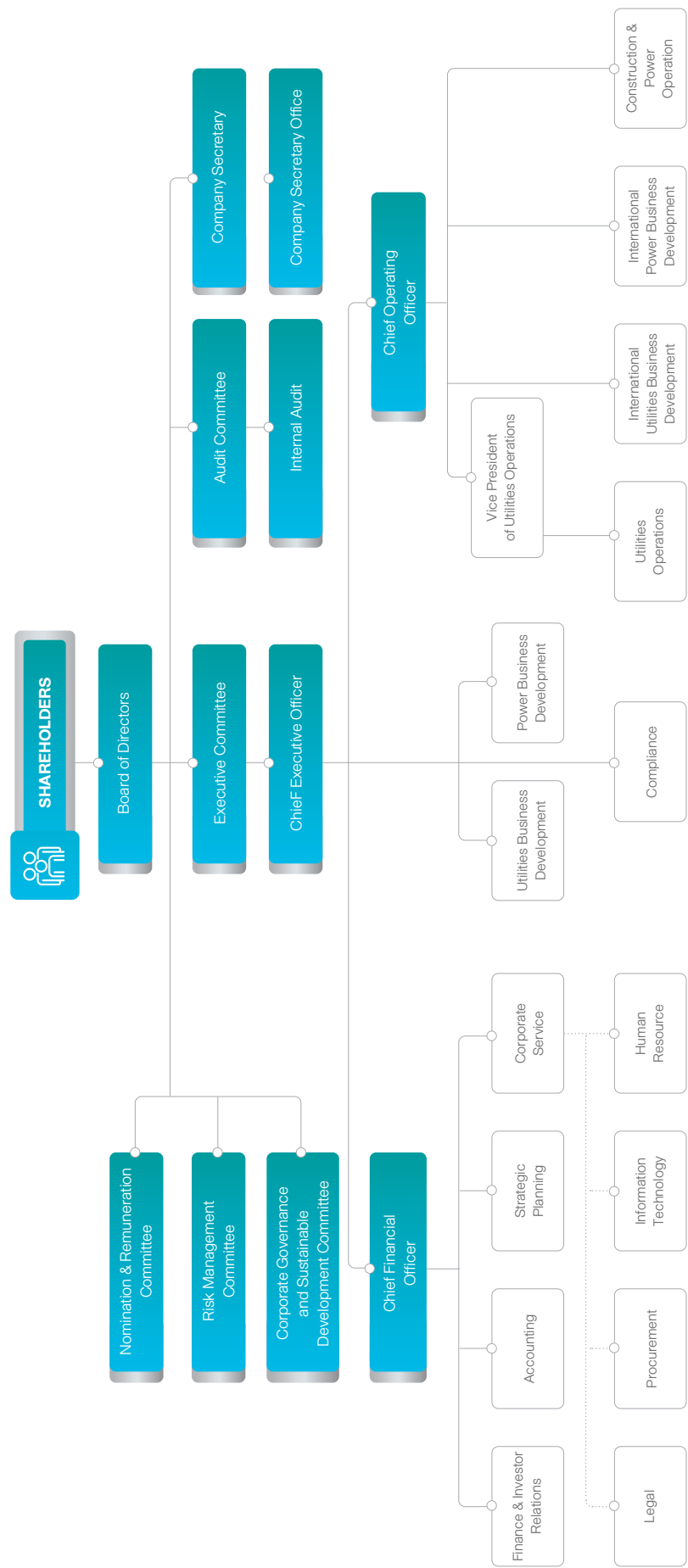
The Company's investment structure as of 31 December 2023 is set out in the following diagram





Structure of Corporate Governance

As of 31 December 2023, the Corporate Governance Structure of the Company consists of the Board of Directors and five sub-committees, i.e. the Audit Committee, Executive Committee, Risk Management Committee, Corporate Governance and Sustainable Development Committee, and Nomination and Remuneration Committee. The Executives Structure of the Company is as follow:

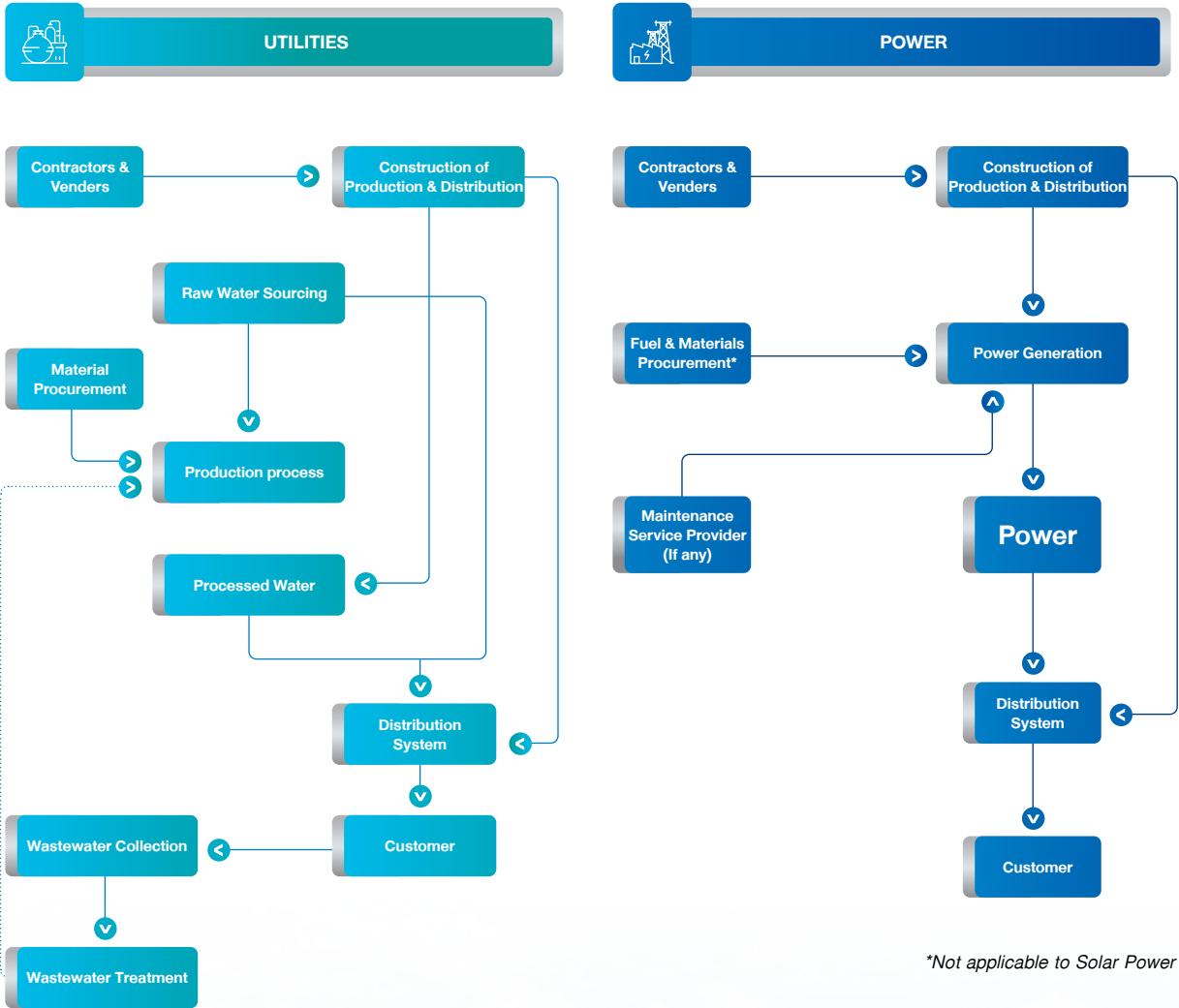


Note: For the functions under the corporation service e.g., Legal, Procurement, IT and HR the Company uses outsource service

WHAUP VALUE CHAIN

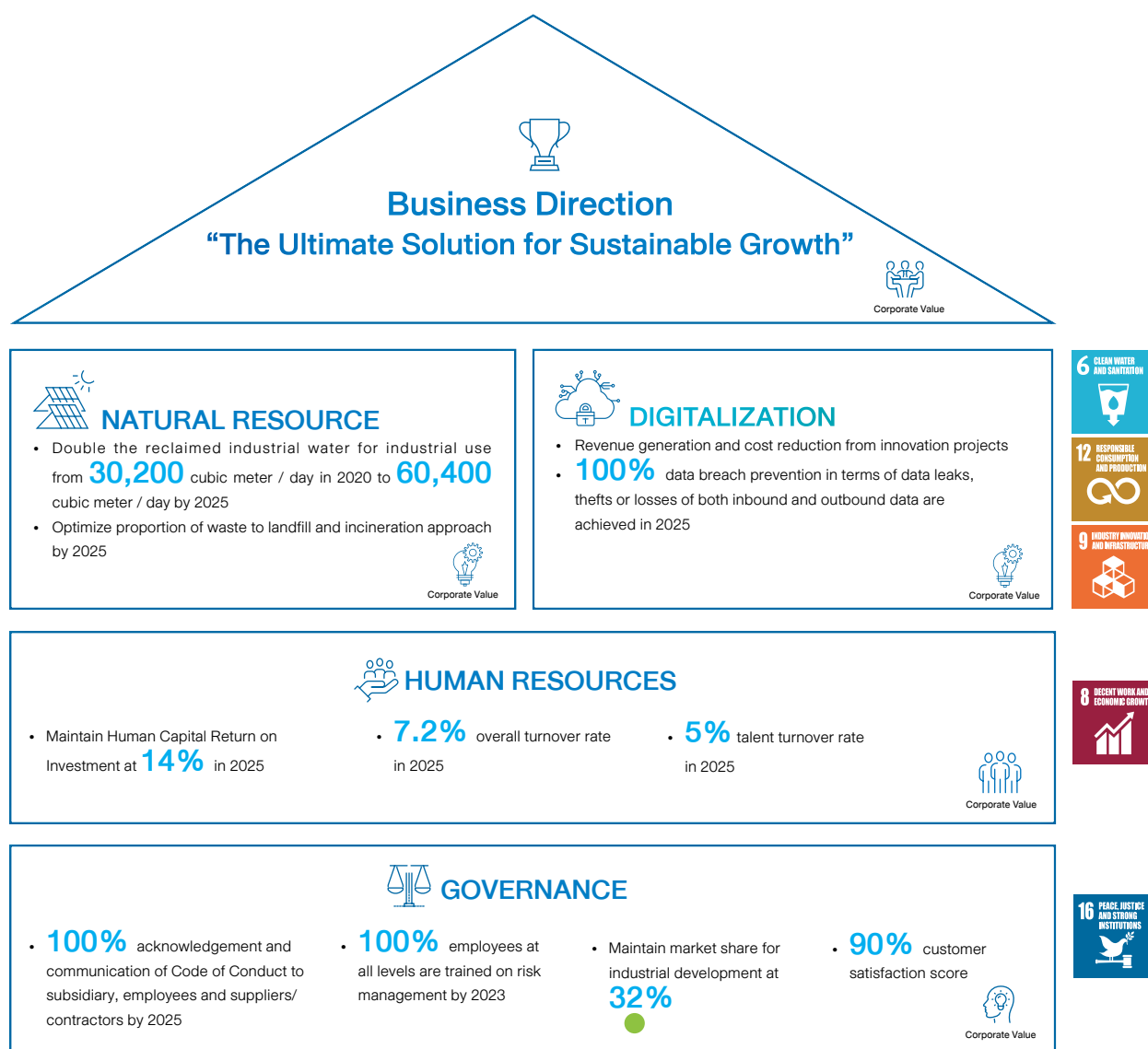
Business Group	Upstream	Operations	Downstream
Utilities Business	<ul style="list-style-type: none">Raw water procurement	<ul style="list-style-type: none">Water productionWastewater management	<ul style="list-style-type: none">Project maintenanceAfter-sales customer service.
Power Business	<ul style="list-style-type: none">Purchasing fuel and solar panels.	<ul style="list-style-type: none">Power generationSolar rooftop installation	

WHAUP VALUE CHAIN



SUSTIANABILITY AT WHAUP

In 2023, WHA Utilities and Power Public Company Limited (WHAUP) remained committed to operating under WHA Group's 5-Year Sustainability Framework, approved by the Executive Committee. The objective is to promote the establishment of practices that develop the organization towards sustainability. This is aligned with the commitment to being "The Ultimate Solution for Sustainable Growth in Utilities & Power with Environmental Care" and supports WHA Group's mission: WHA : WE SHAPE THE FUTURE, with comprehensive utilities and power services capabilities. To accomplish such a purpose, WHAUP has set a development framework based on good corporate governance principles, human resources development, digital transformation, and natural resource conservation. The long-term corporate sustainability management objectives are linked to key sustainability challenges for the business and its stakeholders. Additionally, WHAUP considers the outcomes of risk and opportunity analysis for various global situations and concerns that may happen in the future to guarantee that such development frameworks are effective and appropriate for the situations.





Given that investing in various projects may involve risks that could adversely affect our business operations, and given that sustainable development in the environment, society, and corporate governance is a key issue that has gained increased attention in recent years, WHAUP requires that sustainability issues be considered during the initial stages of the investment planning process. WHAUP will prioritize these issues when determining the direction of its operations and will use them as a basis for investment decision-making in various long-term value-creating projects. Additionally, they help build trust and confidence among stakeholders by bringing environmental, social, and good corporate governance issues to light at each level of the project development process, as well as at each stage of the business operation.



SUSTAINABILITY MATERIALITY ISSUES

WHAUP establishes an annual assessment to identify and address key sustainability materiality issues. This ensures that the reported key issues are aligned with the utilities and power operations of WHAUP and the expectations of stakeholders, as well as with the current economic, social, and environmental context. The assessment of key sustainability materiality issues follows the Double Materiality Principle, which evaluates the impact of WHAUP's operations on society or the environment, and the impacts of sustainability issues on the organization's value. This approach is in line with the Global Reporting Initiatives (GRI) standards.

In this regard, the assessment and identification process of key sustainability materiality issues cover factors in three dimensions: governance/economic, social, and environmental (ESG). These will be measured based on the impact or influence of each key issue on stakeholders and the Group's business operations. This assessment and identification process of key sustainability materiality issues will help the Group plan its operations and manage organizational risks in line with global changes. It will also enable the Group to respond to the expectations of all stakeholders in a balanced manner. Accordingly, the Board of Directors has considered and approved the key sustainability materiality issues, along with the key insights in this report.

MATERIALITY ASSESSMENT PROCESS

1. UNDERSTAND THE ORGANIZATION'S CONTEXT

WHAUP studies data related to the utilities and power operational context of WHAUP, considering internal factors such as operational patterns, value chain concerns, stakeholder groups, risk assessment results, business strategy patterns, and sustainability strategies of WHAUP. The study also considers external factors, such as global trends, organizational risk factors, relevant standards, and requirements, such as the United Nations Sustainable Development Goals (UN SDGs), and global trends related to utilities and power business.

2. IDENTIFY ACTUAL AND POTENTIAL IMPACTS

WHAUP studies and identifies key stakeholders who are important to the business operations of WHAUP throughout the supply chain. These stakeholders can be divided into groups that are important both internally and externally, including employees, shareholders/investors, customers, supplier/creditor, government/regulator, community, financial institution, and media. Subsequently, WHAUP conducts engagement activities with key stakeholders through in-depth interviews to gather feedback, expectations, and concerns regarding the operations of WHAUP, which may have positive or negative impacts on each stakeholder group.

Based on the study in the two previous steps, WHAUP can analyse and compile issues that are expected to be important and have an impact or are expected to impact stakeholders and the sustainability of the Group. This information is used to assess the impacts that have occurred and are likely to occur, and to prioritize them in the next steps.

3. ASSESS THE SIGNIFICANCE OF THE IMPACTS

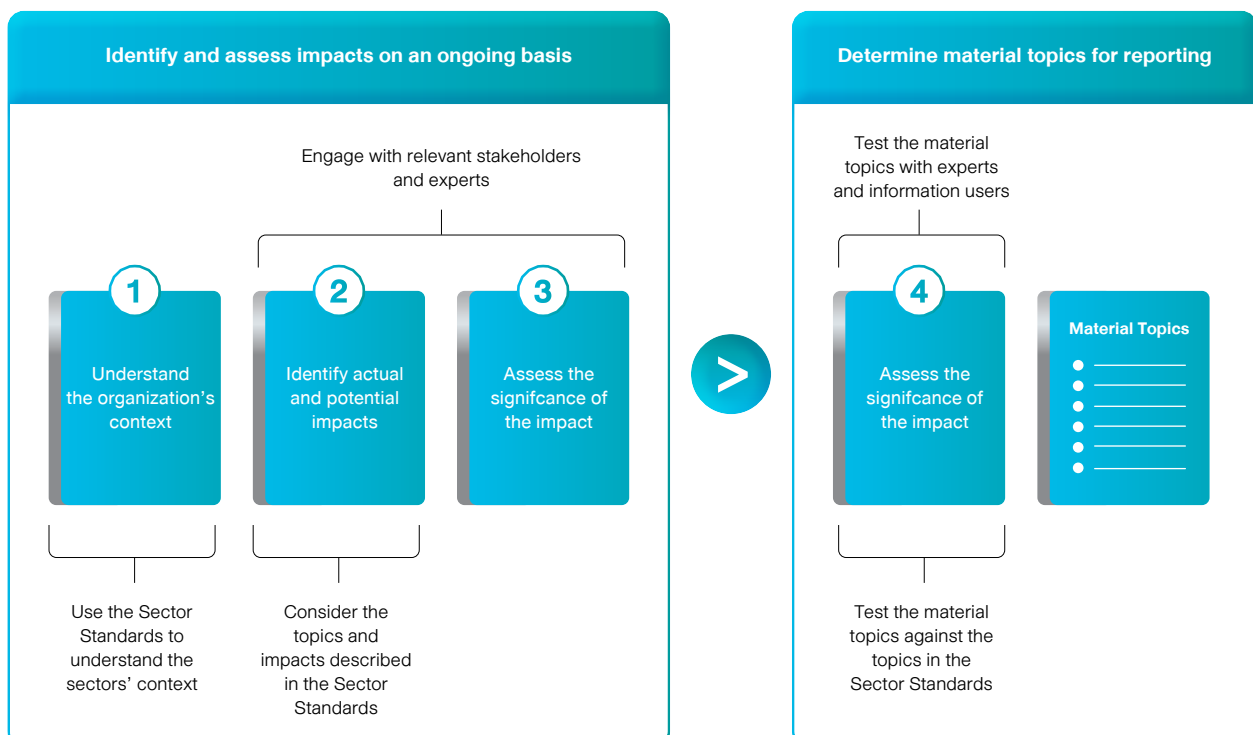
WHAUP adheres to the Double Materiality Principle to assess and prioritize the importance of the compiled issues, as follows:

- 3.1 Representatives of stakeholders assess the impact level of key sustainability issues on each stakeholder group, both positively and negatively, based on the severity and likelihood of impact. The severity level is determined by the impact level, the size of the impact, and the ability to remedy the impact when it occurs.
- 3.2 Representatives of WHAUP executive assess the impact level of these issues on enterprise value, following the organization's Enterprise Risk Management guidelines, to evaluate severity and likelihood, and prioritize key sustainability materiality issues.

The results gathered from the representatives of stakeholders and representatives of executives will be analyzed together to prioritize key sustainability materiality issues based on the Double Materiality Principle. Subsequently, the Group will review the prioritization with independent experts to ensure completeness, transparency of the identification and assessment process, and the prioritization of key sustainability materiality issues. They will also provide feedback on the list of key sustainability materiality issues analyzed.

4. SUSTAINABILITY MATERIALITY ISSUES ENDORSEMENT

The assessment results of the impact of sustainability materiality issues on the economic, environmental, and social aspects, including human rights, from the business operations of WHAUP (ESG Impact), the results of the impact of sustainability materiality issues on the business operations of WHAUP (Impact to Business), as well as the views of experts, were presented to the Group's committee. The committee reviewed, approved, and prioritized the most significant sustainability material issues, according to the Double Materiality Principle, for disclosure in the 2023 sustainability report.



2023 SUSTAINABILITY MATERIAL ISSUES

Approved by Corporate Governance and Sustainable Development Committee

Report Dimension	Sustainability Material Issues	Key Stakeholders and Impact Boundary		SDGs	Page
		Internal	External		
 Governance/ Economic	Corporate Governance and Ethics	Employee	<ul style="list-style-type: none"> • Supplier/Creditor • Government/Regulator • Financial Institution • Customer • Media 		39-49
	Technology and Innovation	Employee	<ul style="list-style-type: none"> • Financial Institution • Shareholder/Investor • Media 	 	89-101
	Risk Management & Compliance	Employee	<ul style="list-style-type: none"> • Customer • Supplier/Creditor • Financial Institution 	 	50-66
	Data & Cyber Security, Privacy Protection	Employee	<ul style="list-style-type: none"> • Customer 	 	102-107
 Social	Occupational Health and Safety	Employee	<ul style="list-style-type: none"> • Customer • Community • Supplier/Creditor 	  	148-164
 Environment	Water Management	Employee	<ul style="list-style-type: none"> • Customer • Supplier/Creditor • Government/Regulator • Community 	  	253-261
	Energy Management	Employee	<ul style="list-style-type: none"> • Customer • Supplier/Creditor • Government/Regulator • Community • Financial Institution • Shareholder/Investor 	   	240-247
	Climate Strategy	Employee	<ul style="list-style-type: none"> • Customer • Supplier/Creditor • Government/Regulator • Community • Financial Institution • Shareholder/Investor 	   	224-239, 246-247

STAKEHOLDER ENGAGEMENT

With the commitment of WHAUP in operating utility and energy businesses with the concept “WHA: WE SHAPE THE FUTURE” of WHA Group that will be the creator of value and sustainable growth for the organization, people, and society, as well as being “The Ultimate Solution for Sustainable Growth” for all stakeholders. WHAUP honors all stakeholders’ views in order to build good relationships with transparency, leading to a strong foundation for sustainable business growth. Stakeholder engagement is a critical activity that enables WHAUP to be kept informed of the stakeholders’ expectations and concerns. WHAUP strategically operated to play our role in offering comprehensive utility and energy products and services to WHAUP’s customers, driven by commitment.

Therefore, WHAUP, in collaboration with WHA Group, has developed an annual plan or framework for stakeholder engagement that encompasses the operations of WHA Group as a whole. The objective is to manage the expectations of stakeholders and analyze and prioritize stakeholder groups to determine how each group’s interests impact WHAUP’s projects or operations. Additionally, the stakeholder engagement process also helps WHAUP of companies to mitigate negative impacts that occur in a precise and effective manner, such as impacts on the environment or livelihoods, as well as the health and safety of stakeholders. And it leverages positive issues to maximize benefits. In addition, this process also helps build confidence among all stakeholder groups in the value chain.



MANAGEMENT APPROACH

1. Managing stakeholder groups is crucial in reducing negative impacts and generating positive outcomes for the benefit of society and the business operations of WHAUP. Therefore, WHAUP has adhered to Stakeholder Engagement Policy of WHA Group. The objective is to effectively manage the expectations of each stakeholder group. The framework includes establishing appropriate relationships with each stakeholder group and ensuring that operational activities rotate within each business comprehensively.
2. WHAUP analyzes and prioritizes stakeholder groups to identify the aspects in which each group has an impact on WHAUP's projects or operations. The framework for managing stakeholder engagement includes the following:
 - Gathering both direct and indirect stakeholder groups to classify and prioritize the key stakeholders is important. WHAUP has established guidelines for stakeholder prioritization, considering two primary factors, impact and dependence. These factors are used to determine the importance and ranking of stakeholders who have significant relevance to WHAUP.
 - Plan and define strategies for engaging with stakeholders that are suitable for the identity of each group. This can involve activities such as meetings, survey design, communication through letters, conducting interviews during visits, and more. After that, assign responsible individuals and determine appropriate timeframes. Additionally, provide guidance on managing other risks that may occur during stakeholder engagement activities, such as addressing protests or unfavorable environmental conditions like rain or flooding, to keep WHAUP informed of stakeholder expectations and concerns regarding business management.
 - **Analyze:** Assess and analyze the issues, concerns, risks, and opportunities that stakeholders are interested in. This should be done based on risk management principles, evaluating the impacts and opportunities. This will help identify the necessity and prepare appropriate response processes.
 - **Manage:** Monitor and implement actions according to the stakeholder engagement processes. This involves maintaining communication with all stakeholder groups, as well as responding to issues and addressing various problems following the complaint handling procedures.
 - **Review and Improve:** Reviewing the effectiveness and effectiveness of stakeholder engagement activities by presenting them to the management board for review at least quarterly. This includes communicating and publicizing operational results through the annual sustainability report so that WHAUP's stakeholders are informed and have confidence in the continuous development of the stakeholder engagement process by WHAUP.



In addition to that, WHAUP also convenes monthly meetings with the Corporate Social Responsibility (CSR) Committee, comprising high-level executives of the organization and relevant stakeholders. These meetings take place once a month and aim to present suggestions, complaints, and various issues related to the community. The purpose is to collectively find solutions and prevent recurring incidents, ensuring the organization's sustainable coexistence with the community.

WHAUP has established a process for receiving complaints from all stakeholder groups to identify issues and implement effective measures to accommodate and resolve stakeholder problems or concerns. Employees and external stakeholders can report issues, suggestions, as well as grievances through various channels. These grievances will go through an inspection and resolution process by the internal audit department, which will report to the audit committee. The audit committee will compile the grievance issues and report them to the Board of Directors every quarter to acknowledge the issues and conduct assessments, corrections, remedies, as well as formulate strategies to appropriately and effectively respond to stakeholder expectations and grievances. Additionally, the operational results will also be reported to relevant government agencies, such as the environmental monitoring committee of the industrial estate.

WHISTLEBLOWING CHANNEL

Channels for Employees

Website: www.wha-up.com

Email:

- Chief Executive Officer: ceo_office@wha-up.com
- The Audit Committee: auditcommittee@wha-up.com

Suggestion Box: Send to the Human Resources Department

Channels for External Stakeholders

Website: www.wha-up.com

Email:

- Chief Executive Officer: ceo_office@wha-up.com
- The Audit Committee: auditcommittee@wha-up.com

Suggestion Box: Send to the Human Resources Department


In 2023, WHAUP determine and prioritized 8 key stakeholders that are equally important including, employee, shareholder/investor, customer, supplier/c creditor, government/regulator, community, financial institution, and media.

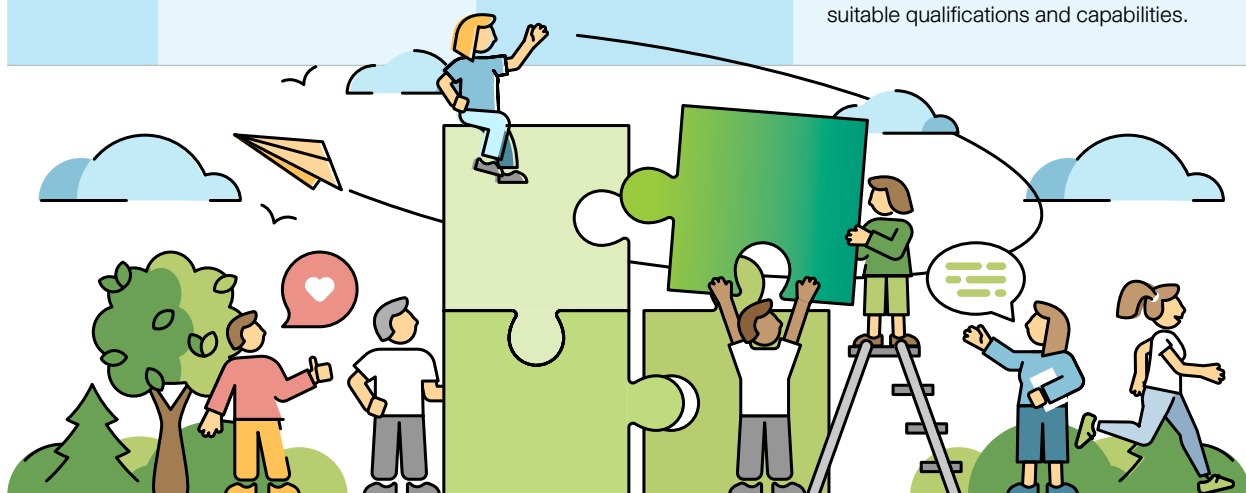




THE STAKEHOLDER ENGAGEMENT REVIEW PROCESS

- Obtaining opinions, expectations, and concerns of stakeholders through various engagement methods and channels provided by WHAUP.
- Reporting concerns received from stakeholder engagement channels to the heads of relevant departments within WHAUP and the sustainable development committee, which consists of managers and personnel responsible from the relevant departments, to acknowledge, assess, and develop effective and appropriate response strategies to ensure that stakeholder expectations are met.
- Reporting the results of stakeholder engagement processes to management as important information for decision-making in business expansion and developing future stakeholder engagement strategies.

Results from Stakeholder Engagement




Stakeholder	Engagement Approach	Stakeholders' Expectation	2023 Performance Summary
Employee 	<ul style="list-style-type: none"> • Various all-time communication channels (email, supervisor, intranet etc.) • Communication channels through WHA Connect journal • Annual CEO Town Hall • Quarterly Executive Sharing • Annual employee satisfaction and engagement survey • Suggestion box • Whistle blowing channels • Monthly management meeting • Organizing a practical seminar to gather opinions on sustainability issues from all stakeholder groups 	<ul style="list-style-type: none"> • WHAUP outlook • Business trends and updates • Update on news and knowledge sharing • Training and career development program • Work environment • Compensation, welfare, and benefits • Management of occupational health and safety • Business continuity plan • Progress in career path • Receiving equal treatment without discrimination • Flexible working 	<ul style="list-style-type: none"> • Update the performance and business outlook • Share business trends and updates via WHA's communication channels • Communicate and share updated situations and Executive knowledge • Developing and implementing employee capability training programs, covering both general skills and specialized skills, for both new employees and current employees • Communicate on corporate values and strategy to employee regularly • Regularly review and improve employees' compensation and benefits • Promote good occupational health and safety culture • Update and communicate business continuity plan via various communication channels in a timely manner • Conduct business continuity plan rehearsals to ensure practices and requirements are strictly and effectively followed • Establishing a Nomination Remuneration and Compensation Committee (NRC) to oversee the appointment of executive-level employees based on qualifications, skills, and abilities, without any restrictions or discrimination based on gender, age, skin color, race, nationality, or cultural background. • Assigning tasks to individuals who possess suitable qualifications and capabilities.



Stakeholder	Engagement Approach	Stakeholders' Expectation	2023 Performance Summary
Shareholder/ Investor 	<ul style="list-style-type: none"> • Annual general meeting • Annual Report and Sustainability Report • Roadshow • Analyst meeting • Outlook meeting • Investor site visit • Opportunity Day • Various all time communication channels (e.g. telephone, email, website etc.) • Whistleblowing Channel 	<ul style="list-style-type: none"> • Business performance, such as returns, benefits and profits • Business transparency • Changes in business management and business risks • Sustainability performance • Sustainable growth and expansion of the business with safe working systems and standards in place, ensuring continuous management to operate the business without interruptions. • Effective risk management in response to rapid changes in global climate conditions. • Equal treatment and practices among shareholders 	<ul style="list-style-type: none"> • Improve business competitiveness and business directions to be up-to-date • Ensure good corporate governance • Establishing processes for identifying, assessing, and controlling operational risks, capital risks, and profit risks of the company, both existing and emerging risks. And developing emergency response plans and procedures to ensure business continuity in the event of unforeseen circumstances. • Take part in Thai Private Sector Collective Action Against Corruption (CAC) • Conduct enterprise risk management and establish short and long-term plan • Provide information on flooding risk prevention • Manage sustainability material topics • Ensure environment and social compliance • Promote innovation and sustainability initiatives • Manage and meet the needs of stakeholders equally, without any discrimination
Customer 	<ul style="list-style-type: none"> • Roadshow/ marketing events/ webinar • Quarterly business meeting/ video conference • Annual customer satisfaction survey • Quarterly customer clubs • Various all time communication channels (i.e. telephone, email, key contact personnel, social media etc.) • Whistleblowing channels 	<ul style="list-style-type: none"> • Product and service inquiry • Quality of after sale services • Environment management, compliance and standards • Risk and crisis management • Efficient energy management (cost reduction) • Effective waste management practices • Presenting innovative and environmentally responsive products that address environmental challenges • Avoiding environmental issues with neighboring communities • Ensuring good corporate governance and business ethics to promote a positive image for customers. 	<ul style="list-style-type: none"> • Provide product and service information on website and other media • Provide prompt response to customers' inquiry • Establish effective customer relationship management • Continuously improve customer relationship management from customer's comments / suggestions • Strictly comply with related laws and regulations and apply international environmental management standards where possible • Conduct risk and crisis assessment and implement appropriate mitigation actions • Inform customers of relevant risks and crisis management plans and measures • Utilizing new technologies and innovations for environmental management • Planning energy usage and implementing energy storage for future use • Reducing the quantity of materials used and waste generated in production processes • Having environmental management standards (ISO 14001) that do not impact the environment and communities. • Developing technologies to facilitate convenience for customers.

Stakeholder	Engagement Approach	Stakeholders' Expectation	2023 Performance Summary
Supplier/ Creditor 	<ul style="list-style-type: none"> • Supplier event • Supplier site visit • Telephone • Email • Self-evaluation and onsite visits • Whistleblowing channels 	<ul style="list-style-type: none"> • Transparency in procurement process • Business opportunities and collaboration • Compliance with WHAUP Group's standard • On-time payment and following the contract agreement • Environment, social and governance management • Material quality and its environmental impacts • Labor conditions (i.e., human rights). • Occupational Health and Safety in workplace 	<ul style="list-style-type: none"> • Developed procurement policy and procedure • Conduct Suppliers-meet- Customers day • Communicate on WHAUP procurement policy • Conduct supplier assessment and provide feedback/ corrective action plans to guide suppliers for improvement • Follow the contract agreement • Disclose information according to the agreed condition • Communicate concerns related to environment, social and governance criteria • Reduce face-to-face meetings to reduce COVID-19 risks • Evaluate supplier criteria to ensure that environmental, social and governance concerns are limited • Ensure environmental management compliance are strictly followed • Develop screening process to ensure that it complies with the Supplier Code of Conduct • Human rights risk assessment to ensure there is no violations of labor conditions or human rights issues. • Supporting the Building Social Impact Initiatives (BSI) team to create a safe environment, access to health welfare, education, and protection for children and families residing in construction worker camps
Government/ Regulator 	<ul style="list-style-type: none"> • Meeting on occasion • Various all time communication channels (i.e. telephone, email and Line application) 	<ul style="list-style-type: none"> • Conducting business in compliance with laws and regulations • Stakeholder impact management • Corporate governance and transparency • Conducting business with integrity, awareness, and implementation by all employees at all levels of the organization • Serving as a role model organization for other organizations • Conducting business without creating negative environmental impacts 	<ul style="list-style-type: none"> • Strictly comply with relevant laws and regulations • Managing the needs of stakeholders, including ensuring ethical business practices, in order to instill confidence in stakeholders. • Corporate governance and transparency Ensure good corporate governance and implementation of business code of conduct • Environmental, Social, and Governance (ESG) risk management. • Emphasizing long-term financial planning and organizational flexibility.



Stakeholder	Engagement Approach	Stakeholders' Expectation	2023 Performance Summary
Community 	<ul style="list-style-type: none"> Public hearing and meeting Community activities Community engagement survey Local community representatives Company site visits by community Whistleblowing channels 	<ul style="list-style-type: none"> Business operations' impacts on communities' well-being (i.e., Air, wastewater, waste, etc.) Environmental management performance Developing communities and promoting community activities (such as education promotion, health promotion, and community enterprise promotion) Community engagement Ensuring that business operations do not impact the geographical conditions of communities and their way of life. 	<ul style="list-style-type: none"> Conduct regular community feedback survey to ensure there is no impact on local community Implement mitigating actions where business operation activities affect community's well-being (i.e., use of smart traffic management to improve traffic problem) Involve surrounding communities in crisis management and emergency drill Ensure compliance with environmental related laws and standards Regularly implement community development project (e.g., as collaborating with educational institutions to develop youth skills aligned with labor market demands and promoting health and medical equipment support to local hospitals and healthcare facilities) Share WHAUP's expertise with local communities. For example, WHA Clean Water for Planet Provide effective and prompt response to community complaints Conduct community meeting to understand communities' needs and suggestions Conduct public consultations and report on the results of Environmental Impact Assessments (EIA) to gather feedback and develop preventive and control measures. Support the local economy by fostering community engagement and preserving cultural traditions and customs (e.g., promoting community products through the WHA Pan Kan project).
Financial Institution 	<ul style="list-style-type: none"> Various all-time communication channels (i.e. email, phone, line application, conference, etc.) Annual greetings Quarterly analyst meetings 	<ul style="list-style-type: none"> Business performance and outlook Compliance with the law Business transparency Changes in business management and business risks Sustainability performance Green initiative Continuous business operations 	<ul style="list-style-type: none"> Improve and keep business competitiveness and business directions up-to-date Ensure good corporate governance Strictly comply with Disclosure Policy Notify significant updates or changes in a timely manner Manage sustainability material topics Promote innovation and sustainability initiatives Assess sustainability issues along with investment decision process Investing in environmentally friendly projects. Seeking funding opportunities that prioritize green issues and related aspects. Implementing Business Continuity Planning (BCP) to ensure preparedness for crises
Media 	<ul style="list-style-type: none"> Various weekly or bi-weekly communication channels (i.e., press release, photo captions, executive interview, and news article) Annual press conference, press tour/visits and annual greetings Quarterly Group interviews Bi-annual press briefings 	<ul style="list-style-type: none"> Business outlook/ Business direction Strengthening relationships Updates on products and services CSR initiatives and environmental management Business outlook Financial results Technological advancements 	<ul style="list-style-type: none"> Hold annual press conference to update business plan and directions Frequently update on the development of company's activities through media channels Disclose accurate information on the basis of facts Maintain good and long-term relationships with the media



GOVERNANCE/ ECONOMIC DIMENSION



MANAGEMENT APPROACH

ORGANIZATIONAL STRUCTURE ALIGNED WITH GOOD CORPORATE GOVERNANCE FRAMEWORK

As part of WHA Group and a provider of comprehensive utility and energy management services, WHAUP believes that transparency in business operations is a critical attribute that significantly impacts the long-term success and sustainability of the organization. This transparency helps build trust among customers, business partners, and investors. Moreover, it is a key factor in ensuring the organization's sustainability and stability. Therefore, WHAUP emphasizes transparent and concrete organizational management that aligns with relevant laws and the good corporate governance principles set by the Securities and Exchange Commission (SEC) and the Stock Exchange of Thailand (SET). Additionally, WHAUP follows the OECD Principles of Corporate Governance, which aligns with WHA Group's operational principles.

WHAUP provides opportunities for all executives and employees to participate freely in the development and driving of the organization under the framework of good corporate governance. Additionally, WHAUP emphasizes practices that promote diversity among directors, executives, and employees. WHAUP ensures that the Chairman of the Board is a different individual from the Chief Executive Officer to clearly delineate powers, duties, and responsibilities between strategy setting and governance, distinct from operational management. Furthermore, the roles, duties, and responsibilities between the Board of Directors and the Executives are clearly defined and balanced. The corporate governance structure includes the following committees.

BOARD OF DIRECTORS

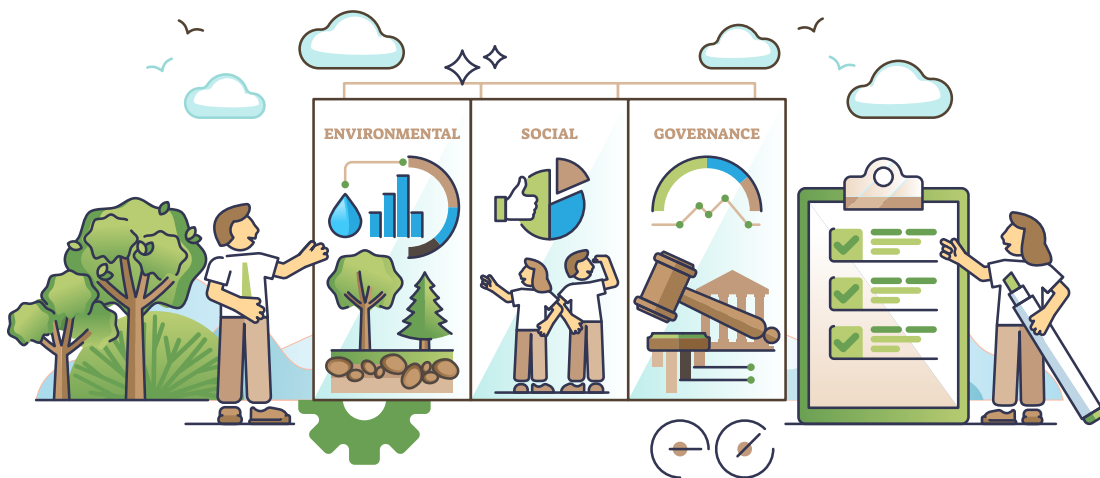
The Board of Directors plays a crucial role as the leadership of the organization, aligning with WHA Group under the "Mission To The Sun" project. This includes setting the vision, mission, strategic plans, and budget for the management team to implement in order to achieve WHAUP's operational objectives. The Board of Directors also oversees the management's operations to ensure they align with the policies assigned, with fairness, transparency, and compliance with laws, regulations, and various policies, including the code of conducts. Therefore, the Board of Directors is appointed by the shareholders through a transparent process. Each director possesses knowledge, expertise, and diverse relevant experiences, aligned with the organization's strategies and sustainable business goals. Additionally, the Board of Directors must devote sufficient time to their duties, exhibit leadership, have a vision, be independent in decision-making, and be able to guide and instill confidence in stakeholders that WHAUP's business operations and activities are conducted correctly and ethically, as well as being independent from the management of WHAUP through a clear division of responsibilities between the Board of Directors and the management.

Aside from governing business, another key characteristic that all members of the boards possess are their carefulness and vision for sustainable business operations. This includes planning, policy-setting, and overseeing operations to align with a sustainable development framework - ESG (Environmental, Social, and Governance). The Boards oversee business with consideration for its impact on society and the environment, respect rights, and hold responsibility towards shareholders and all stakeholders. They also operate the business with the overall societal benefit in mind.



CORPORATE GOVERNANCE AND SUSTAINABLE DEVELOPMENT COMMITTEE

The Board of Directors has assigned the Corporate Governance and Sustainable Development Committee the responsibility to communicate and implement corporate governance and sustainable development activities with management to monitor progress, review, and improve the corporate governance practices of relevant employees, including business partners, to comply with the established policies. The Corporate Governance and Sustainable Development Committee will monitor and report the progress of high-level management and the development team on sustainable development according to the established plan. The committee will organize at least four meetings of the Corporate Governance and Sustainable Development Committee semi-annually to monitor progress and evaluate the results (Due Diligence) in sustainable operations. Additionally, WHAUP and WHA Group has appointed an Environmental Committee consisting of senior management and relevant employees from various departments to work on environmental quality management, energy conservation, and biodiversity conservation in WHAUP's operations.



The Corporate Governance and Sustainable Development Committee plays a vital role in overseeing compliance with principles and laws related to transparent business operations to ensure a balance of power. Additionally, it is responsible for considering, reviewing, and improving corporate governance policies to align with the business environment and to guide the organization's operations. The committee also acts as a representative in communicating and conducting activities related to corporate governance, including sustainability activities, with executives, employees, and external parties. It ensures the development of sustainable practices in accordance with laws and international standards (including but not limited to environmental issues, climate change, human rights, occupational health and safety, and economic, environmental, and social impacts). The committee considers materiality issues for WHAUP and addresses other important issues that may affect WHAUP and related parties. This encompasses all employees and managers in the organization to ensure transparent and sustainable business operations.

Executives and the sustainable development working group regularly reports progress on sustainable development to the Corporate Governance and Sustainable Development Committee. This report includes updates on key sustainability issues, anti-corruption efforts, environmental and social initiatives, and responses to climate change, etc. In 2023, the sustainable development working group reported progress to the committee 3 times, with all committee members present at each meeting. The committee reviewed and approved the Materiality Issues in the first meeting of 2023 which held on February 14, 2023.

NOMINATION AND REMUNERATION COMMITTEE

When presenting and selecting candidates for appointment to the board of directors, consideration should be given to the perspectives of the nominees towards the individuals they are being nominated to. The selection and nomination process should be free from interference and conflicts of interest, with the focus on the abilities and qualifications of the candidates. WHAUP's board has established a Nomination and Remuneration Committee (NRC) to propose qualified individuals based on their skills and abilities, without discrimination based on gender, age, race, nationality, or cultural background, to serve as directors and senior executives. In addition to its role in selecting and nominating board members, the NRC is responsible for proposing criteria and guidelines for determining the compensation of the board, executives, and all employees. The criteria are clear, fair, appropriate, and consistent with labour market conditions, the nature of the business, and the industry. The committee meets at least four times a year and reports its findings to the boards for approval.

The information regarding the selection, appointment, and composition of the Board of Directors and senior executives is detailed in the "Corporate Governance" and "Corporate Governance Structure" sections in Form 56-1 One Report 2023.

THE PERFORMANCE EVALUATION OF THE BOARD OF DIRECTORS

WHAUP has established a process for evaluating the performance of the Board of Directors and its sub-committees, both through individual self-assessment and collective evaluation, to review and enhance their work, address issues, and overcome challenges regularly. Additionally, the Boards evaluates the performance of the WHAUP and WHA Group CEO annually, focusing on leadership, strategy formulation and implementation, ESG practices (environmental, social, and governance), financial planning and performance, relationship with the Boards and external organizations, management and employee relations, succession planning, product and service knowledge, and personal attributes. The results of assessment is used to determine the compensation of WHAUP CEO.

WHAUP has a policy to promote and support the continuous development of knowledge, skills, and experiences of the Board of Directors for sustainable development. This includes training and seminars on topics of interest both inside and outside the organization. For example, WHAUP supports training courses organized by Thai Institute of Directors (IOD) and encourages to visit business group both domestically and internationally.

WHAUP has analyzed evaluation topics, assessment results, and reviewed performance, problems, and obstacles encountered over the past year to develop and improve the efficiency and effectiveness of the Board of Directors and various subcommittees. Additional information on the evaluation of the Board's performance in 2023, the evaluation of WHAUP CEO's performance, and the development of knowledge through training courses can be found under the "Corporate Governance" section in the Form 56-1 One Report 2023.



POLICY ON REMUNERATION

WHAUP has implemented a remuneration policy for the Board of Directors and senior executives that is tied to their performance in managing the organization's impact on the economy, social, and environment. This policy aims to incentivize senior management to prioritize and actively address these three impacts in their decision-making and actions.

More information on the composition, roles, and responsibilities of the Board of Directors and sub-committees, attendance ratio, remuneration for directors and top executives appear in the topic "Corporate Governance Structure" and "Key Good Corporate Governance Implementation" in Form 56-1 One Report 2023.

The process and steps for considering compensation policies are overseen by the Nomination and Remuneration Committee, which comprises independent directors. This committee plays a crucial role in reviewing and improving the compensation policies and structures for the Board of Directors, sub-committees, and senior executives to align them with the current labor market conditions. They also compare them with other companies in the same industry. The Nomination and Remuneration Committee can independently perform its duties through a comprehensive and appropriate compensation review and analysis process, considering the opinions of stakeholders (including shareholders) without any conflicts of interest. The remuneration of the directors is then reviewed by the Board of Directors for submission to the shareholders' meeting for approval. Further details can be found in Form 56-1 One Report 2023.



THE CODE OF CONDUCT AND PRACTICE GUIDELINES OF WHAUP ("CODE OF CONDUCT")

WHAUP places great importance on and is committed to adhering to the law, especially laws related to the management of utilities and power, which are enforced in all countries where it operates. WHAUP aims to ensure that our board members, executives, and all employees respect and comply with laws, as well as local customs, traditions, and cultures. Additionally, WHAUP respects human rights and international standards, staunchly opposes all forms of corruption, and adheres to policies and guidelines against corruption and collusion strictly. WHAUP has established risk management and auditing processes and supports the creation of a corporate culture that is committed to honesty, integrity, and fairness. This commitment is emphasized from the Board of Directors and executives to all employees through the implementation of good corporate governance practices by the Securities and Exchange Commission, the Stock Exchange of Thailand, and international standards, such as the United Nations Global Compact, of which WHAUP is a member. This is reflected in the establishment of WHAUP's corporate governance policy and code of conduct.

WHAUP has established a Code of Conduct, which has been formulated and approved by the Corporate Governance and Sustainable Development Committee. The code of conduct aligns with the corporate ethics of WHAUP and following the same principles of WHA Group code of conduct. The primary objective is to foster business practices, honesty, legal principles, ethics, and a sense of responsibility towards Environmental, Social, and Governance (ESG). These principles encompass not only the directors, executives, employees, but also extend to suppliers, contractors, subsidiaries, and associated companies under WHA's authority. The code of conduct has been prepared in both Thai and English to ensure that stakeholders, both domestic and international, can study, comprehend, and effectively implement it. Furthermore, the code of conduct undergoes an annual review in 2023 to ensure its relevance and alignment with the prevailing social context. To facilitate easy access to this vital information, WHAUP has disclosed the Code of Conduct publicly available through WHAUP's website and intranet, ensuring convenience for employees and external stakeholders.

WHAUP Code of Conduct and Practices

TH: <https://www.wha-up.com/Uploads/elFinder/pdf/cg/20220224-whaup-cg-code-of-conduct-th.pdf>

EN: <https://www.wha-up.com/Uploads/elFinder/pdf/cg/20220224-whaup-cg-code-of-conduct-en.pdf>

The code of conduct of WHAUP is applicable to all personnel, irrespective of their hierarchical level. To ensure adherence to the code of conduct and guidelines, WHAUP has introduced a digital acknowledgment process. Furthermore, comprehensive training programs are offered to effectively communicate these policies to employees, suppliers, contractors, subsidiaries, and joint ventures, ensuring their comprehension and acknowledgment.

Furthermore, in the evaluation of the performance of employees within WHAUP, the employee performance appraisal system also considers adherence to the code of conduct. This ensures that employees, in particular, are expected to strictly adhere to this code of conduct. In 2023, no complaints, violations, or instances of non-compliance with the business code of conduct were found. Nevertheless, WHAUP has processes in place to prevent and rectify breaches of business ethics, considering corporate ethics as a fundamental discipline. The Board of Directors, executives, and all employees are required to uphold and strictly adhere to these ethics. Any violations or failures to comply will be subject to disciplinary action according to WHAUP's rules and regulations concerning employment.





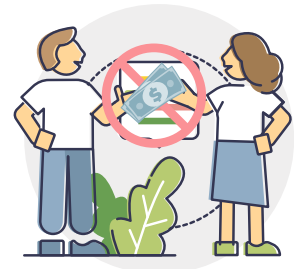
ANTI-CORRUPTION

WHAUP aims to ensure that all relevant personnel have the knowledge, understanding, and a strong emphasis on combating all forms of corruption. They are also aware of their duties and responsibilities and can effectively apply practices related to anti-corruption, the whistleblowing process, and are regularly monitored and reviewed for compliance with policies and guidelines. Therefore, WHAUP has established “The Anti-Corruption Policy and Practices”, which undergo regular reviews to ensure relevance and effectiveness. This policy is applicable to all WHAUP personnel, including directors, executives, employees, suppliers, distributors, contractors, subsidiaries, and joint ventures. Its primary objective is to prevent the abuse of power, fraudulent activities, bribery, and to ensure that all business operations are conducted in full compliance with the law. Detailed guidelines pertaining to these principles are explicitly outlined within the Code of Conduct and Practices, Supplier Code of Conduct, and the Anti-Corruption Policy.

The Board of Directors has assigned the Audit committee with the responsibility of overseeing and examining operations in compliance with the Anti-Corruption Policy. This includes the review of the policy itself, the assessment of the internal control system concerning anti-corruption measures, the monitoring and mitigation of the risk of illicit activities and fraudulent behaviour, the prevention of fraud and corruption within the organization, and the handling of complaints and reports of corruption from relevant parties. The Internal Audit Department conducts risk assessments related to corruption to identify and implement measures for risk reduction. This scope extends to stakeholders external to the organization, as well as business interactions with customers and significant business partners.

In addition, WHAUP has established the anti-corruption policy in writing, including guidelines for acceptable and unacceptable practices, to avoid the risks of corruption. Examples include:

- Policies on giving and receiving gifts
- Policies on charitable donations, giving, and/or receiving support
- Hospitality practices
- Political contribution practices
- Procurement practices
- Guidelines for hiring government employees



Furthermore, WHAUP has announced and communicated our anti-corruption policies, including various penalties in case of violations, to all employees. Every employee has signed to acknowledge and comply with these policies as part of WHAUP’s work regulations. Regular training is provided to review and enhance employees’ understanding and knowledge of the anti-corruption policies every year.

For the board of directors, WHAUP conducts orientation sessions for new directors to communicate the anti-corruption policies, and conducts annual reviews to refresh their understanding. In 2023, all directors (10 members, 100%) reviewed and fully understood the anti-corruption policies of WHAUP.

Moreover, WHAUP emphasizes our commitment to combating corruption and resisting bribery for the benefit of our business operations in all forms. WHAUP has declared our commitment by joining the Thai Private Sector Collective Action Against Corruption (CAC). WHAUP was certified as a member in 2019 and has renewed our certification with CAC in 2022. Additional information regarding policies and practices against corruption and bribery, as well as the certification as a member of the Thai Private Sector Collective Action Against Corruption, can be found in the “Corporate Governance Structure” and “Key Good Corporate Governance Implementation” in Form 56-1 One Report 2023.

On December 22, 2023, WHAUP announced a policy to cease receiving gifts and to promote public relations activities for all relevant parties, both internally and externally, including board members, executives, employees, subsidiaries, joint ventures, partners, and business allies, under the “No Gift Policy” project. This is to promote adherence to corporate governance principles and create a transparent working culture throughout the business. Employees are expected to strictly adhere to this policy. In 2023, no cases of employee corruption or collusion were found.

Anti-Corruption Policy and Practices

TH: <https://www.wha-up.com/Uploads/elFinder/pdf/cg/20210324-whaup-cg-anti-corruption-policy-th.pdf>

EN: <https://www.wha-up.com/Uploads/elFinder/pdf/cg/20210324-whaup-cg-anti-corruption-policy-en.pdf>

No Gift Policy

TH: <https://www.wha-up.com/Uploads/elFinder/pdf/cg/20231225-no-gift-policy-th.pdf>

EN: <https://www.wha-up.com/Uploads/elFinder/pdf/cg/20231225-no-gift-policy-en.pdf>

The anti-corruption policy of WHAUP aligns closely with anti-corruption policy WHA Group, clearly specifying practices to mitigate risks related to corruption and bribery. The Anti-Corruption Policy outlines clear guidelines aimed at mitigating the risks associated with fraud and corruption. These guidelines address various areas, including the giving or receiving of gifts, charitable contributions, sponsorships, financial support, political involvement, procurement procedures, and the recruitment of government personnel. The policy extends beyond the scope of the Code of Conduct to ensure comprehensive coverage. In the event of a violation or non-compliance with this policy, WHAUP has established well-defined disciplinary measures that encompass offenses ranging from minor to serious. Such offenses include bribery, fraud, unauthorized disclosure of WHAUP’s confidential information or intellectual property, or any actions that significantly affect the reputation of WHAUP.


WHISTLEBLOWING

Whistleblowing is the process by which individuals within an organization or other stakeholders who have information or suspicions about legal violations, misconduct, or corruption within the organization decide to report that information to the relevant group for appropriate action or legal compliance. Whistleblowing is important for promoting transparency, honesty, and preventing corruption in various aspects of an organization and society. It is a way to help identify and address problems promptly. Additionally, there are laws that protect and support whistleblowers. In order to enhance oversight and anti-corruption efforts, WHAUP has established a dedicated whistleblowing or complaint channel. This channel enables employees and stakeholders, both internal and external, to easily report suspected cases, provide leads, or make suggestions/complaints regarding misconduct, corruption, violations of laws and regulations, corporate governance policies, the Code of Conduct, or the anti-corruption policy. To foster a transparent working environment and instill confidence in whistle-blowers, WHAUP has implemented a policy that strictly prohibits any form of demotion, punishment, or retaliation against employees who report fraud and corruption, even if it means potentially losing business opportunities. Additionally, all parties involved in receiving whistleblowing information are obliged to maintain strict confidentiality and refrain from disclosing it to others, unless mandated by legal obligations, administrative orders, or court directives.

In the event of whistleblowing or complaints, the company secretary department will gather information and conducts a preliminary assessment. Subsequently, the findings are presented to the management for further consideration and then reported to the Audit Committee and the Board of Directors. Whenever there are any clues or complaints, the company secretary department will report to the Audit Committee. The Audit Committee, in turn, provides quarterly reports to the Board of Directors, ensuring their awareness of the issues and enabling them to develop effective and appropriate strategies to address stakeholder expectations and complaints, and remediation. WHAUP has also established a review process for related workflows and implemented measures to address any violations that may occur, ensuring that such violations do not happen again.

Additional information regarding the procedures and steps taken upon receiving reports or complaints is clearly outlined in the “Code of Conduct” which is openly disclosed on WHAUP’s website under the corporate governance section.

CHANNELS FOR EMPLOYEES

 www.wha-up.com

 Email:

Chief Executive Officer:

CEO_office@wha-up.com or

The Audit Committee:

auditcommittee@wha-up.com

Suggestion Box:

Corporate Secretary Department

CHANNELS FOR EXTERNAL STAKEHOLDERS

 Website:

www.wha-up.com

 Email:

Chief Executive Officer:

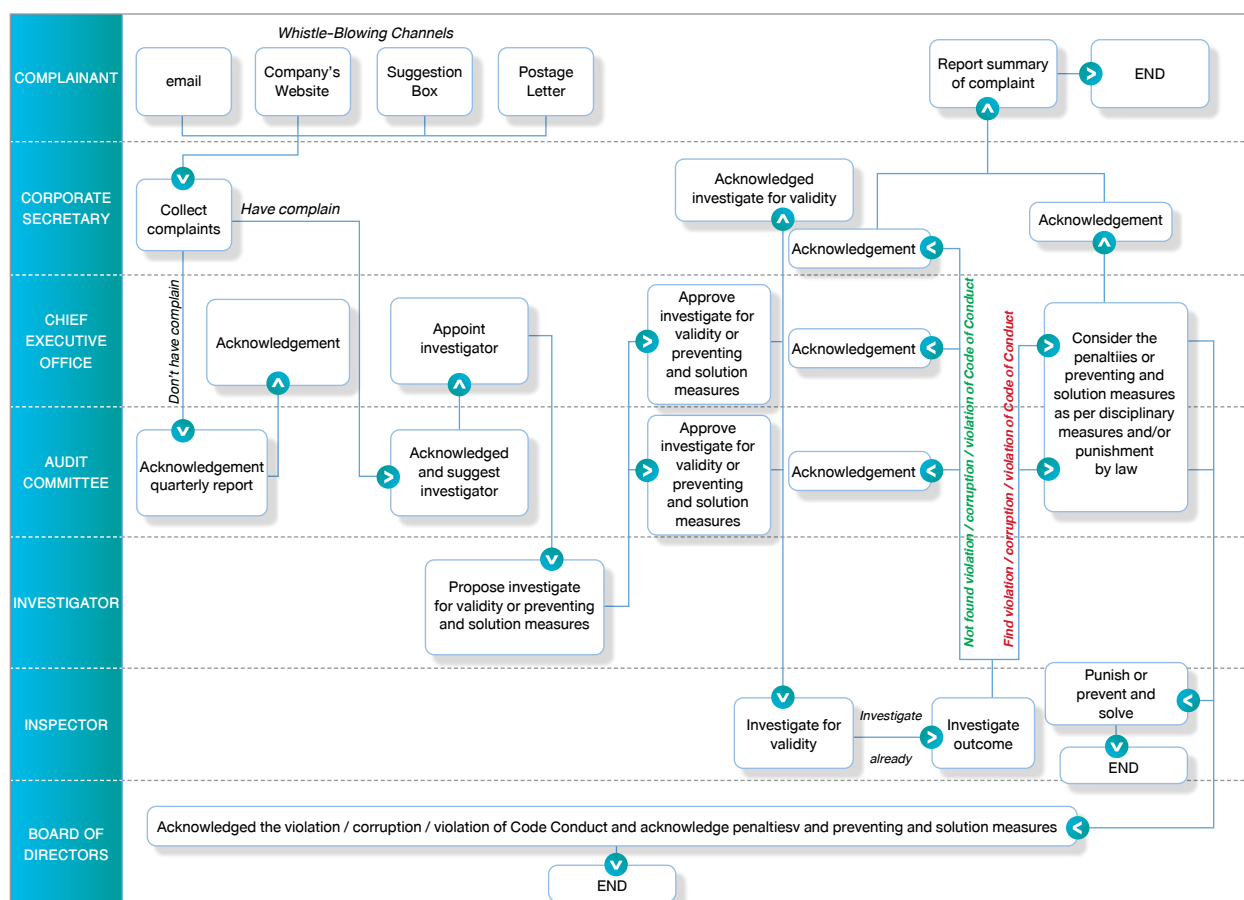
CEO@wha-up.com or

The Audit Committee:

auditcommittee@wha-up.com



Procedures and Steps for Proceeding upon Receipt of Whistleblowing or Complaint



In 2023, WHAUP together with WHA Group organized training and activities to raise awareness of the principles of corporate governance among employees as follows:

- As part of their orientation program, all new employees are required to complete mandatory trainings on the Code of Conduct and Anti-Corruption Policy.
- WHAUP's Corporate Secretary Department, in collaboration with the Human Resources Department, organized a training session on December 12-14, 2023 to review knowledge through the course "The Code of Conduct and Anti-Corruption." This course covered various important topics, including the prevention of insider trading, reporting of securities holdings, conflict of interest prevention, stakeholder reporting, and channels for whistleblowing and complaints in public relations. After the training, WHAUP recorded the sessions as videos for employees to access as part of a self-learning program through an online system. This was done to enhance the effectiveness of training and development. Furthermore, WHAUP opened opportunities for all employees to provide feedback and suggestions to improve the courses. WHAUP also communicated the Code of Conduct to business partners and contractors through various channels, such as WHAUP included the policy in contracts to ensure that business partners and contractors are aware of and comply with the relevant business ethics thoroughly.



Employee that has been communicated with and informed about the Code of Conduct of

Performance against target 2023

100%

Long term target

100%
for every year



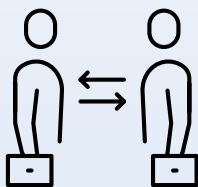
Subsidiaries/Associated companies of WHAUP that have been communicated with and informed about the Code of Conduct of WHAUP.

Performance against target 2023

100%

Long term target

100%
for every year



Supplier/contractors of WHAUP who have been communicated with and informed about the Code of Conduct of WHAUP.

Performance against target 2023

100%

Long term target

100%
for every year

WHAUP adheres strictly to legal requirements and places significant emphasis on conducting business in accordance with corporate governance principles. This includes clearly communicating the code of business ethics to all personnel within the organization, conducting regular audits on anti-corruption and anti-collusion efforts in all forms, establishing clear procedures for reporting grievances and complaints, and consistently reviewing policies and best practices. These efforts have earned WHAUP recognition as a transparent organization, promoting direct benefits to WHAUP by fostering employee pride and contributing to outstanding operational performance, a positive image, and a good reputation. This confidence from society at large helps mitigate risks associated with corruption and collusion, enhances ethical values that contribute to sustainable growth for WHAUP, and reduces negative impacts on the environment and society as a whole.

WHAUP places great importance on conducting business with integrity and transparency, always considering the interests of stakeholders. This commitment has yielded positive results in 2023, with robust corporate governance and no instances of corruption or collusion. However, WHAUP remains steadfast in our dedication to developing, reviewing, and improving policies, processes, and operational plans related to good corporate governance. This ensures alignment with changing business environments, supports policies promoting equality and fairness at all organizational levels, and evaluates performance to meet both business and ESG goals. Additionally, WHAUP continuously enhances and refines our strategies to sustainably grow as an organization and remain free from corruption and collusion in the future.

RISK AND CRISIS MANAGEMENT



Currently, all businesses face risks and uncertainties resulting from changes in economic, social, environmental conditions, as well as the evolution of information technology accompanied by new threats like cyber attacks, climate change-induced disasters, changes in climate change and sustainable business (ESG) laws or regulations. Significant risks for utility and energy businesses include economic, technological, and environmental risks. Whether it's unpredictable weather or ever-changing requirements, these can significantly impact businesses, employees, shareholders/investors, customers, or other related stakeholders and the environment. This has led leading companies worldwide to increasingly monitor risks and plan for proactive and reactive risk management.

For this reason, WHAUP places great importance on risk management as a crucial component of corporate governance, helping the organization achieve our operational goals. In collaboration with the WHA Group, WHAUP has established control activities to prevent or reduce risks to an acceptable level that can be systematically assessed, controlled, and audited. It also prepares impact management plans to prevent damages that may affect the business, society, environment, and related stakeholders.

To build confidence among key stakeholders, WHAUP has integrated risk management into our core operations, starting from the establishment of the organization's mission and strategy. This includes updating governance policies to be contemporary and aligned with sustainable business practices, as well as enhancing business ethics and operational practices. This includes measures to combat corruption and collusion, considerations for climate change, transparency in board operations, personal data protection, anti-money laundering efforts, and managing key risks in business operations such as strategic, operational, emerging, and ESG risks.

Additionally, WHAUP has established a Risk Management Committee to proactively determine policies, guidelines, risk management frameworks, and annual risk management plans. The committee also promotes a risk management culture and awareness of responsibility for adhering to risk management policies among personnel at all levels within WHAUP, who are considered stakeholders in the organization. This includes the board of directors, executives, and all employees, ensuring that everyone participates in effective risk management. Furthermore, WHAUP has planned to collaborate with WHA Group to implement various innovations and technologies to enhance the efficiency of WHAUP's risk management operations.

MANAGEMENT APPROACH

RISK MANAGEMENT AND IMPACT MANAGEMENT

WHAUP and WHA Group have implemented proactive and effective risk management policies to enhance adaptability to change, increase flexibility, and respond efficiently to uncertain situations. This ensures the smooth operation of WHAUP's business. To ensure that potential risks impacting the organization are appropriately managed and in line with WHAUP's commitment to effective risk management, the Board of Directors has established the Risk Management Committee. This committee oversees the overall risk management process of WHAUP. The Risk Management Committee consists of WHAUP Chief Executive Officer and members from the Board of Directors. Additionally, to ensure that every business within WHAUP can manage our own business risks according to the guidelines set by the Risk Management Committee, WHAUP has established a Risk Management Working Group. This working group includes senior executives and heads of various departments within WHAUP, and they meet regularly to monitor WHAUP's risk information, identify risks, as well as potential impacts and business opportunities. These aspects cover social, environmental, and economic issues, which are then reported to WHAUP's Risk Management Committee and subsequently presented to the Board of Directors on a quarterly basis. Moreover, WHAUP conducts internal audits and engages external audit agencies to review the risk management processes. For a list of Risk Management Committee members, please refer to the 56-1 One Report 2023.

RISK MANAGEMENT POLICY AND FRAMEWORK

The Board of Directors has approved and adhered to the organizational risk management policies and framework, which are reviewed annually. The objective is to establish a clear, appropriate, and sufficient Enterprise Risk Management Framework for WHAUP. This includes assigning roles, duties, and responsibilities, and defining accountability for those involved to ensure effective management of organizational risks.

WHAUP, in collaboration with WHA Group, has developed a comprehensive Risk Management Framework in line with the Committee of Sponsoring Organizations of the Treadway Commission (COSO), specifically the COSO Enterprise Risk Management (ERM) framework. This framework aligns with WHAUP's Policy and incorporates the principles of good corporate governance outlined in the Thai Corporate Governance Code for Listed Companies 2017 to enable directors, executives, and employees at all levels of WHAUP to manage risks effectively, considering the acceptable risk level (Risk Appetite) and the deviation from the acceptable risk level (Risk Tolerance) in assessing various related risks for informed business decision-making.

Furthermore, WHAUP integrates risk criteria into the investment decision-making process at the initial stages of project/product planning and development. Each project's risk must be at an acceptable level before proceeding with the decision-making process. All project investments require approval from the Risk Management Committee (RMC). The risk assessment criteria in the initial stages of project/product planning and development include the cost of development, the % increased interest expense of total cost, average interest cost, IBD-to-Equity ratio, IBD-to-EBIDA ratio, revenue, and share of profit from projects.

ENTERPRISE RISK MANAGEMENT STRUCTURE AND RESPONSIBILITIES

WHAUP utilizes an enterprise risk management structure to define the roles, duties, and responsibilities of those involved in the risk management process, as well as to designate the decision-makers in the organization's risk management. The structure for risk information management and reporting is detailed as follows:

BOARD OF DIRECTORS

Responsible for setting risk management policies and ensuring effective risk management in accordance with international standards and aligned with WHAUP's strategic direction. The Board also appoints the Risk Management Committee to assist and support the Board's duties.

RISK MANAGEMENT COMMITTEE

Tasked with establishing a risk management framework that aligns with the objectives, main goals, and strategies of WHAUP to guide risk management operations uniformly and comprehensively across the organization. This includes business continuity management and overseeing the risk management of the organization and our significant investments. The committee also monitors the progress of risk management plans and key risk indicators (KRIs), promoting the continuous improvement and development of the organization's risk management systems and mechanisms. They ensure that a risk management culture is present at all organizational levels and coordinate with the Audit Committee by providing key risk and internal control information for their assessment of the adequacy of the risk management and internal control systems. This information also aids in the approval of internal audit plans, ensuring WHAUP has an appropriate internal control system for managing risks. The Risk Management Committee meetings held at least four times a year to review risk exposure of the Group based on impact and likelihood of specific-risk, and establish a risk management framework and business continuity management accordingly (see key organization's risk section for full detail of the Group's risk exposure).

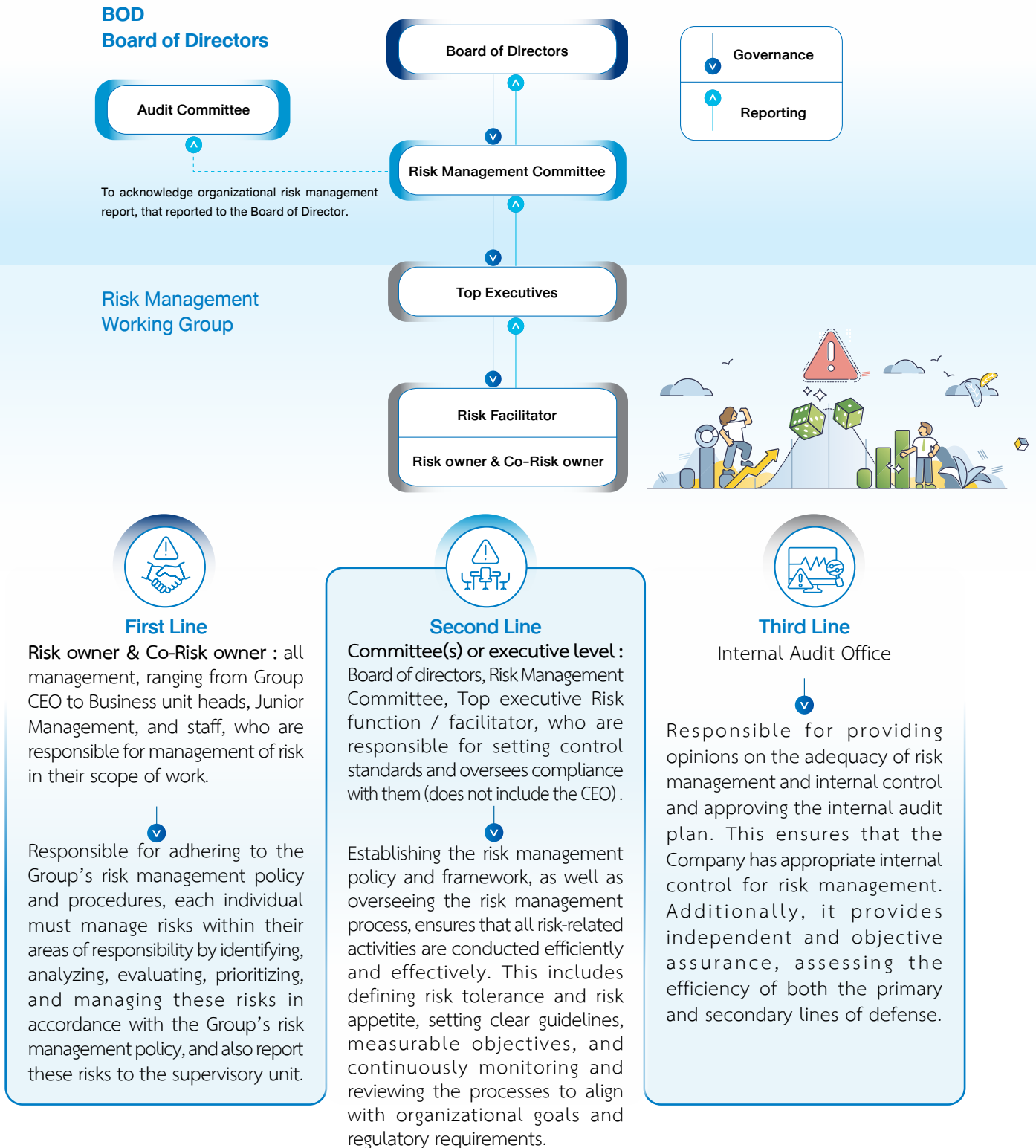
RISK MANAGEMENT WORKING GROUP

Comprising senior executives, business line managers, risk owners, and risk coordinators, this group regularly reviews and monitors enterprise risk management activities in accordance with the policies and frameworks set by the Risk Management Committee. They ensure that risk information is up-to-date and adjust it as necessary when significant changes or new risks arise during the year. They also present the organization's risk management reports to the Risk Management Committee at least four times a year.



THREE LINES OF DEFENSE MODEL FOR RISK MANAGEMENT

WHA Group implemented Three Lines of Defense (3LOD) framework to enhance communication about risk management and control. This includes clearly defining the important roles and responsibilities of personnel involved at each level of the 3LOD framework as follows:



Each level of defense within the 3LOD framework has distinct roles and responsibilities within the organization's governance framework. Therefore, the participating personnel are tasked with ownership in the risk management and control processes, as well as independent auditing. WHA Group expects all relevant units to have sufficient awareness and receive adequate communication regarding the approaches. This ensures that the organization effectively manages risk (Full detail of Risk Management Policy, Framework, and Structure can be found in Form 56-1 One Report 2023).

ENTERPRISE RISK MANAGEMENT PROCESS

WHAUP has integrated our enterprise risk management system and materiality topics with the organization's policies, laws, regulations, and operational standards, covering WHAUP and WHA Group. This integration encompasses governance, environmental, social aspects, risk management and internal control systems, and compliance with laws and regulations (Governance, Risk, and Compliance or GRC). This comprehensive approach aims to prevent and mitigate risks and their impacts across the organization, ensuring the achievement of strategic objectives and key goals in various areas. The enterprise risk management process consists of the following eight steps:



1. Objective Setting

- Business Context Analysis
- Define Objectives, Organizational Goals align with Strategic Goals
- Define the Risk Appetite



5. Risk Response

- Define response strategies for risks
- Mitigate risks to an acceptable level of risk (Risk Appetite) and deviation of the acceptable level of risk (Risk Tolerance)



2. Risk Identification

- Identify Risks and Risk Factors, both Internal and External
- Identify Risks covering all types of risks, including strategic risks, operational risks, financial risks, compliance risks, sustainability (ESG Risks), human rights risks, fraud & corruption risks and emerging risks.



6. Risk Recording and Reporting

- Risk Register through Corporate Risk Management System (RMTS) application
- Define Key Risk Indicators
- Risk Report



3. Risk Assessment

- Evaluate Risks by assessing the likelihood of the risk occurring (Likelihood) and the impact of the risk (Impact)
- Apply tools to assess the severity of impacts, such as Sensitivity Analysis and Scenario Analysis



7. Monitoring Review and Improvement

- Review risk and performance results
- Continuously improve Enterprise Risk Management



4. Risk Prioritization

- Prioritize risks by ranking their importance
- Create a Risk matrix (4x4) by categorizing the prioritized risks into 4 levels: very high, high, medium, low



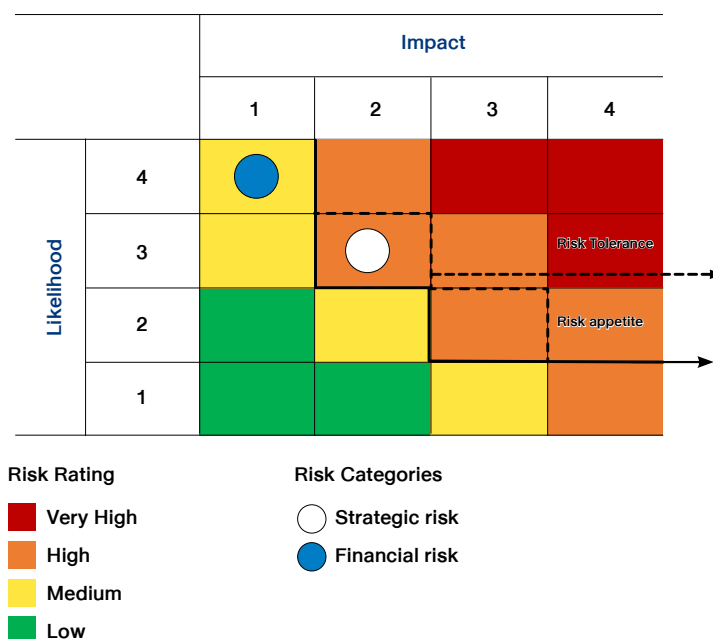
8. Communication and Consultation

- Prepare risk management policy announcements
- Communicate and provide advice on risk management

KEY ORGANIZATIONAL RISKS

WHAUP mandates a risk assessment that considers both external factors and internal management or operational factors that may prevent the organization from achieving our objectives or goals. This assessment covers all types of risks and includes measures to manage these risks, ensuring timely responses and prevention of potential impacts. The goal is to keep risk levels within acceptable limits. The risk assessment process starts with defining objectives and goals, identifying risks that might impact achieving these objectives and goals, assessing these risks, and prioritizing them based on their likelihood and severity of impact (identified risk exposure). Additionally, the acceptable risk level (Risk Appetite) and the deviation from the acceptable risk level (Risk Tolerance) are established to determine the level of risk the organization is willing to accept for each type of risk. Additionally, WHA Group reviews risk exposure on a regular basis, at least four times a year. Examples below are two identified risks of specific exposure (consider likelihood and magnitude) include mitigation actions.

DIAGRAM SHOWING WHAUP'S RISK ASSESSMENT LEVELS



Risk Tolerance



Strategic Risks

Risk Exposure:

Changes in economic, political, and legal policies that may impact WHAUP 's business expansion plans and performance in foreign countries.

Impact:

The opportunities for business expansion and company operations depend on economic, political, social, and legal policies, particularly significant changes in economic conditions. This includes risks such as economic volatility, inflation, exchange rate fluctuations, and potential defaults by other companies in the future. These factors may affect overall interest rates or changes in social and legal conditions, negatively impacting business operations, financial status, performance factors, investments, and the industrial production capacity of WHAUP 's current customer base. This could also influence investment decisions, negatively impacting WHAUP 's business.



Risk Management Approach:

WHAUP carefully selects investment projects that offer a suitable Equity Internal Rate of Return (IRR) and conducts detailed feasibility studies, including thorough sensitivity analyses to assess the viability of projects. In the case of joint ventures, WHAUP has a policy of selecting partners meticulously, considering their knowledge, capabilities, experience, expertise, financial status, and past performance histories. Additionally, WHAUP evaluates and verifies the credibility of joint venture partners and the countries where investments are planned regularly. Moreover, WHAUP continuously monitors operational performance to mitigate potential risks. On the human resources front, WHAUP has established personnel in various countries to support business development and control operations of invested companies, thereby reducing operational risks.

Risk Appetite

Financial Risk



Risk Exposure:

The risk arising from fluctuations in foreign currency exchange rates.

Impact:

WHAUP primarily earns revenue in Thai Baht, but certain transactions require payments in foreign currencies, such as investments in solar panel systems, purchases of solar panels and parts directly from foreign manufacturers. This exposure means WHAUP cannot entirely avoid foreign exchange risk. However, for investments in solar panel projects, WHAUP has a policy to limit the volatility of investment currencies to not exceed the set investment amount. Exchange rate fluctuations significantly impact the ability to increase or decrease investments from the intended investment plans. Therefore, risk management from currency exchange rates affecting investment funds is implemented across all projects.

Risk Management Approach:

As of March 31, 2023, WHAUP has a commitment to capital expenditures in foreign currencies amounting to 15 million US dollars, related to purchasing solar panels and parts. WHAUP manages the risk from these exchange rates by entering into forward contracts for the entire amount. For other foreign exchange risks, WHAUP calculates and assesses the exchange rate risk separately for both revenue and expenditure sides to determine the impact on company profits relative to the opportunities for exchange rate volatility. This evaluation helps decide on financial instruments to appropriately mitigate exchange rate risks. Additionally, considerations include the cost of risk management over different time periods. Furthermore, WHAUP diversifies risk management by investing overseas, not only to enhance investment returns but also to generate revenue in foreign currencies.

RISK MANAGEMENT CULTURE

WHAUP has established frameworks for risk management and good corporate governance, which are essential tools in driving a positive risk management culture. This includes emphasizing the importance of enhancing awareness, attitudes, and behaviors related to risk management among all levels of personnel, whether they are employees, board members, or senior executives. This initiative is crucial to effectively cultivate a culture of risk management within the organization. Currently, WHAUP is in the process of transforming our motivational systems according to directives from top management (top-down approach). This includes integrating risk management topics as key performance indicators (KPIs) for executives and risk owners, with risk indicators being criteria for assessing operational performance.

These guidelines aim to promote direct communication and practical risk-focused practices, such as aligning risk language, setting acceptable risk levels, and establishing standardized risk assessment criteria throughout WHAUP and our subsidiaries. Roles and responsibilities of risk owners are defined for each issue, supporting the inclusion of risk agenda in important company meetings. Furthermore, WHAUP encourages continuous sharing of risk management experiences among departments and companies to communicate best practices and benefits of ongoing risk management. To strengthen WHAUP's risk management culture, WHAUP includes risk management as part of our training programs, aiming to raise awareness and develop skills among employees in identifying, controlling, and mitigating risks associated with their roles and responsibilities. This initiative encompasses all stakeholders, including board members, executives, and staff, ensuring effective participation in risk management. Additionally, all employees and external parties are encouraged to use WHAUP's channels for reporting concerns or potential risks, allowing for investigation, rectification, and implementation of subsequent measures. (Further details can be found in the Business Ethics section.)

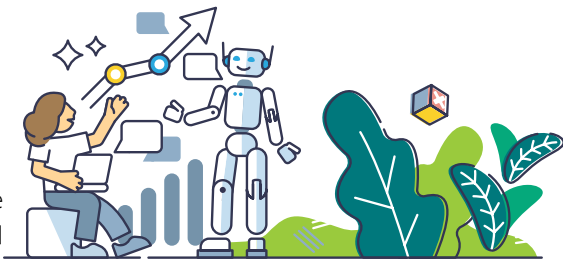
EMERGING RISK

WHAUP recognizes that emerging risks have the potential to significantly impact business operations. As part of our comprehensive risk management process, WHAUP actively monitors, assesses, and addresses these emerging risks. In this regard, WHAUP aims to identify potential challenges and develop mitigation plans to minimize any adverse impacts. Within the scope of emerging risks, WHAUP specifically focuses on key areas, Risk from Digital Disruption, Climate Policy, and Geopolitical Tensions.

1. RISK FROM DIGITAL DISRUPTION

RISK DESCRIPTION

In today’s business landscape, technology plays a pivotal role in driving operational efficiency and performance. Advanced technologies such as clean technology, blockchain, remote working, and artificial intelligence have the potential to significantly enhance both businesses’ capabilities and environmental aspect. However, it is important to recognize that these technologies also introduce uncertainties and challenges to business operations, especially for those organizations that are slow to adapt. Without adequate preparedness and effective technology risk management, businesses may face decreased viability in the market. Companies that fail to embrace technology as a driving force and keep up with evolving customer demands may encounter service delays and produce products or services that are inferior in quality compared to their competitors. These setbacks can result in operational delays, reduced profitability, loss of customers trust, and a decline in customer base.



In addition, consumer behavior has changed following the COVID-19 crisis, with increased use of technology and the internet. This shift has rapidly expanded the e-commerce market and led to a growing trend towards reliance on online services. Therefore, businesses that fail to adapt by leveraging technology to meet customer demands may experience financial repercussions, damage to their reputation, and loss of customer trust, resulting in decreased revenue.

IMPACT OF DIGITALIZATION AND BUSINESS MODEL DISRUPTION BUSINESS

WHAUP not only sees the risks from technological changes but also recognizes numerous business opportunities in the current era of technology. Therefore, WHAUP needs to develop and enhance the management of utilities and power systems while presenting innovations and digital capabilities to better respond to ever-changing customer demands. Furthermore, it is necessary to continuously adapt and customize products and services to meet customers’ diverse and specific requirements. This includes offering a wider range of options and tailoring solutions to better address customer needs.

Risks	Opportunities
<ul style="list-style-type: none">• Failure to adapt to technological changes could lead to a decline in competitiveness for WHAUP as the product and service could not meet the ever-changing customer needs.• Furthermore, WHAUP may miss significant business opportunities if it cannot fully capitalize on the potential of rapidly growing technologies.	<ul style="list-style-type: none">• WHAUP turn risk from Digital Disruption into opportunity by implemented a range of digital innovations across our businesses to effectively respond to and capitalize on the opportunities presented by the digital age.

At the same time, WHAUP is committed to developing and offering smart solutions along with cutting-edge technologies to customers. It has planned and implemented the use of clean technology to meet customer demands while emphasizing sustainability in environmental aspects.



MITIGATION AND OPPORTUNITIES

Managing technological changes based on the development perspective of digital technology, encompassing both risks and business opportunities, is a strategic focus for WHAUP in coping with technological changes and transitioning the organization into the digital era (Digital Transformation). Together with WHA which has set a target to become a Tech Company by 2024. Therefore, WHAUP has applied diverse digital innovations, emphasizing the improvement and development of products and services, adaptation to new innovations and technologies, as well as the enhancement and development of internal processes and systems. This approach aims to effectively respond to and seize various opportunities arising from the digital era. In pursuit of these goals, WHAUP has implemented significant risk management strategies as follows:



- Establishing robust internal management systems to enhance competitiveness in the technology era through integrating targets related to digital innovation into KPIs for evaluating all employees' performance and utilizing the ORACLE HCM Cloud human capital management system.
- Actively recruits personnel with technology expertise to join the organization. Furthermore, WHAUP actively seeks opportunities for joint ventures with leading technology companies, both domestically and internationally.
- Integrating digital innovation into business operations as KPIs for evaluating the performance of all employees, and organizing projects that encourage employees to contribute new innovations to advance business goals under the Innovation Bootcamp initiative.
- Training programs and seminars related to technology have been organized in collaboration with WHA Group. These initiatives aim to develop innovation leaders and provide insights into various innovation topics for all employees.
- Focuses on utilizing technology to enhance the capabilities of our new utility products. This includes the Smart Water project, which uses technology to implement water recycling systems to ensure that used water is treated and reused to maximize our benefits, and the Smart Energy project, which aims to reduce electricity costs and enhance reliability for businesses within industrial estates. WHAUP also explores innovative energy solutions such as SMART Microgrid.

2. RISK FROM CLIMATE POLICY

RISK DESCRIPTION

Thailand is facing significant challenges in achieving sustainable development due to climate change. In 2022, Thailand announced a long-term commitment to carbon neutrality by 2050 and net-zero emissions by 2065. This commitment has intensified significantly, leading the government to issue guidelines for reducing the country's greenhouse gas emissions for the period 2021-2030. These guidelines include 15 measures, of which 5 measures (electricity production, industrial energy consumption, energy consumption in commercial buildings, waste management, and management of other industrial wastewater) are expected to impact WHAUP in terms of costs, operations, and maintaining their leadership status in utilities and power industry. This presents both a challenge and an opportunity for WHAUP that must be prepared to be ready for the forthcoming changes.



IMPACT OF CLIMATE CHANGE ON BUSINESS



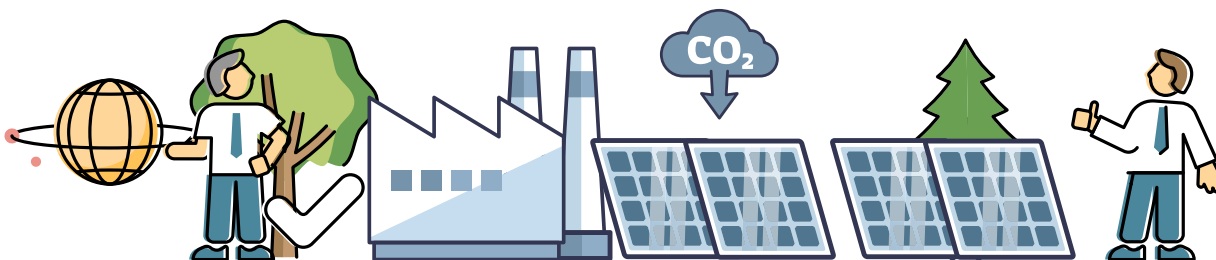
Similarly, concerning the issue of change stemming from digital technology development, WHAUP not only sees risks from climate change but also identifies business opportunities that could arise. WHAUP has conducted an analysis of risk factors to determine the significant impacts of climate change on business operations, using a Qualitative Scenario Analysis tool. This analysis examines the impacts of greenhouse gas emission scenarios RCP 8.5 and RCP 2.6, which are outcomes of climate change mitigation policies from 2010 to 2100. These scenarios can potentially affect key business aspects as follows:

- Changes in laws and regulations may result in increased material costs for the business, which could have long-term implications for the strategies and business objectives of WHAUP. This includes increased operating costs due to regulations addressing climate change. The estimated financial impact of operational cost increases is less than 10% of development costs.
- Changes in laws and regulations may also reduce the demand for products and services of WHAUP Group due to penalties and customer expectations. It is anticipated that decreased customer demand will financially impact WHAUP's revenue, with a projected 10% reduction in revenue from sales and public utilities and energy services compared to quarterly budget allocations.
- Policy changes that may occur could lead to requirements that necessitate the discontinuation of high-carbon assets, resulting in asset depreciation and premature asset write-offs for WHAUP.
- If WHAUP's operations do not comply with the changing laws and regulations, it may lead to legal penalties imposed by the government.

Based on the above impact analysis, if WHAUP fail to adapt to the changing climate conditions in a timely manner or fail to meet the expectations and demands of stakeholders regarding environmental responsibility and increasing awareness of climate change issues, it could have various repercussions. These consequences may include cost implications, operational challenges, damage to reputation, jeopardizing our leadership position in industrial estate development, or even legal penalties and additional responsibilities. However, WHAUP recognizes the significance of climate change and understands that it comes with risks and opportunities for business. Therefore we have prepared ourselves to cope with the changing laws and regulations related to greenhouse gas emissions.

Moreover, WHAUP have taken a leading role in promoting solar energy production through solar rooftop installations, which benefit both WHAUP and WHA Group, as well as our customers in the utilities and power sectors within the industrial estate. This initiative helps reduce carbon footprint and allows us to offer carbon credits to other companies as a means of offsetting their carbon emissions. Additionally, WHAUP has planned continuous development of solar rooftop installations to ensure a reliable and highly beneficial source of energy for our customers.

MANAGEMENT APPROACH FOR CLIMATE CHANGE RISK



To mitigate risks and create opportunities for sustainable business growth from climate change policies and measures, WHAUP of companies has implemented key risk management strategies as follows:

- Monitor and follow up on national-level and international-level GHG reduction mechanism, the development and mechanism of carbon markets, carbon credit pricing and enforced carbon taxes, to analyze the economic impacts on the organization to adjust strategies of WHAUP and WHA Group.
- Adjust the business investment strategy to balance the investment ratio of natural gas, coal-fired power plants and renewable power plants and prepare GHG management strategy and reduction target in line with investment countries' strategic plans and targets.
- Adjust WHAUP's operational strategies accordingly by focuses on various project under Mission To The Sun, in collaboration with WHA Group such as reducing water usage in the industrial sector through water reclamation project or Smart Metering, developing renewable energy projects (e.g., Solar rooftop project), implementing green logistics practices (e.g., Smart Traffic Management System to reduce CO2 emission), and promoting a circular economy. These projects not only help mitigate the risks associated with climate change but also reduce operational costs and enhance business resilience. Furthermore, they contribute to creating business flexibility, resulting in a more sustainable business operation.
- Considering the application of Internal Carbon Pricing as one of the strategies to reduce greenhouse gas emissions within the organization.
- Communicating effectively with stakeholders in the business to build understanding and ensure efficient responsiveness.

WHAUP is confident that these actions can help mitigate risks and sustainably foster growth in the utilities and energy service business.





3. RISK FROM GEOPOLITICAL TENSIONS AND GLOBAL ECONOMY

RISK DESCRIPTION

Given the situation of geopolitical conflicts, challenges from geopolitical factors, competition and division among superpowers, interstate military conflicts, as well as fluctuations in exchange rates and inflation rates stemming from fragile economic conditions, which have broad and significant international implications, WHAUP considers these events as one context of new risks emerging and likely persisting over the next 1-2 years. Consequently, WHAUP must closely monitor and supervise operations to prepare for various uncertainties that may arise.

IMPACT OF GEOPOLITICAL TENSIONS AND GLOBAL ECONOMY

Currently, the global economy, politics, and society are increasingly interconnected and complex. This interconnectedness means that impacts from geopolitical conflicts, wars, and global economic factors inevitably affect global supply chains and economies. For example, fuel and raw material price adjustments have raised operational costs for companies. Financial policy management under conditions of currency inflation and economic instability at the international level also affects the financial management of WHAUP influencing both income and expenses related to procurement of raw materials and project investments.

However, amidst the conflicts and tense situations, particularly in the competition and division among major powers, new opportunities and challenges have emerged. One such opportunity arises from the relocation of manufacturing bases and investments from China, Taiwan, and Europe to diversify business risks into the Asian region. Thailand and Vietnam have benefited from this situation, as WHAUP has seized business opportunities from various industries relocating their investment bases to industrial estates managed by WHAUP. These estates serve as infrastructure hubs for public utilities, enabling WHAUP to expand our customer base. Additionally, WHAUP Group has also benefited from investments in the renewable energy industry, where the Asian region is moving towards sustainable energy independence.



MANAGEMENT APPROACH FOR GEOPOLITICAL TENSIONS AND GLOBAL ECONOMY RISKS

WHAUP considers and manages our operations under the strategy of organizational growth both domestically and internationally. WHAUP carefully assesses risks and impacts starting from project selection, with evaluations conducted for short-term and long-term outcomes. This includes forming business partnerships in educational areas and closely monitoring the business environment through local personnel. Strategic exits are also considered in suitable situations, with continuous monitoring, consolidation, and analysis of significant global trends, industrial advancements, market conditions, and technological progress, as well as multidimensional policies. This is used to forecast commodity prices, production costs, and long-term business operations. Additionally, measures are implemented to create flexibility and alternative market and product strategies, enabling WHAUP to adapt our business agilely in uncertain situations. This approach also involves monitoring interest rates and financial costs to identify financially suitable and beneficial instruments for WHAUP.



CRISIS MANAGEMENT AND ORGANIZATIONAL CONTINUITY MANAGEMENT

Sensitivity Analysis and Stress Testing are essential parts of WHAUP's risk management plan. They are conducted to assess the outcomes and impacts of various risk events, after which risk mitigation measures are prepared to align with the results. Through the analysis of sensitivity and stress testing results, it is evident that flood and drought are significant risks for WHAUP. This is because the presence of industrial factories and customer warehouses of WHAUP within WHA Group's area of responsibility. Therefore, direct impacts from flood events can lead to business disruptions for customers, resulting in reduced demand for WHAUP's utility and power systems. Additionally, WHAUP's utility services rely on natural resources such as rainfall and water from natural sources. These impacts can affect the availability of water supply for customer services.

Hence, WHAUP has initiated several projects to mitigate risks from drought and flood. For example, the rainwater drainage inside industrial estates which can drain the rainwater effectively during heavy rains as well as setting the working level of each water pump to work automatically at the different levels. Another example is the improvement of dykes to prevent outside water from the flooding area, and the on-site; reservoirs located nearby WHA Rayong 36 Industrial Estate application for water allocation from Nong Pla Lai Reservoir, and water reclamation. More detailed information can be found in Climate Change chapter.



Furthermore, WHAUP has developed a Business Continuity Plan (BCP) as part of our comprehensive risk management system. This plan aims to ensure preparedness in responding to emergency situations and crises effectively. The BCP helps maintain the smooth operation of utility and power services. WHAUP continually reviews and improves this plan to cover all potential scenarios that may cause business disruptions, such as natural disasters, emergencies, pandemics, and threats to data security and safety.

WHAUP also collaborates with WHA Group in conducting performance and effectiveness testing of the business continuity plan, both internally and during operational processes. The results of these tests are used to refine the plan, ensuring accurate and precise responsiveness to real-life scenarios. In addition, with awareness of the increasing cyber threat trends, WHAUP also arranges for data security testing conducted by the Information Technology team. This encompasses disaster recovery and backup media recovery, with test results meeting the set objectives. The recovery time for data retrieval falls within the estimated and anticipated timeframe.

For the backup data recovery testing of each system, the latest backup data from the storage is selected and imported into the recovery process. This ensures confidence in the ability to read and retrieve the backup data accurately. The testing results for the ERP system, File Sharing system, and MS SQL Database system have shown that have been successfully achieved as planned. WHAUP performed BCP test for various scenarios including Emergency Plan for Chemical spill, Road accident and Flooding Prevention Plan. The testing covered procedures in the case of emergency as follows:



- Receiving notification report of the incidents
- Preventing the emergency incidents
- Coordinating and communicating
- Using tools and equipment
- Assessing the readiness of tools, equipment and time to respond to emergencies

According to the report, all related departments and relevant personnel can conform to instructions as stated in BCP Plan, hence the testing results are satisfied.

In addition, WHAUP has upgraded our Unified Operation Center (UOC) to enhance our capabilities in controlling and managing public utility services. WHAUP can remotely control and manage water and solar energy facilities through the UOC. Therefore, during emergencies or situations with movement restrictions, such as the lockdown measures implemented during the COVID-19 pandemic, the UOC serves as the second command centre to control water and solar energy facilities, ensuring the uninterrupted operation of the business.

In 2023, WHAUP continued to emphasize risk management and crisis preparedness to mitigate impacts on businesses and stakeholders. The focus remains on promoting a risk management culture across all levels of stakeholders through key operational activities, including:

CODE OF CONDUCT & ANTI-CORRUPTION TRAINING

In 2023, WHAUP continued to prioritize conducting business with integrity, fairness, transparency, and in compliance with laws, business ethics, and good corporate governance principles. This ensures that operations are conducted ethically, responsibly towards society, the environment, and stakeholders. Recognizing the importance of communicating these policies to all stakeholders at every level, WHAUP emphasized knowledge, understanding, and awareness of roles and responsibilities. It implemented stringent practices, including establishing a whistleblowing mechanism, to foster a sustainable organizational culture. Furthermore, WHAUP, collaboration with WHA Group, organized training sessions to review knowledge through the “Business Ethics and Anti-Corruption Compliance” course for directors, executives, and all employees during December 12-14, 2023. The curriculum covered critical areas such as preventing internal information misuse, reporting securities holdings, preventing conflicts of interest, reporting profit-sharing, and various whistleblowing channels and complaints. In 2023, the training was enhanced with video animation modules for easier accessibility and comprehension. Moreover, WHAUP evaluates employee performance based on the “Business Ethics and Practices” principles. All participants are required to undergo an assessment test to measure their knowledge and understanding of business ethics, anti-corruption policies, and compliance practices. Employees failing the online test must attend retraining sessions to review the content. In 2023, all training participants passed the assessment. Additionally, a survey conducted in 2023 revealed that 100% of employees acknowledged and understood the policies. There were no reported instances of violations of business ethics and practices, nor were there any statistics indicating corruption within the organization. Furthermore, there were no relevant whistleblowing reports or complaints.



BOARD RISK AND SUSTAINABILITY COMMUNICATION PROGRAM

WHAUP and WHA Group have incorporated risk considerations, including sustainability aspects, in the organization’s strategy. In the year 2023, the management team presented risk issues and sustainability matters to the board of directors for their awareness and as information for discussion during meetings to determine the organization’s short-term and long-term strategies, particularly in the fourth quarter of 2023.



RISK CULTURE PROMOTION ACTIVITIES AND TRAINING PROGRAM

To further strengthen the risk culture, WHAUP has organized regular training programs and activities on risk management in collaboration with WHA Group. These initiatives aim to enhance employee awareness and develop their skills in identifying, controlling, and mitigating risks related to their roles and responsibilities. Key training and activities include:

- To ensure that the executives, Risk Management Committee, and working groups are well-informed and aware of the organization's risk profile, emerging risks, risk mitigation measures, and overall risk management processes. Furthermore, Risk Management committee has arranged for trend reports and various change reports both within and outside the organization during board meetings. This ensures 100% reporting on risk trends.
- Since 2020, WHAUP has adopted the Three Lines of Defense (3LOD) framework to enhance communication about risk management and control. This includes clearly defining the important roles and responsibilities of personnel involved at each level of the 3LOD framework. The supervisory unit responsible for overseeing risk management serves as the first line of defense, while the unit responsible for controlling risks and setting policies established by the executive team acts as the second line. Finally, the independent audit unit serves as the third line. Each level of defense within the 3LOD framework has distinct roles and responsibilities within the organization's governance framework. Therefore, the participating personnel are tasked with ownership in the risk management and control processes, as well as independent auditing. WHAUP expects all relevant units to have sufficient awareness and receive adequate communication regarding the approaches. This ensures that the organization effectively manages risk.
- In 2023, WHAUP, in collaboration with WHA Group, conducted a risk management training under the topic «Fraud Issues Organizations Must Be Aware of and Fraud Risk Assessment» for executives and all employees within WHAUP. This training was delivered online and had 580 participants, accounting for %80 of all employees in the WHA Group. Additionally, a Risk Management Workshop was held for operational staff on-site. The 2024 Global Risk Report from the World Economic Forum (WEF) was also presented to the board members, executives, and all employees of WHAUP. This initiative aimed to raise awareness and enhance the skills of personnel in identifying, controlling, and mitigating risks related to their roles and responsibilities, thereby enabling effective participation in risk management and strengthening the organization's risk management culture.
- WHAUP regularly provides risk management education to non-executive directors through the Risk Management Program offered by the Thai Institute of Directors (IOD), such as the Risk Management Program for Corporate Leaders (RCL). These programs aim to promote an understanding of different types of risks, the roles of directors in managing risk, and the framework for risk management. See full details of the risk management education for non-executive directors in the Form 1-56 One Report 2023



Additionally, WHAUP is committed to developing and implementing various digital innovations to promote an effective risk management culture. WHAUP has played a significant role in the development of the Corporate Risk Management System (RMTS) in collaboration with WHA Group. The system began pilot use in the third quarter of 2023 to facilitate risk assessment and display the status of all key risks, along with providing alerts, monitoring, and tracking risk management activities efficiently.



To ensure an effective risk management system, WHAUP has established an external audit of risk management system, conducted by KPMG Phoomchai Business Advisory Ltd. at least annually. The external audit of risk management system in 2023 covered the following topics:

The company has defined its objectives clearly and adequate to be able to identify and assess risks related to achieving its objectives.

The company comprehensively identifies and analyzes all types of risks that may affect the achievement of objectives throughout the organization.

The company has assessed the importance of risks by considering both the chance of an event occurring and the impacts that may affect to achieve the objectives of the organization.

The company has measured and operational plans to manage risks at an acceptable level.

The company considers the potential for corruption in assessing risks to achieve the objectives of the organization.

The company can identify and evaluate changes that may affect the internal control system.

The company has communicated to all employees to understand and follow the policies and guidelines specified.

Additionally, WHAUP conducts internal audits on risk management by the Internal Audit Office. This process covers the entire risk management system of the Group according to the annual risk management plan. The internal audit is performed at least annually, and the results are reported to the Audit Committee.



The results of the 2023 audit are as follows:

WHAUP's commitment to establishing an effective risk management framework and fostering a risk management culture among employees at all levels not only results in good governance and risk management performance, as evidenced by various standards, but also helps prevent potential impacts and damages to the business. These include interruptions in business continuity, loss of revenue, damage to reputation, and erosion of stakeholder confidence—whether from employees, shareholders, investors, or customers—all of which affect the sustainability of WHAUP's business operations.

Additionally, effective risk management helps prevent the impacts of various risks that may affect the environment and WHAUP's stakeholders. This includes managing environmental risks and climate change, which influence the well-being of surrounding communities and the business continuity of WHAUP's customers. It also encompasses managing safety and occupational health risks, which impact the health, lives, and property of employees, partners, contractors, and nearby communities. Therefore, WHAUP is committed to comprehensive risk management to mitigate these impacts.

WHAUP recognizes the ongoing and rapid changes in the current dynamics of the economy, society, environment, and technology, which bring new opportunities and challenges for businesses in 2024 and beyond. Consequently, WHAUP is committed to advancing proactive risk management to stay abreast of emerging risks. This involves continuously monitoring economic, social, and environmental trends that may pose risks and impact the organization, while also examining internal operational factors to refine risk management strategies and measures. Additionally, WHAUP promotes a risk management culture within the organization and leverages innovation and technology to enhance risk management efficiency. Furthermore, WHAUP plans to develop a business continuity management system. This includes conducting a Business Impact Analysis (BIA) along with a critical Risk Assessment to identify significant risks that could disrupt business operations. These efforts aim to establish comprehensive business continuity strategies that effectively cover 100% of all business units.

CUSTOMER RELATIONSHIP MANAGEMENT

Currently, various factors such as trade liberalization, technological advancements, or emerging risks, have made maintaining good relationships with customers a key factor for sustainable business growth by focusing on ensuring that customers understand and receive sufficient information from WHAUP. Developing the customer relationship management system will enable businesses to build long-term relationships with customers and allow the Group to learn about customers' diverse needs to provide proper services or products that better meet their needs, retain existing customers, attract new customers, and open opportunities for the organization to understand various dimensions of customer needs from environmental to social needs, for now and in the future. This will enable the Group to design products that suitably meet customer needs and reduce the impact of inappropriate operations that could result in human rights violations. This approach will help build a strong economic foundation for the business and overall society.

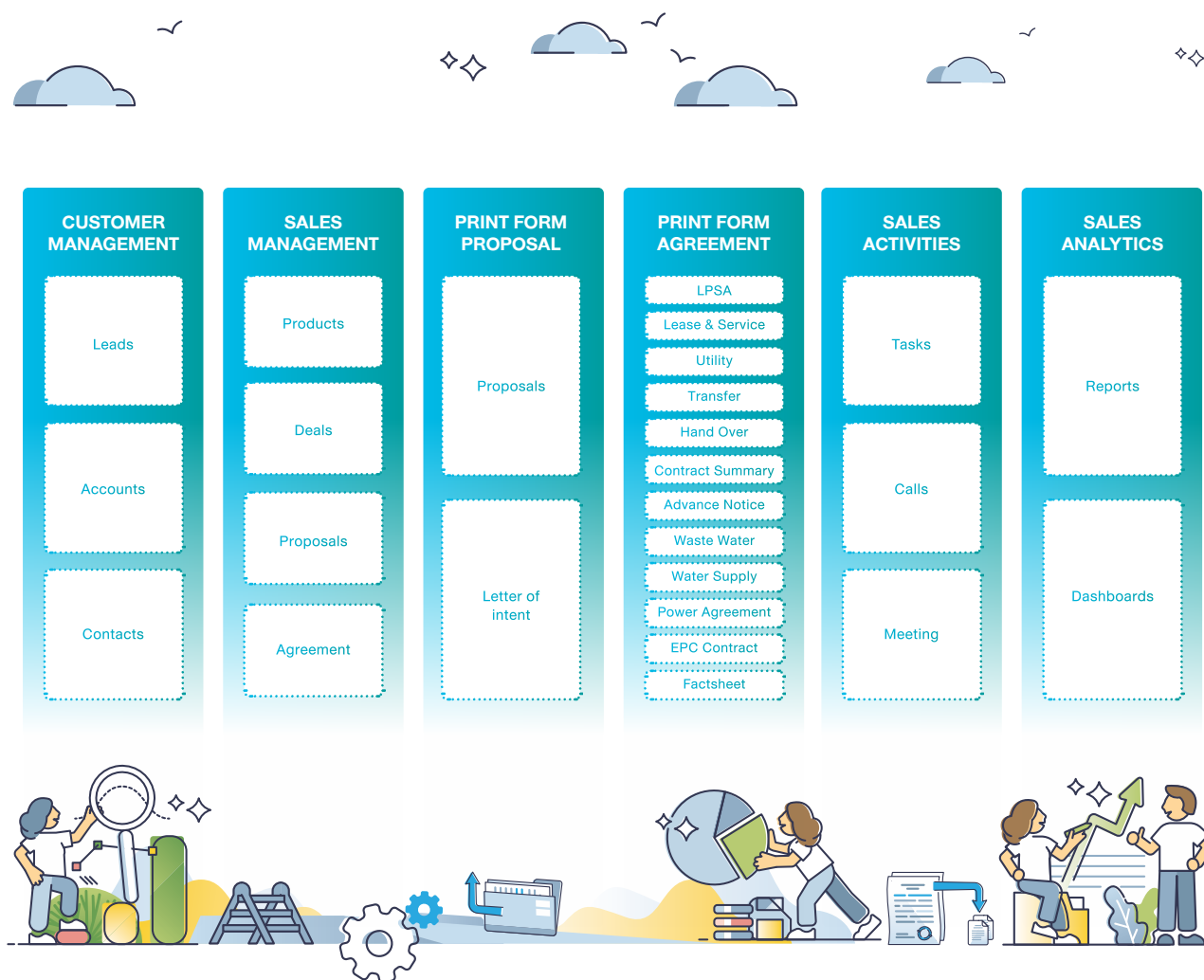
Therefore, the trend of incorporating new technologies becomes an important role in managing customer relationships and meeting their needs. Automation, for example, can enhance work efficiency, allowing businesses to keep pace with digital transformations. Additionally, the application of Artificial Intelligence (AI) can boost efficiency in building customer relationship and together with using technologies to accurately collect customer data in one place, it helps organizations tailor their engagement with customers per their specific needs. This saves time and resources, which can be redirected to other important or more complex activities.

WHAUP, as a comprehensive utilities and power system provider, recognizes that our operations play a crucial role in supporting our customer's operations. Therefore, if we encounter service disruptions causing customer's business operations to halt, the negative impact would not be only on us and our customers but also extend to other stakeholders, such as individuals consuming products and services of our customers, or employees who would be directly affected. To ensure that such incidents do not occur, WHAUP continuously monitors trends of utilities and power business and develops our operations to respond to these changes.



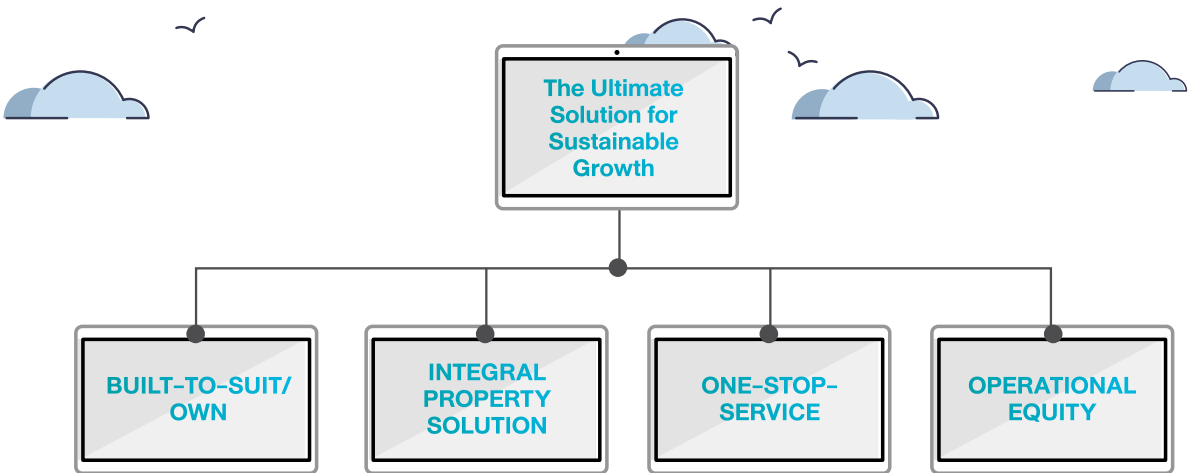
In 2023, WHAUP integrated technologies and innovations into our business operations, particularly in customer relationship management. This facilitated the growth and expansion of the business through collaboration on a platform that includes all our customers and stakeholders. Additionally, it helped elevate the efficiency, speed, and reliability, while reducing human errors. For example, investments in various smart technologies, such as automation, 5G technology, AI, and machine learning, can enhance efficiency and reduce operational costs in the long run.

Furthermore, WHAUP has utilized a Customer Relationship Management (CRM) System, a foundation for managing customer relationship of WHA Group, to respond to customer needs quickly and efficiently. This system also enables employees in various departments to work together conveniently and reduces unnecessary work processes. All data is centralized and stored in one place through data storage technology, allowing employees responsible for different departments to access customer data of WHAUP comprehensively. This helps reduce unnecessary contact processes, making customer relationship management and customer satisfaction efforts faster, more accurate, and more efficient. Additionally, we always have plans to prepare for changes in business environment and technology in the future. The CRM System consists of the following components:



Management approach

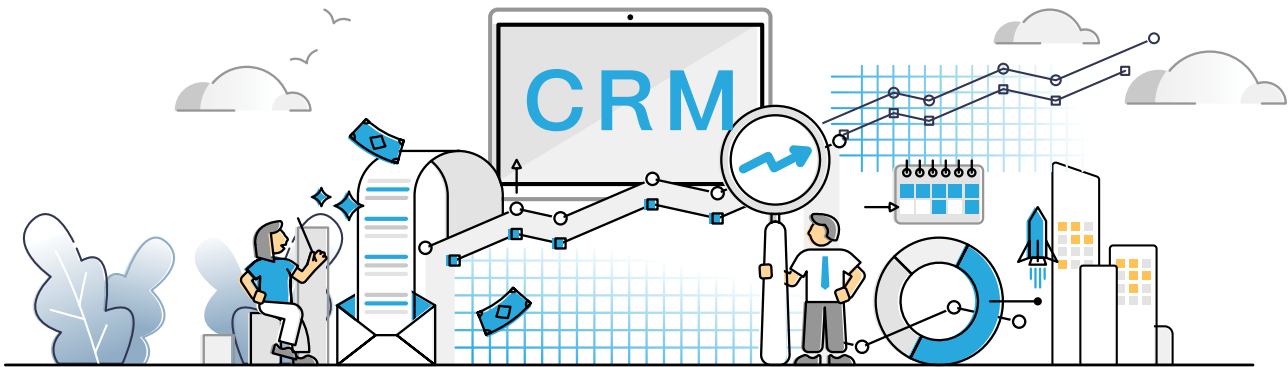
WHAUP values comprehensive responding to customer needs of utilities and power. Therefore, WHAUP has a customer relationship management policy in place and has established a Customer Development Department to be responsible for managing customer relationships, understanding and acknowledging customer needs and feedback, and devising strategies to respond to customer needs appropriately. In 2023, WHAUP continued to adhere to WHA Group’s commitment to be “The Ultimate Solution for Sustainable Growth” provided to customers. This reaffirms WHAUP’s dedication to assisting customers in driving the businesses towards sustainability through comprehensive services.



WHAUP’s core competency lies in the best in-class comprehensive utilities and power system service under WHA Group’s “One Stop Service Solutions” framework to fully meet the needs of our customers. This includes procurement and distribution of industrial water, raw water, process water, and clarified water for industrial estates, as well as conventional energy and renewable energy service. Hence, WHAUP will continue to pursue our best efficiency in customer service by continuously improving service quality, which corresponds with WHA Group’s mission to become “The Ultimate Solution for Sustainable Growth” to maintain our leading position in the utilities and power market.



In 2023, WHAUP collaborated with WHA Group to integrate new technologies and innovations into the CRM system to meet customer needs promptly and efficiently as part of WHA Group's and our development plan to transition into tech companies. The application is developed to strengthen customer relationships and experiences, increase WHAUP employee's productivity, and reduce unnecessary working processes and errors as well as enhance data accuracy and security. Utilizing this database allows employees to fully access customer data which enables more effective customer relationship management and customer satisfaction.



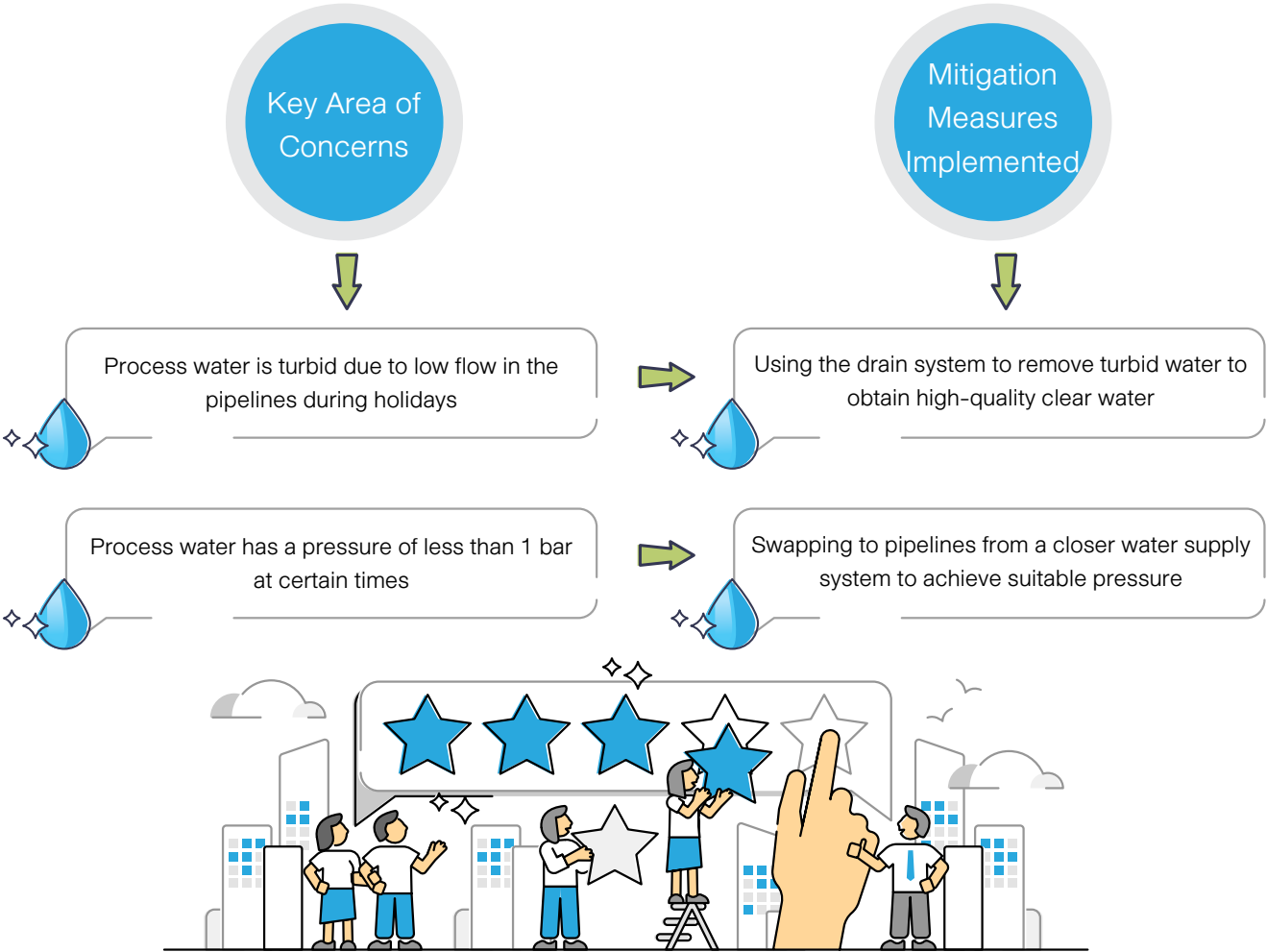
Moreover, WHAUP was a part in publishing the quarterly journal “WHA Connect” with WHA Group to promote WHAUP's news and activities including social events and activities specifically organized for customer benefits such as trainings or seminars. This journal is available in Thai and Japanese for better communication with customers. WHA Connect journal and “WHA E-Connection”, WHA Group's electronic communication channel, along with communication via e-mail, Facebook, LinkedIn, and website, which are available in Thai, English, Japanese, and Chinese, are convenient and accurate communication platforms for the diversity of our customers. Furthermore, WHAUP enhance the effectiveness of two-way communication through regular customer visits, phone calls and emails, with focal personnel set for addressing customers' concerns or requests. WHAUP also set a thorough grievance mechanism process by receiving feedbacks and complaints via various communication channels and investigating in accordance with WHAUP's Customer and Public Complaint Procedure. Upon receiving a complaint, the department manager from the relevant business hubs will be informed, and a competent staff will be further assigned to investigate, address, and document the filed complaints, and further implement corrective measures used throughout WHA Group. Subsequently, the complaints and progress on corrective actions are proposed to the Quality Committee during WHAUP's management review meeting once a year.



WHAUP surveys customer satisfaction as it plays a crucial role in generating profits for our utilities and power business, especially given the current scenario where changes in customer behaviors and needs become significant and pose challenges to retaining existing customers and acquiring new ones. Consequently, building trust serves as the foundation for effective customer relationship management and a key strategy to strengthen WHAUP’s long-term business growth while instilling confidence among all stakeholders in the value chain. Therefore, WHAUP conducts customer satisfaction surveys on an annual basis to evaluate the outcomes of customer relationship management using rating scales covering the satisfaction with the quality of utilities and power system service. In 2023, the survey was conducted among WHAUP’s customers. WHAUP’s Customer Development Department is responsible for collecting and analyzing customer data. In the event of any complaints, investigations into the root causes are conducted, and guidelines are established to prevent similar cases from recurring in the future. The survey results are presented during executive meetings, facilitating the efficient handling of various complaints, and adjusting business strategies to enhance product and service development. Satisfaction levels, comments, and complaints are collected through multiple communication channels, including telephone, LINE, and email.



Based on the 2023 customer satisfaction survey, including complaints reported through the communication channels and processes as outlined, issues that can be developed to improve customer satisfaction are as follows:



WHAUP is determined to create projects to support and facilitate major and minor customers and foster good relationships with customers by expanding channels for close interaction. Additionally, WHAUP is dedicated to social and environmental responsibility, aiming to minimize the environmental impacts or pollution resulting from our business operations. Therefore, as a utilities and power service provider, WHAUP not only supplies, products, and distributes water to entrepreneurs within our areas but also offers wastewater treatments for enterprises with factories within industrial estates. This helps to reduce odor pollution and wastewater discharge into natural water sources, and enables the reuse of wastewater in water production, thereby reducing community water resource consumption and promoting sustainability for all sectors. WHAUP offers a variety of utility products that can meet the diverse needs of customers in WHA Group's industrial estates and industrial lands, as followed.

RAW WATER SUPPLY:

- WHAUP procures and distributes raw water to enterprises in WHA Group's industrial estates. WHAUP sources raw water as an alternative for industrial businesses. Major customers include customers from petrochemical industry, independent power producer (IPP) industry, and steel industry, etc.

Industrial water supply: This involves providing production and distribution services of industrial water, specifically targeting industrial factory operators. It can be categorized into four main types, which are:

- Process Water:** This is industrial water that has undergone the processes of sedimentation, filtration, and chlorination for disinfection. The final product is used in general production process. The customers include the automotive industry (e.g., automotive assembly plants and auto part manufacturing plants), food industry and electronics industry.
- Clarified Water:** This refers to water that has undergone processes such as sedimentation, filtration, and chlorination for disinfection (in less amount and concentration than those used for the process water). The chlorine content is nearly depleted before delivering the clarified water to customers. This product effectively addresses the needs of heavy-industry customers, such as petrochemical industry. This is because chlorine, if present, could potentially corrode the machinery of customers within these industrial sectors.
- Premium Clarified Water (PCW):** PCW is higher quality clarified water produced using the high-quality membrane technology. This is mainly distributed to customers in the power plant sector. WHAUP started service this water in 2020 at Eastern Seaboard Industrial Estate (Rayong) (ESIE).
- Demineralized Water:** Demineralized water is the highly purified water that most of essential minerals are removed. IT is used in the production process of some industries such as power plant, petrochemical, electronics, etc.

WASTEWATER TREATMENT:

- WHAUP provides full service of wastewater treatment for manufacturers in WHA's industrial estates. We ensure that wastewater is treated in accordance with applicable standards set by the Thai Ministry of Industry before being discharged into the central wastewater treatment reservoir of each industrial estate. Treated water can be further discharged into natural water sources or reused in the production process.





WHA CUSTOMER CLUB

WHAUP and WHA Group established multiple customer clubs which are considered as communication channels to closely interact with customers to better address their interests or concerns. Customer clubs highlighted in 2023 include:

1. WHA Investor Club - Opened for all customers in WHA industrial estates which is also WHAUP's customers. Members of the club will receive monthly/quarterly newsletters and invitations for various training seminars. In 2023, 3 online seminars were held for the club members, including:
 - "HR Meets the Professional - Elevate Total Rewards to the Next Level."
 - SEDEX V6.1 and RBA V7.1.1 Audit Preparation Seminar, Audit SEDEX, and RBA in 2023
 - A Path to Net Zero, Smart Energy Efficiency Strategy for Industry 5.0
2. The Japanese Club – Established for over 24 years since WHAUP founded it together with WHA Group in 2000. Currently, its members consist of our customers, Japanese entrepreneurs from 130 industrial factories in WHA industrial estates in Chonburi and Rayong. Monthly meetings are held at Eastern Seaboard Industrial Estate (Rayong) Office. In 2014, we expanded the club to WHA Saraburi Industrial Land (WHA SIL) with 23 industrial factories. The club holds meetings every two months at the WHA SIL Office, to exchange information on various topics such as changes in laws, waste management, energy production from waste, and serves as a meeting point for Japanese people working in WHA Group's industrial estates.
3. Eastern Seaboard Labor Relation Club (ESLR Club) - Established in 2005, the ESLR Club currently has members from 140 companies in WHA industrial estates. The club serves as a labor information service center for members interested in information regarding labor unions, regulations, and cooperation or recommendations regarding labor disputes or other issues related to labor agreements. The club holds member meetings every month at Eastern Seaboard Industrial Estate (Rayong) Office to communicate information accurately and comprehensively to its members.

WHAUP INTERVIEWS SHOWCASING POSITIVE CUSTOMER RELATIONSHIPS

FORD MOTOR COMPANY (THAILAND) LIMITED

The installation of Solar Carpark with a generation capacity of 7.7 MW and a total rooftop space of 59,000 square meters which considered the largest in Thailand



Mr. Silvio Illi, Director of Manufacturing, Ford Asean, said “We aim to run a sustainable business to help build a better world, where all people are free to move and pursue their dreams. Ford is committed to develop its car production process worldwide while using 100% clean energy within 2035 and reaching carbon emission neutrality by 2050. It targets to reduce CO2 emissions by 143,000 tons during the contract’s 25-year term.”

“At present, two Ford production and assembly plants in Rayong under Ford Thailand Manufacturing (FTM) and AutoAlliance (Thailand) (AAT) have switched to solar power. The AAT plant installed its 5 MW solar power system in 2021 while the FTM plant began the installation of its 7.7 MW solar power system in 2022, expected to be completed by early 2023. Both solar power projects have received good support from WHAUP for the design and structural work to install the solar power systems. The switch to solar power will help WHAUP drive the use of clean power and lower carbon emissions to create sustainability for the environment and the company’s business at the same time.”

“The installation of the solar carpark system enhances space management efficiency. In addition to the shade provided by the solar panels, which helps maintain the quality of cars before they are distributed to Ford dealers both domestically and internationally, it also reduces the company’s energy costs in the long term. Importantly, using solar energy helps reduce greenhouse gas emissions by over 5,720 tons of carbon dioxide per year, and our employees benefit from working in a safer and cooler environment.”



Mr. Somkiat Masunthasuwan, Chief Executive Officer of WHA Utilities and Power Public Company Limited (WHAUP), revealed that the installation of Solar Carpark for Ford Motor Company (Thailand), covering an area of 59,000 square meters with a total power generation capacity of 7.7 MW and an investment value of 235 million baht, the project was recently completed on December 7, 2023. This marks the largest Solar Carpark project in Thailand, located in WHA Eastern Seaboard Industrial Estate 1 (WHA ESIE 1). The project follows NEC2020 (National Electrical Code) standards, which are global safety standards for solar energy systems, and will help reduce energy costs and carbon emissions for the customer.

“The company is delighted that Ford Motor Company (Thailand) has placed its trust in the quality of WHAUP’s standard-compliant solar power generation system and its long-term maintenance service. For this project, we provided comprehensive services, including project feasibility study, investment, design, permitting, construction, installation, and maintenance throughout the contract’s duration. Undoubtedly, this shift to solar energy will help us promote the use of clean energy, reduce carbon emissions into the atmosphere, and pursue a sustainable business approach in all dimensions, including economic, social, and environmental aspects”, said Mr. Somkiat Masunthasuwan.

Additionally, the growth outlook for the business was highlighted by Mr. Somkiat Masunthasuwan that the utilities and power sectors are expected to expand significantly due to the growth of WHA Group’s customers, which positively impacts the increased demand for water and electricity. Meanwhile, WHAUP continues to expand its investments in new utility and renewable energy projects both domestically and internationally, aiming to create sustainable growth opportunities.

Following the Commercial Operation Date (COD) of the Ford Solar Carpark project, WHAUP’s cumulative power generation capacity has increased to 113.7 MW, up from 106 MW generated by operational solar power projects. This year, WHAUP aims to reach a cumulative renewable energy generation capacity of 300 MW. This target will result in a total power generation capacity of 847 MW based on the company’s equity stake.

CONTACT INFORMATION :

FORD MOTOR COMPANY (THAILAND) LIMITED

WHA Eastern Seaboard Industrial Estate 1 (WHA ESIE 1)

500/103 Moo 3, Ta Sit, Pluak Daeng, Rayong 21140, Thailand

AISIN POWERTRAIN (THAILAND) COMPANY LIMITED

Aisin Powertrain (Thailand) Company Limited (AIPT), Japan's leading manufacturer of automatic transmission and drivetrain for automobiles, signed a solar rooftop purchase agreement with a capacity of 3.25 MW at WHA Eastern Seaboard Industrial Estate 2. This project enables AIPT to reduce electricity costs by up to THB 305 million.



WHAUP CEO Mr. Somkiat Masunthasuwun announced that the company signed a solar power purchase contract with Aisin Powertrain (Thailand) Co., Ltd., Japan's leading manufacturer of automobile power transmission and gear systems on 27 June 2023. He said the company is honored to be trusted by AIPT. Under the solar rooftop project, WHAUP will install the solar panel on the rooftop of AIPT's plant with a capacity of 3.25 MW at WHA ESIE 2 in Chonburi province. The installation is expected to be completed by mid-2024. Once the project is finished, it will not only help AIPT reduce its electricity costs by THB 305 million but also reduce CO₂ emissions by 56,300 tons over the 25-year service life. This aligns with AIPT's policies in preserving the natural environment, promoting eco-friendliness, reducing carbon dioxide emissions, and supporting long-term environmental solutions to achieve carbon neutrality, as well as mitigating the impacts of global warming and climate change.

Mr. Noritaka Kunieda, President of Aisin Powertrain (Thailand) Co., Ltd., (AIPT) stated that the signing ceremony of the solar rooftop power purchase agreement between AIPT and WHAUP signifies the organization's unwavering commitment to achieve business growth and excellence in all dimensions, including employees, customers, society, and the local community. The company's vision is to become the "Best One Company" under the guiding principles of being "a company loved by employees, a company loved by customers, a company loved by the local community and society," which will, in turn, contribute to enhanced production efficiency. Presently, AIPT employs a total of 950 employees, comprising both Thai and Japanese. The AIPT Group of Companies is dedicated to creating a sustainable society.

The solar rooftop project is expected to fulfill the company's objectives in terms of reducing electricity costs by an average of THB 305 million and cutting CO₂ emissions by up to 56,300 tons. This aligns with AIPT's ambitious goal of achieving zero carbon emissions by 2035, as envisioned in its energy efficiency program. With the Kaizen initiative, AIPT has streamlined working processes, leading to a yearly reduction in energy consumption by an average of 3%. The company has also adopted an implementation plan for utilizing renewable energy sources, with an initial target of meeting 15% of its energy needs through renewables by 2025, and aims to increase this to 40% by 2030, in line with the company's Sustainable Development Goals (SDGs).

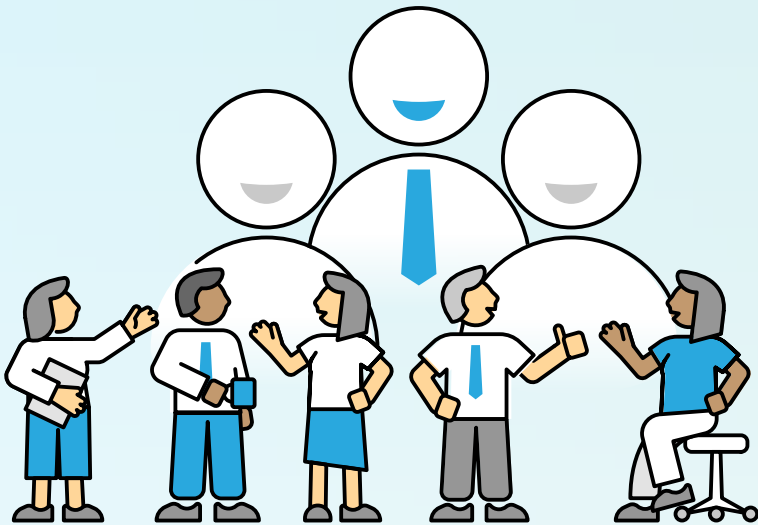
"The company is delighted to once again collaborate with WHA Group. Initially, we began constructing a factory in WHA Eastern Seaboard Industrial Estate 2 in 2015, covering an area of 133 acres. Over the past 8 years, we have established a fully automated gearbox production facility to meet the demands of customers in the ASEAN region. Currently, our production capacity is 300,000 units per year. Most recently, we have signed a contract for the purchase of solar electricity from rooftop solar panels with WHAUP. This installation has a capacity of 3.25 MW. Therefore, the company is confident that this project will benefit both parties in promoting long-term environmental solutions."

AISIN POWERTRAIN (THAILAND) COMPANY LIMITED

WHA Eastern Seaboard Industrial Estate 2

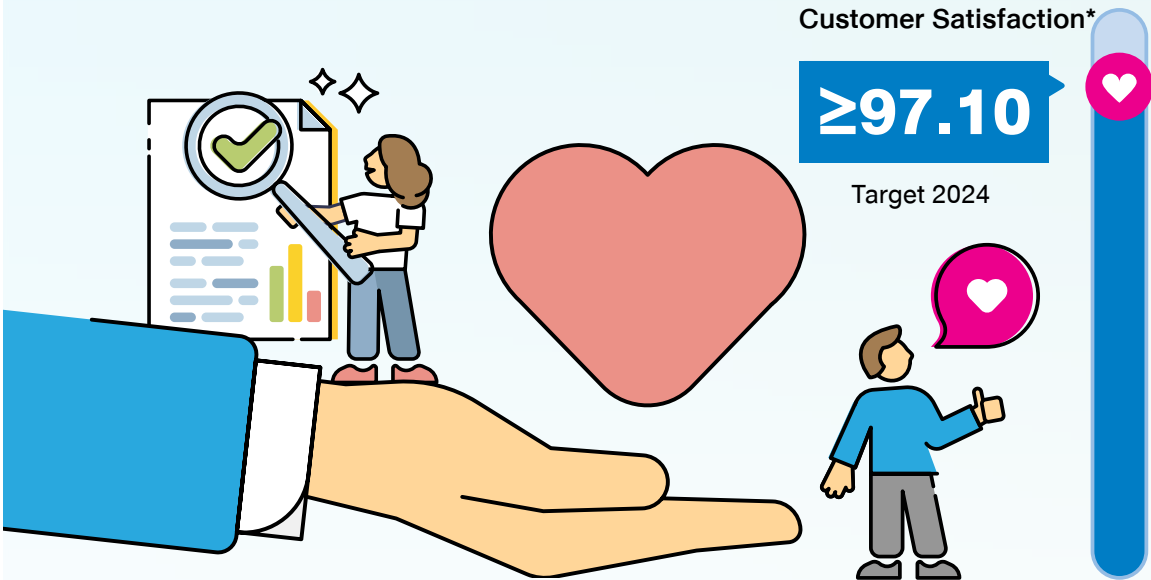
890/2 Moo 3, Ta Sit, Pluak Daeng, Rayong 21140, Thailand

Customer Satisfaction Measurement*



2020	2021	2022	2023
96%	95.27%	97.10%	96.61%
Score	Score	Score	Score

Customer Satisfaction*



*In 2022, the methods to evaluate customer satisfaction was changed to align with international measurement standards.

WHAUP is committed to efficiently managing customer relationships to fully meet customer needs of utilities and power. To maintain existing customer groups while expanding into new customer groups, WHAUP incorporates various technologies and innovations to provide fast and convenient services to customers through the development of projects that cater to the specific needs of each customer. These initiatives aim not only to enhance the business capabilities of customers but also to develop their environmental management capabilities. For example, the wastewater treatment project before releasing it into natural sources to minimize resource usage successfully meets customer needs while creating positive impacts to the environment. WHAUP believes that effective customer relationship management is crucial for the sustainable development of both the Group and the customers, ensuring long-term sustainability in terms of business performance, societal impact, and environmental conservation.

As customers is always one of WHAUP's valued stakeholders, WHAUP has prioritized maintaining customer satisfaction aiming for over 90% satisfaction continuously. We have plans to further enhance customer satisfaction in the future. In 2024, we aim for 97.10% customer satisfaction and sets a long-term goal of reaching 98% by 2027. We continue to implement strategies and projects to achieve these goals, focusing on improving communication between WHAUP and our customers. This includes using technology and innovation to enhance convenience, speed, accuracy, and safety for customers. Additionally, there are plans to develop sustainable strategies to effectively meet customer needs and implement the Super App technology to address customer concerns and complaints.

WHAUP has a goal to build trust in customers that they will receive good experience working with WHAUP. We implemented strategies to respond to customer's needs starting from engaging and listening to customer's comments to deeply understand their problems. We also adapt suggestions to develop solutions tailored to manage customer needs and problems effectively. WHAUP also have a communication and monitoring processes to address customer issues promptly. Furthermore, we continuously improve our workflows and develop products and services to always meet diverse needs of customers.

In terms of communication, WHAUP cooperate with WHA Group to develop "Customer Centric" as a part of WHA Group's "Mission To The Sun". We use the "Super App" technology as another customer communication channel between WHAUP and our customers for more diverse and accessible. This efficient communication with customers is crucial for building trust and fostering good relationships with customers. The project is currently under the system development phase and is expected to be operational by around April 2024.

Additionally, WHAUP also emphasizes the importance of creating a customer-centric organizational culture. We encourage all employees to be aware of the importance of customers and be committed to providing the best customer service. WHAUP also has an efficient complaint management system to allow customers to conveniently and quickly lodge complaints and receive timely resolutions. All these implementations will help increase overall customer satisfaction towards WHAUP and maintain our position as Thailand's leader in the utilities and power business.



SUPPLY CHAIN MANAGEMENT



The uncertainty of the global economy, the customer's needs, and the climate change unavoidably impact the global supply chain. Therefore, the ability to manage complex supply chains, including sourcing raw materials and services, managing inventory, and transporting materials, equipment and personnel to work sites to deliver quality products and services on time, has become crucial in strengthening the business. Many organizations have adopted sustainable development strategies that integrate Environmental, Social, and Governance (ESG) issues into their business operations throughout the supply chain, from the upstream to downstream, known as the "Sustainable Supply Chain Management". This helps increase opportunities, reduce risks, and enhance competitive capabilities. Sustainable supply chain management also raise awareness of suppliers who are product manufacturers or service providers to operate responsibly, which has a positive impact on the economy, environment, society, and human rights to stakeholders in a broad scale. It also enhances supplier relationships and potential by using digital technology to improve the efficiency of management processes at each stage to be more systematic, promoting supplier's development and sustainable business growth together with WHAUP.

As a utilities and power service provider, WHAUP understands that aligning supply chain management with sustainable operational principles, along with developing systems to accommodate technological trends and market changes, is the key to sustainable growth. Therefore, WHAUP has developed sustainable procurement process, integrating operations related to the business ethics, environment, health, safety, and society into the procurement process. The transformation is achieved through a digital transformation program with WHA Group, incorporating operating programs into the procurement process to make it more efficient and agile. For example, using the Corporate Procurement Management System (CPRS) helps facilitate rapid and efficient communication between WHAUP and suppliers. Additionally, it promotes transparency, reduces delays, and minimizes errors in document work. It also effectively integrates sustainable supply chain management principles into the operational system, such as online supplier evaluations (Pre-Qualification Form: PQ), on-site inspections, and external company audits on the business ethics, environment, health, safety, and society performance. Furthermore, WHAUP, together with WHA Group, provides capacity buildings for suppliers in sustainability, along with technical support programs to enhance Environmental, Social, and Governance (ESG) capabilities for suppliers facing challenges in these operations.

MANAGEMENT APPROACH

SUPPLY CHAIN MANAGEMENT AND CRITICAL SUPPLIER IDENTIFICATION

Ensuring transparency, fairness, and responsibility to all stakeholders, WHAUP places great importance on supply chain management process by establishing a sustainable management policy and a Supplier Code of Conduct, aligning with WHA Group's Code of Conduct. The objective is to inform WHAUP's current and new suppliers and contractors about our sustainable supply chain management direction and guidelines. The Supplier Code of Conduct covers three main sustainable issues: business ethics, fundamental human rights knowledge, and occupational health, safety, and environmental management. To ensure compliance with the Supplier Code of Conduct, WHAUP has distributed it to all current and new suppliers and contractors and requested their acknowledgement. WHAUP also conducts training for all suppliers and contractors, and the annual training for procurement department staff to raise awareness and enable the sustainable supply chain management.



NEW SUPPLIER SELECTION PROCESS

To select new suppliers, WHAUP evaluate and select suppliers not only from their compliance with law and regulations, but also from their alignment with WHAUP's sustainable development. WHAUP considers the quality of products, employee safety, and social and environmental responsibility of our business suppliers. WHAUP sets criteria such as product and service quality, transparency and fairness in business practices, environmental considerations, and social impacts to assess the potential of current suppliers and source and select new suppliers to grow together throughout the supply chain from sourcing raw materials to delivering products to consumers. In the process of selecting new suppliers, WHAUP requests that all new suppliers complete a Pre-Qualification Form (PQ) which includes questions to assess qualifications in quality, price, production and service capabilities, management systems, and sustainable potential (environmental, social, and governance: ESG). In 2023, a total of 91 new suppliers have undergone the assessment through established processes. It was determined that every new supplier had the potential and met the sustainability criteria. To foster basic relationships, WHAUP values supplier treatment depending on the conditions in the contracts and sets the average credit term at 30-45 days, depending on the mutually agreed terms and conditions between WHAUP and the suppliers. With the actual average time taken to settle debts with suppliers, we effectively manage our cash flow and have no difficulties in paying its suppliers. Consequently, the credit term conditions are typically met without any issues.

CRITICAL SUPPLIER IDENTIFICATION

WHAUP has established a process for reviewing and identifying critical suppliers every year to effectively manage the value chain, reduce risks and increase business the long-term stability of the business. WHAUP used the ABC system to select suppliers based on the annual expenditure, the importance of the products or services provided by the suppliers, or the possibility of using alternative suppliers.

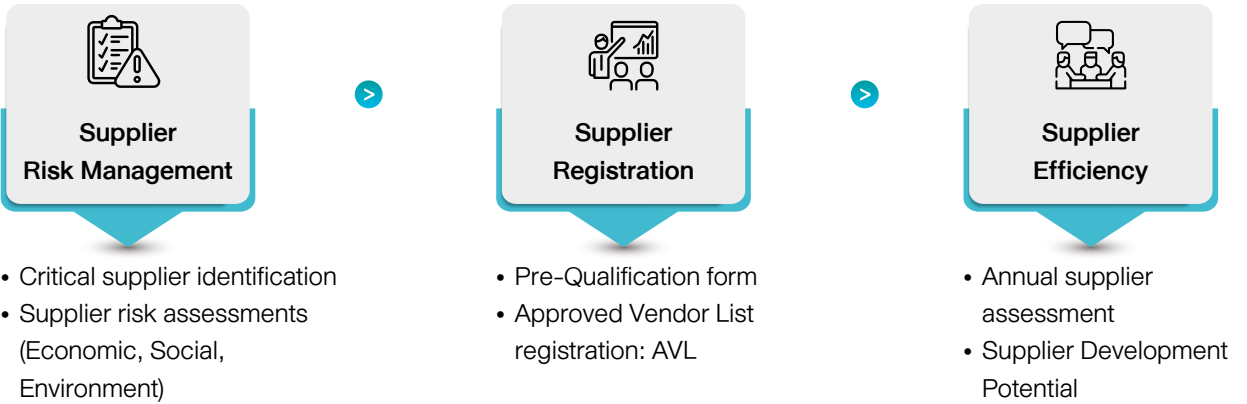
In 2023, WHAUP conducted a review and identified all critical suppliers, categorizing them into “Critical Tier 1 Supplier” and “Critical non-Tier 1 Supplier” as shown in the table below.

Supply Chain Analysis Table



SUPPLY CHAIN RISK MANAGEMENT

WHAUP conducts supplier risk assessments as part of our business operations, covering environmental impacts and social impacts. To ensure that WHAUP’s supply chain is progressing towards sustainability, we developed a risk assessment form for suppliers on ESG risks that may impact WHAUP, particularly those associated with corruption and business ethics.



In 2023, WHAUP set a target for supplier risk assessment at 100%. The process incorporates ESG criteria, considering utility and power service related risks associated with countries (Country-Specific Risk), risks related to business sectors (Sector-Specific Risk), and risks associated with products and services (Commodity-Specific Risk). For high-risk suppliers that are not doing business with WHA Group (non-Tier 1 Supplier), the assessment target is also set at 100%. This target was achieved, and the assessment results can be seen in the table below.

HIGH RISK SUPPLIER



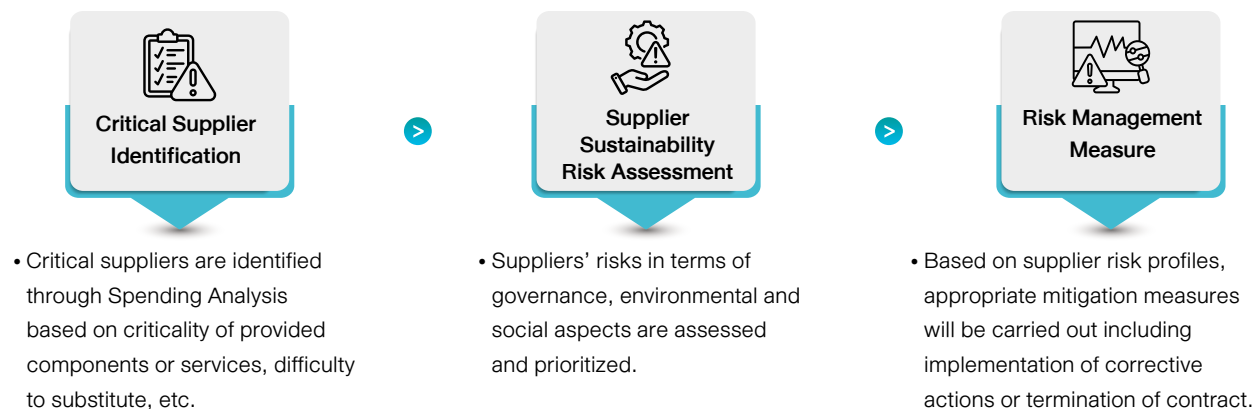
Critical suppliers and High-risk suppliers are classified as significant suppliers. In 2023, there were 56 significant tier-1 suppliers, and 4 significant non-tier 1 suppliers.

EVALUATION OF SUPPLIER PERFORMANCE

WHAUP has established a follow-up and evaluation system to assess the performance of tier 1 suppliers and critical non-tier 1 suppliers. The assessment of suppliers is divided into two categories:

- 1) The desktop assessment after delivery focuses on the quality of the product or service, price, on time deliver, and cooperation with relevant agencies and
- 2) The on-site audit to assess the qualifications and performance of critical tier 1 suppliers, high-risk suppliers, and critical and high-risk non-tier 1 suppliers in relation to business ethics, environment, health, safety, and social management. It also ensures compliance with business ethics and risk prevention processes. This assessment references recognized management standards such as ISO 9001, ISO 14001 along with Thai labor standards and relevant laws.

From the on-site assessment results of significant suppliers in 2023, 12 critical tier 1 suppliers and 44 High-Risk Suppliers, totaling 100%, did not find nonconformity which required a corrective plan. For the significant non-tier 1 suppliers, including 2 critical non-tier 1 suppliers and 2 high-risk non-tier 1 suppliers, totaling 100%, no suppliers found nonconformity requiring a corrective plan as well.



SUPPLIER CAPACITY BUILDING

WHAUP believes that sharing knowledge is the starting point for developing sustainable suppliers. Therefore, to achieve sustainable development outcomes, WHAUP has initiated projects to develop the capabilities of suppliers and contractors in sustainability. These projects aim to raise awareness, provide in-depth technical development for target groups, and provide guidance on system adjustments to address gaps identified during the assessments.



CORPORATE PROCUREMENT MANAGEMENT SYSTEM (CPRS)

WHAUP utilized the Corporate Procurement Management System (CPRS) to enhance our efficiency, transparency, and develop the project bidding process to become agile and systematic. For instance, the e-bidding feature within CPRS enables potential suppliers to upload quotations into the system conveniently and securely. Subsequently, authorized personnel responsible for contract value assessment will approve the quotations. Furthermore, WHAUP has embarked on the digital transformation program, introducing functions for user to access supplier qualifications, conduct ESG potential assessments, and manage supplier lists within the system. Additionally, the system facilitates automated project bidding.

In mid-2023, the CPRS module was implemented to help manage the assessment of new suppliers. The module allows for online completion of the Pre-Qualification Form (PQ), increasing efficiency and speed in the process. It also enhances transparency in supplier selection and can be used for the annual supplier performance evaluation. Soon, the use of the CPRS application for assessing new suppliers is expected to be more efficient and faster. In Phase 2, the system will be enhanced with Power BI for supply chain management, with data analysis and reporting in the procurement dashboard system. Moreover, the training on the CPRS system was provided to suppliers at the “WHA Supplier Day 2023” on February 7, 2024.



TRAINING ON BUSINESS OPERATIONS WITH REGARD TO ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) AND THE SUPPLIER CODE OF CONDUCT

WHAUP places importance on elevating and developing the business capabilities of our suppliers to ensure sustainable growth together. Therefore, WHAUP collaborated with WHA Group to organize activities to promote and support supplier operations through the “Training on Business Operations with Regard to Environmental, Social, and Governance (ESG) and the Supplier Code of Conduct” at the “WHA Supplier Day 2023” on February 7, 2024. A total of 22 companies attended the event, with an additional 70 companies participating online. Among them, 100% of significant suppliers participated in the training. 100% of the attendees acknowledged and was aware of conducting business with consideration for environmental, social, ethical, and governance (ESG) aspects, as well as WHAUP’s Supplier Code of Conduct. WHAUP also sent the recording of the training in Supplier Day to all suppliers who didn’t attend.



The Supplier Code of Conduct covers ethical business conduct, respect for human rights of all parties, workplace safety, environmental practices, and biodiversity, etc.



SUPPLIER DAY

WHUP has established criteria for awarding prizes to suppliers in the Significant Vendor category who have ESG evaluation scores exceeding 90%. There are a total of 9 suppliers who have received the award.



IN-HOUSE TRAINING FOR SUPPLIER

WHAUP organized a training session for suppliers on January 16, 2024, regarding occupational health and safety procedures, work process, and the registration for suppliers in the online procurement system (CPRS) with WHA Group.



PROCUREMENT STAFF TRAINING PROGRAM

In 2023, WHAUP conducted a training on Supply Chain Management and ESG Program for the procurement team on November 15, 2023, with a total of 10 participants. The training was held to enhance awareness and capabilities in sustainable supply chain.



BAAN DEK PROJECT FOR CHILDREN IN WORKER CAMPS

WHAUP and Baan Dek Foundation (BDF) have jointly signed an MOU to support the Building Social Impact (BSI). The aim is to create a safe environment, improve access to health, education, and protection for children and families living in construction worker camps. Under this project, training courses on ESG have been organized, covering social issues and human rights, by expert speakers for contractors and camp residents to cultivate and promote ESG concepts, especially in terms of occupational health and safety where WHAUP values. Over 20 representatives from contractors and WHAUP participated in the training. WHAUP, Baan Dek Foundation, and WHAUP's contractors are planning to improve the quality of life for residents in construction worker camps.



SUSTAINABLE SUPPLY CHAIN TARGET



100%

of suppliers adhere to the Supplier Code of Conduct.



100%

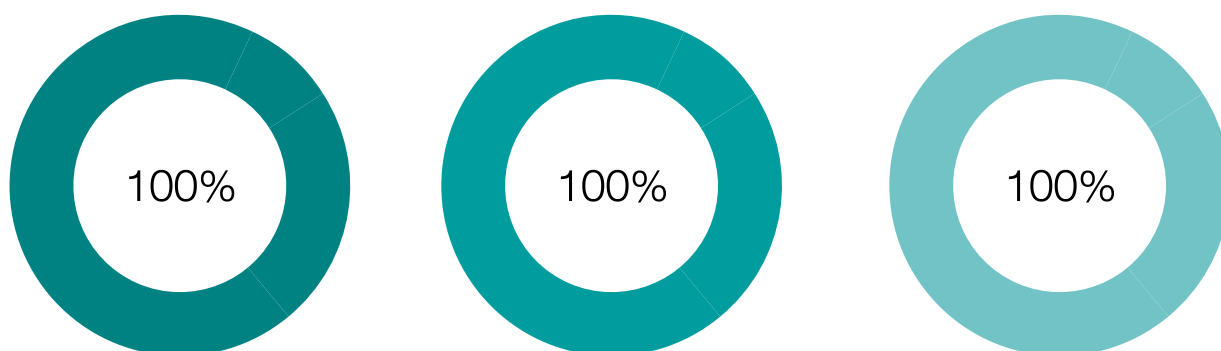
of new suppliers assessed with the pre-qualification on Environmental, Social, and Governance (ESG) factors.



100%

of current suppliers evaluated on Environmental, Social, and Governance (ESG) performance.

PERFORMANCE ON SUPPLY CHAIN MANAGEMENT AGAINST TARGET



- Suppliers adhere to the Supplier Code of Conduct.
- New suppliers assessed with the pre-qualification on Environmental, Social, and Governance (ESG).
- Current supplier evaluated on Environmental, Social, and Governance (ESG) performance.



COVERAGE AND PROGRESS OF SUPPLIER ASSESSMENT PROGRAM

	Performance 2023	Target 2023
Total number of suppliers assessed via desk assessments/ on-site assessments	39	100% of significant supplier
% of significant suppliers assessed	100	
Number of suppliers assessed with substantial actual/ potential negative impacts	0	
% of suppliers with substantial actual/potential negative impacts with agreed corrective action/improvement plan	0	
Number of suppliers with substantial actual/potential negative impacts that were terminated	0	

COVERAGE AND PROGRESS OF SUPPLIERS WITH CORRECTIVE ACTION PLANS

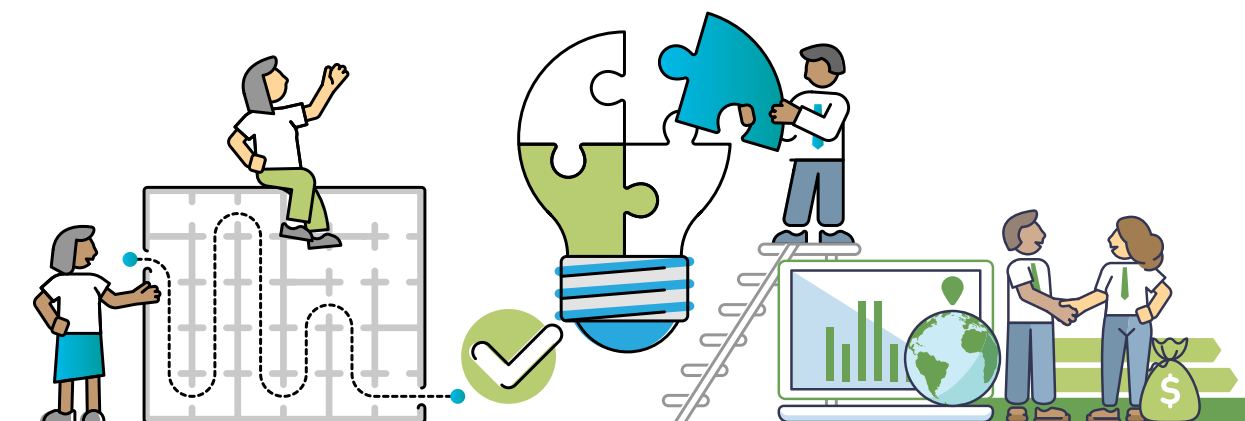
	Performance 2023	Target 2023
Total number of suppliers supported in corrective action plan implementation	0	100% of significant supplier
% of suppliers assessed with substantial actual/potential negative impacts supported in corrective action plan implementation	0	

COVERAGE AND PROGRESS OF SUPPLIERS IN CAPACITY BUILDING PROGRAMS

	Performance 2023	Target 2023
Total number of suppliers in capacity building programs	39	Number of supplier (100)
% of significant suppliers in capacity building programs	100	

WHAUP's sustainable supply chain management not only promotes efficient delivery of utilities and power products and services to customers, but also generates positive impacts on society and the environment. WHAUP believes that sustainable supply chain management is as important as managing sustainability of our own operations since our suppliers are numerous. Another aspect of evaluating supplier performance is promoting sustainable practices among them, such as assessing the risks of both current and new suppliers annually through various methods like post-delivery evaluations, desktop reviews, and on-site inspections. These ensure that the suppliers operate according to the agreed-upon standards. In 2023, it can be said that the operations of all suppliers related to WHAUP had no environmental impact, no corruption, and no violations of human rights against any stakeholders in the value chain.

WHAUP committed to improving the performance of our suppliers each year. WHAUP aims to reduce the number of high-risk suppliers after implementing risk reduction measures to no more than 5% in 2024 and 3% in 2025. WHAUP also plan to implement the ESG Annual Program together with WHA Group to ensure that each supplier improves their social, environmental, and governance performance every year.



INNOVATION AND TECHNOLOGY MANAGEMENT

The competitiveness and rapid changes of current global economy, together with the digital transformation in the business sector, put great pressure on organizations to incorporate digital technologies into their business operations. This includes online working and using various technologies to increase internal efficiency, such as Artificial Intelligence (AI), Blockchain, and other innovations, to make businesses more outstanding, effective, and resource-efficient, as well as create stable and secure operating systems for users. Apart from the direct impact on organizational progress and facilitate stakeholders, this initiative also helps preserve the environment. Therefore, businesses aspiring for long-term success must adapt to these changes, prioritize digital strategies, learning, and selecting appropriate technologies to maintain competitiveness, increase business opportunities, mitigate potential risks, and meet customer expectations, ensuring stable business operations and sustainable economic growth without impacting the environment and society.

WHAUP has always committed to sustainable business operations, including Environmental, Social, and Governance (ESG) dimensions, to prevent violations of rights of individuals, legal entities, or other stakeholders. Therefore, WHAUP has continuously developing our technological business operations to prepare for rapidly changing markets, especially the digital transformation. We collaborated with WHA Group to adapt technology and innovation as the fundamental structure of our business operations. We have announced a full-fledged process transformation roadmap under WHA Group's "Mission To The Sun" initiative. This initiative aims to apply technology innovation in WHAUP's operations to develop operational potential, respond to social changes, and preserve the environment while delivering the best services to customers in utilities and power business. WHAUP also plans to expand our business in various dimensions to grow into a global company and move towards our goal of becoming a Tech Company by 2024.

WHAUP integrates innovation and technology into every activity of our operations. Considering the impact from using technology on the environment, we plan our digital operations to use resources most efficiently. For example, adapting technologies like AI, blockchain, metaverse, to facilitate operations, reduce workload, increase data accuracy and speed, or create digital systems for collecting and processing data to maximize benefits and minimize chances of negative environmental impacts.



Furthermore, WHAUP has pledged to be “The Ultimate Solution for Sustainable Growth”, particularly in managing the utilities and power system, emphasizing the importance of achieving sustainable growth together with all stakeholders. WHAUP positioned our organization with WHA Group as a “Pioneering Partner” ready to take on challenges and participate in creating new innovations for the benefit of the society, the economy, and the environment. We have communicated the “WHA Group Core Value” to all stakeholders, which comprises:

Advanced
Champion
Resourceful
Integrity



MANAGEMENT APPROACH



WHAUP have been an important role in driving 9 projects under “Mission To The Sun” with WHA Group, aimed at creating new products and services to develop a quality organization and transition into a Tech Company. We pledged to be “The Ultimate Solution for Sustainable Growth,” focusing on excellence in sustainable solutions to deliver a better quality of life. This is categorized into 3 commitments as follows:

W- Well being is the pursuit of sustainable well-being for all living beings and the environment.

H- Human Progress is the development of human resources for progress at all levels, including individual, organizational, and societal levels.

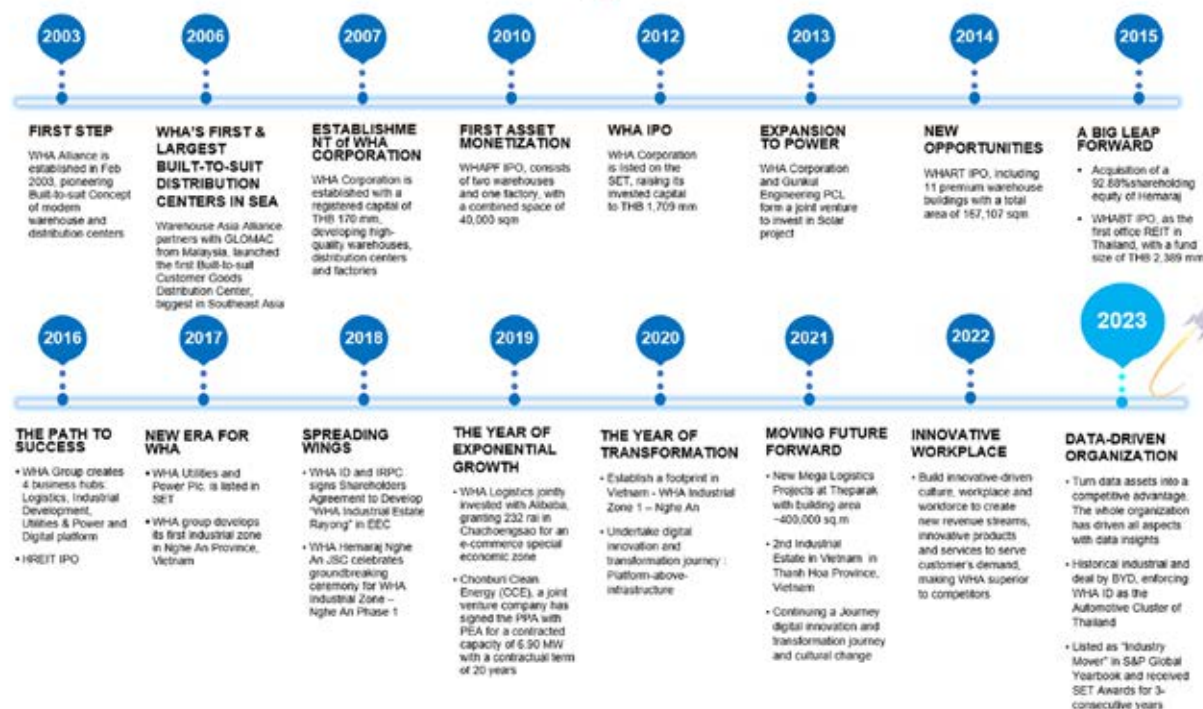
A-Accessibility is the creation of opportunities for access to good quality of life.



WHAUP, as a subsidiary of WHA Group, set a goal to provide opportunities for all stakeholders to access services and knowledge in innovation. In 2023, WHAUP developed digital work processes in line with Mission to the Sun plan from 2022 to 2024, aiming to become a Tech Company by 2024. WHAUP implemented 19 Data Driven Organization project, which included developing strategies, plans, data policies, WHA Data Platform, and data repositories. WHAUP also raised awareness of the benefits of using data for business among employees and created an organizational culture that supports data-driven innovation, or an innovation workplace. During this period, WHAUP completed 19 Data Driven Organization projects together with WHA Group and planned to continuously develop additional projects in the future. Additionally, WHAUP placed importance on managing other innovation aspects, including developing strategies, setting operational frameworks in line with the innovation, creating a culture and environment conducive to innovation, and using systems to support innovation within the organization. WHAUP also conducted performance reviews annually or when changes occurred, considering feedback from all stakeholders to develop and improve projects for the benefit of stakeholders.



20-Year Achievements



INNOVATION STRATEGY



Aligning with the mission to be "The Ultimate Solution for Sustainable Growth" in comprehensive management of utilities and power system, WHAUP cooperate with WHA Group on enhancing competitiveness, and developing as well as adding value in our products and services. This is carried out to support needs of new customers and maintain the existing customers. The company has outlined guidelines for managing business opportunities and innovation management through the following main strategies.

1. Digitize & Empower Core Business

Implementing new technologies and innovations within the organization to enhance business reliability and efficiency through intelligent analytics, process automation, leveraging the mobility, and connectivity of digital technology to become a valuable business surpassing industrial competitor. This involves the acquisition of new businesses, new ideas, incubation, and expansion through collaboration within a platform that includes WHAUP's customers and stakeholders.

2. Build the Workforce of the Future

To prepare for changes, WHAUP focuses on establishing a way of working and thinking that embraces digital transformation. The company aims to build a culture that empowers end-to-end digital processes and operations.

3. Enable the Smart Enterprise

WHAUP aims to build digital capabilities for our business processes in order to drive organizational efficiency, effectiveness, and to driving the organization with innovation.

4. Establish Digital Foundation and Platform

To build an IT foundation that supports short-term business needs and drives long-term business goals by enabling flexibility and scalability by transforming operations from core platform and governance structures.

5. Launch New Business

Bringing new technologies and innovations to facilitate new business acquisitions, foster new ideas, incubation, and business expansion through collaboration within a platform that includes WHAUP's customers and stakeholders.

Digital infrastructure and data usage are crucial for WHAUP's journey towards becoming a Tech Company and must align to derive benefits and help develop new business models. This enables us to keep pace with changes and transitions to the new normal era amidst the rapidly evolving world. However, currently, maintaining the stability of systems and ensuring data security are one of the challenges. Technical errors, human errors, and cyberattacks can damage company reputation. Therefore, risk management in these areas is essential for the continuity of business operations.

THE TECHNOLOGY INFRASTRUCTURE OF WHAUP

Over the past three years, WHAUP has adjusted the business operations by integrating technology to drive operations through the digital transformation projects. This initiative aimed to elevate business operations to meet the increasingly diverse and challenging needs of stakeholders. Such transformation required significant investments in technology and information systems, resulting in increased risks of cyber resilience and information security breaches. This includes the potential damage or misuse of assets, internal data, or business data of customers and partners, leading to severe consequences.

Therefore, WHAUP and all business units under WHA Group adhere to the practices outlined in the Personal Data Protection Act (PDPA) B.E. 2562 (2019) and Cybersecurity Act B.E. 2562 (2019). These acts serve as the foundation to ensure the effective protection of customer data and internal organizational data, preventing any violation of rights of individuals, legal entities, or other relevant parties. WHAUP uses WHA Group's Cybersecurity and Information Security Management Policy to guide the control of related departments, ensuring WHAUP's effective digital transformation. Moreover, WHA Group has assigned the Information Technology Department (ITD) to oversee the overall information technology security of WHAUP and WHA Group. Communication and training on cybersecurity and information security are provided to employees, which is part of the employee success index to pass mandatory training. This ensures that all departments can efficiently implement policies and operational procedures. WHAUP has also established reporting and management processes for information security and cybersecurity issues, providing channels for employees to report suspicious cases. Furthermore, WHAUP has set up working plans for business continuity with WHA Group, including emergency plans and response procedures, with annual emergency drills. Additionally, activities are organized to identify and address vulnerabilities that could pose risks to data leakage or data theft. (Additional details regarding cybersecurity and information security are specified in the Data Security Chapter)

WHAUP continued existing technology projects succeeded in the previous year and was a part in initiating new projects started by our employees together with WHA Group. This is to improve work efficiency and create new business opportunities. In 2023, there was a new project selected and implemented: the Human Capital Management System. WHAUP has transformed and improved human resource management processes into a digital system to enhance employee experience and productivity.

HUMAN CAPITAL MANAGEMENT SYSTEM

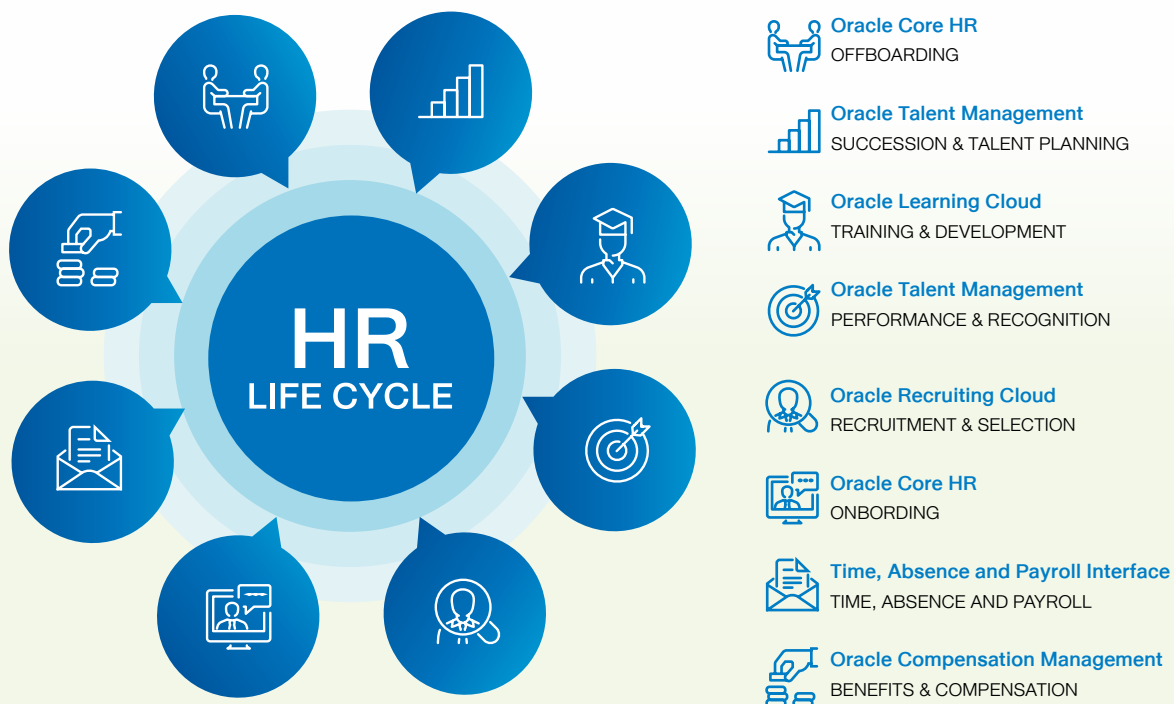
WHAUP and WHA Group enhanced and transformed processes related to overall human resource management and development within the organization. We incorporated digital technology to elevate employee experiences and increase operational efficiency.

GOAL

- To create a good experience for employees in receiving HR services through a concise process and a more user-friendly system
- To improve the procedures and work processes of the HR department to be more efficient
- To foster positive interactions between employees and HR, which plays a crucial role in building employee engagement with the organization

EXPECTED BENEFITS

- Better working experience for employees
- Improved efficiency and effectiveness of human resource management and human capital development
- High level of employee engagement and employee satisfaction



UNIFIED OPERATION CENTER



WHAUP, in collaboration with WHA Group, established a Unified Operation Center (UOC) in 2019 at WHA Tower office building to monitor and supervise operations in real-time. The system integrates and collects data from various utility systems and environmental conditions in the area, such as air quality, rainfall, and water quality, etc. It displays this information for analysis and evaluation of service efficiency for operators. For WHAUP, it helps elevating our capacity to control and manage utility services such as water production plants or solar power plants remotely through the UOC. Therefore, in emergencies or situations with mobility constraints, the UOC serves as a second command center to control the efficient operations of water production plants and solar power plants ensuring customers and investors with the continuous business operations.

Furthermore, it helps reduce environmental pollution by reducing air pollution and dust from vehicles used in operations, enabling WHAUP and WHA Group to achieve air quality standards as specified in the Environmental Impact Assessment (EIA). It also helps reduce direct greenhouse gas emissions (Scope 1) by reducing the use of fuel for vehicles in operations by over 75 tCO₂e per year.

SMART UTILITIES & POWER

WHAUP sees a business opportunity by offering innovations through utility and power products and services, as well as expanding energy investment models with new innovations to respond to market trends. WHAUP strongly values the quality of life and environmental impacts, so we are constantly striving to develop new utility services, including demineralized water production systems and wastewater treatment processes..



WATER RECLAMATION



WHAUP has developed a water reclamation system to reuse wastewater as an alternative water source, promoting sustainable development, especially in the Eastern Economic Corridor (EEC) region. The project integrates existing technologies with new innovations to increase the value of wastewater. By treating wastewater from the wastewater treatment system, it produces demineralized water and premium clarified water, enhancing the market value of the products while reducing costs. This helps customers in various business sectors to have alternative high-quality water sources suitable for their businesses.

Since 2018, the water reclamation project has been able to generate continuous revenue for WHAUP. In 2023, WHAUP generated a revenue of 232.4 million baht from this project, accounting for 15.9% of the revenue from the utilities business. Furthermore, the project has provided environmental and social benefits by reducing the amount of wastewater discharged and the extraction of water from natural sources by 7.3 million cubic meters. It has also helped conserve the natural resources, alleviate water scarcity issues in surrounding communities and reduce the risk of conflicts with nearby communities over water resources and odor pollution from wastewater as community members have sufficient access to clean water sources.

DEMINERALIZED RECLAIMED WATER





WHAUP has invested in demineralized reclaimed water to become the alternative water source that leads to a sustainable industrial development in the country. This mega project consists of two parts, with a production capacity of 5.18 million cubic meters per year each, covering 4% of the total industrial water production capacity. The project is developed at the WHA Eastern Industrial Estate (Map Ta Phut) (WHA EIE) to improve water quality in the wastewater treatment system with reduced costs and environmentally friendly processes. This project is an extension of existing water treatment technologies and creates new innovations to add value to products by converting wastewater into demineralized water for industries. (Further details about the aforementioned water treatment project are specified under the “Water Management” section in this report.)

SMART WATER METERING READING

WHAUP has developed “Smart Water Metering Reading System” to enhance the ability to track water distribution and water usage of operators within the industrial estates. WHAUP switching water metering from an analog system that requires personnel to manually record water quantities monthly to displaying results in a digital system. We installed water meters with digital output (RS485, Pules), pressure transmitter, and Automatic Meter Reading (AMR) for automatic reading of water volume and pressure data and transmitting hourly data wirelessly to an online system. Digital operations not only reduce working time and personnel costs in collecting data from water meters to prepare invoices but also enhances the ability to observe water usage of operators. The data can be analyzed with the hydraulic model to detecting abnormalities potential leaks in the water distribution system to promptly determine the cause. We also developed the water distribution system to use energy efficiently in line with water usage behaviors of operators in the industrial estates.

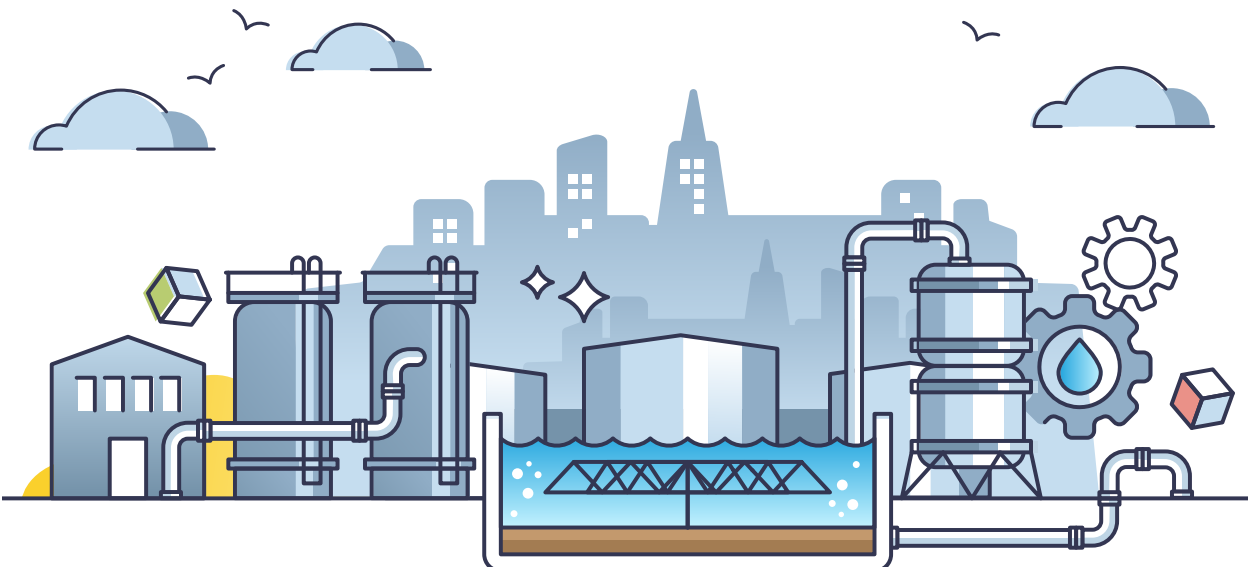


SMART POWER METER

“Smart Power Meter System” is an online monitoring system to collect solar power usage of customers, facilitating the invoicing process. The data is stored at the headquarter in WHA Tower, allowing staffs to record data without the need to travel to customers’ locations or manually record energy usage data. This system helps reduce related costs by 3,000 baht per MW.

SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) TECHNOLOGY AT WASTEWATER TREATMENT PLANT

Currently, WHAUP is maximizing the efficiency of SCADA technology by enhancing remote control through control centers, such as those used in wastewater treatment plants located within the Eastern Economic Corridor of Innovation (EECi) in Wang Chan District, Rayong, and the establishment of remote control centers at WHA EIE and ESIE, etc. Implementing this technology to collect data enables WHAUP to monitor operations related to wastewater treatment, water production, water reclamation system, and demineralized water system 24 hours a day. This allows WHAUP to have more comprehensive data, reduce the burden on personnel, and save costs in operations and on-site staff deployment.



SMART ENERGY

PEER-TO-PEER ENERGY TRADING SYSTEM



Per our consistent interest in sustainable energy innovation, WHAUP extended our cooperation with the Electricity Generating Authority of Thailand (EGAT) under the Memorandum of Understanding (MoU) regarding the development of SMART Energy and microgrid systems. The objective is to reduce electricity costs and improve energy system stability within industrial estates. WHAUP also cooperated with the Provincial Electricity Authority (PEA) under the MoU regarding the study of electricity market and new service rate structures, the microgrid system, and business models to collaboratively support carbon neutral policies. The first approved project in 2021 is the Peer-to-Peer Energy Trading System which facilitates the trading of solar energy between users within the industrial estates.

SMART ENERGY PLATFORM

WHAUP has collaborated with PTT Public Company Limited and Sertis Company Limited through the MoU to develop a “Digital Smart Energy Management System” or “Smart Energy Platform” trading solar power electricity within WHA industrial estates. The project uses blockchain technology to enhance security in transactions and facilitate the trading of energy between small power producers and consumers. This system has been selected to participate in the Energy Regulatory Commission Sandbox (ERC Sandbox) Project organized by the Energy Regulatory Commission and PEA. ERC Sandbox project is a pilot project to study the trading of electricity and support small-scale electricity production projects through microgrids to expand usage into industrial areas, enabling efficient management of alternative energy use and sustainable energy innovation development. When fully implemented, this system will increase solar electricity within the industrial estates by at least 200 MW, save electricity costs for users in industrial sector by over 180 Million Baht per year, and reduce CO₂ emissions by up to 2,800,000 tCO₂e until the end of the project.

CIRCULAR ECONOMY INNOVATION

The rapid growth of manufacturing industries and consumer demand due to the industrial revolution over the past 150 years has transformed people's lives for the better. However, as time passes, development without consideration for nature and the environment has led to natural and environmental crises that are becoming increasingly severe. This has prompted many parties to become more aware and prioritize resource conservation seriously. One of the strategies to mitigate these negative impacts is the adoption of a creative business operations following the circular economy concept, which has gained widespread attention and discussion. The circular economy model recognizes the importance of resource value circulating in production and consumption processes (make-use-recycle), unlike the traditional linear economy model (take-make-dispose) that leads to massive waste at the end of the cycle and never-ending extraction of natural resources for production.

WHAUP collaborated with WHA Group to promote circular use of resources to maximize their benefits within WHAUP's ecosystem, to enhance operational efficiency or may even lead to new business ventures. In 2023, WHAUP developed several circular economy projects. For example, (1) WHA Circular Innovation Project: The main objective is to develop an operational plan towards a circular economy. This project has promoted over 40 innovation initiatives that drive towards a circular economy. (2) Waste Management Project: an online market for exchanging waste, connecting waste producers with consumers. The goal is to reduce the amount of waste sent to landfills and increase the efficiency of materials, and (3) WHA Emission Trading Project: This project developed a platform for trading carbon credits to make carbon trading easier, more convenient, and more efficient.



WHAUP set a goal together with WHA Group to become a tech company by 2024, we applied technologies and innovations to create new products and services to extend and strengthen the utility and power service and management business. WHAUP focuses on developing our work processes to be up to date, meeting the constantly changing needs of customers which can generate income and sustainable growth in the future. WHAUP has planned various strategies since 2021 to achieve such goal. We implemented "Mission To The Sun" with WHA Group, consisting of 9 projects that will push the limits and potential to new

heights. In 2023, WHAUP successfully implemented planned operations, such as changes in work processes, adjustments in organizational culture to adapt to the changes, and collaborated with partnerships to enhance the organization's capabilities and potential in innovation and technology regarding the sustainable utility and power product and service business. Additionally, WHAUP expanded our renewable energy production capacity in renewable energy projects to 311 MW, achieving the business plan's goal of increasing capacity from the original 133 MW to 300 MW.



WHAUP has continuously developed our business in line with the current digital society's changes. WHAUP integrates technologies and innovations into our infrastructure, aiming to enhance operational capabilities and expand the ability to deliver the best utility and power products and services to customers. We also aim to prepare the organization to seize opportunities from constant global changes through "Mission to the Sun" operating with WHA Group, ensuring sustainable business operations and opening opportunities for new business expansion in utility and power sectors. WHA aims to grow into a global company and transition into a Tech Company by 2024.

WHAUP believed that adapting innovations and technologies into utility and power businesses this year helped increase our efficiency and reduce risks and errors from operation, as well as reduce environmental and social impacts through implementing green technology.

WHAUP focuses on developing innovations and integrating technologies into the infrastructure of our sustainable business operations using Mission To The Sun Strategy with WHA Group. Therefore, WHAUP and WHA Group have plans to develop and expand 9 programs consisting of 15 projects that were implemented in 2023 by leveraging AI and Data Insights technologies to drive various projects. The objective is to maintain our leading position in utility and power business, to drive for the goal of becoming a Tech Company by 2024, and to achieve the long-term goal of becoming a global company by 2030.

DATA SECURITY



With technological advancement, accessing and exchanging digital information has become easier and faster. At the same time, it is a challenge in terms of data security and organizational security since the risk of cyber threats has also increased. Therefore, data security is of utmost importance for organizations, as they collect a vast amount of company and stakeholder information. Organizations must develop more stringent data management systems and prepare for continuously evolving cyber security attacks to prevent data leaks that could impact business operations and stakeholder confidence in the company. As a result, WHAUP has developed a governance and management system for data privacy following WHA Group's guidelines. We assigned the Risk Management Committee (RMC) to monitor operations regarding data security to enhance work efficiency.

WHAUP places significant emphasis on data security and strengthening its data security systems to keep pace with evolving technology and ever-changing data attack patterns. WHAUP has established a governance system to oversee data security operations of the organization and customers, to prevent data leakage from cyberattacks or system errors. Furthermore, WHAUP collaborated with WHA Group to initiate projects regarding data security, aiming to enhance cybersecurity efficiency and empower personnel to be prepared for using technology and information in operations and to have the knowledge and understanding to handle cyberattacks. This is to protect the company's and stakeholders' data, including intellectual property, financial information, and customers' personal data. This effort is a part of fully transforming the organization into the digital era (Digital Transformation).

MANAGEMENT APPROACH

WHAUP implemented the data security management system applied throughout WHA Group, mandating the execution of Cybersecurity and Information Security Management Policy. This policy applies to all employees to ensure that the organization's transformation towards digital transformation is developed in parallel with the data security system efficiently and comprehensively. WHAUP has established policies for information security and cybersecurity as guidelines for controlling all relevant units. All employees can access these policies through the website. Additionally, the performance of data security operations has been set as a key performance indicator (KPI) for employees responsible for IT systems, to ensure the most effective management of the data security system.

WHAUP has established a system for overseeing and managing activities related to data security together with WHA Group, led by Gen. Prachya Chalermwat, Chairman of the Risk Management Committee, and Mr. Nunsilp Janvarin, Chief Information Security Officer (CISO) of WHA Group. WHAUP also formed the Information Technology Department (ITD) to oversee the overall information technology security of all business centers, including the installation and maintenance of information technology systems. Furthermore, ITD is responsible for summarizing and assessing reported information security incidents, including the type and details of the issues encountered (such as location, incident sequence, and responsiveness to the incident), the causes of the problems, and mitigation measures. The ITD reports directly to the Cyber and Information Risk Committee, which consists of leaders of various units within the organization. The committee is responsible for approving and setting the direction for policies, making key decisions related to data and cybersecurity. Mr. Nunsilp Janvarin, Vice President of Information Technology Department, serves as the chairman of the Cyber and Information Risk Committee. This committee reports to the Risk Management Committee (RMC) every quarter to ensure that all risks related to information technology are under control. The RMC consists of members with knowledge and experience in information technology and cybersecurity, who review information risk from quarterly meetings and report to the Board of Directors.

RAISING AWARENESS ON DATA SECURITY AMONG EMPLOYEES

WHAUP has communicated and trained employees to ensure that policies and operational procedures are effectively implemented. Trainings will be conducted with WHA Group for both mandatory trainings and additional trainings for interested employees. In each mandatory training session, there is a test to assess employees' understanding, which serves as a Key Performance Indicator (KPI) for employees to pass the mandatory training. The training includes:

- Cybersecurity Awareness Training: With a participation rate of 80% of employees and a 100% pass rate in the test.
- Data and Information Protection Policy: The "Cybersecurity Season III" training course was conducted, with 100% of employees participating and passing the test in 2023.
- Basic Training: Employees attending training for the first time must pass basic training, covering various aspects of security such as cybersecurity, physical security, email security, password security, mobile devices, and wireless networks.

In addition, WHAUP supported WHA Group in conducting activities to test, identify, and rectify high-risk vulnerabilities in various operation systems by external experts. This includes simulating phishing emails sent to employees within the organization to assess the risk level of phishing threats and measure employee awareness. The results of these tests are recorded and analyzed to plan and conduct further trainings and knowledge development, as well as to improve cybersecurity measures for WHAUP. The testing result has shown a continuous decrease in the number of employees falling victim to phishing attempts. In the last test in 2023, the pass rate was 93.06%.

SECURITY OF CUSTOMER INFORMATION

Recognizing that cyber threats are inevitably associated with technological development, WHAUP emphasizes the importance of customer data security. WHAUP collaborated with WHA Digital to provide customers with highly secure database systems through cloud services which offer a variety of options, including public cloud, private cloud, multi-cloud, and hybrid cloud. WHAUP has prepared computer system resources, including hardware, software, and computer network systems under the Fiber Optic (FTTx) infrastructure service, to help customers access data quickly, securely, and with low latency. The cloud services consist of experts certified by global institutions such as Dell, Hitachi Data Systems, VM Ware, and OpenStack, who provide advice and manage computer network systems for customers.

Apart from a strong data collection system, to enhance efficiency in addressing risks related to data security, WHAUP has offered various proactive approaches for customers to choose from for data protection, such as firewall systems, anti-virus systems, data backup systems, security systems, and access control systems. These data security systems help customers have confidence that their businesses will continue to operate smoothly and reduce security risks in various aspects. Furthermore, WHAUP has continuously improved and developed technology services to keep up with current situations.

WHAUP and WHA Group innovating and leveraging data insights to strengthen business operations, elevate our credibility, and enhance our competitiveness to go beyond peers in the same industry by seamlessly integrating interconnected digital technologies. At the same time, WHAUP remains a central hub, supporting customers in creating new experiences. Since 2021, WHAUP and WHA Group have successfully integrated digital transformation throughout the organization through 38 digital projects and over 50 data-driven projects.

From 2023 operational approach, it can be considered that WHAUP has successfully transitioned into a data-driven organization, utilizing data as the central point for decision-making and business operations. WHAUP collected and analyzed data from various sources to support decision-making on product development, pricing strategies, and sales promotions. This approach has made the organization more flexible, allowing for rapid improvements and continuous alignment with market trends. Furthermore, it has reduced the risk of incorrect decision-making and improved operational efficiency and management within the organization. WHAUP recognizes that technologies are constantly developing, and despite no customer data breaches in 2023, in line with our goals, WHAUP continues to drive IT development and enhance data security standards to keep pace with upcoming changes.



DATA SECURITY SYSTEM AND DATA SECURITY CERTIFICATION

Bridge Data Center (Thailand) Co., Ltd., responsible for developing and providing information systems to WHAUP and all subsidiaries under WHA Group, has been certified according to the ISO/IEC 27001:2013 standard for information security management since 2021. This confirms that WHAUP's security management system aligns with international standards. However, WHA Group has developed our data security system to the extent that we received certification for ISO/IEC 27001:2022 in November 2023, covering 100% of the IT operations in WHAUP.

DATA SECURITY SYSTEM TESTING

WHAUP has external parties to conduct regular audits of the data security system and IT security system testing at least two tests per year. These tests include penetration testing and vulnerability scanning, which help detect and address security vulnerabilities. These efforts not only improve security but also ensure that WHAUP can protect data and reduce cyber risks which meets shareholder expectations, and maintains the organization's image and reputation.



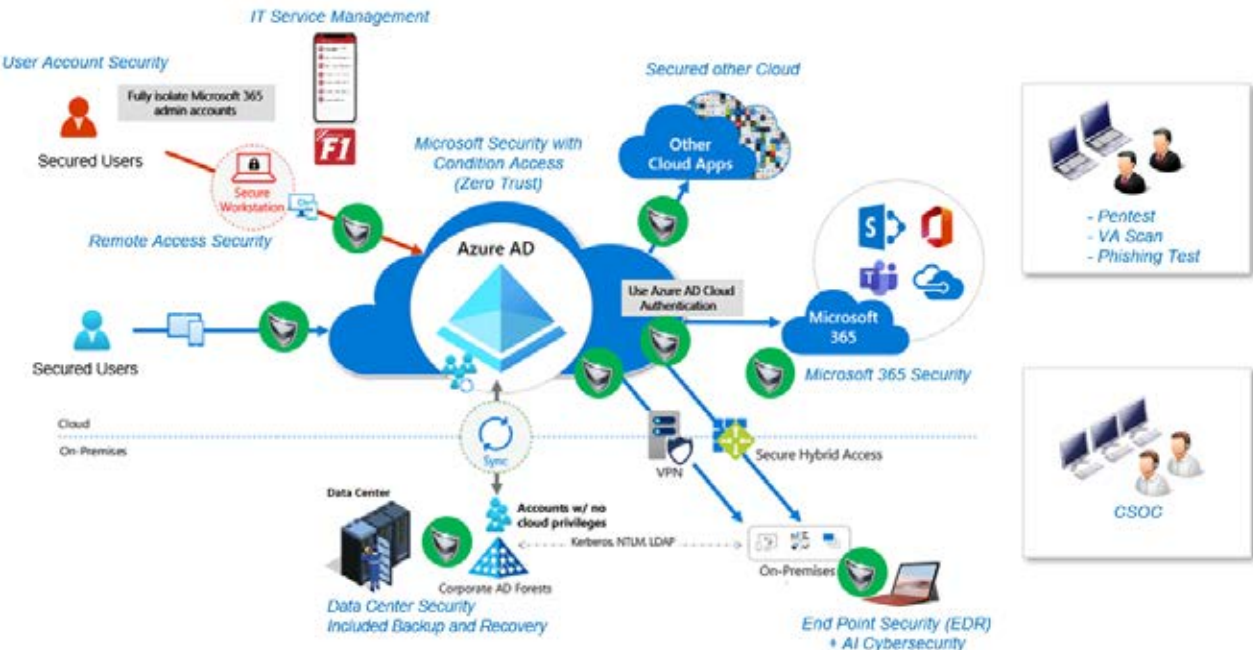
Standard: CVSS v3.1 (Common Vulnerability Scoring System)

Severity	CVSS Score Rating	Description
CRITICAL	9.0 - 10.0	Exploitation is straightforward and usually results in system-level compromise. It is advised to form a plan of action and patch immediately
HIGH	7.0 - 8.9	Exploitation is more difficult but could cause elevated privileges and potentially a loss of data or downtime. It is advised to form a plan of action and patch as soon as possible
MEDIUM	4.0 - 6.9	Vulnerabilities exist but are not exploitable or require extra steps such as social engineering. IT is advised to form a plan of action and patch after high-priority issues have been resolved.
LOW	0.1-3.9	Vulnerabilities are non-exploitable but would reduce and organization's attack surface. It is advised to form a plan of action and patch during the next maintenance window.
INFORMATION	N/A	No vulnerability exists. Additional information is provided regarding items noticed during testing, strong controls, and additional documentation.

MOBILE DEVICE MANAGEMENT: MDM

WHAUP manage portable devices by using Mobile Device Management (MDM) software to control and protect devices connected to WHAUP's systems. It helps reduce technical risks, as well as improve efficiency when working with mobile devices within the company. WHAUP uses Microsoft Enterprise Mobile Security (EMS) software to manage mobile devices in the organization, both on-premises and cloud-based, to control the use of various devices such as mobile phones, computers, tablets, and laptops. Additionally, WHAUP can configure specific control settings to ensure the security and up-to-datedness of these devices. In 2023, WHAUP further strengthened the security measures with a new anti-virus software including additional features for End Point Detection and Response (EDR) to enhance security practices. It has processes for monitoring and detecting suspicious activities or events at endpoints, providing more comprehensive coverage than previous version of anti-virus that focused solely on files; therefore, it can be used at home and in the workplace.

INFORMATION SECURITY RESPONSE MECHANISM



WHAUP has processes and mechanisms for data security management as a part of business ethics and practices that WHAUP firmly adheres to. Information security management is a process used to address security incidents in an organization's data aiming to reduce risks, support continuous operations, and help recover systems in the event of unforeseen events, enabling the organization to conduct business activities securely. Furthermore, it is a process that focuses on assessing, planning, and implementing measures to ensure that the system can protect itself from unauthorized access and can recover without significant impact if unexpected events occur. To achieve its objectives, WHAUP has plans in place for business continuity, emergency response, and incident management to mitigate potential disruptions to the business. WHAUP also conducts emergency response tests together with WHA Group once a year. It was organized in December 2023 and its results indicate that WHAUP can effectively respond to emergencies in a satisfied level. Moreover, results and suggestions of the test are used to further improve data security system.

WHAUP has established processes and mechanisms for reporting and strongly managing information and cybersecurity issues to respond promptly to cyber emergencies. If problems or suspicious incidents are detected, employees can report them for investigation. This includes cases of urgency, data breaches, or violations of business ethics guidelines, as outlined in the complaint handling process in the business ethics section of this report. This policy applies to all employees and specifies guidelines and responsible persons for managing and reporting data security issues for data leaks in each case reported. To ensure the most effective response, WHAUP provides trainings on cyber threats to raise awareness among employees and relevant stakeholders for the most effective operations.

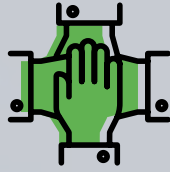
DATA SECURITY PERFORMANCE

Performance	Target 2023	Performance 2023	Long-term Target
Employees who have received training on data security	90%	100%	100% in every year
Customer data breach case	0	0	0 case in every year
Customer complaints regarding personal data transmission	0	0	0 case in every year

WHAUP's business is experiencing rapid growth and needs measures to accommodate increasing data volume and stakeholders. Therefore, WHAUP is committed to manage the efficiency of data security system to reduce risks and instill confidence in both internal and external stakeholders. WHAUP has established a governance and management system from designing the data security system, communication, monitoring, to emergency planning. WHAUP selects and implements suitable technologies and innovations to enhance the efficiency and security of the information system, reinforcing its potential to provide convenience and serve as a key tool in data presentation and management, such as business data or sustainability data. This approach reduces the risks of mismanagement and data breaches, both for organization data and personal data.

WHAUP has plans related to the data security system to support WHA Group's goal of becoming a tech company by 2024. WHAUP will collaborate with WHA Group to develop an AI cybersecurity system that integrates AI technology to enhance the cybersecurity effectiveness. We will use web application and API protection (WAAP) to help protect API data and cloud-native applications from complex threats and robot attacks. Additionally, there are plans to further improve the Data Loss/Leak Prevention (DLP) system to strengthen the efficiency of data security system, prevent data leaks or loss. These efforts aim to increase confidence among users and data owners, including WHAUP's employees, customers, and suppliers that share data with WHAUP. These efforts aim to maintain the performance of data breaches to 0 incidents every year. Additionally, to prepare for advanced digital transformation, WHAUP plans to pursue ISO27701 Certificate by 2025. WHAUP also aims to provide cybersecurity trainings with WHA Group to 100% of our employees annually to ensure everyone has the necessary knowledge in data security, ready to fully become a tech company in 2024.





SOCIAL DIMENSION



HUMAN RESOURCES MANAGEMENT

Employees are considered valuable assets for every organization and play a crucial role in helping organizations remain stable and succeed. Therefore, human resources management is a key driver of sustainability, having a broad impact on the economy, environment, society, and human rights. Investing in the development of knowledge, skills, and the well-being of WHAUP employees can enhance productivity and adaptability, promoting economic growth and stability. Additionally, environmentally responsible practices can be integrated into human resources management strategies to reduce the organization's ecological footprint and contribute to a more sustainable world.

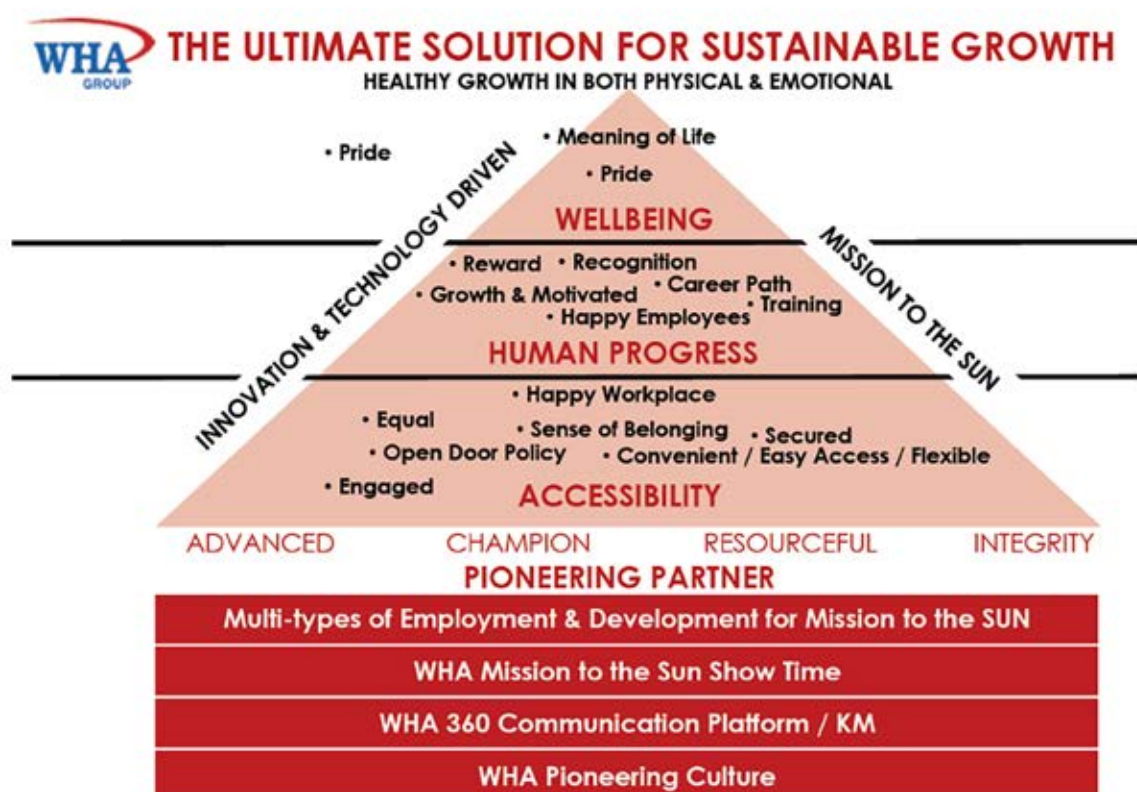
Effective human resources management must prioritize employee engagement or job satisfaction, as well as overall quality of life. Organizations that manage fair wages and compensation, provide equal opportunities, and promote a safe working environment enhance the well-being of their employees, thereby upholding basic human rights. Human resources management is thus essential for sustainability and influences economic prosperity, environmental responsibility, the well-being of people, and forms the foundation for protecting human rights in society.



WHAUP recognizes that personnel are a crucial component of the organization in driving various activities to create sustainable growth. Therefore, WHAUP collaborates with WHA Group to develop and implement new strategies and approaches in human resources management to adapt to the changing business landscape and meet employee needs as much as possible. The goal is to maintain leadership in the utilities and power business and advance towards becoming a Tech Company alongside WHA Group by 2024 through the Mission To The Sun initiative. This initiative serves as a model for WHAUP's business development, emphasizing a balance between economic, social, and environmental performance.

WHAUP has adapted its working model to be more flexible, leading to a new way of working under the concept of the 'Future of Work.' This encompasses remote working, work from home, flexible working hours, online meetings and work, and virtual hiring. These adaptations allow employees to manage their work most efficiently according to their own aptitudes while maintaining their physical and mental well-being. Furthermore, WHAUP is involved in strategizing to prepare for potential future changes that may impact the organization. This includes developing human resources and enhancing employees' capabilities in various areas to foster new skills that align with the strategy of transitioning to a digital business. This transition requires skills beyond the current skill set of employees and involves revising human resources management principles, goals, and processes to work more effectively in a highly competitive environment.

WHAUP also emphasizes respecting the human rights of employees by implementing a human rights policy to guide the management of human resources within the organization. This ensures that the established guidelines are based on principles of respect and protection of human rights, providing opportunities and maintaining equality. These strategies and approaches are crucial in helping employees have a positive work experience and job satisfaction, which are factors that can retain these high-potential employees in the organization long-term. Moreover, WHAUP integrates the organization's values and culture through various communication activities, such as training and capacity development in different areas, to ensure all employees understand and are committed to achieving the same goals.



MANAGEMENT APPROACH

WHAUP and WHA Group aim to be among the best employers in Thailand and the region. Therefore, we committed to managing human resources with the highest efficiency. WHAUP has set a 5-year strategic human resources management framework from 2022 to 2026 and is implementing this strategic plan to improve and upgrade the human resources management system, including incentive systems, investment in human resources development, labor practice management, and retaining skilled and capable employees to work with the organization long-term. This helps mitigate the problem of workforce shortages and continually develops the human resources system to ensure the highest quality, enhancing employee capabilities. Moreover, WHAUP adheres to ethical principles and avoids any form of human rights violations, including discrimination, labor harassment, and illegal forced labor. The commitment and implementation of the defined strategies have significantly contributed to WHAUP being recognized with the Kincentric Best Employer Thailand 2023 award.

WHAUP uses standardized, fair, and reliable human resources management tools and processes to manage human resources effectively and appropriately to meet the needs of the utilities and power business. This ensures that the performance aligns with the strategies and vision of WHAUP, supporting the organization in achieving its goals efficiently and developing the business sustainably. The focus is on analyzing trends in human resources needs, current and future strategic business objectives, and changing trends, as well as planning for various scenarios.

WHAUP has formulated strategies for the development of human resources management as follows:



WHAUP CORPORATE VALUES

WHAUP has defined the organization's values into four principles: Advanced, Champion, Resourceful, and Integrity. These values align closely with those of the WHA Group, aiming to effectively enhance leadership qualities and capabilities of the WHAUP's personnel. They are crucial in fostering innovation within the organization and driving the entire group towards digital transformation under the 'Mission To The Sun' initiative. This project strengthens organizational and personnel development across all companies within the WHA Group. All personnel within WHAUP will be guided and encouraged to uphold these organizational values, ensuring alignment and efficiency in their respective roles. Additionally, as part of WHA Group, there are plans to align these organizational values with corporate branding, while embedding contemporary digital concepts into the organization's DNA (WHA DNA). This process plays a significant role in propelling the organization towards digital transformation and facilitating growth across various business sectors driven by strategies aiming to achieve the goal of becoming a Tech Company by 2024.



LABOR PRACTICE



WHAUP is firm in its consistent treatment of employees within the organization. There have been adjustments made to employee practices to reflect a policy of non-discrimination. It is clearly stated that WHAUP will not engage in or support discriminatory practices. Furthermore, WHAUP has actively promoted the importance of diversity among its personnel, from staff levels to management. The company has also established a Nomination and Remuneration Committee (NRC), comprising members of the corporate board, tasked with proposing qualified individuals for senior executive positions without limitations or discriminatory practices based on nationality, religion, language, age, gender, marital status, personal sexual orientation, disability, union membership, employee representation, political affiliation, or other personal beliefs. Moreover, the NRC is responsible for proposing clear, fair, and appropriate compensation criteria and guidelines that align with current labor market conditions. The NRC convenes at least four times annually and presents reports to the WHAUP's board committee.

To ensure that all employees are treated fairly, WHAUP has established channels for employees to make complaints in cases where they feel unfairly treated. In instances where complaints involve discriminatory practices, WHAUP follows guidelines to determine if the case falls under criteria defined by the International Labour Organization (ILO), and sets forth preventive and remedial measures, including measures to protect personal data, from initial consideration to final resolution. These measures are part of the WHA Group's Non-Discrimination Policy, which is rigorously implemented throughout WHAUP and its affiliated companies. Effective policy implementation helps prevent instances of discrimination, which is fundamental to conducting business responsibly. Each year, WHAUP and its affiliated companies review and improve their anti-discrimination policy to ensure clarity and strength. In 2023, there were no reported cases of employee or contractor discrimination within the business operations of WHAUP, aligning with the organization's goal of zero complaints related to employee discrimination.

EMPLOYEE WELFARE AND BENEFITS

WHAUP places great importance on promoting a high standard of living for employees and their families. This aligns with the goal of motivating and retaining talented and capable employees. Accordingly, WHAUP provides appropriate and above-minimum benefits and welfare, which not only supports employees' satisfaction and security but also enhances WHAUP's human resources management. All employees are informed of their rights to benefits and welfare from the start of their employment. Permanent employees receive standard benefits and welfare, including life and accident insurance, health insurance that covers registered family members, annual health check-ups, uniforms, provident funds, assistance funds, disability coverage, maternity leave, and parental leave for female employees (primary-caregiver) during and after pregnancy for 14 weeks, separate from other types of leave. Male employees can also take leave to help their spouses care for their children. In addition, female employees are entitled for child-birth delivery monetary support as a welcoming gift to the newborn, which the given amount can be used on the parents' will to raise the children. Additionally, breastfeeding rooms are provided for female employees after childbirth. Male employees (non-primary caregiver) can take 1 week of leave to assist their spouses with childcare after birth. This leave is separate from other types of leave. Furthermore, WHA Group allows employees who need to care for sick family members to take personal leave for this purpose. Occasionally, the children day care activity is conducted to support the employees and make them feel one of WHA family. Additionally, WHAUP listens to employee feedback to adjust benefits to meet their needs. Employees can propose benefit improvements through the employee welfare committee and the human resources department.

WHAUP, in collaboration with WHA Group, is also committed to developing a positive work environment and motivating employees. Various activities and projects are organized to promote employee well-being, such as WHAppy Talk and the Employee Engagement Survey, in which 99% of employees participated in 2023. WHAUP prioritizes surveys on job satisfaction in various aspects, aiming to develop employee well-being according to strategic human resources management guidelines. This ensures that employees have a good experience throughout their tenure with WHAUP, with a focus on occupational health and safety and the principle of a Happy Workplace. In 2023, activities such as WHAppy, HR Pa Khuen Yan Mae and others were organized to promote well-being and happiness at work through shared activities.



TALENT ATTRACTION AND RETENTION

WHAUP recognizes the continuous changes in the current work environment and is dedicated to finding new ways to recruit and retain talented and skilled employees. The COVID-19 pandemic has accelerated the development and adoption of technology to transform work practices under the concept of the “Future of Work.” This highlights the importance of recruiting individuals with the right skills and knowledge, as well as the ability to adapt to social changes. This includes specialized technological skills and an understanding of digital systems and retaining skilled and competent employees within the organization.



WHAUP recognizes the importance of maintaining a low employee turnover rate. This not only ensures efficient business operations and sustains long-term competitiveness but also minimizes the high costs and time associated with recruitment and selection processes. Thus, WHAUP has made efforts to reduce the turnover rate by assigning the Human Resources department the responsibility of managing strategies to motivate and retain talented and experienced employees. In 2023, the voluntary turnover rate was 8.25%.

Additionally, WHAUP has adjusted its human resources management strategy and organizational values, participating in Strategic Workforce Planning (SWP) and People Analytics (PA) alongside HR management systems to develop all WHA companies towards sustainable business success. SWP is a long-term planning process spanning 3-5 years to anticipate future scenarios, aligning HR management with the needs of WHAUP companies and achieving expected outcomes. This focuses on analyzing trends in HR requirements and strategic business goals, both current and future, including adaptation plans for each scenario.

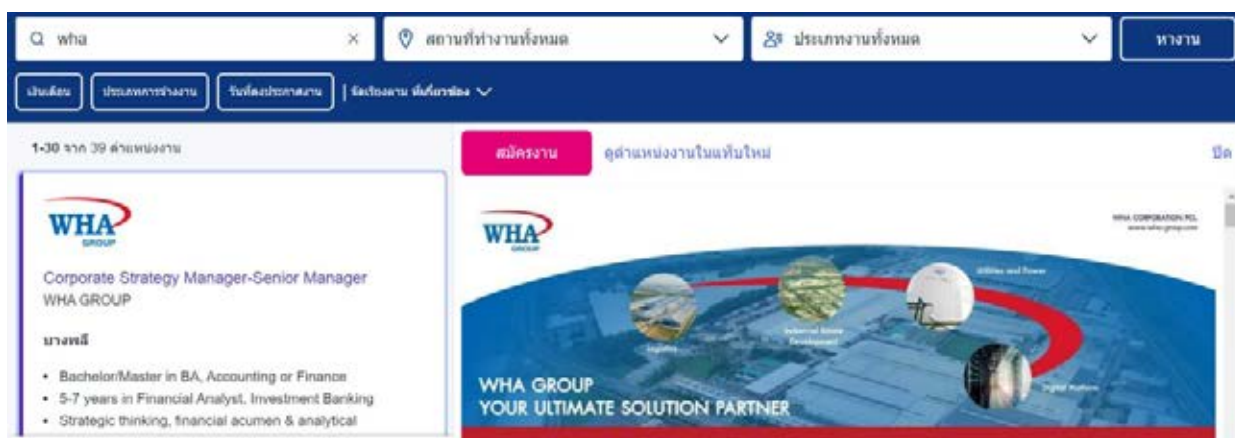
STRATEGIC WORKFORCE PLANNING (SWP)

WHAUP implements Strategic Workforce Planning (SWP) to plan for the future of employees and WHAUP. Because the flexible human resources planning system significantly affects the employees' experience, it also benefits the organization in establishing a team that can work together smoothly. Additionally, SWP supports Operational Excellence in HR management by collaborating with operational teams to identify the expertise or skills necessary for each role, prioritizing them based on a scoring matrix that considers various factors. These factors include the impact on products or services, organizational goals, reliance on external agencies, level of expertise, sustainability of knowledge, and the ability to enhance organizational potential and efficiency. This approach aims to achieve long-term goals and elevate the ability to manage skilled personnel. If an employee already possesses expertise in a specific area, WHAUP will develop a Knowledge Management program to further enhance this expertise. Conversely, if certain skills or expertise are lacking, training will be provided to bridge these gaps.

As part of the SWP, WHAUP utilizes People Analytics to estimate the future workforce that WHAUP will need along with studying external landscape. People Analytics (PA) is determined as methods, tools or applications that integrate the use of advanced analytics and large, complex data sets into human resources management system. PA allowed companies to identify current risks and opportunities, provide better understanding of organizational networks and information flows leading to an informed decision-making process in talent management. WHAUP collects data through the Human Capital Management System (HCMS) in order to track current human capital and headcounts with the manpower planning and adjust implementation plans. The data collected, such as human capital vacancies, and Human Capital Return on Investment (HCROI) are used to analyze progress and success, and to monitor human capital with business performance. Therefore, WHAUP continuously implements these applications into all aspects of its human resources strategy. This includes, recruiting and hiring, measuring employee performance, identifying workforce skill gaps, and identifying flight risks to improve retention. Ultimately, this will help WHAUP improve the business performance and sustainable growth. The effectiveness of this process is evident in the consistent increase of employee engagement score, which was 70% in 2023, aligning with the set targets.

RECRUITING & HIRING

WHAUP has well-defined employment policies that emphasize the recruitment of individuals with potential, matching the organization's needs from both internal and external recruiting channels. For its primary recruiting channels, WHAUP employs a variety of methods such as direct recruitment through the organization's website, engagement with other recruiting websites services in Thailand, etc.



WHAUP has methods to enhance efficiency in recruiting capable employees to meet workforce planning that supports operational plans and specified business goals by creating and communicating a clear and effective Employer Value Proposition (EVP) that aligns with the organization's values. This aims to enhance the efficiency of employee recruitment in accordance with the workforce plan, supporting operational plans and business objectives. WHAUP gathers and analyzes communication content based on the real needs of potential talents from both internal and external sources to ensure that the communication process aligns with the perspectives and expectations of external individuals towards WHAUP. WHAUP aims to creatively present the value in the EVP through various promotional channels. Additionally, WHAUP has launched a corporate image enhancement project to attract the most talented and suitable personnel, as well as to elevate the employment image to appeal to target talent groups by developing partnerships with educational institutions and experts in various fields as follows:

ACADEMIC PARTNERSHIP

- WHAUP strives to reach out to high-potential young individuals through various channels and projects, such as offering internships, allowing educational institutions to visit WHAUP's operations, conducting training programs through coaching, organizing hackathon events, and promoting practical learning projects.

NETWORKS IN PROFESSIONAL CIRCLES

- WHAUP collaborates with professional associations, business associations, and communities to promote WHAUP through knowledge sharing, lectures, and social activities, aiming to develop relationships with experts

To ensure that the recruitment process is efficient and aligned with business needs and current labor market behaviors, WHAUP utilizes data from the Human Capital Management System (HCMS) to analyze and develop the recruitment process. This includes evaluating the labor demand-supply situation, the effectiveness of recruitment channels, the efficiency of initial screening tools, and analyzing applicant behavior and labor needs. WHAUP tracks and collects data to review and analyze success, and to set improvement plans to better meet business demands and organizational growth. Currently, WHAUP has integrated HCMS technology with cloud systems and mobile devices for easier use, and continues to develop the recruitment process to keep up with market conditions, trends, and the ever-changing future of work, aiming to become a Tech Company by 2024.

MEASURING EMPLOYEE PERFORMANCE

WHAUP measures employee performance through annual performance reviews following the guidelines of the Performance Management System (PMS). The goal is to maximize every employee's potential. Employee performance is analyzed against Key Performance Indicators (KPIs). Performance results impact decisions on employee compensation and the development of future capacity-building programs. This also allows comparison of performance with the ratio of high-potential and high-performing employees. The process aims to strengthen WHAUP's talent pool and reduce gaps in relationships between supervisors and subordinates.

In 2023, 100% of WHAUP's employees underwent various forms of performance evaluation, including:

- Management by Objectives (MBO) using KPIs
- Multi-dimensional performance appraisals (e.g., 360-degree feedback)
- Team performance evaluation
- Agile (On-duty) conversations

Some performance evaluations are ongoing, both formally and informally, to provide employees with timely status updates, expectations, and feedback.

Additionally, WHAUP assesses employee engagement and satisfaction across all business units, comparing with past evaluations. The results of these surveys are reported to the management and business unit executives and shared with employees via WHAUP 's SharePoint. These results are analyzed to develop and implement programs, policies, or practices to improve employee care, which is also part of WHAUP and WHA Group's Strategic Workforce Planning (SWP) process.

WHAUP employs various tools and measures to evaluate individual performance across all business units. This helps align employee development with the organization's growth strategy. Four evaluation methods are used to determine compensation related to individual performance.

Type of performance assessment	Total number of employees (%)
Key Performance Indicators (KPIs) set Jointly by Supervisors and Subordinates	100
Multi-dimensional performance appraisals (e.g., 360-degree feedback)	Applied to High-Potential Personnel and Staff Participating in Cross-Functional Projects
Team performance evaluation	100
Agile (On-duty) conversations	100

IDENTIFYING WORKFORCE SKILLS GAPS

Identifying the current workforce skills gaps, such as shortages in specific skills or knowledge, is a part of the Strategic Workforce Planning (SWP) process for WHAUP and WHA Group. This ensures that WHAUP's business operations can meet the objectives and move in the strategic direction set forth. WHAUP has established WHAUP Development Program as a short-term framework to identify high-demand positions that can be filled, as well as the skills or positions in demand at various times. This enables the development or preparation of necessary skills or knowledge to support WHAUP's current and future business operations on schedule. In this process, WHAUP collects data through the Human Capital Management System (HCMS), including the completion rates of training programs for each department, the completion of training programs as planned, and the number of training hours per employee. This data is then used to assess the workforce skills gaps and extend to the development of existing skills and the acquisition of new skills. Collecting and analyzing this information also helps WHAUP enhance employee capabilities and appropriately plan career advancement within the organization, while developing talented individuals for future succession planning and proposes that skilled employees take on positions with greater responsibilities.

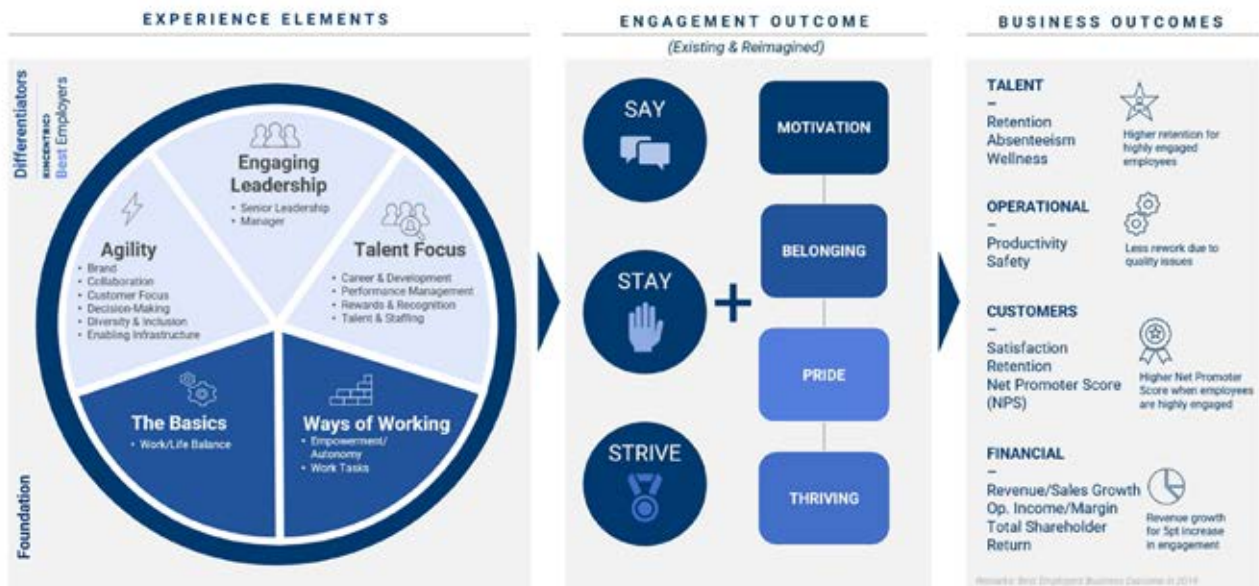
IDENTIFYING WORKFORCE SKILLS GAPS

WHAUP has analyzed the factors that should be prioritized to enhance employee engagement with the organization and identified the main factors that pose a risk of employees becoming disengaged and seeking new job opportunities. These factors are: 1) Compensation, benefits, and recognition, 2) work-life balance, and 3) Work tools, and equipment. Consequently, WHAUP collects employee data such as attrition rates and regrettable losses through the Human Capital Management System (HCMS) to analyze causes, preventive measures, and the incentives that employees have towards WHAUP. Additionally, WHAUP conducts an annual employee engagement survey to identify problematic issues and understand the factors driving employees to leave, aiming to develop strategies to retain employees.

WHAUP recognizes that building employee engagement is a process that enhances employee satisfaction and maintains work performance, while also ensuring that employees feel their work is valuable and impactful to the organization. Therefore, employees who have been with WHAUP for more than six months are required to complete an employee engagement survey. The goal is to achieve recognition as one of the Best Employers in Thailand and the region, a target WHAUP met in 2023. This tool is used to address engagement-related issues and influential factors, which have been confirmed to positively impact long-term employee involvement with the organization. Furthermore, it enables WHAUP to compare its performance with competitors both domestically and internationally to develop the most efficient human resources management systems. The objective is to sustain an appropriate level of employee engagement with the organization over the long term.

The employee engagement survey is divided into the following details:

Kincentric Employee Engagement Model



Source: Kincentric

The results of the 2023 employee engagement survey, with a participation rate of 99%, showed that WHAUP achieved an average score of 70%. This is the same average score of companies in Thailand. This high level of employee engagement reflects WHAUP's satisfactory operations and is a key factor that helped WHA Group win the Kincentric Best Employer Award Thailand 2023. Additionally, it provides an important opportunity for WHAUP to receive the most feedback and suggestions from employees, as each employee's opinion plays a crucial role in shaping the organization's long-term strategy. The results of the employee engagement survey are reported to the executive committee and management in the relevant business groups and shared with employees via the SharePoint.

2020

Employee Engagement
Survey Result Score

89%

Employee Engagement Survey
Score by gender

 **72%**  **60%**



% of Total Employees Coverage
participated in the survey

92%

2021

Employee Engagement
Survey Result Score

69%

Employee Engagement Survey
Score by gender

 **72%**  **60%**



% of Total Employees Coverage
participated in the survey

94%

2022

Employee Engagement
Survey Result Score

72%

Employee Engagement Survey
Score by gender

 **73%**  **69%**



% of Total Employees Coverage
participated in the survey

100%

2023

Employee Engagement
Survey Result Score

70%

Employee Engagement Survey
Score by gender

 **72%**  **64%**



% of Total Employees Coverage
participated in the survey

99%



The data collected from all employees through performance evaluations and employee engagement surveys is analyzed to promote career advancement or to develop beneficial programs. These include job rotation projects, retirement plans, and filling positions within the organization. In 2023, 1.72% of job positions were filled through internal hiring.

SUMMARY TABLE OF DATA ANALYSIS APPROACHES FOR HUMAN RESOURCES MANAGEMENT

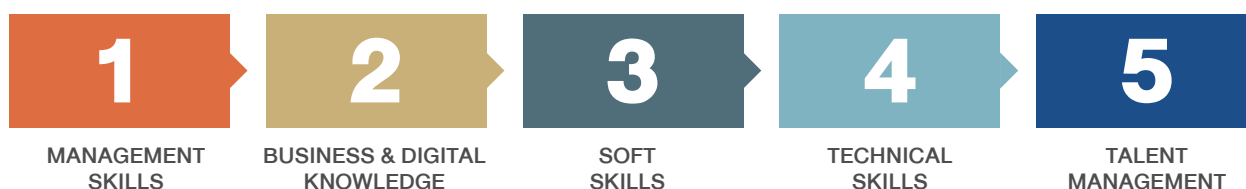
	Employee Performance Appraisal	Strategic Workforce Planning (SWP)	Workforce Skills Gaps	Recruiting & Hiring	Identifying Flight Risks to Improve Retention
The types of data that companies typically collect, related to each topic (such as number of employees, job types, working hours, etc.)	<ul style="list-style-type: none"> - Potential employee rate (outstanding employee) - Completed of work evaluation - Timeline for KPIs evaluation 	Number of employee: <ul style="list-style-type: none"> - Gender - Organizational structure - Location - Gender ratio - Country 	<ul style="list-style-type: none"> - Training completion rate according to plan - Completion of training by department - Ratio of total training hours/ number of employees 	<ul style="list-style-type: none"> - New employment rate - Recruitment period - Termination rate - Recruitment Channel 	<ul style="list-style-type: none"> - attrition rate - loss of desirable employee
Indicators for tracking results.	<ul style="list-style-type: none"> - Percentage of goals achieved by employees 	<ul style="list-style-type: none"> - Number of open positions - Human Capital Return on Investment (HCROI) 	<ul style="list-style-type: none"> - Number of training course per employee - The supervisor's satisfaction level with the employee's performance 	<ul style="list-style-type: none"> - Percentage of recruitment success rate 	<ul style="list-style-type: none"> - Turnover rate - Turnover rate of skilled employee
Objectives of data analysis	<ul style="list-style-type: none"> - Verify the quality of performance evaluation and provide feedback to employees. 	<ul style="list-style-type: none"> - Monitor human resources information and workforce planning. 	<ul style="list-style-type: none"> - Provide employees with opportunities to enhance their skills or learn new ones, in order to fill skill gaps and strengthen the workforce. 	<ul style="list-style-type: none"> - Enhance workforce planning effectiveness to ensure operational alignment with the established plan and business objectives. 	<ul style="list-style-type: none"> - Evaluate employee engagement with the organization.
Benefits of data analysis include	<ul style="list-style-type: none"> - Increase the number of skilled and competent personnel. - Enhance employee engagement with the organization. - Reduce gaps in the relationship between supervisors/ managers and employees. 	<ul style="list-style-type: none"> - Able to compare human resources data with business performance data. 	<ul style="list-style-type: none"> - Develop employee capabilities and plan appropriate career progression within the organization. - Develop personnel with abilities for job succession and career advancement. 	<ul style="list-style-type: none"> - Recruit personnel for critical positions in a timely manner to support the business needs and organizational growth. 	<ul style="list-style-type: none"> - Evaluate employee engagement with the organization.

EMPLOYEE DEVELOPMENT AND PROMOTION OF ADVANCEMENT OPPORTUNITIES

WHAUP firmly believes in the philosophy that humans are the most valuable assets of the organization and believes that employees play a crucial role in the sustainable growth of the organization. Moreover, WHAUP is also aware that investing in employee training and development not only helps motivate employees but also strengthens the organization by building a skilled workforce. Therefore, WHAUP has implemented various skill development programs to promote progress in both personal skills and career paths of employees. Starting with identifying skill gaps, budget allocation is made for both upskilling and reskilling to ensure that all employees have a set of key skills relevant to the organization's strategies and business vision. These skill development programs apply all WHA Group.



The learning and development program focuses on five key growth areas including 1) Management skills development, 2) Business and digital knowledge development, 3) Soft skills development, 4) Technical skills development, and 5) Talent management.



WHAUP has also analyzed the Human Capital Return on Investment (HCROI) to use as a metric and indicator of the appropriate level of investment in employees. In 2023, WHAUP achieved a return of 20 times and has set a target of 31 times by the year 2025. In 2023, WHAUP invested a total of 211 Million Baht, or approximately 1.13 Million Baht per Full-Time Equivalent (FTE) to develop its workforce.

HUMAN CAPITAL RETURN ON INVESTMENT (HCROI)



To promote continuous self-development among employees and drive business results, WHAUP has adjusted its human resources strategy to accelerate people transformation through enhancing capabilities, developing existing skills, acquiring new skills, and supporting a creative work environment. In 2023, WHAUP planned to revise the organization’s competency requirements concerning essential skills for current and future work, aligning with the WHA Group’s strategy. The specific skill sets that WHAUP has developed include value-added products of WHAUP and enhancing employees’ knowledge in the application of technology in their work.

In addition, WHAUP emphasizes the importance of enhancing digital knowledge and skills for all employees, ranging from basic to advanced skills, such as data analysis, programming, or increasingly complex digital skills required for specialized tasks.



EMPLOYEE DEVELOPMENT

WHAUP prioritizes employee skills to elevate the business to keep pace with the rapid changes in the economic landscape. Therefore, WHAUP conducts both mandatory and voluntary training programs to develop various skills for employees, including:



MANAGEMENT SKILLS DEVELOPMENT

WHAUP, in collaboration with WHA Group, organized the training course “Risk Management: Understanding and Evaluating Fraud Risks” as a mandatory course for all managers and employees in the organization to enhance knowledge understanding, and awareness of the importance of risk management, including familiarization with relevant tools and techniques. In the year 2023, one session of training was conducted, with a total of 140 participants, lasting for 3 hours.

WHAUP, in collaboration with WHA Group, arranged the training course “Strategy Process” with Dr. Tanai Charinsarn, an expert in strategic management and the owner of the Facebook Group: Strategy Essential, as the instructor. The training was offered to 8 employees holding positions of Director - Manager in the Corporate Group Function to learn about the strategy-making process, including selecting appropriate tools to enhance competitiveness and business growth. The total duration of training was 24 hours.



WHAUP, in collaboration with WHA Group arranged the training course “1-on-1 Meeting” for all managers and employees in the organization, divided into 4 episodes, totaling 9 sessions. A total of 59% of all employees participated in the training to enhance skills and understanding regarding 1-on-1 Meeting focusing on the following four key aspects:

1. Providing a platform (both formal and informal) for managers and employees to discuss Work & Life matters. “Work” encompasses motivation & inspiration at work, work goals, personal development plans, communication of work progress and limitations, job performance feedback, and coaching. “Life” includes conversations to understand personal life progress, current challenges, life goals, etc.
2. Elevating the relationship between managers and subordinates by facilitating discussions between each manager and their team members.
3. Increasing the effectiveness of communication between managers and subordinates, both in terms of quantity (frequency) and quality (communication outcomes).
4. Understanding and preventing potential issues that may arise in the future.



TECHNICAL AND FUNCTIONAL SKILLS

In 2023, WHAUP, in collaboration with WHA Group, organized training programs focusing on various abilities and development areas for employees to enhance technical and functional skills and reinforce necessary knowledge. For instance, occupational health and safety training was conducted as a mandatory program, aiming to elevate technical and functional skills and provide essential knowledge as follows:



- The safety training program was conducted to cover workplace safety issues, including working at heights, reviewing safety in crane operations, working in confined spaces, basic fire extinguishing, advanced fire extinguishing, fire drill and hazardous chemical handling, basic first aid, etc. This training program was provided to employees involved in WHAUP, ranging from managerial to operational levels. The total training hours for safety amounted to 151 hours, with a total of 33 participants across all courses.



- The Operational Excellence project aimed to develop the knowledge and skills of employees and foster a culture of operational excellence within WHAUP, striving to deliver the highest satisfaction of products and services to customers. This project covered five dimensions: SSHE (Safety, Security, Health, and Environment), Performance & Reliability, Work Process, Sustainability, and Organization & People. It focused on reviewing knowledge and enhancing deep technical expertise for engineering, operational, and maintenance groups to cultivate expertise within the organization. In 2023, two trainings were conducted to develop personnel's knowledge and skills according to the Technical Skill Matrix, "Engineering Hydrology," and "Hydraulic Fundamental." A total of 20 participants attended these training sessions, accumulating 609 training hours.



- Return of Experience Activity: REX Day aimed to exchange valuable information among operational units following the completion of the Operational Excellence project, helping to enhance knowledge and understanding in collaborative work practices. It involved exchanging knowledge from direct experiences through representatives from WHAUP and other business group such as WHAID, WHALG, and WHADG. This activity had a total of 24 participants, accumulating 144 training hours.

BUSINESS AND DIGITAL KNOWLEDGE DEVELOPMENT

In 2023, WHAUP organized training programs to develop digital knowledge covering business, digital, and IT aspects. These programs aimed to enhance employees' knowledge and understanding in business, digital, and IT fields, including:



- Digital Transformation Leadership Course for senior-level executives, ranging from C-Level to Assistant Director, in collaboration with PacRim Group and Skooldio. This course aimed to develop leadership capabilities in both People Skills and Digital Skills, enabling participants to apply them in building teams ready to lead the organization into the digital era. The course featured guest speakers Khun Porntip Iyimapun, Founder and CEO of PacRim Group, and Dr. Virot Chiraphadhanakul, Co-founder and Managing Director of Skooldio, who specialize in People Skills and Digital Skills. There were 10 participants in total, accumulating 120 training hours.



WHA

INNOVATION JOURNEY

Enhancing Innovation Power In You



WHAUP collaborated with WHA Group and RISE Accel Company Limited to organize the “WHA Innovation Journey” program in the form of a Bootcamp to develop and enhance capabilities in innovation through the adoption of various tools necessary for ideation and innovation development. There were a total of 96 participants, accounting for 13.37% of the full-time employees participating in the activity. The program was divided into 2 phases as follows:

- **Hackathon Phase:** This phase aimed to generate innovative ideas to prepare for the Innovation Process (Design Thinking) by engaging in hands-on experimentation to explore initial ideas for innovation projects during the upcoming Bootcamp. The program involved 15 participants, ranging from senior-level executives to junior-level managers, and lasted for a total of 20 days, totaling 23 hours of training.
- **Bootcamp Phase:** This phase focused on promoting and supporting Solution Development through mentor assistance to brainstorm and develop innovative ideas that can address needs, problems, and challenges. The program included 4 participants, ranging from senior-level executives to junior-level managers, and lasted approximately 3 months, with a total of 30 training hours.

DIGITAL LITERACY & DATA KNOWLEDGE TRAINING COURSES

WHAUP, in collaboration with WHA Group, has conducted training to enhance understanding and utilization of digital technology and knowledge in data management, which plays a crucial role in improving employee skills. This helps employees proficiently utilize digital tools in various operations and tackle business challenges through technology. This skill is a key factor that contributed to WHAUP achieving the highest success and net profit in 2022, reflecting impressive growth of over 50% from the previous year. This training had a total of 52 participants, which is 27.96% of the full-time employees who attended the training. In 2023, WHAUP divided the training into various courses and projects as follows:

- The “Microsoft Excel: Level Up” course, 1 session: WHAUP, in collaboration with WHA Group, was provided to employees at all levels who regularly use Microsoft Excel and require skill enhancement to apply it more efficiently in their work. The courses were conducted by inviting Mr. Sira Ekabut, the founder of “Thep Excel” website and fan page. Each course had 11 participants, with a total training duration of 12 hours per course. Upon completion of the courses, participants demonstrated improved skills, measured through pre and post-training assessments.



- The “Power BI” course, both Basic and Advance, totalling 8 sessions, and the “Power Query” course, comprising 6 sessions, were provided to employees at all levels within the organization who were interested in enhancing their data management skills with assistance from WHA Group. These two courses are essential for data analysis, data visualization, and linking data to various sources. They enable employees to utilize existing tools or technologies efficiently and effectively with enhanced knowledge and understanding. The training was conducted by in-house experts who understand the employees’ needs and limitations well, making it a targeted and effective training program. Moreover, the personnel development project incurred no expenses but significantly improved the efficiency of employees’ work.

The aforementioned training program has enabled WHAUP to achieve the main strategy of transforming the organization into the digital era (Digital Transformation). This training serves as a foundation for knowledge and understanding for employees to be prepared for upcoming changes. Furthermore, this training plan is considered a successful accomplishment of the organization’s Data Driven Organization strategy.

Moreover, WHAUP has implemented Transition Assistance Programs, which provide guidance and directions for employees’ life after the end of their employment contract or retirement. The focus is to help these employees smoothly adapt to their post-retirement environment and be effective. Additionally, in some cases, it assists employees with capabilities to continue working after retirement. The activities of the Transition Assistance Programs include Money Planning, Pre-Post Retirement seminar, general meetings on pension funds, and supporting budgets for employees to participate in external training programs.

HUMAN RIGHTS

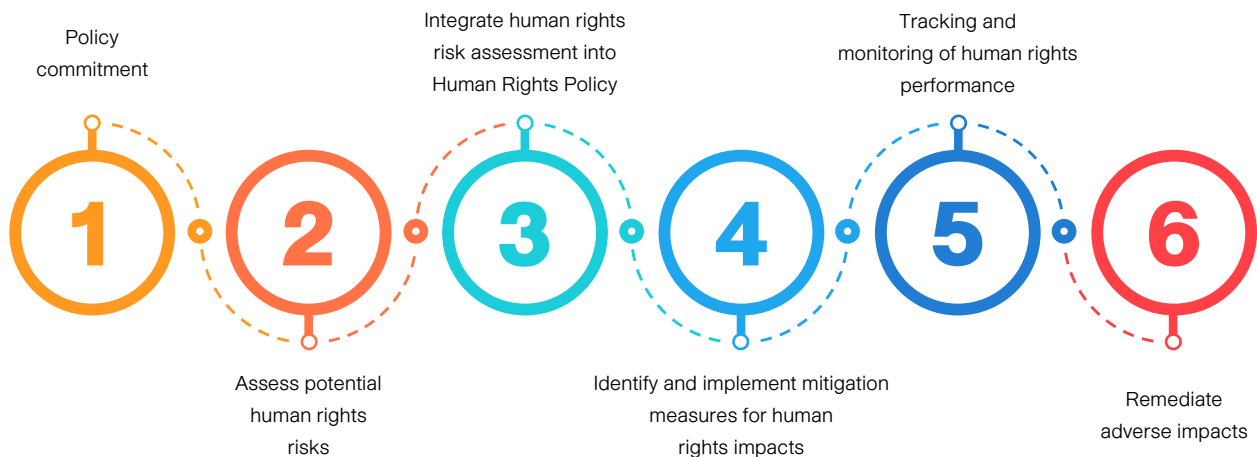
Human rights are fundamental rights and freedoms inherent to all human beings from birth. However, human rights violations continue to occur worldwide, whether through legal infringements, international standards, or human rights treaties, including events leading to human rights violations, which may negatively impact reputation, complaints from human rights defenders, or protests by various rights-holding groups. WHAUP believes that to be a truly sustainable business, it must elevate its human rights practices, promote principles as a utility and power service provider, involving many stakeholders directly and indirectly. This includes promoting WHAUP's human rights principles and commitments to all relevant stakeholders and vulnerable groups throughout the value chain.

Therefore, WHAUP strictly adheres to the Policy on Human Rights and Labor Practice of WHA Group and conducted comprehensive Human Rights Due Diligence (HRDD) to assess risks and impacts related to human rights throughout the value chain. WHAUP has identified human rights issues, assessed impacts on vulnerable groups requiring special care, such as children, foreign workers, pregnant women, and evaluated potential impacts at the organizational, operational, and individual levels. The criteria for assessing human rights risks consider the likelihood of occurrence and the impact of human rights issues. The human rights due diligence process of WHAUP is based on international standards such as the Universal Declaration of Human Rights (UDHR), the United Nations Guiding Principles on Business and Human Rights (UNGPs), the United Nations Global Compact (UNGC), and the International Labor Organization's Declaration on Fundamental Principles and Rights at Work. WHAUP systematically reviews and evaluates human rights due diligence and conducts annual human rights assessments.



HUMAN RIGHTS DUE DILIGENCE

Human Rights Due Diligence



HUMAN RIGHTS POLICY COMMITMENT

WHAUP is an important part in formulating a human rights policy with WHA Group, which is a part of the comprehensive human rights due diligence process and is in accordance with international standards on human rights, including laws and regulations at both local and global levels. The scope of WHAUP and WHA Group's human rights policy covers all stakeholders, including all employees involved in WHAUP's operations, as well as extends to business partners, contractors, and all business-related activities, including new business activities (such as mergers, acquisitions, joint ventures). Additionally, WHAUP has extended these human rights commitments to its customers, communities, and vulnerable groups, i.e., women, children, migrant workers, indigenous communities, persons with disabilities, elderly, and LGBTQI+. Furthermore, the Human Resources Department has communicated this policy to all employees in WHAUP.


Human rights and Labor policy and practice

To ensure that WHA Group operates responsibly and complies with the law, WHA Group has adopted international standards on human rights as follows:



ASSESS POTENTIAL AND ACTUAL HUMAN RIGHTS RISKS AND IMPACTS

WHAUP conducts Human Rights Risk Assessments (HRRRA) in activities related to utilities and power services for industries. This assessment is part of WHAUP 's human rights risk assessment. The HRRRA covers 100% of WHAUP's operational sites, encompassing the areas of WHAUP's operations, categorized by activities and operations related to the value chain (from upstream to downstream)

Business Group	Upstream	Business activity	Downstream
Utilities Business Power Business 	<ul style="list-style-type: none"> Raw water procurement Purchasing fuel and solar panels. 	<ul style="list-style-type: none"> Water production Wastewater Management Power generation Solar rooftop installation 	<ul style="list-style-type: none"> Project maintenance After-sales customer service.

Furthermore, WHAUP encompasses the identification of human rights risks arising from new business activities (mergers, acquisitions, joint ventures, etc.). Human rights criteria are included in the checklist for mergers and acquisitions, which may affect the human rights operations of WHAUP. Additionally, there is a systematic review of risk assessments conducted annually to ensure comprehensive coverage of potential risks and to ensure they are up to date.

HUMAN RIGHTS ISSUE ASSESSMENT

WHAUP has identified and assessed human rights issues that may arise, including risks and impacts, as part of the business review process. The human rights issues considered by WHAUP cover the following:

EMPLOYEE RIGHTS

- Illegal Forms of Labor (i.e. Forced Labor, Child Labor, Human Trafficking)
- Freedom of Association
- Right to Collective Bargaining
- Equal Remuneration
- Segregation and Discrimination
- All forms of Harassment, including Sexual and Non-Sexual Harassment (e.g. Verbal Threats)
- Foreign Human Capital, and Migrant Workers
- Health and Safety of Employee (and COVID-19 Risks)
- Work Environment and Workers' Quality of Life
- Working Hours

CUSTOMER RIGHTS

- Data Privacy
- Health and Safety of Customer
- Waste, Hazardous Waste and Contagious Waste Management

SUPPLIER & BUSINESS PARTNERS RIGHTS

- Health and Safety in the Supply Chain
- Fair Hiring Condition for Suppliers
- Working Condition and Environment for Contractors and Suppliers
- Joint Venture Partnership's Unsafety or Unhealthy Working Conditions

COMMUNITY RIGHTS

- Resettlement
- Socio-Economic Impacts
- Environmental Impacts
- Livelihood and Standard of Living
- Community Health and Safety
- Foreign Human Capital

VULNERABLE GROUPS

The vulnerable groups covered by the risk assessment includes:

- Own Employees
- Women
- Children
- Indigenous People
- Migrant Workers
- Third-party Contracted Labor
- Local Communities
- People with Disabilities
- Elderly
- LGBTQI+ Communities

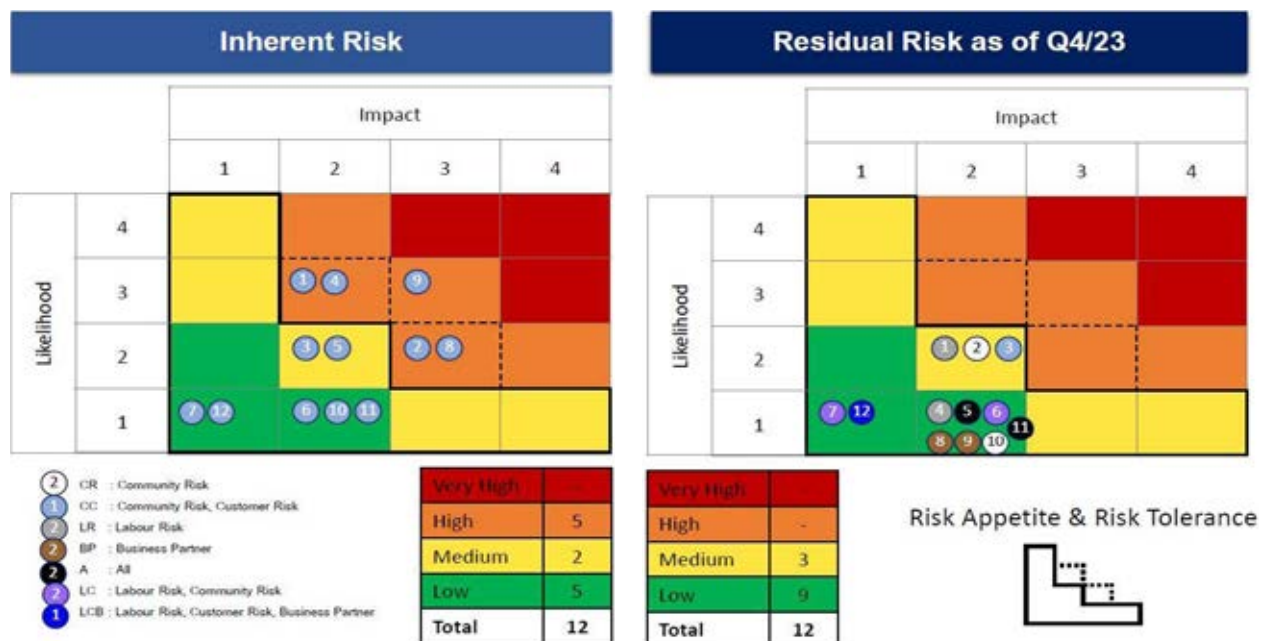
HUMAN RIGHTS RISK ASSESSMENT METHODOLOGY



HUMAN RIGHTS CRITERIA

The assessment of human rights risks has utilized the criteria for assessing human rights risks of WHAUP, which are aligned with all business group's human rights policy and based on international best practices. These criteria are used to determine the importance of each human rights issue. The risk assessment criteria also cover the likelihood and impact of each human rights issue.

Likelihood criteria	1 (Low)	2 (Medium)	3 (High)	4 (Very high)
Likelihood	<p>Almost never occurs (<14.99%)</p> <p>The human rights issue almost never occurs in the business operation of WHAUP, but occurs in industrial operations.</p>	<p>Occurs moderately (15%-39.99%)</p> <p>The human rights issue occurred in the past, and still occurs depends on the business operation of each department.</p>	<p>Occurs very often (40%-79.99%)</p> <p>The human rights issue occurred in the past, and still often occurs.</p>	<p>Occurs frequently (> 80%)</p> <p>The human rights issue has occurred continuously</p>



WHAUP'S HUMAN RIGHTS PERFORMANCE

- 100% of WHAUP's operation sites and associated activities were assessed on their human rights risks and impacts.
- After the assessment, 100% of WHAUP's operation sites and associated activities which have been identified with medium human rights risks and impacts, have mitigation measures and/or remediation actions implemented.
- WHAUP's operation sites and associated activities that were identified with medium human rights (salient issues), as follow:
 - Health and safety of customers and employees
 - Health and safety within the supply chain
 - Livelihood and standard of living for communities

100%

100% of WHAUP's operation sites and associated activities were assessed on their human rights risks and impacts.



100%

WHAUP's operation sites and associated activities that were identified with medium human rights (salient issues), as follow:

- o Health and safety of customers and employees
- o Health and safety within the supply chain
- o Livelihood and standard of living for communities

100%

After the assessment, 100% of WHAUP's operation sites and associated activities which have been identified with medium human rights risks and impacts, have mitigation measures and/or remediation actions implemented


INTEGRATE FINDINGS AND POTENTIAL IMPACTS INTO HUMAN RIGHTS POLICY

Once the risks and potential impacts have been identified, the findings are then used to guide the revision of the Human Rights Policy to ensure that WHAUP's Human Rights Policy and commitments is in line with the current global trends, international standards and comply with the most present laws and regulations. The results and findings are also integrated into WHAUP's management systems and approaches, procedures and work processes, and are also use to guide business direction and strategy in the future.



IDENTIFY AND IMPLEMENT MITIGATION MEASURES FOR HUMAN RIGHTS IMPACTS

Based on the nature of WHAUP's activities as providers of a utility and power service provider, it was identified through assessments that human rights related risks are less severe in comparison to other business sectors. This is because WHAUP complies with the governmental land zoning laws, follows the EIA requirements, and involves low numbers of foreign labors. Nevertheless, WHAUP has implemented various mitigation measures as well as tracking and monitoring processes for the human rights issues identified as follow.

Human Rights Issue	Affected Rights Holders and Vulnerable Groups	Tracking and monitoring, mitigation measures, and remediation actions
Health and Safety		
<p>Accidents that may occur within the industrial estate as a result of the operations of the industrial factories belonging to the client group include incidents such as gas pipeline explosions, chemical leaks, as well as fire incidents and/or accidents at the workplaces of WHAUP, such as water production plants and wastewater treatment facilities.</p> 	Community, Customer, Employee	<ul style="list-style-type: none"> • Risk assessment is conducted to identify various potential hazards that may occur during business operations and to implement control measures to eliminate or reduce those risks. The risk assessment is reviewed annually or whenever there are changes in operational activities. • Installed the Emergency Control Center (ECC) in 9 of WHA industrial estates and 2 industrial zones. The control centers are used to assess and prevent emergency incidents. ECC systems are managed by OHS specialists that can immediately respond to the incidents that have occurred in real-time. • Implemented emergency plan and conduct the emergency drill, annually. • Gathered Safety Data Sheet (SDS) on hazardous chemical uses within the industrial estates in order to prevent any further risks from occurring
Health safety from the effects of noise pollution, air pollution, dust, smoke, light and vibration from project development and operation within the industrial estate.	Community, Customer, Employee	<ul style="list-style-type: none"> • Develop measures and preventive plans specified in the Environmental Impact Assessment (EIA) report and fully comply with all measures. • Various innovations are developed and utilized to reduce the risk of creating an environmental impact on the community through the operation of industrial estates and customer groups. Operators employ measures such as a central control center (Unified Operation Center UOC) to effectively control and monitor various safety-related indicators. • Resolve complaints from communities and tripartite committees in every case with concrete conclusions.
Unsafe working conditions that can lead to accidents during work, such as accidents arising from the use of equipment. or various tools, electric shock, leakage	Employee	<ul style="list-style-type: none"> • Organize training for employees on safety, update various laws related to safety for employees. • Provide safety equipment such as glasses, safety shoes.

Human Rights Issue	Affected Rights Holders and Vulnerable Groups	Tracking and monitoring, mitigation measures, and remediation actions
Unsafe workplaces during the COVID-19 pandemic	Employee	<ul style="list-style-type: none"> • Provide vaccines for employees and their families to prevent the spread. • Announcement of preventive measures of WHAUP in the event of an COVID-19 outbreak. • BCP measures by specifying roles, duties, responsibilities when an incident occurs
Health and Safety in the Supply Chain		
Accidents from construction activities which could lead to work-related injuries or loss of life For example: falling off height, cuts from sharp objects, burn wounds	Contractor, Supplier	<ul style="list-style-type: none"> • Developed safety manual for contractors which they must strictly followed. • Assessed safety risks and develop safety procedures for each work tasks/types • Implemented an approval process for all suppliers and contractors before entering work premises. • Continuously assess and monitor the safety systems within the industrial estates.
Livelihood and Standard of Living		
Water management, competition for water with local communities and wastewater releases into natural sources	Community	<ul style="list-style-type: none"> • Committed to managing water efficiently and effectively. • Set target to reduce water uses from natural sources through Recycled Water/ Reclamation Water. • Strictly followed waste management requirements and procedures for industrial estates • Controlled and monitored water management parameters in accordance with EIA requirements. • Developed and continuously improve the efficiency and effectiveness of WHAUP's water production and water treatment systems.



TRACKING AND MONITORING OF HUMAN RIGHTS PERFORMANCE

WHAUP has assigned the relevant departments to regularly monitor and review WHAUP's human rights measures. The reports are presented to the responsible executives for acknowledgment and follow-up. Human rights criteria are also included as part of WHAUP's performance indicators at all levels of employees. Additionally, WHAUP has established a reporting channel that stakeholders can easily access to report any actions that may be considered violations of human rights or contrary to the human rights policy. The grievance mechanism is detailed in the Code of Conduct section of this report.

CORRECTIVE ACTION AND REMEDIATION

WHAUP recognizes that its business activities and operations may cause human rights violations its stakeholders/ rights holders and vulnerable groups. Thus, WHAUP is committed to preventing and mitigating the potential human rights risks associated with these activities, across the value chain.

In the case of human rights violations, WHAUP have implemented various measures to ensure proper remediation actions to restore affected groups that have been harmed by the business's activities to the situation they would have been in had the impact not occurred. This includes grievance mechanism and complaint channels through telephone, email, and website, as well as, directly informing relevant staffs and employees. WHAUP will assess the causes and address the issues through an anonymous process. Additionally, after the assessment, WHAUP will ensure that effective remedy, and compensation have been provided, as well as insurance coverage to those that were harmed. Moreover, WHAUP verifies its human rights results, and review the assessment and due diligence process every year. This is to ensure that its human rights practices are the most effective and updated. Finally, In 2023, there are no human rights violations, therefore, there are no remediation actions.

HUMAN RIGHTS AWARENESS

WHAUP fosters awareness and understanding of human rights among all employees to align with the principles and commitments regarding human rights of WHA Group. Human rights policies are communicated as part of the continuous orientation of new employees since the year 2020, led by the Human Resources department. Moreover, in the year 2023, out of 34 new employees from a utilities and power business, accounting for 100 percent, participated in the employee orientation program. In summary, all employees of WHAUP completed a total of 34 training hours in human rights policy and procedures. Additionally, the Human Resources department has promoted the importance of various topics such as nationality, religion, language, age, gender, marital status, personal attitudes towards gender, disabilities, union membership, employment as a board member, political affiliation, or other personal beliefs. Various documents have been prepared and attached with human rights policy documents through the internal document management system, SharePoint, to enhance awareness of human rights and encourage employees to review the policies.

FREEDOM OF ASSOCIATION AND RIGHTS TO COLLECTIVE BARGAINING

WHAUP prioritizes upholding the human rights of all stakeholders affected by its business operations, including issues such as human trafficking, forced labor, freedom of association, the right to collective bargaining, equal compensation, and non-discrimination. These concerns are addressed through WHAUP's comprehensive human rights policies and measures, which extend to stakeholders both within Thailand and abroad, encompassing all countries where WHAUP operates. To ensure that all stakeholders receive their full and equal rights, WHAUP has implemented a Human Rights Due Diligence (HRDD) process. This process includes a Human Rights Risk Assessment (HRRRA) that evaluates compliance with the 35 human rights clauses outlined in the Universal Declaration of Human Rights (UDHR). Through this assessment, WHAUP identifies and addresses any potential risks or violations, taking appropriate measures to rectify the situation and restore affected groups to a state free from the adverse effects of business activities.

In relation to issues concerning restrictions on freedom of association and the right to collective bargaining, WHAUP grants all personnel the right to lodge complaints or unite to address injustices, such as excessive working hours, inadequate compensation relative to workload, workplace insecurity, and more, through various complaint channels. Additionally, WHAUP will establish a committee to evaluate these complaints. The review process will adhere to the rules and regulations specified by the International Labor Organization (ILO).

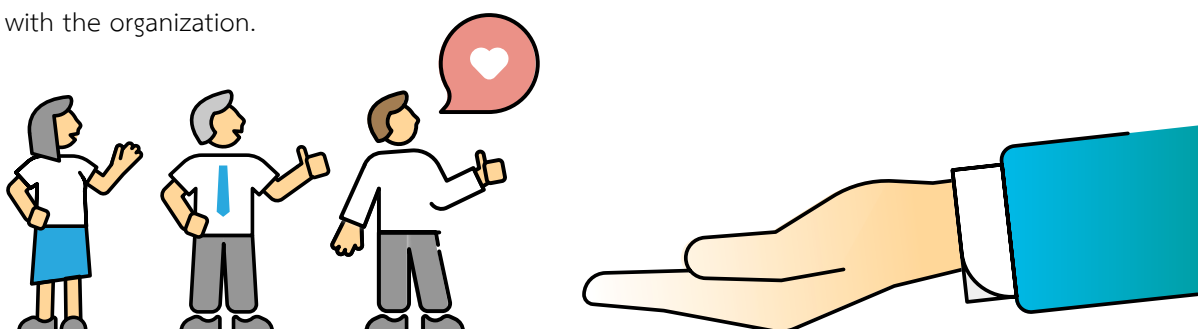
In addition, WHAUP, in collaboration with WHA Group, has developed various projects to promote human resources management and enhance a positive working experience for employees within WHAUP in various aspects, as follows:

PROJECT TO STRENGTHEN COMMITMENT AND SATISFACTION THAT EMPLOYEES HAVE TOWARDS THE ORGANIZATION:

- In 2023, WHAUP held consecutive Town Hall Meetings, following from 2022, with Ms. Jareeporn Jarukornsakul, WHA Group Chief Executive Officer, and Somkiat Masunthasuwun, WHAUP Chief Executive Officer, as the speakers. The objective was to encourage employee participation and awareness of the business strategies of each business unit under WHA Group for the following year, aiming to strengthen the employees' commitment to the organization.

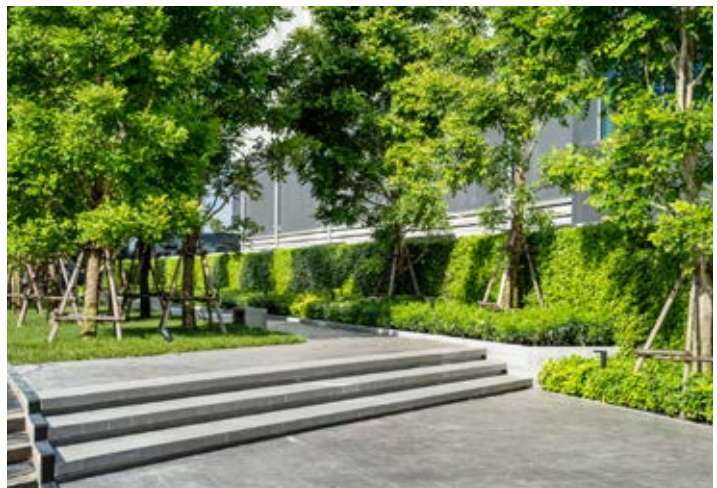


- WHAUP continues to consistently elevate digital technology capabilities to enhance the efficiency of Human Resources operations. As part of this effort, an Intranet called “WHA Space” has been developed for internal use within WHA Group. WHA Space serves as a communication channel between the Human Resources department and employees across all WHA business group. It allows employees to access various announcements from WHAUP. Additionally, the Human Capital Management System (HCMS) has been developed to enable employees to independently manage certain human resources-related tasks, aiming to provide convenience, reduce coordination efforts, and increase employee satisfaction with the organization.



WORK-LIFE SOLUTIONS PROJECT

WHAUP has been part of the development of a WHA Office Solutions, a premium office building project, serves as the location for WHA Tower, @Premium project, and SJ Infinite I project, among others. The spaces are designed to be flexible and cater to diverse work patterns, fostering an environment conducive to creative thinking, innovation, and collaborative work supported by modern technology. This initiative aims to enhance employee satisfaction and build confidence among capable personnel.



WHAUP promotes Work-Life Solutions for employees by relocating the main office to WHA Tower, located in the central business district of Bangna. This project has received the prestigious award for “Commercial High Rise Architecture Thailand.” The working environment is easily adaptable and equipped with various amenities such as co-working spaces, coffee shops, and beautiful landscapes including gardens and water features. Additionally, there are recreational areas for various activities, allowing employees to experience efficient work practices and a balanced work-life lifestyle, promoting good health and enjoyment of comprehensive entertainment facilities.



This also includes cutting-edge technology for safety and agility, integrating internal technology innovations controlled by digital systems, which excel in security management. It features facial recognition systems for access control, body temperature screening to maintain good health standards, and parking spaces accommodating up to 500 vehicles. Additionally, environmentally friendly technology innovations are implemented. Work-Life Solutions is a significant step towards achieving the goal of becoming Thailand’s top employer for both WHAUP and WHA Group.

SKILL DEVELOPMENT PROGRAM FOR EMPLOYEES (WHAppy)

WHAUP, in collaboration with WHA Group, has developed WHAppy project in 2021, resulting from the fusion of the words “WHA” and “Happy” to reflect the project’s objective of promoting happiness in employees’ work and strengthening their bond with the organization. Through developing employees’ capabilities and engaging in activities together, this project serves as a communication channel and activities related to change management to promote a positive “can-do attitude” within WHAUP’s community. These activities also enhance knowledge, skills, and ways of thinking regarding both health and well-being, providing employees with relaxation from work, which is one of the ways to manage



stress in the workplace. In 2023, WHAUP continued the WHAppy project and improved and developed activities based on employee feedback to align with their needs.

1. WHAppy Talk – Seminar activities to share knowledge and inspire with guest speakers from outside the organization and executives or employees from within the organization. For example, discussions with P’Nui Dr. Sirikul Laukaikul, a consultant on brand creation and development, on the topic “How important is Branding?” or the program “Unlocking the Potential of AI & Generative AI,” which shares knowledge from the CEO Office and Information Technology unit, among others.



In 2023, there was a WHAppy Talk program called “Kra-Hai-Lao (Knowledge Sharing),” inviting each department to share their work processes and how they utilize various technologies within their units. This was aimed at enhancing WHAUP and employees across WHA Group to understand the operations of different departments. Additionally, the activity included sharing success stories of various projects to further inform employees about Digital Transformation.

2. WHappy Activity - WHappy Activity in 2023 was a continuation of the WHappyVerse activity in 2022, which was a charity auction led by executives. Proceeds from the auction, combined with donations from Dr. Somyos Anantaprayoon Foundation, were used to install a Solar Rooftop on the school building for the Nikhom Sang Ton Eng Rayong 9 School, located at WHA Rayong 36 Industrial Estate under the “Shine Brighter with WHA” project.



3. WHAppyCast – This is an internal podcast series exclusively broadcasted within the organization to raise awareness and enhance knowledge among employees about new trends globally and the current path towards digital transformation. For example, providing insights into Data topics in the series “Data Driven the Series Season 2,” which was held 10 times in 2023. Also, educating about the importance of health check-ups by medical experts specializing in preventive medicine from Samitivej Hospital on July 20, 2023, and other health-related topics from WHAbit.



4. WHAppy Festival – Events that held throughout the year to strengthen relationships and unity among employees during important festivals, such as the Songkran Festival, annual merit-making ceremonies, and New Year's celebrations organized by WHA Group.

Since the launch of the WHAppy project in March 2021 until now, there have been more than 60 activities organized between WHA Group and WHAUP, including both online and offline events. These activities provide opportunities for employees to meet and engage in shared activities to enhance relationships. The results of each activity have consistently exceeded expectations. Most importantly, employees have actively participated by expressing their opinions, providing commendations, and giving suggestions to the Working Group, which are used to plan future activities aimed at promoting and developing the potential of employees in 2024.

In 2023, the performance was evaluated based on the average training hours per employee per year, as detailed in the table below.

Category	Average training hour per year (Hours)	Average training hours per year per FTE (Hours)	Average investment in training and development per FTE (Baht)
Gender			
Male	26.22	26.22	10,938.28
Female	30.18	30.18	11,578.42
Age			
Below 30 years old	26.85	26.85	7,239.04
30-50 years old	25.72	25.72	11,870.61
More than 50 years old	29.93	29.93	8,202.29
Level			
Staff	27.48	27.48	8,335.29
Middle management	32.79	32.79	26,336.30
Top management	20.57	20.57	26,820.62
Ethnicity, race, nationality, place of origin, cultural background			
Thai	27.22	27.22	10,997.73
Type of Training			
In-house training	24.72	24.72	9,179.96
External training	2.24	2.24	1,877.94



2021



Total number of new hires

25

% of Open positions filled by internal candidates (internal hires)

4%



Total number of new hires

9

% of Open positions filled by internal candidates (internal hires)

11.11%

Average hiring index per FTE (THB)

4,407

2022



Total number of new hires

24

% of Open positions filled by internal candidates (internal hires)

0%



Total number of new hires

7

% of Open positions filled by internal candidates (internal hires)

42.86%

Average hiring index per FTE (THB)

19,774

2023



Total number of new hires

31

% of Open positions filled by internal candidates (internal hires)

0%



Total number of new hires

7

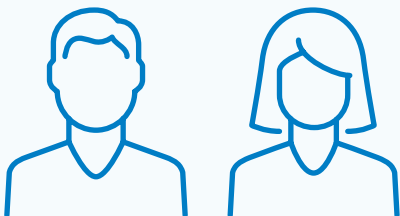
% of Open positions filled by internal candidates (internal hires)

6%

Average hiring index per FTE (THB)

21,524

2024 Target



Total number of new hires

40

% of Open positions filled by internal candidates (internal hires)

2%

In 2023, WHAUP did not employ any disabled individuals. However, WHAUP has contributed funds to the Department of Empowerment of Persons with Disabilities as required by law.

z

Total employee turnover rate

0%

Total turnover rate by gender



0%



0%

Total turnover rate for management level



Top management

0%



Middle management

0%



Junior/ Low management

0%

Total turnover rate by race/ ethnicity/ nationality/ country of origin/ cultural background



Thai

0%



Vietnamese

0%



Others

0%

Voluntary employee turnover rate

8.25%

Voluntary turnover rate by gender



6.19%



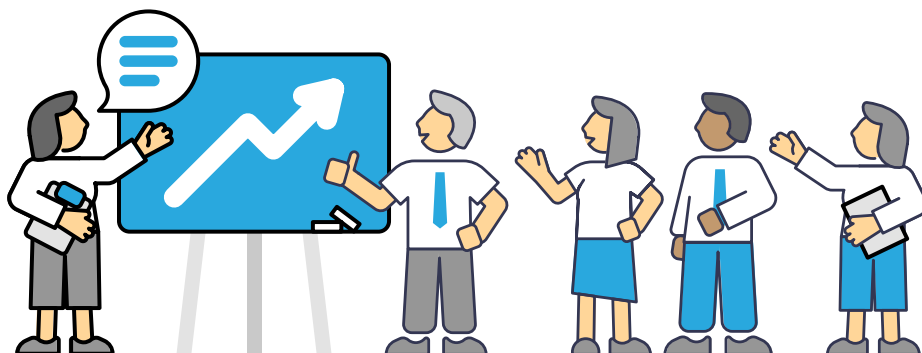
2.06%

WHAUP values good human resources management and respecting the human rights of employees and stakeholders throughout the value chain. This is done to promote employees' work experience, well-being, and potential in various areas. The aim is also to ensure employee satisfaction and engage to the organization, as employees are crucial to driving sustainable success. For WHAUP, success is defined by achieving a balance between economic success, social responsibility, and environmental sustainability, with employees playing an essential role in this.

The key to WHAUP's excellent human resources management is the implementation of various initiatives. These include continuously improving the working environment, fostering a positive working atmosphere, providing welfare benefits that meet employees' needs, and ensuring employees feel satisfied and secure in their lives. WHAUP also develops human resources systems and improves employee practices, adhering to ethical principles and human rights. This includes non-discriminatory practices and labor management in accordance with the law, which is one aspect of good corporate governance. Furthermore, WHAUP addresses the highly competitive business environment by strategizing talent acquisition, developing projects to enhance employees' skills, and promoting existing skills further. This benefits employees themselves and prepares them to adapt to changes in the business world. Additionally, WHAUP utilizes strategies to motivate and retain talented employees for its sustained growth.

Regarding human rights, WHAUP undertakes activities such as assessing human rights risks and implementing policies to prevent and mitigate violations. This ensures that WHAUP's operations are socially responsible and have no negative impact on any stakeholder groups, both directly and indirectly.

Since WHAUP believes that human are the most valuable asset of the organization, WHAUP prioritizes human resource management and set goals for human resources management performance such as recruiting talented individuals, with a target of hiring 10 new employees in 2024, 2% of whom will come from internal hires, and with a long-term target of hiring 20 new employees, 3% of whom will come from internal hires by 2025. Additionally, for employees within the organization, WHAUP has strategies to develop and promote employee advancement by implementing training and skill development programs, measured by the Human Capital Return on Investment (HCROI), with a target of 31 times within 2025. Furthermore, WHAUP focuses on promoting employee engagement with the organization through various projects, aiming for an employee engagement rate of 76% in 2024 and setting a long-term target of 80% in 2026. WHAUP will execute human resources management strategies and develop various projects to keep up with changes in the business world, continuously meet the needs of employees, and maintain its status as the Best Employer for WHAUP and WHA Group in Thailand and the region.

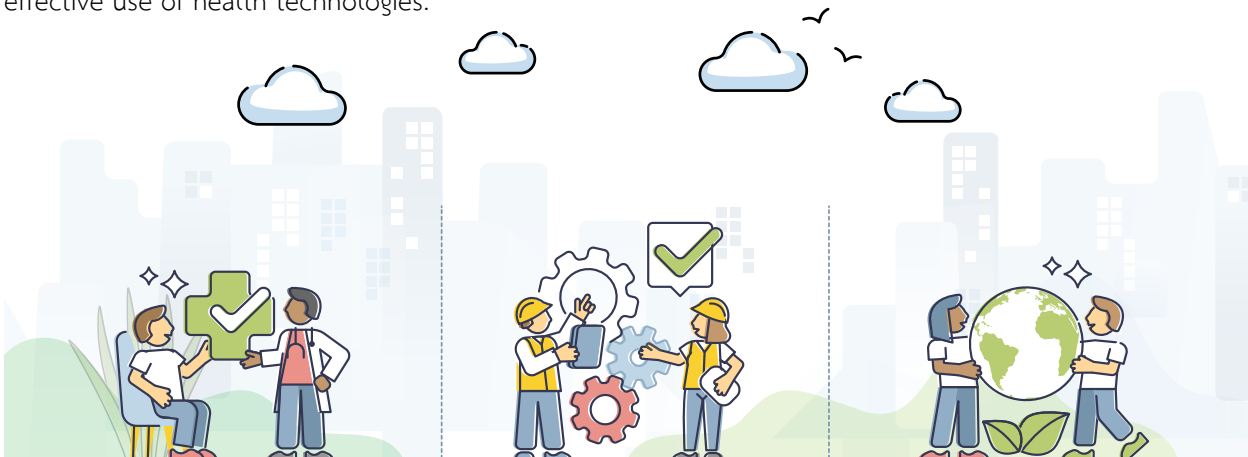


OCCUPATIONAL HEALTH AND SAFETY



One of the fundamental responsibilities of businesses is managing effective occupational health and workplace environment and support safety for all stakeholders. This includes preventing and reducing the risks of work-related illnesses and injuries, as well as creating a safe working environment for employees and relevant stakeholders. Moreover, the emergence of new diseases in recent times has brought new challenges in safety and occupational health management, such as controlling and preventing infectious diseases and addressing the increasing trend of mental health issues.

Currently, organizations around the world start using new innovations to promote health and safety in workplace, seen as a trend in using applications to promote the health and well-being of employees. This includes online health consultations, real-time emergency notifications, online safety trainings, and access to health databases that directly benefit employees. Additionally, modern technologies have been applied to help reduce work-related accidents, whether in factories, warehouses, or even office buildings. This includes providing knowledge and trainings in occupational health and safety, especially training employees to keep up with the organization's technologies or machinery. This helps reduce accident rates and ensures the effective use of health technologies.



WHAUP recognizes that working in utility and power production and services may pose risks related to occupational health, safety, and the environment, which affect all stakeholders including our company. For example, work-related accidents or chemical leaks can disrupt the continuity of operations, causing business losses and damaging the company's reputation. Therefore, WHAUP places great importance on safety, occupational health, and workplace environment, not only as a part of the business's responsibility to prevent the violation of stakeholders' rights to life but also as a commitment to caring for employees, suppliers, contractors, and key stakeholders. Therefore, WHAUP focuses on developing safety and occupational health management approaches that not only comply with legal requirements and relevant standards but also address emerging risks and meet stakeholder expectations. This is achieved through regular risk assessment and continuous improvement of safety and occupational health management practices, as well as promoting stakeholder involvement in identifying risks and proposing preventive measures. Additionally, the organization leverages expertise from the organization under WHA Group to design and develop technologies and innovations that enhance operational safety, such as using drones for emergency response, and online incident reporting.

Similar to safety and occupational health management, WHAUP promotes safety culture to ensure employees that they can work with WHAUP safely and with well-being. WHAUP has a comprehensive approach to promoting employee wellness beyond standard health benefits. This includes facilitating convenient and rapid access to health services through the WHAbit program, which allows employees to access occupational health consultations and receive treatment from specialists via telemedicine and digital medical support tools in emergencies.

To demonstrate our commitment to addressing occupational health and workplace environment issues, WHAUP has incorporated these aspects into the Operational Excellence Framework, which serves as a process to ensure stakeholder satisfaction. WHAUP has implemented a Security, Safety, Health, and Environment (SSHE) policy, which includes leading and lagging indicators to establish an efficient work process that is both safe and continuously improving.





MANAGEMENT APPROACH

WHAUP recognizes that our utility and power business are manufacturing and service activities that engage numerous stakeholders. Therefore, we prioritize occupational health and workplace environment issues to prevent impacts on the health, lives, and property of employees, suppliers, contractors, and other relevant parties, as well as related human rights impacts, such as the right to health and the right to life. Consequently, WHAUP implements proactive measures to ensure the safety and well-being of employees and all stakeholders involved through the occupational health and safety management system, various preventive measures, and the promotion of a safety culture and well-being among workers. This aims to build confidence and morale for working with WHAUP, ensuring safe and efficient work practices. WHAUP aims to prevent and reduce the number of accidents, injuries, and work-related illnesses as much as possible, with a target to reduce the injury or fatality rate from production, maintenance, and construction per million working hours in 2023 from 0.58% in the previous year to 0.48%, a reduction of 17%.

WHAUP strictly adheres to the Occupational Safety, Health, and Work Environment Act B.E. 2554 (2011) and all related laws. WHAUP has developed the occupational health and safety management system and safety, occupational health, and environment measures in compliance with legal requirements. These are part of Quality, Safety, Occupational Health, and Environmental Policy used in every business activity of WHA Group. The measures and management systems cover all employees, suppliers, contractors, visitors, and all stakeholders under WHAUP's supervision. Occupational health and safety criteria are specified as conditions in procurement processes and as part of contracts. Furthermore, WHAUP has a risk management approach consistent with the internationally recognized ISO 45001 occupational health and safety standard. Ensuring the highest level of safety management, WHAUP has begun preparing for ISO 45001 certification in 2022, with the goal of achieving the certification by 2024.

ESTABLISHMENT OF THE SAFETY, OCCUPATIONAL HEALTH AND WORKING ENVIRONMENT MANAGEMENT DEPARTMENT

WHAUP has established occupational health and safety management mechanisms that promote participation and feedback from personnel at all levels. This is achieved through the formation of a Safety Committee, which includes executives and employees of WHAUP, responsible for managing safety by gathering feedback, providing advice, and regularly reviewing occupational health and safety-related risks. Decision-making authority within the committee is shared among all members, from operational staffs to executives, and the results of committee meetings are reported to the Chief Executive Officer of WHAUP and WHA Group every quarter. Additionally, WHAUP has established a Safety Department under the supervision of the Chief Operating Officer to oversee safety-related matters and to achieve the goal of zero accidents, enhancing workplace safety throughout the organization. WHAUP has also appointed certified occupational health and safety professionals and has emergency response vehicles on standby to prevent and mitigate hazards in all areas. Furthermore, the Human Resources department is tasked with supporting the provision of Personal Protective Equipment (PPE) and other proper and sufficient safety equipment for employees.

HAZARD IDENTIFICATION, RISK ASSESSMENT, AND INCIDENT INVESTIGATION

WHAUP recognizes the importance of preventing and controlling risks that could lead to accidents and losses. Therefore, strictly adhering to WHA Group's safety and occupational health policy, WHAUP established processes and procedures for occupational health and safety risk assessments that comply with the international ISO 45001 standard. These assessments cover all activities and areas where employees and contractors work, to identify all hazards associated with operational activities and to implement comprehensive and appropriate preventive measures. The risk assessment process begins by categorizing all operational activities, whether routine or non-routine, to identify activities that may pose risks or hazards and to understand the potential causes of these hazards in the workplace. Following this, the risk level is assessed by considering the likelihood of occurrence and the severity of the consequences. The results of the risk assessment are then prioritized, enabling the Safety Department to develop risk management plans and determine appropriate risk control measures to reduce the likelihood of incidents. Additionally, it helps WHAUP to conduct accident investigations to analyze incidents and prevent recurrence (Incident Management). This involves developing and improving risk management systems related to operational activities to enhance work efficiency.



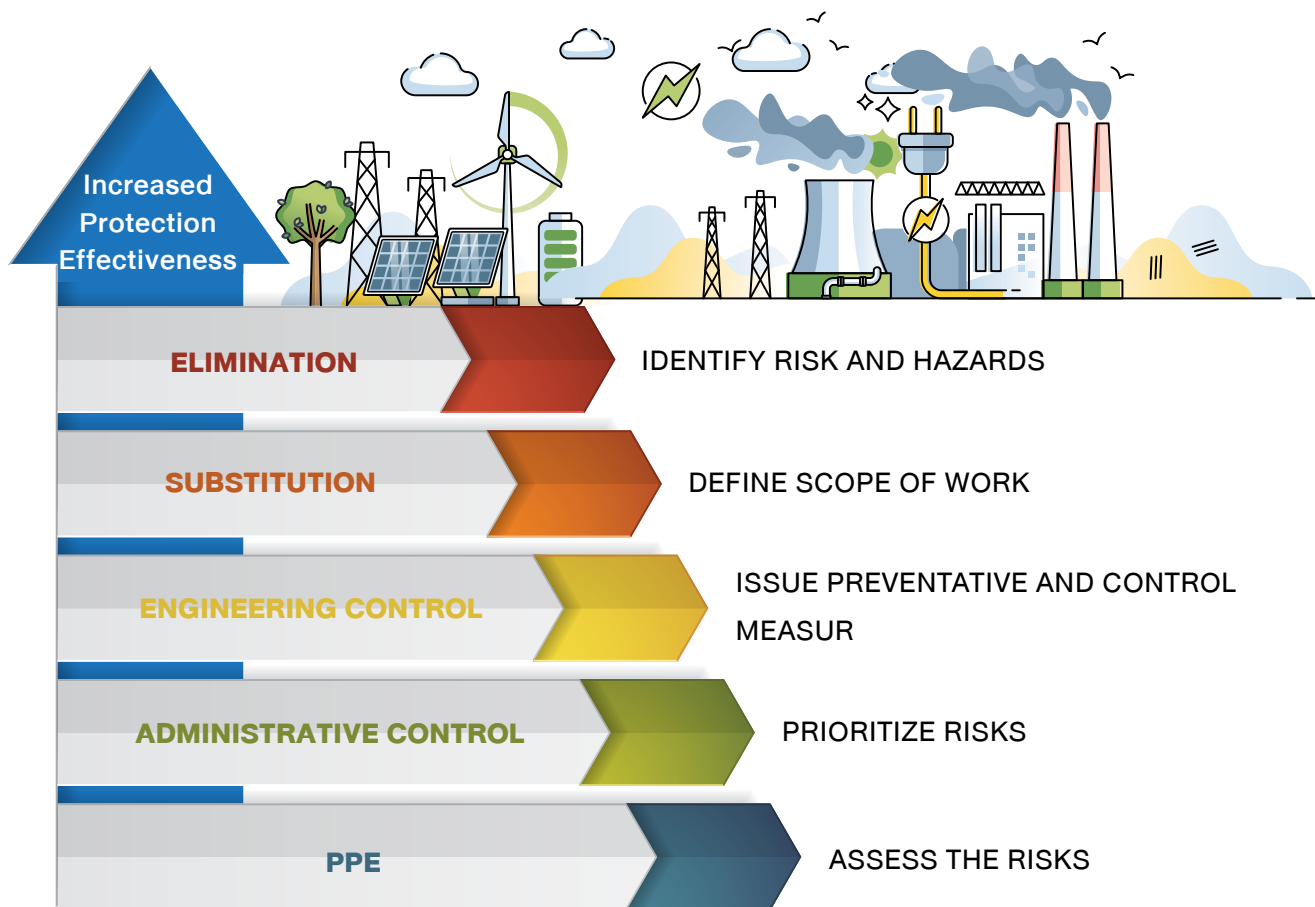
Risk Assessment Process



To control and manage risks that may arise from operational activities to meet WHAUP's goal of reducing the number of accidents, injuries, and work-related illnesses, we have applied the principles of the Hierarchy of Controls in our operations. This involves implementing risk control measures from basic safety controls to advanced safety controls that can eliminate risks, as follows:

- 1) **Elimination:** Removing the risk entirely or not introducing the risk into the work area. WHAUP uses the results of risk assessments to determine controls that correspond to the assessed level of risk.
- 2) **Substitution:** Replacing hazardous materials or processes with less hazardous ones.
- 3) **Engineering Controls:** Designing or modifying machinery and equipment to reduce hazards at the source. This includes isolating hazards from workers, installing emergency stop buttons, and implementing lockout/tagout procedures to disconnect energy sources before maintenance to prevent hazards from residual energy in equipment or machinery, such as electrical, mechanical, pneumatic, gas, or hydraulic energy.
- 4) **Administration:** Managing work safety through administrative measures such as setting qualifications for workers, providing training, establishing operational manuals and caution signs
- 5) **Personal Protective Equipment (PPE):** Providing workers with PPE to protect any part of the body from risks associated with their work or the working environment.

Hierarchy of Controls





Additionally, WHAUP determined that internal risk assessments are conducted annually or when there are changes in operational processes, as well as relevant rules, regulations, and safety standards such as NFPA, OSHA, NIOSH. This ensures that all risk and hazard assessments are systematic and compliant with standards, and that the established control measures are comprehensive and appropriate. The results of the assessments and reviews are compared with set targets, such as Safety KPIs, and the reduction of accident and illness rates, to evaluate the effectiveness of the measures. These results are used to improve WHAUP's occupational health and safety management system and related measures, making them more effective and encompassing all events and risks. The performance of measures to prevent and reduce risks related to occupational health and safety is communicated to stakeholders through the annual sustainability report.

From the risk assessments across all operational activities of WHAUP, together with WHA Group, it was found that the activities with occupational health and safety risks include exposure to chemicals at the industrial water, Reverse Osmosis (RO) water, or demineralized water production plants and accidents that may occur during construction work. Therefore, WHAUP has implemented measures to prevent and reduce occupational health and safety risks in the working environment according to the Hierarchy of Controls principle. This includes preparing operational manuals, hazard warning signs, and providing adequate personal protective equipment. Furthermore, training sessions are conducted for workers and related personnel to ensure they comply with safety policies and measures. Incident investigations are conducted whenever any hazard occurs, and measures are established to prevent recurrence. Additionally, safety officers conduct daily operational inspections to ensure safe and proper practices, with the results reported in Safety Committee meetings.



ENHANCING OCCUPATIONAL HEALTH AND SAFETY

In 2023, continues to focus on strengthening our occupational health and safety systems and management methods WHAUP through the concept of ‘SMART Safety’ used in all businesses of WHA Group. This approach addresses three key areas: 1. Emergency Response, 2. Road Safety, 3. Asset Protection.



The ‘SMART Safety’ concept also promotes a culture of safety and ensures effective safety surveillance across all operational areas of WHAUP. The projects and management of occupational health and safety under the ‘SMART Safety’ concept include the following details:

PREPARATION FOR EMERGENCY RESPONSE AND THE REPORTING OF ACCIDENTS AND INCIDENTS

WHAUP, in collaboration with WHA Group, has established a comprehensive plan to address emergencies, including fire incidents and chemical spills. This plan covers actions to be taken before, during, and after an incident, as follows:



- Pre-incident prevention guidelines, such as the installation of an alarm system, protective equipment and suspend the preliminary, check conditions to always be ready to use.



- Guidelines for responding in the event of an emergency, such as guidelines for preliminary emergency suppression, notification, communication plan, and evacuation plan.



- Guidelines for actions after an incident, such as approaches to inspect the main damage, incident cause investigation, remedy.



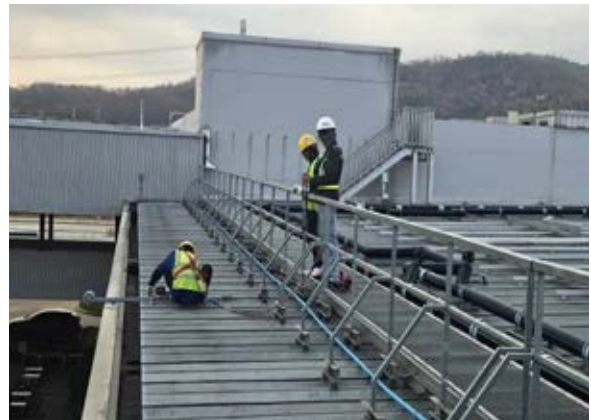
WHAUP requires that all employees and contractors working in our areas must undergo trainings and drills to prepare for emergency responses. This ensures they understand the situations and their roles and responsibilities and can evacuate themselves quickly and safely. All employees and contractors must pass the basic safety tests before engaging in activities in the areas.

In the event of an emergency, employees are instructed to follow the trained emergency procedures and evacuate promptly. After the incident, employees must report the event truthfully to the Safety Committee to identify the root cause and establish measures to prevent recurrence. Additionally, WHAUP has established channels for employees to report unsafe incidents or conditions that could pose risks to life, health, or property. These reports can be made through incident report forms, complaint forms, or directly to supervisors. Whistleblowers are protected, and their identities are kept confidential according to WHAUP's whistleblower protection measures. Furthermore, employees have the right to assess risks and refuse to perform work deemed hazardous until the safety issue is resolved. Safety officers are assigned to investigate and determine corrective and preventive actions to eliminate these risks.

OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT IN CONSTRUCTION WORK

From WHAUP's risk assessment process, accidents caused by construction work is the key safety risk that may cause WHAUP's contractors or employees injuries or fatalities while performing construction activities. For example, falling from heights, injuries caused by sharp objects, burns, etc. As a result, WHAUP developed and implemented the following mitigation strategy measures:

- Develop a contractor handbook in which contractors are required to follow safety standards
- Perform a job safety analysis and developed safety procedures.
- Implement a work permit system
- Survey the arrangement of the water treatment plant construction project and the installation of the solar system in various areas





CHEMICAL SPILLS MANAGEMENT IN WATER PRODUCTION PLANT

From the occupational health and safety risk assessment of WHAUP's operational activities, exposure to chemicals at industrial water, RO water, and demineralized water production plants has been identified as a significant risk. WHAUP has recognized the risk that employees at the water production plants may be exposed to chlorine and sodium hydroxide. We cooperate with WHA Group to determine the following mitigation measures to manage these risks:

- Provide adequate PPEs for all employees
- Inspect the logistics of chlorine gas, including checking for leaks in gas cylinders before use
- Install and inspect chlorine gas detectors in case of leaks

To monitor the risk prevention performance of exposing to chemicals in industrial water production plants. In 2023, WHAUP successfully achieved our goal of reducing the injury or fatality rate from accidents at 0.75 incidents per million working hours, compared to 2022 target. For 2023 and 2024, WHAUP has set a goal to further reduce the accident rate to 0.5 incidents per million working hours, or a 33% reduction. Additionally, health check-up was conducted on employees working with chemicals and the results were within normal ranges.

HEALTH AND SAFETY OF EMPLOYEES IN VARIOUS PANDEMIC SITUATIONS

From the COVID-19 pandemic and the increasing trend of epidemics, WHAUP has become increasingly aware of the rising risks associated with new and emerging infectious diseases and their impacts on the economy and public health. Therefore, WHAUP has set the guidelines and practices to reduce risks in pandemic situations together with WHA Group. Even though the COVID-19 situation has subsided, WHAUP continues to implement preventive measures to safeguard the health and safety of employees and stakeholders, ensuring preparedness for any potential future outbreaks. These measures align with the Ministry of Public Health's regulations and guidelines. Employees are kept informed about the latest developments on infectious diseases through regular training sessions, both in-person and online via WHAUP's SharePoint and email. WHAUP has also implemented targeted disease control measures (Bubble and Seal) in accordance with government objectives to protect factory workers and surrounding communities from infectious diseases. Additionally, the Group has developed a Business Continuity Plan (BCP) for long term pandemic control. This plan ensures effective emergency and crisis response, enabling WHAUP to maintain smooth operations.





COMMUNICATING SAFETY CULTURE TO EMPLOYEES AND BUSINESS RELATIONSHIPS

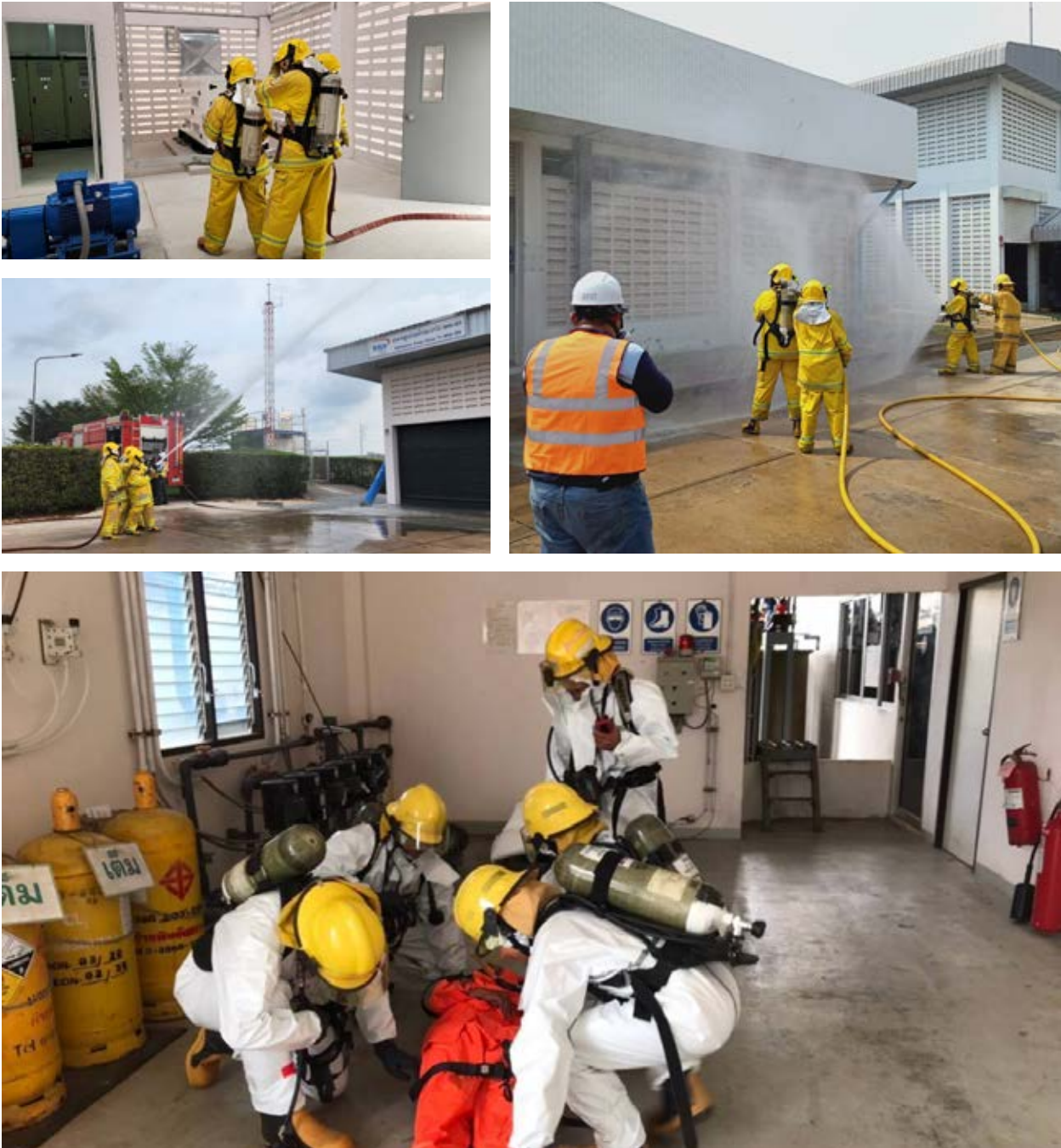
WHAUP emphasizes implementing safety values among all stakeholders, both internal and external, by effectively communicating the organization's safety culture to employees, contractors, customers, visitors, and surrounding communities. This aims to foster a strong understanding and awareness of occupational health and safety practices such as communicating through annual supplier evaluations, supplier day, safety club, raising awareness through the Operational Excellence Framework, and providing targeted trainings specific to employee groups based on their exposure to different risks, such as emergency management and handling chemical spills. The training programs are designed to be easy to understand and practical, addressing all potential risks from operational activities. The trainers are experts in occupational health and safety, and they conduct evaluations after each training session. Additionally, all training programs are reviewed and assessed annually to ensure they remain current and highly effective. Feedback from participating employees is also incorporated to continuously improve and develop the training content.

To promote employee well-being, WHAUP provides health insurance, accident insurance, and annual health check-ups to employees tailored to job-related risks in utility and power business. Additionally, WHAUP cooperates in WHA Group's support for employee recreational activities by sponsoring various employee clubs such as fitness, boxing, yoga, and badminton clubs to promote the health and well-being of employees. WHAUP also encourages employees to provide suggestions for improving the working environment to their supervisors, HR representatives, the safety department, and occupational health and safety experts. There are also channels for employees and business relationships to seek initial consultations and provide feedback on occupational health and safety through various communication methods such as email, Line, discussions with supervisors, or direct communication with safety personnel. Complaints received are addressed in meetings of the Safety, Occupational Health, and Work Environment Committee (SH&E) for further discussion and resolution.

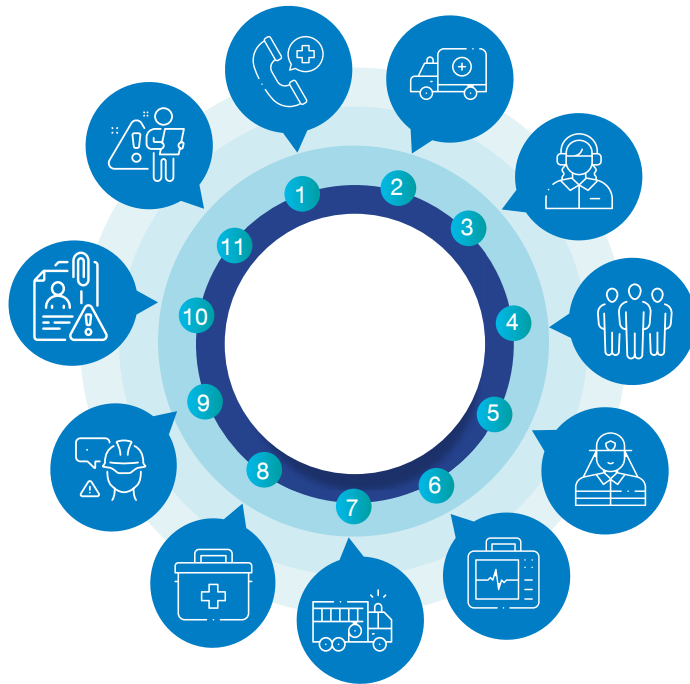
WHAUP also prioritizes the safety of contractors working on-site by including occupational health and safety requirements in contracts. Contractors must strictly adhere to WHAUP's safety regulations. Before commencing work, WHAUP conducts a training for contractors covering three main areas: environmental policies, relevant regulations, and safety standards. Contractors must complete the training and obtain a contractor identification card before they can begin work on-site. Additionally, all contractors engaging in business with WHAUP must meet our established occupational health and safety criteria.

To achieve the goal of preventing and reducing the number of workplace accidents, injuries, and illnesses to the greatest extent possible, WHAUP has implemented risk reduction measures and raised awareness about occupational health and safety among employees and relevant parties. The key activities carried out in 2023 include:

FIRE AND EVACUATION PERFORMANCE



WHAUP recognizes the importance of enhancing the capabilities of all stakeholders in responding to emergencies. Therefore, we conducted emergency drills together with WHA Group four times a year. The drill covers advanced level firefighting training, and the evaluation of drill performance which assesses employees' readiness for all processes, as well as the availability of Personal Protective Equipment (PPE), responding, and reporting processes and time. WHAUP received full score from the emergency drill in 2023.



1. Notification of incidents
2. Travel time to the incident location
3. Coordination with company personnel conducting emergency drills
4. Number of employees participating (3 persons)
5. Dressing of employees (fire suppression), including PPE
6. Emergency response equipment
7. Emergency response team organization
8. Use of emergency equipment
9. Team control of the participating team's leader
10. Participation in emergency drill evaluations
11. Overall evaluation

In the past year, WHAUP played a part in an emergency response drill for chemical spills in industrial estates such as in WHA Eastern Seaboard Industrial Estate 1 (WHA ESIE 1) on June 19, 2023. Participants were from the Industrial Estate Authority of Thailand (IEAT), the Department of Disaster Prevention and Mitigation, the Department of Labour Protection and Welfare, local authorities, local communities, local hospitals, customers, and WHAUP and WHA Group's employees, etc. The drill covered various response mechanisms, including emergency reporting, first aid, PPE selection, command and control, and water quality inspection before discharge, etc.



ENHANCING SAFETY CULTURE PERFORMANCE

WHAUP prioritizes fostering a safety culture within the organization. Therefore, we have implemented training programs for employees together with WHA Group in accordance with specified requirements, aiming to instill a solid understanding and awareness of occupational health and safety practices. We were also a part in drills conducted for both office and field employees. In 2023, five safety training sessions were organized, with a total of 239 WHAUP's employees completing the training. This included general and job-specific safety trainings, and emergency response drills. Additionally, WHAUP promotes access to medical services for employees through various health benefits, such as health insurance, accident insurance, and annual health check-ups. Employees are also encouraged to provide suggestions for improving the work environment to their supervisors, the Human Resources department, the Safety department, and occupational health and safety experts.

WHAUP also emphasizes communicating the safety culture to contractors, requiring suppliers and contractors to strictly adhere to the safety requirements of WHAUP. Therefore, before commencing work, contractors undergo a comprehensive training covering 3 aspects, i.e., environmental policies, relevant regulations, and safety standards. Contractors who have completed the training receive a contractor identification card that is valid for one year from the issue date to access the areas. In 2023, WHAUP and WHA Group conducted trainings for 135 new contractors of WHAUP and renewed 56 contractors with expired contractor ID cards. Additionally, short-term contractors are also required to undergo training to receive a work permit valid for the specified period.



Furthermore, WHAUP supported stakeholder engagement by establishing a safety club to enhance safety measures collaboratively among stakeholders. This club includes employees, contractors, and customers of WHAUP and WHAID. The objective of the safety club is for members to share opinions and perspectives on safety practices. In 2023, the meetings were held 3 times. The first meeting was held on March 29, 2023 with 110 attendees from 80 companies, the second meeting was on June 8, 2023 with 120 attendees from 90 companies and the third meeting was on October 27, 2023 with 130 attendees from 100 companies. During these meetings, various safety topics were discussed, covering community and environmental issues, and relevant information was shared with members.



WHABit APPLICATION TO ENHANCE SAFETY

WHAUP promotes integrating digital systems to foster healthy and well-being environment. We implemented WHABit application, developed by WHA Group, for our employees and customers who are entrepreneurs in WHA industrial estates, as well as other individuals. The application connects online and offline systems to provide digital medical support tools for health care and occupational medicine consultation quickly in case of emergencies. WHAUP's employees can access for medical treatment using telemedicine by consulting with doctors online through video calls or messages. Doctors can also receive real-time health check-up results through health monitoring devices, allowing them to perform preliminary assessments. Additionally, in 2023, a tracking system was added to monitor users' health care activities to better meet the user's needs. Thus, WHABit helps employees, customers, and the public access medical care efficiently and comprehensively at all times.

WHABit Functions



Health Record

Connect to health monitoring devices to store information and view health statistics and trend



Check-up Report

Collect the annual health check up data in a digital book form for more convenient access to personal health information.



Tele-Clinic

Digital Clinic for remote consultations from expertise physicians with preliminary check via online system.



Real-Time Clinic

Ongoing health care services according to the treatment plan of a specialized doctor with real-time notification.





IT'S NEVER TOO EARLY OR TOO LATE BEING THE HEALTHIEST YOU.
 Unfold your health benefit wellness

BUILDING SOCIAL IMPACT INITIATIVE (BSI)

WHAUP and WHA Group recognize the importance of the quality of life and safety for all stakeholders, especially the workers of suppliers and construction contractors working on our projects. Therefore, we participated and supported the Building Social Impact Initiative (BSI) in 2023 with WHA Group and Baan Dek Foundation. We aim to create a safe environment and expand the access to health care, education, and protection of children and families in construction camps. Representatives of WHAUP participated in the training with Baan Dek Foundation to understand the BSI framework, discuss and plan to improve the quality of life projects that will be continued in 2024, as a starting point of sustainable future for all. Moreover, adopting the BSI framework aligns with WHAUP's sustainability development strategy and social responsibility commitments in all 3 dimensions, which are: 1. W: Well-Being – striving for improved living conditions and sustainable environments, 2. H: Human Progress – fostering advancement for all individuals in society, 3. A: Accessibility – creating opportunities for access to essential factors and a better quality of life.



WHAUP has set short-term and long-term goals for occupational health and safety operations based on the management system mentioned above. In 2023, WHAUP's occupational health performance successfully prevented accidents and illnesses according to the set targets, as follows:

PERFORMANCE ON ACCIDENTS INVOLVING EMPLOYEES AND SUPPLIERS



2023 Annual Target

Fatal accidents involving both employees and suppliers

0

2023 Performance

Fatal accidents involving both employees and suppliers

0

5-Year Long-Term Target

Fatal accidents involving both employees and suppliers

0

2023 Annual Target

Work-stopping accidents involving employees and suppliers

3

2023 Performance

Work-stopping accidents involving employees and suppliers

2

5-Year Long-Term Target

Work-stopping accidents involving employees and suppliers

0

2023 Annual Target

TRIFR

<0.50

2023 Performance

TRIFR

0.48

5-Year Long-Term Target

TRIFR

0



PERFORMANCE ON REDUCING OR PREVENTING THE RISK OF WORK-RELATED ACCIDENTS OR ILLNESSES

Safety and Occupational Health Risk Issues in 2023



2023 Annual Target

Risk of exposure to hazardous chemicals at the industrial water production plant

0

2023 Performance

Risk of exposure to hazardous chemicals at the industrial water production plant

0

2024 Annual Target

Risk of exposure to hazardous chemicals at the industrial water production plant

0

2023 Annual Target

Risk of accidents in construction work

0

2023 Performance

Risk of accidents in construction work

0

2024 Annual Target

Risk of accidents in construction work

0



WHAUP strongly believes that a good safety, occupational health, and working environment management can create positive impacts for the organization, and both internal and external stakeholders such as employees, suppliers, and customers. The results from risk assessment and the implementation of comprehensive risk control measures, including the communication of safety policies and culture to employees and stakeholders, as well as the use of technology to enhance safety in the workplace, have led to a successful reduction in work-related accidents. This also mitigates the impacts on the health, lives, and property of employees, suppliers, contractors, and surrounding communities. WHAUP can also reduce the environmental impacts that may arise from various incidents such as fires and chemical spills. Additionally, the effective occupational health and safety management ensures business continuity and reputation. These can ensure stakeholders, including customers, shareholders, and investors, that investing businesses with WHAUP will not cause negative impacts or disruptive operations due to accidents, and can be further operate sustainably.

Additionally, caring for and promoting the health and wellness of employees through the provision of health benefits such as health insurance, accident insurance, and annual health check-ups, as well as organizing wellness activities that cover both physical and mental health, and utilizing technology to improve access to health services for employees, ensure readiness and confidence of employees in their work. This can help reduce injury or absentee rates, and turnover rates, as well as strengthen organizational commitment, leading to optimal work performance and efficiency.

Throughout our business operations, WHAUP always concerns occupational health and safety and a good working environment and we remains committed to improving our occupational health and safety management system to achieve the goal of zero work-related accidents. For 2024, WHAUP has set targets to reduce fatalities to zero, decrease lost-time injuries by 33%, and lower the Total Recordable Injury Frequency Rate (TRIFR) to less than 0.50. To meet these targets, WHAUP emphasizes comprehensive risk assessment reviews of risks from operational activities, studying past incident investigations to ensure that our performance meets the target, and continuously reviewing and enhancing current measures. Moreover, WHAUP plans to implement projects to support safety and occupational health of our stakeholders with WHA Group. For example, an online incident reporting and work request system, an emergency alarm system, and the integration of Artificial Intelligence (AI) technology to enhance the organization's safety operations. Additionally, WHAUP is in the process of obtaining ISO 45001 occupational health and safety certification, with the goal of achieving this certification by 2024.

COMMUNITY DEVELOPMENT AND STAKEHOLDER ENGAGEMENT



Community development is highly valued by leading companies worldwide, particularly in industries related to manufacturing or in companies whose business nature directly involves the community such as utility and power production and service business. The reason is because surrounding communities are stakeholders who directly experience both positive and negative impacts from business activities. Therefore, setting the operational direction for community development is crucial, by monitoring and ensuring that the company's business operations do not negatively impact communities, are important for building confidence among stakeholders and fostering peaceful coexistence between business and community sectors. The organization should also promote prosperity in community for further sustainable growth together with the business, and support technologies that facilitate engagement and communication with the community and stakeholders which helps companies to listen to comments and complaints of communities to maintain good relationship and coexistence. This positive relationship between the business sector and the community will sustainably promote social and economic stability of both the community and the country.



Since WHAUP has business activities that directly related to the community, we committed to operating business with responsibility towards society for sustainable development and growth according to the guidelines of WHA Group. Therefore, WHAUP is aware of the importance of developing good relationships with communities to promote mutual benefits between the community and business operations. This includes reducing the chances of conflict between organizations and local communities residing around WHAUP's operation areas. Consequently, WHAUP has determined business plans considering the direct and indirect impacts on communities, whether it is environmental pollution such as noise, air, wastewater, waste, or social issues related to marginalized populations and industrial accidents, etc., and plans to avoid those negative impacts. To prevent conflicts between organizations and the community that could lead to not only inconvenience for community members but also loss of trust, costs, and delay in investments.

WHAUP has an approach that focuses on creating a balanced growth and being environmentally and socially friendly through the Bio-Circular-Green Economy Model (BCG), considering the community as one of the stakeholders significant to utilities and power business that requires natural water sources. We have also aligned United Nation's Sustainable Development Goals (SDGs) with sustainable development activities by developing and providing opportunities for surrounding communities to grow together with our business including structures that create mutual benefits, such as funding education to enhance the potential of local workforce. Additionally, WHAUP has successfully achieved the carbon neutrality since 2021 and is consistently working towards our goal of Net Zero CO2 Emissions in 2050. Consequently, we prioritize social and environmental activities that promote natural resource conservation, clean renewable energy development, and reduce CO2 emissions. For example, WHA Clean Water for Planet Project that aims to improve the quality of water sources in the area for shared access within the communities and expanding tree planting areas with communities to increase O2 and reduce CO2 levels.

Furthermore, WHAUP strictly adhere to ethics for the benefit of all stakeholders and take measures to prevent risks and ensure that every community in our business areas is not violated in their right to a safe life, which is a fundamental right for surrounding communities and all groups of stakeholders. In line with our commitment to be "The Ultimate Solution for Sustainable Growth", WHAUP will not abandon stakeholders but will drive growth and development among the organization, society, and the environment altogether. We also support various community development projects to promote livelihood of employees and surrounding communities as in WHA Group's mission "WHA : WE SHAPE THE FUTURE", dedicated to creating prosperity, livelihoods, and income for people and society, aiming for a better living and the ultimate goal of sustainable economic growth for Thailand. Moreover, our ability to integrate with local communities is another significant factor in the success of WHAUP, earning us trust and support from the communities for 15 years since the company was founded.

WHA มุ่งมั่นพัฒนาอย่างต่อเนื่องสู่
NET ZERO
ในปี 2050
 ผ่านโครงการต่างๆ ด้านความยั่งยืน
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WHA
 Utilities & Power

WE SHAPE THE FUTURE
 #The Ultimate Solution For Sustainable Growth

WHA
 Wellbeing

เราปลูกฝังความเป็นอยู่
 ที่ดีขึ้นของทุกชีวิต
 เพื่อความยั่งยืน

MANAGEMENT APPROACH

GROWING WITH COMMUNITY

WHAUP has been operating in accordance with the framework of our Social Responsibility Policy that has been approved by the board of directors, and in line with WHA Group's Social Responsibility Policy. The policy ensures that WHAUP's business operations coexist with surrounding communities, and the environment harmoniously and sustainably. Therefore, WHAUP is committed to provide global standard services to customers by delivering the highest quality of utility and power products and services while taking responsibility for environmental conservation through our business operations. This includes energy conservation, the use of renewable energy, water quality management and monitoring, and the adoption of advanced technologies to ensure maximum operational efficiency while being environmentally and socially friendly. This is all part of the "Mission To The Sun" project, which consists of 9 projects aimed at creating new products and services to increase customer satisfaction and enhance the development of WHA Group's organization and personnel. Key projects include Green Logistics, Digital Assets (Metaverse), Digital Health Tech, and Circular.

Moreover, WHAUP recognizes the significance of environmental management for both the organization and communities. Therefore, WHAUP has continuously been operating environmental management and resource conservation to drive a sustainable growth for the business, focusing on adapting practical environmental management models and systems. This includes the active management and monitoring of key environmental parameters such as waste management, renewable water by wastewater treatment and recycling, reducing water consumption from public or communal water sources, water and wastewater quality monitoring, biodiversity, waste-to-energy production, promoting solar power or renewable energy, emission reduction, and resource conservation. These are the key parameters in relation to customers, suppliers, and surrounding communities, as well as the influence on WHAUP's business operations.

We align practices with international standards such as the International Organization for Standardization (ISO) 14001 Environmental Management System and the ISO 9001 Quality Management System as a framework for the environmental management to be in line with WHA Group's operations. Our measures are as follows:

- Due diligence at the pre-purchase/acquisition/investment stage initial environmental audit of each new investment
- Project development with environmental requirements and resource efficiency
- Asset maintenance with a focus on environmental performance and resource efficiency
- Setting guidelines, trainings, and newsletters for property managers and tenants to ensure that all parties are aware of current information to comply with environmental standards and regulations

100% of WHAUP's operations has undergone the Environmental Impact Assessment (EIA) study in accordance with the requirements and conditions outlined in the Promotion and Conservation of National Environmental Quality Act B.E. 2535 (1992). The EIA study considers the environmental and social impacts within a 5-kilometer radius of the project site through public participation to ensure that these impacts are monitored, mitigated, and controlled appropriately. Prior to proceeding with project construction, commencement, and operation phases, the EIA must be approved by the Office of Natural Resources and Environmental Policy and Planning (ONEP). Following that, WHA Group ensures that all environmental schemes specified in the EIA requirements are followed. The project's performance against EIA requirements and standards is monitored and reported to the Industrial Estate Authority of Thailand (IEAT), ONEP, and local provincial offices on a bi-annual basis, during January to June and July to December, respectively. WHA closely regulates, monitors and controls

various management systems to prevent incidents that may be cause surrounding communities to be prone to environmental impacts resulting from our operations, such as chemical spills, wastewater discharge, excessive noise, and air pollution from factories. WHAUP governed those areas closely through the real-time monitoring system using Unified Operation Center (UOC) technology that centralize, consolidate, and present results from the monitoring systems offered at our projects and operational sites. This method not only ensures transparent environmental indicators, which build confidence in the community, but also complies with government regulations requiring public disclosure of assessment results.

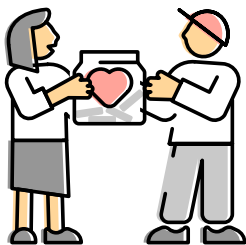
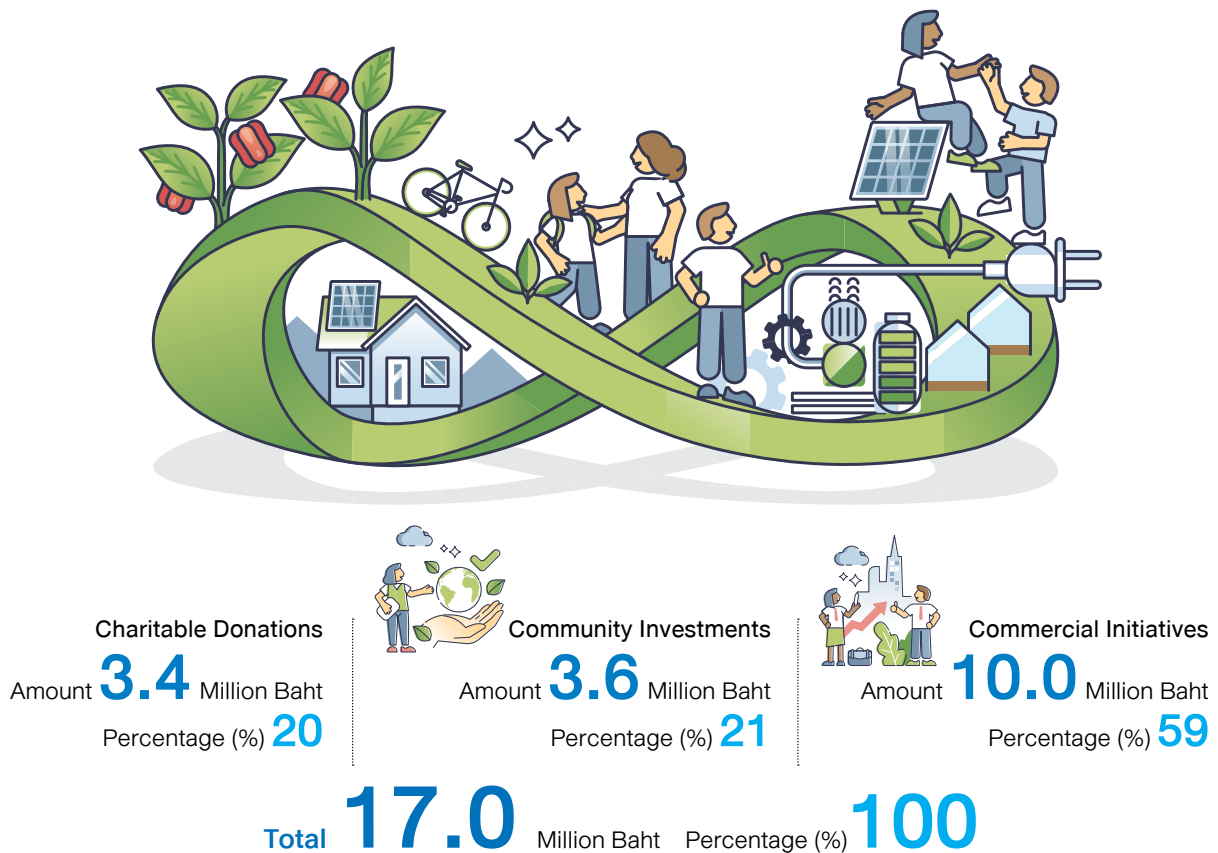
Furthermore, WHAUP has set a social engagement guideline and communication channels via phone, email, engagement activities, survey forms, community representatives, and whistleblowing platforms. (More information on corporate governance chapter.) To consider comments from the community, all suggestions and complaints are investigated by Corporate Social Responsibility (CSR) committee, which they have monthly meetings to set proper community development guidelines and report to WHAUP's board of directors. Additionally, we realize that controlling operations to avoid negative impacts and engaging with the community may not be sufficient to achieve the goal of prosperity and improved well-being, as per WHA Group's mission "WHA : WE SHAPE THE FUTURE". Therefore, to create positive social impact, WHAUP collaborated with WHA Group to implement a long-term project focused on developing communities in three areas: education, quality of life, and environment. The development scope reaches all stakeholders, including vulnerable groups, with activities such as providing survival kits to the elderly and bedridden patients, and supporting vaccination for the elderly, to strengthen community well-being and address community concerns.

CSR PROJECT PERFORMANCE

In 2023, WHAUP conducted various Corporate Social Responsibility (CSR) activities for communities within a radius of 50 kilometers from the industrial estates. We allocated a budget of 17.07 Million Baht for the social activities listed in the table below. WHAUP's employees contributed a total of 11,761 working hours to CSR activities, benefiting a total of 151,564 community members. Additionally, in 2023, WHAUP engaged with communities by working with 155 out of 158 villages in Rayong, Chonburi, and Saraburi, achieving a participation rate of 98%. To continuously engage with surrounding communities, WHAUP aims for a 99% community participation rate for company-related activities in 2024.



TYPES OF PHILANTHROPIC ACTIVITIES AND TYPE OF CONTRIBUTION



Type of Contribution	Total amount (in local currency)
Cash contributions	3.4 Million Baht
Time: employee volunteering during paid working hours	5.6 Million Baht
In-kind giving: product or services donations, project/partnerships or similar	3.6 Million Baht
Management overheads	2.1 Million Baht

PHILANTHROPIC ACTIVITIES EVALUATION

WHAUP has conducted local stakeholder engagement review to measure the success of each stakeholder engagement activities to ensure that the initiatives and processes implemented by WHAUP are effective and produce the most positive outcomes and benefits to the communities. Hence, WHAUP needs to assess and measure the performance of these social activities organized, as well as gather the lesson learned from these activities to incorporate them into WHAUP's business processes and guide the improvement of our CSR strategy. The stakeholder engagement review will be conducted on an annual basis. Thus, WHAUP measures performance on stakeholder engagement by:

- Community Satisfaction Survey (Units: as operation unit/%), conducted at the end of the engagement projects and activities.
- Operating strictly within the Environmental Impact Assessment (EIA) framework, which includes site visits for gathering community feedback both before and after project implementation.
- Complaints Channels, (such as complaints received through whistleblowing channels, and other communication channels), from local stakeholders, e.g., communities, authorities, media, associations and NGOs.
- Social Return on Investment (SROI)

WHAUP assigned CSR Committee and Working Team to be responsible for setting policies, direction, and guidelines for social and environmental responsibilities along with organizing activities to build good relationships and develop sustainably independent quality of life for communities surrounding WHA Group's industrial estates. In 2023, WHAUP and WHA Group have implemented projects that promote education, community development, environment conservation, and the design of industrial estates to have social spaces for the sustainable growth and development in surrounding communities in line with WHA Group's mission as follows:

1. EDUCATION DEVELOPMENT PROJECTS

WHA ANNUAL SCHOOL CONTRIBUTION 2023

In the academic year 2023, WHAUP and WHA Group, in collaboration with business partners and WHA industrial estate entrepreneurs, organized activities to provide educational equipment to the students in the schools surrounding WHA industrial estate areas for the 25th consecutive year. In 2023, this project distributed school bags with educational equipment to 71 schools and childcare centers, benefiting over 23,000 students. This project is a support initiative for the communities surrounding the industrial estates to have better quality of life while preserving the environment, which is in line with WHA Group's mission "WHA : WE SHAPE THE FUTURE" aiming to develop "The Ultimate Solution for Sustainable Growth".



WECYCLE PROJECT: UPCYCLING SCHOOL BAGS FROM PLASTIC BOTTLES AND WATER HYACINTH

WHAUP collaborated with WHA Group, customers, and entrepreneurs from WeCYCLE project to organize the upcycling school bags project for students who donated plastic bottles with WeCYCLE project. In 2023, there were 4 schools participating in the WeCYCLE project: Ban Khlong Kram School, Ban Nong Suea Chang School, Ban Map Lam Bit School, and Wat Nong Bon Wipatsana childcare center. This initiative aimed to build environmental consciousness in youths and promote the 3R concepts (Reduce, Reuse, Recycle).



WHA Annual School Contribution Project Year 2023

On 6,8,11,12,13,14 September 2023

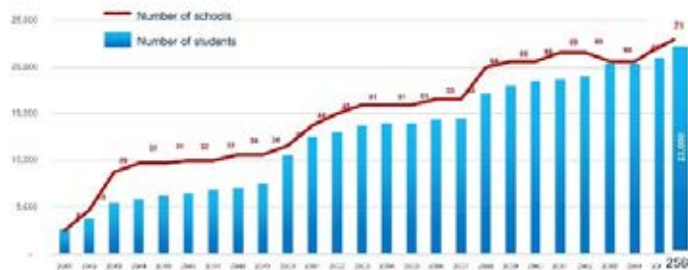


The Satisfaction Survey to The Project of WHA Annual School Contribution 2023



- 99% of participants believed the project had a positive impact on supporting education.
- 97% felt it helped reduce parents' financial burden.
- 97% the communication with schools was appropriate.
- 96% thought the timeline of the activity was appropriate.
- 100% all participants were satisfied with the project in 2023.

Number of students and schools in WHA Annual School Contribution Program from 1998 - 2023



The satisfaction survey result of WHA Annual School Contribution Project in 2023 showed that 99% of participants believed the project had a positive impact on supporting education, 97% felt it helped reduce parents' financial burden and the communication with schools was appropriate, and 96% thought the timeline of the activity was appropriate. Overall, all participants were satisfied with the project in 2023. WHAUP remains committed to continuously supporting education of youths, the future of the nation, in line with the concept "WHA : WE SHAPE THE FUTURE".

SHINE BRIGHTER WITH WHA: SOLAR ROOFTOP INSTALLATION FOR SCHOOLS IN RAYONG

WHAUP along with WHA Group joined Dr. Somyos Anantaprayoon Foundation to support solar rooftop installation for schools in Rayong under the Shine Brighter with WHA project. We delivered solar rooftops with the electricity generation capacity of 10.45 kWp to Nikhom Sang Ton Eng Rayong Province 9 School, which has a total of 319 students. Additionally, we also provide sports equipment to the school. This project is to support education, promote the use of clean energy, reduce the school's utility costs to allocate budget more efficiently for learning purposes, and create a community of sharing, in line with the sustainable organizational development framework. The Shine Brighter with WHA project aligns with the foundation's mission of promoting the health and education of students in Thailand, alongside WHA UP and WHA Group's efforts to improve the quality of life for youths and communities around WHA industrial states. This solar rooftop installation can save the schools up to 72,000 Baht per year or 67% of their annual electricity costs.

Electricity cost before installing the

Solar Rooftop

Average electricity cost

9,000 Baht/month



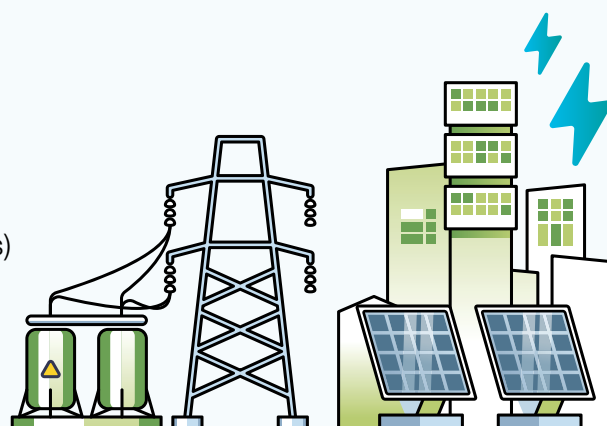
Electricity cost before installing the

10.45 kWp.

Solar Rooftop (19 panels)

Average electricity cost

108,000 Baht/year



Reduced electricity cost
Reduced by

6,000

Baht/month

Reduced electricity cost
Reduced by

72,000

Baht/year

Electricity cost
saving

67%

per year



WHAUP SCHOLARSHIP PROJECT

WHAUP believes that educational support is fundamental for community development, therefore WHAUP and WHA Group continued to provide educational support through scholarships for students in preschool, primary, and secondary schools in order to provide educational opportunities for underprivileged students and empower them to become capable youths. In 2023, WHAUP, together with WHA Group, granted scholarships to students in schools around WHA Industrial estates totaling 693,000 Baht and supported Children's day activity for 71,000 Baht with the commitment to support children, the future of the nation, as stated in "WHA : WE SHAPE THE FUTURE" concept.





GRANTS FOR THE SMART AND SKILLED

Currently, the labor market in Thailand, including factories in industrial estates, has a high demand for highly skilled, well-trained, and talented workforce. Therefore, the Office of Vocational Education created the Dual Vocational Education Program (DVE), in collaboration between the educational sector and private company factories, allowing students to receive theoretical education with on-the-job training simultaneously and enabling companies and industrial factories to train their workforce according to their specific needs. However, many promising students are unable to complete their courses due to financial constraints. Noticing this issue, WHAUP and WHA Group have collaborated with Bankhai Technical College in Rayong Province, the only institution qualified in the DVE program in the Eastern Economic Corridor (EEC), to continuously support students in DVE program for 12 years by awarding grants to bright but disadvantaged students. Furthermore, we coordinated with customers in WHA industrial estates to assist students in locating on-the-job training opportunities.

With the grants, there were a total of 115 students participating in this program up to now. In 2023, WHAUP and WHA Group awarded full scholarships to 13 students and 100% of the DVE students were hired by WHA's customers in WHA industrial estates. Moreover, we recognize the importance of expanding knowledge to further create quality youths. WHAUP and WHA Group granted one scholarship for undergraduate studies in 2023, with the condition that the recipient had to return to become a teacher at Bankhai Technical College within the specified period. This was aimed at sharing knowledge to the next generations so they can become potential personnel sustainably driving Thailand's and the world's economy.

In addition to promoting educational opportunities for youths, this program also plays a crucial role in promoting workforce development as a key mechanism in driving the EEC, which includes the strategic areas in Rayong, Chonburi, and Chachoengsao Province, continuing to attract more private investment. The government is currently developing major projects, such as motorways and double-track railway systems, as well as the expansion of U-Tapao International airport and seaport facilities, with infrastructure as one of the pillars of development. WHAUP recognizes the importance and aims to further support the development of capable youths to become significant workforce to drive the business of factories in WHA industrial estates located in EEC area.



THE DUAL VOCATIONAL EDUCATION (DVE) PROJECT (SETTING A GOOD EXAMPLE IN THE COMMUNITY)

WHAUP, WHA Group along with Bankhai Technical College chose DVE participants based on their abilities and motivation to learn, and they will have the opportunity to become interns in businesses and factories within WHA industrial estates in the future. Mr. Prateep Chulalart, the director of Bankhai Technical College, said “Bankhai Technical College is in the connectivity zone between Pluak Daeng District and Ban Khai District, which are several industrial estate areas including the Eastern Seaboard Industrial Estate (Rayong), WHA Eastern Seaboard Industrial Estate 1-4, and WHA Eastern Industrial Estate (Map Ta Phut). It also located amidst various businesses and companies both domestic and international. Therefore, the college has an education approach of 100% dual-track curriculum which is a professional education management method resulting from agreements between the institution and companies.



The college’s standout major is the mechanical major, with approximately 600 students enrolled. Each year, most students from this department undergo internships at globally renowned factories located within the industrial estates in the Eastern Economic Corridor (EEC) zone. This is primarily facilitated through collaboration with WHAUP and WHA Group, which continuously supports scholarships for students and creates highly skilled labor for leading companies in WHA industrial estates. Additionally, WHAUP and WHA Group acts as a coordinator between these global factories and Bankhai Technical College, facilitating student internships. With the implementation of the EEC Model Type A education approach, the college can instantly collaborate with these global industrial factories. This approach has received positive feedback from all participating industrial factories.

Furthermore, Bankhai Technical College has students who have worked in the United States at Coorstek Advanced Materials Company. These students had to learn the entire production process, from upstream to downstream, including hardware, software, and product design programs.

Additionally, in Australia, students learned in factories manufacturing Computer Numerical Control (CNC), computers, or microprocessors used to control operations. CNC manufacturing factories are not yet available in Thailand, so the knowledge gained becomes valuable when CNC manufacturing factories expand its base in Thailand.

Students worked in the United States received the salary up to 80,000 Baht per person while students worked in Australia received the salary around 60,000 Baht per person. Their parents did not have to pay for any expenses and the returned students got to work as a group leader instantly since they already learned about the technology from upstream to downstream.

Vocational students from Bankhai Technical College all graduated with immediate job opportunities, high incomes, and starting salaries of no less than 20,000 - 30,000 Baht per month. This is an important role model of “vocational education builds a comprehensive nation and future” of students from Bankhai Technical College.”



Miss Manassanan Yuenman, a student from the mechanical major at Bankhai Technical College and the first student to receive a scholarship from WHA Group for undergraduate program in the Faculty of Production and Industrial Engineering at King Mongkut's University of Technology North Bangkok, said, “I am very glad to have received a full scholarship to continue my undergraduate studies from WHA. This helps alleviate the financial burden on my family, and I also get the opportunity to return as a teacher in the subject I have studied for future generations. Being a teacher is an honorable profession, and I promise to study diligently to become a good teacher for the future generations in the institution.”



The Dual Vocational Education program is considered beneficial for all parties involved. WHAUP is particularly proud to have participated in supporting this outstanding initiative that help create highly skilled labor, especially in sectors such as new-generation vehicles, smart electronics, agriculture and biotechnology, robotics, and other targeted industries aligning with Thailand 4.0 scheme. The institute also plans to launch courses related to electric vehicles in the near future, to meet the growth of the electric vehicle industry.

WHA TEACHER FELLOWSHIP PROGRAM

Many primary schools around WHA industrial estate areas are currently dealing with issues related to a lack of qualified teachers. WHAUP recognizes the importance of basic education for the youths in the supervised area. Therefore, WHAUP collaborated with WHA Group to support contract primary school teachers in various subjects for the schools within the Group's industrial estate areas in Rayong and Chonburi Province by providing a total of 1,260,000 Baht funds for teachers from 7 different schools in the area. From the evaluation of funding provided to the teachers, we found that approximately 2,000 students from 7 schools had been trained by teachers sponsored by WHAUP each year.



SCHOOL BUILDING RENOVATION PROGRAM FOR THE SCHOOLS AROUND WHA INDUSTRIAL ESTATES

WHAUP, together with WHA Group, organized activities for employees to benefit schools. Volunteers helped painting school buildings to improve cleanliness and aesthetics, creating a learning environment for youths. The activities included renovating buildings, repairing the school cafeteria, painting school fences, and enhancing the landscape for schools surrounding WHA industrial estates in Rayong, Chonburi, and Saraburi Province. This initiative aimed to beautify and develop learning facilities, as well as enhance educational efficiency in schools within the industrial estate areas to sustainably develop together with the economy. Additionally, WHAUP supported to improve the quality of the school's drinking water system to be sufficient for students' needs. WHAUP also donated waste segregation facilities to Ban Hin Kong School in Rayong as well as organized WeCYCLE campaign to promote plastic bottle recycling at schools around WHA industrial estate areas, fostering environmental conservation through the principles of Reduce, Reuse, Recycle (3Rs) among children, thereby reducing the amount of waste and increasing recycling rates.



TOXIN-FREE VEGETABLE GARDENS FOR SCHOOL LUNCH PROJECT

WHAUP and WHA Group initiated a toxin-free vegetable garden project to use the produce as ingredients for lunch, while enhancing extracurriculum learning opportunities for youths. The gardens were provided to Ban Maenam Khu School, Maenam Khu Subdistrict, Pluak Daeng District, Rayong Province and Ban Map Lam Bit School, Khlong Kio Subdistrict, Ban Bueng District, Chonburi Province. Not only that the schools have safe and toxin-free ingredients for school lunch, but this project also help reduce the costs of meals, promote children to understand agricultural cultivation. Additionally, surplus produce can be distributed, creating experiences and additional income.



2. BCG ECONOMY MODEL SUPPORT ACTIVITIES

Wecycle PROJECT: USED PLASTIC BOTTLES





WHAUP has established business guidelines and activities focusing on coexisting with surrounding communities and environment harmoniously and sustainably, under WHA Group's mission "The Ultimate Solution for Sustainable Growth". This led to the WeCYCLE project, under the collaboration of WHAUP, WHA Group, Industrial Estate Authority of Thailand (IEAT), in cooperation with PTT Global Chemical Public Company Limited (GC), partners, and entrepreneurs in WHA industrial estates, totaling 79 companies participated in WeCYCLE project since March 2022. The objective was to collectively build environmental awareness and reduce plastic waste from landfills, to mitigate carbon dioxide emissions and global warming. The project also aimed to upcycle processes by producing 1,830 upcycle school bags for students in schools participating in the WeCYCLE project. Used plastic bottles donated from entrepreneurs were imported into the upcycling process through GC's logistics system via YOUTURN project and woven together with water hyacinth fibers from the water treatment system in WHA Clean Water for Planet project. For the fibers, WHA asked Ban Chak Mahat community in Rayong to weave them, which help community members create side jobs, gain income, and live sustainably with WHA industrial estates.



Making this upcycled fabric created jobs and generated income of around 40,000 Baht for the Ban Chak Mahat community by turning water hyacinths into fibers, before they were transformed and spinned with PET plastic fibers and cotton fibers to be woven into a single fabric. Additionally, WHAUP also used this new type of fabric to produce New Year gift baskets and iPad cases as 2023 New Year gifts for valued customers of WHAUP, who are very satisfied with the gifts.

WeCYCLE Project accepted plastic bottle donations from various units related to WHAUP, including employees, customers, companies, industrial factories within WHA industrial estates, local institutions, and schools. WHA staffs collected used plastics bottles from project participants in WHA's WeCYCLE center, and then had YOUTURN cars of GC taken them into recycle process. Collection bins called "YOUTURN" were also placed to collect used PET plastic bottles at key locations such as WHA Tower (headquarter) in Bang Na District, and various areas within WHA industrial estates as follows:

1. ESIE Plaza 1 Building, Eastern Seaboard Industrial Estate (Rayong)
2. ESIE Plaza 2 Building, Eastern Seaboard Industrial Estate (Rayong)
3. WHA Plaza 3 Building, WHA Eastern Seaboard Industrial Estate 1
4. WHA City Park, WHA Eastern Seaboard Industrial Estate 2
5. Eastern Seaboard Industrial Estate (Rayong) Office
6. WHA Eastern Seaboard Industrial Estate 4 Office
7. WHA Eastern Industrial Estate (Map Ta Phut) Office
8. WHA Rayong Industrial Land Office
9. WHA Saraburi Industrial Land Office

The bins were also placed in participants' areas, such as at SAIC Motor-CP Co., Ltd., Fabrinet Co., Ltd., etc.

WeCYCLE PROJECT: USED PAPER



"WeCYCLE project: used paper" is a continuous project from the idea of recycling used items to create benefits and built environmental conservation mindset in people within WHA Eco System. We collected used paper to produce educational products for enhancing learning skills for students surrounding WHA industrial estates. This project received cooperation from a partner, SCG Packaging Public Company Limited (SCGP), in recycling used paper and producing educational products for libraries. In 2023, the project received donations of used paper from participants totaling 25 tons, or equivalent GHG reduction from the carbon emission of landfill waste of 75 tCO₂e, comparable to planting 8,286 trees to absorb carbon dioxide in 1 year.



Since starting the project in 2022 until now in 2023, WeCYCLE project has been donated 37 tons of used plastic bottles totaling 37 tons or 2,153,141 bottles of 600 ml. size, and 25 tons of used paper. This was equivalent to GHG reduction from carbon emission factor from landfill waste around 159 tCO₂e, comparable to planting 17,719 trees to absorb carbon dioxide emissions over a period of 1 year.



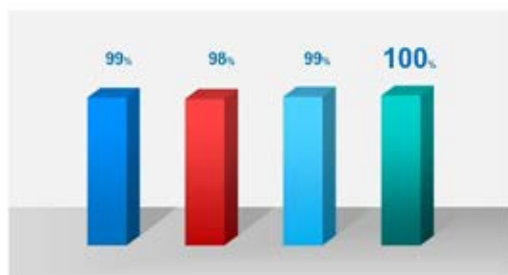
In December 2023, WHAUP, WHA Group, IEAT, PTT Global Chemical Public Company Limited, SCG Packaging Public Company Limited and over 80 companies of partners, collaborated in WeCYCLE Day event at Eastern Seaboard Industrial Estate (Rayong) for the 2nd consecutive year. This event aimed to reaffirm the commitment to sustainable and environmentally friendly business operations, as well as to promote social and quality of life in all dimensions. As appreciation to the participants, WHAUP presented certificates made from recycled materials to WeCYCLE partners totaling 80 companies. WHAUP also awarded honorable plaques made from recycled materials to top 5 partners with the highest donations of used PET bottles and paper, calculated by the equivalent of carbon dioxide emission reduction. The top 5 are as follows:

No.	Company name	Carbon dioxide emission reduction equivalent (kg CO ₂ e)
1	KING FURNITURE THAI COMPANY LIMITED	16,524.03
2	MAGNA AUTOMOTIVE TECHNOLOGY (THAILAND) CO., LTD.	16,509.29
3	NRB BEARINGS (THAILAND) CO., LTD.	12,074.76
4	COPELAND (THAILAND) LIMITED	10,841.00
5	MAZDA POWERTRAIN MANUFACTURING (THAILAND) CO., LTD.	8,494.84
5	STARS TECHNOLOGIES INDUSTRIAL LIMITED	8,494.84



This WeCYCLE Day event reflected WHA : WE SHAPE THE FUTURE concept as a way of value creation to create a sustainable future for all parties, aligning with WHAUP's current business development mission "The Ultimate Solution for Sustainable Growth". It set a guideline that emphasize corporate governance, human resource management, and natural resource conservation.

The Satisfaction Survey : WeCYCLE Day – We Shape The Future and WHA Pan Gan Market
Monday 18th December 2023 at ESIE Plaza 1, Eastern Seaboard Industrial Estate (Rayong)



- 99% of them liked WeCYCLE DAY.
- 98% thought WeCYCLE project helped reducing the amount of plastic waste.
- 99% suggested that it should be held every year.
- 96% would definitely participate in WeCYCLE activities in the future.



Based on the satisfaction survey of participants in the “WeCYCLE DAY – We Shape The Future” event, all participants viewed WeCYCLE as a good and beneficial project that helps with environmental conservation. 99% of them liked WeCYCLE DAY and suggested that it should be held every year, 98% thought WeCYCLE project helped reducing the amount of plastic waste, and 96% would definitely participate in WeCYCLE activities in the future. Moreover, opinions were sought regarding reusable materials for future recycling activities. It was found that participants want to recycle used cooking oil, glass bottles, milk cartons, etc.

3. COMMUNITY DEVELOPMENT PROJECTS

In 2023, WHAUP has initiated various projects to promote livelihood of communities as follows:

WHA PAN SOOK – VULNERABLE GROUPS SUPPORT PROGRAM

WHAUP values every group of people relevant with the organization, including vulnerable groups such as elderly, people with disabilities, and bedridden patients. Therefore, WHAUP supported WHA Group in organizing activities to promote quality of life and health of the elderly in Pluak Daeng District, Ban Khai District, Rayong Province and in many areas in Chonburi Province such as Ban Surasak, Ban Rawoeng, Ban Khao Khansong. WHAUP hosted health promotion activities and distributed WHA Pan Sook bags-the survival kits, to elderly and bedridden patients living in communities around WHA industrial estates, with a total value of over 180,000 Baht.





Additionally, WHAUP and WHA Group also initiated a drug user/addicts support project of Rayong Social Rehabilitation Center for Pluak Daeng District office in Rayong. Pluak Daeng's sheriff served as a chairman of the project's opening ceremony together with relevant government agencies, such as Pluak Daeng Hospital, subdistrict health promoting hospitals. This project is to support drug-addicted patients in the area by strengthening physical health and mental resilience, as well as adjusting attitude and fostering understanding through the Social Rehabilitation Center.



WHA PAN SOOK – INFLUENZA VACCINATION PROGRAM

WHAUP and WHA Group organized a project to support influenza vaccination by providing 805 doses of influenza vaccine to community members, including 225 doses for Pluak Daeng Subdistrict, Pluak Daeng District, Rayong Province, 250 doses for Khao Khansong Subdistrict Administrative Organization, and 330 doses for Bowin Subdistrict, Si Racha District, Chonburi Province, to protect elderly and high-risk groups from influenza and promote good health and well-being among community members. This project is in line with WHAUP's CSR policy, focusing on promoting health and well-being of communities surrounding WHA industrial estates.



COLLABORATING PROJECT WITH ENTREPRENEURS

WHA Saraburi Industrial Land (WHA SIL) and WHA Rayong Industrial Land (WHA RIL), together with their customers, have established a community relationship committee where the members have cooperatively collected funds to conduct community development projects to enhance the surrounding communities' livelihoods. There are currently 66 factories participating in the committee with a shared budget of 1,890,000 Baht per year. In 2023, WHA SIL, collaborating with their community relationship committee, held the 2023 "Phee Pan Pun Nong" project to provide scholarships to financially disadvantaged students and an activity to distribute the upcycle school bags from WeCYCLE: used plastic bottles project to youths at the multipurpose building, Nong Pla Mo Subdistrict Administrative Organization, Saraburi. There was also the "We Care Nong Kae" project which is a collaboration between CSR committees of WHA SIL and WHA RIL, with total members of 23 factories. In 2023, they had a total budget of 1,687,000 Baht, allocated for scholarships, religious activities, and other activities organized together with WHA RIL's CSR committee.



WHA PAN GAN PROJECT

In 2020, WHAUP and WHA Group started WHA PAN GAN project, a project supporting local community products and specialties made by local people who live in communities around WHA industrial estates in Chonburi and Rayong Province. There are promotion channels through social media such as Facebook, YouTube, to connect sellers and buyers and act as a showcase of various products ranging from handmade crafts and traditional medicines to local food items and homemade delicacies. This project aims to support communities to reach a global audience and provide opportunities to increase sales.

WHA PAN GAN project welcomes all sellers and supports sales channels for micro-entrepreneurs, food producers, small industry owners, and housewives to promote and sell their products to a larger market. It is considered as WHAUP's CSR initiative enhancing job creation and local economic development. This opportunity has gained income for many households, allowing them to have better quality of life and secure better futures for their children. Furthermore, it also preserves the community's heritage and passing on the art of handicrafts and specialty food products from various hometowns. This represents the cultural and traditional values based on agricultural products and natural materials, while also supports the transmission of skills from one generation to the next. WHAUP has been working on this project with consistently positive response.

In 2023, WHAUP, in collaboration with WHA Group, promoted community products in the project via WHA PAN GAN online marketplace, and supported communities by hosting a community market, "WHA PAN GAN MARKET", at ESIE Plaza 1, Eastern Seaboard Industrial Estate (Rayong). There were 16 community stores that joined to sell local products such as food, snack, beverages, wickers, naturally dyed shirts, etc. WHAUP also purchased products from the project for New Year gifts for agencies, customers, sponsors, and other people relevant to WHAUP. We also bought other products such as snack, food, and beverages, as well as provided selling booths at WHAUP's meetings or seminars, which is worth 800,000 Baht. In total, there are products from 45 stores in 12 categories in WHA PAN GAN project.



COMMUNITY CAREER PROMOTION PROJECT

Sustainable coexistence is another issue that WHAUP values, therefore, we participated in community career promotion aiming to promote income and well-being for community members. WHAUP hosted career promoting activities together with WHA Group in various forms, for example, inviting speakers from the community who have knowledge and expertise in production and distribution of community products to share knowledge and provide community members with trainings so they can adapt the knowledge to be their additional careers.

WHAUP and WHA Group also supported community product development to improve the product quality such as providing tools and equipment for honey collection to the Pluak Daeng bee farm community enterprise group in Ta Sit Subdistrict, Pluak Daeng District, Rayong. This support helped enhancing the capacity of honey production and distribution and increasing income for the community. WHAUP also supported the enterprise group by purchasing honey products for new year gift every year.

Additionally, WHAUP was a part in the plantation of 2,800 marigolds and 3,000 sunflowers in Nong Bua Subdistrict, Ban Khai District, Rayong Province, as the additional income and joint activity for the community. Nevertheless, WHAUP supported the development of local fabric products, art training activities, printed fabric from natural dyes, tools for Nong Bua subdistrict's tie dye enterprise group, equipment for raising stingless bees for Chanrong Makham Khu Community Enterprise, and frog cage and non-toxic vegetables in baskets activities of Nong Bua's women group. We also supported local food development for better quality and aesthetics to be in demand in the market which would help increase additional income of the communities.

Moreover, WHAUP collaborated with WHA Group in hosting training and study tours in Petchaburi Province and Prachuap Khiri Khan Province for female volunteer groups from Bang But Subdistrict, Ban Khai District, Rayong Province. There were members from 12 villages participated in this program to study about job creation to develop and enhance the efficiency of female volunteers to further share such knowledge and promote income for the community members.





WHA E-JOB MARKET PROJECT

WHAUP has constantly be a part of “WHA E-Job Market” project as a part of our CSR initiatives. We adapted our specialty in technology to support companies and entrepreneurs within industrial estates in Rayong and Chonburi Province to announce job vacancies through an online platform where it connected the recruitment or human resource needs of our customers with expectations and qualifications of job seekers. It is easily accessible via WHAUP’s website, therefore, graduates and job seekers from all over the country can look for job openings on the website <https://www.wha-industrialestate.com/en/job-pool> or in the QR code below.



The project’s goal is to increase hiring rates in the surrounding communities by offering jobs within WHA industrial estates, promoting through local agencies, and sending this database to WHAUP’s customers for consideration which benefited to all parties including WHAUP, customers, and communities. WHAUP gained the benefits from created value added for our cutomers and got new employees to fill in the vacancies, especially in production department. In terms of communities, this project opened a new channel of job searching for community members and chances to hire new skilled and talented personnel for companies who are WHAUP’s customers. Additionally, the whole process is conducted in online platform which helps our customers reducing paper used in recruitment forms and process.



WHA Job Pool

แหล่งงานในนิคมอุตสาหกรรมของ WHA Group

อัปเดต ตำแหน่งงาน

 SIAM CHUYO CO., LTD. MAINTENANCE ENGINEER (เฉพาะวิศวกรไม่ใช่งานช่างเทคนิค) SALE & MARKETING STAFF	1 ตำแหน่ง 1 ตำแหน่ง
 SIAM TORCELLO CO., LTD. พนักงานซื้อวัตถุดิบ (PURCHASING STAFF)	1 ตำแหน่ง
 PLATESS (THAILAND) CO., LTD. INJECTION STAFF	หลาย ตำแหน่ง
 K2 ALLIED COMPONENT LTD. ช่างเชื่อมบำรุง	1 ตำแหน่ง
 NEIPPON STEEL WELDING (THAILAND) CO., LTD. ผู้ประกอบท่อเชื่อม	หลาย ตำแหน่ง
 TGO SEISAKUSYO (THAILAND) CO., LTD. QA Staff	1 ตำแหน่ง
 T-PACK (THAILAND) LTD. OPERATOR DATA OFFICER LEADER SUPERVISOR MANAGER / ASST.MANAGER	35 ตำแหน่ง 5 ตำแหน่ง 5 ตำแหน่ง 1 ตำแหน่ง 1 ตำแหน่ง



WHA Job Pool

แหล่งงานออนไลน์ในพื้นที่ EEC

บริการฟรี ไม่มีค่าใช้จ่าย
สำหรับผู้ประกอบการ
ในนิคมอุตสาหกรรมของ WHA




SPORT SUPPORT PROJECT

WHAUP acknowledge the importance of health and sports; therefore, we supported WHA Group promoting youths and community members to take care of their health and foster unity. WHAUP also have campaigned for youths and residents to stay away from substance abuse, aimed to develop the potential of youth football players to compete in national leagues, and encouraged youths to be more interested in sports. In 2023, WHAUP and WHA Group organized football courses for youths in the communities, provided support for football activities for local and community teams to inspire youths and residents to value sports and exercises, including other sports such as pétanque for the elderly and running to promote community health. Additionally, WHAUP provided financial support for sports activities totaling over 11 Million Baht.



4. HEALTH PROMOTION PROJECT

PROMOTE PUBLIC HEALTH BY DONATING MEDICAL SUPPLIES FOR HOSPITALS AND MEDICAL FACILITIES IN COMMUNITY

WHAUP and WHA Group focus on and care about community health; therefore, we made 500 “WHA Pan Sook” pillowcases from upcycled plastic bottles from WeCYCLE project, with the donation from over 71 entrepreneurs within WHA industrial estates, local organizations, and schools. The upcycled fabric, woven from plastic bottle fibers mixed with anti-virus solution, was used to make pillowcases specifically for bedridden patients or those requiring special care. They were donated to Pluak Daeng Hospital and Nikom Pattana Hospital in Rayong. Additionally, they were given to disadvantaged bedridden patients within WHA industrial estate areas, including Ta Sit Subdistrict Administrative Organization, Khao Khansong Subdistrict Administrative Organization, and Chompon Chaophraya Subdistrict Municipality. We also provided food and beverages for medical and hospital staffs at vaccination centers at hospitals and medical facilities in communities around WHA industrial estates.



THE COLLABORATION WITH SIRIRAJ HOSPITAL AND THAI RED CROSS SOCIETY TO HOST BLOOD DONATION ACTIVITIES

WHAUP and WHA Group collaborated with Siriraj Hospital for blood donation at the headquarter, WHA Tower, having employees, customers, and nearby community members participated. We also partnered with Thai Red Cross Society for blood donation at WHA industrial estate offices in Rayong, Chonburi, and Saraburi Province.



5. ENVIRONMENTAL CARE PROJECT

WHAUP prioritizes operating business in line with ESG and strictly adheres WHA Group's policies. Our business operations on utilities and power focuses on a balance between 3 dimensions, environmental, social, and economic. We also values developing our services to be an effective and sustainable solution to meet the expectation of our customers. WHAUP plays as a crucial driver in hosting activities to support environmental conservation, particularly in water management as we are an expert in utility system. The environmental projects hosted are as follows:

WHA CLEAN WATER FOR PLANET PROJECT

WHAUP established WHA Clean Water for Planet project since 2016 to treat and manage wastewater, raise awareness about the importance of water resources, and promote accurate understanding and collective consciousness among communities about the significance of natural resources conservation. WHAUP has undertaken the construction and delivery of wastewater treatment system to different communities to improve the water quality in canals using eco-friendly constructed wetland, inspired by the late King Bhumibol Adulyadej's (King Rama IX). Currently, WHAUP has implemented the following projects:



1) TRAINING COURSES FOR STUDENTS AND KNOWLEDGE SHARING WITH LOCAL ORGANIZATIONS

In collaboration with academic institutions, WHAUP provided students with training courses on water conservation and wastewater management. WHAUP also offered internship programs for university students each year so the youths can gain newfound knowledge from expertise specialized in water resource and wastewater management. In 2023, The internship program had 8 students participating, including 2 Mahidol University students, 2 Suranaree University students, 2 Mahasarakham University students, and 2 Bankhai Technical College students.

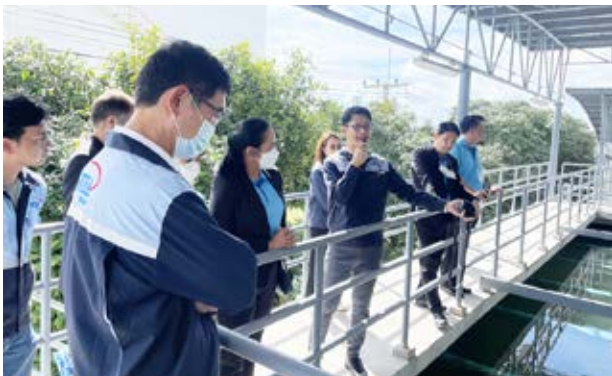


Apart from knowledge sharing for youths in secondary and undergraduate levels, WHAUP also encouraged interested organizations including government agencies such as the executives of the Metropolitan Waterworks Authority (MWA), the local administrative officials of Pluak Daeng District, Rayong Province including Pluak Daeng sheriff, chief officer, and other community leaders to study the water treatment system and water management within WHA industrial estates. We expected them to gain knowledge from WHAUP's expertise who are specialized in water resource and wastewater management to further understand sustainable coexistence and adapt the knowledge for their agencies.





2) “WHA CLEAN WATER FOR PLANET LEARNING CENTER” ESTABLISHMENT



WHAUP was a big part in delivering a constructed wetland to Pluak Daeng Subdistrict Administrative Organization in Pluak Daeng District, Rayong Province, located near Eastern Seaboard Industrial Estate (Rayong). The system can treat 400 cubic meters of wastewater per day as a constructed wetland using natural technology, plants and microbes, to treat wastewater. Moreover, WHAUP is committed to sharing knowledge and expertise in wastewater treatment with the officials of Pluak Daeng Subdistrict Administrative Organization to ensure sustainable management of community water resources. In 2023, WHAUP hosted a “Community Wastewater Management and Natural Resource and Environmental Conservation” workshop as a part of the Beautiful Canal Project for 160 officials of Nonthaburi City Municipality, Nonthaburi Province, at Nong Kla wastewater treatment system. We shared knowledge about wastewater treatment technology using plant filtration, reducing environmental issues from community’s wastewater, and personalized wastewater treatment for each community. This event aimed to provide communities with the management for wastewater treatment system in community water sources as well as sustainable quality water sources. Additionally, they also studied a community wastewater treatment system at a constructed wetland of Nong Kla community, to learn the mechanism of constructed wetland.



WHAUP also has a project to establish WHA Group Innovation and Learning Center at WHA Tower as a center to exhibiting knowledge and expertise in management and technology of WHAUP to disseminate sustainable management knowledge, showcasing innovations technology to interested individuals. The project was already studied, designed, and has started the construction in 2023 expecting to be finished in 2024.

3) COMMUNITY WHA CLEAN WATER FOR PLANET PROGRAM

The Pluak Daeng constructed wetland project was the first community WHA Clean Water for Planet program that WHAUP proudly presented to Pluak Daeng Subdistrict Administrative Organization in Rayong Province. This system is a natural technology and considered eco-friendly, cost-effective, and low maintenance. In 2023, the Pluak Daeng constructed wetland diverted 98,340 cubic meters wastewater from the community's water source and returned 98,340 m³ clean water (treated water equivalent to wastewater entering the treatment system) to the communities including 481 households or about 1,200 people. As a result, this process may reduce the risk of complaints regarding water pollution directed at WHAUP.



Later, WHAUP organized the second community WHA Clean Water for Planet program by overseeing the construction of wastewater treatment system and delivered a constructed wetland to Nong Khla Subdistrict Municipality in Chanthaburi Province on September 1, 2022. It was a collaboration between WHA Group and Industrial Estate Authority of Thailand, Wang Tanot Water Basin Committee, Nong Khla Subdistrict Municipal Council members, Thai Industrial Estate and Strategic Partner Association, Water and Environment Institute for Sustainability (WEIS), The Federation of Thai Industries, and Map Ta Phut Entrepreneur Club to treat community wastewater in Nong Khla Subdistrict Municipality area. The system was implemented by WHAUP under the concept of WHA Clean Water for Planet covering an area of 15 rai. It has the capacity to treat up to 400 cubic meters of wastewater per day and can accommodate the possible increase of wastewater volume up to twice the capacity, reaching 800 cubic meters per day. The system receives wastewater from Nong Khla community and treats it using natural processes by plants such as the cattail and Bird of paradise trees which can absorb organic substances in biological wastewater treatment. Additionally, photovoltaic systems have been used in the project to contribute to its sustainability and environmental conservation efforts.

In 2023, WHA Clean Water for Planet for communities in Nong Khla Subdistrict Municipality treated wastewater from community's water source and returned clean water to the communities totaling 142,400 cubic meters per year. More than 2,000 households directly benefited from this project in health, and livelihood.



The objectives of the water management project for Nong Khla Subdistrict communities are

1. To be a constructed wetland advanced in technology and environment for Nong Khla community.
2. To treat wastewater from Nong Khla community before releasing it into the natural water source.
3. To create a recreation area for Nong Khla community.

(More details on the process of constructed wetland system in the water management chapter.)

A PROJECT TO REDUCE WATER SCARCITY ISSUES IN COMMUNITIES

Apart from constructing wastewater treatment systems and share knowledge about constructed wetland wastewater treatment for communities to be able to manage the system independently, WHAUP has also undertaken a project to provide water for consumption in areas including Pluak Daeng Subdistrict, Pluak Daeng District, Rayong Province and Khao Khansong Subdistrict, Si Racha District, Chonburi Province, due to the drought. WHA staffs brought water trucks to assist Pluak Daeng Subdistrict Administrative Organization and residents from Khao Khansong Subdistrict area distributing water to people experiencing water scarcity to alleviate the impact.



Furthermore, WHAUP also supported communities by providing clean water sources and improving village waterworks systems for Village 8, Bang But Subdistrict and Village 11, Nong Bua Subdistrict in Ban Khai District, Rayong Province. The local leaders and community residents received the support with the guidance on the process of purifying raw water from WHAUP Environmental engineers, WHA industrial estate's managers and WHA's community relations officers to upgrade their water supply to meet higher standards. In 2023, WHAUP has delivered clean water to the communities three times, providing over 60,000 liters of clean water to help alleviate the drought issues in the communities.

WHAUP also supported Bang But Subdistrict community in Ban Khai District, Rayong Province, in drilling ground water to help communities in the higher areas facing water scarcity during the summer. WHAUP supported ground water drilling in Village 10, Bang But District, Ban Khai Subdistrict, Rayong Province, along with Bang But Subdistrict Administrative Organization, village waterworks committee, and community leaders. From this support, around 530 people from 200 households benefited.



Additionally, WHAUP has implemented innovation into the industrial water production process through the water reclamation project. This project reuses the treated wastewater to produce high-quality water for our customers in WHA industrial estates. In 2023, WHAUP accomplished the goal to produce 60,400 cubic meters of water per day which helped reduce the water usage from natural water sources and the discharge of wastewater into public waterways up to 6.9 million cubic meters per year. WHAUP also turned it into demineralized or high-quality water for our industrial customers in WHA industrial estates. The objective of this project was to promote long-term water source security, minimize water allocation to communities so the community members can access more water sources and less water scarcity issues.



UPGRADE THE AGRICULTURAL WATER DISTRIBUTION SYSTEM



WHAUP, together with WHA Eastern Seaboard Industrial Estate 4 Co., Ltd., supported the project to upgrade the agricultural water distribution system for Maenam Khu Subdistrict, in Pluak Daeng District, Rayong. This project helped 2,072 farmers and residents in Maenam Khu Subdistrict community to be able to use water for occupation and consumption.

WATER HYACINTH PRODUCTS

In 2023, WHAUP, together with WHA Group, have continually implemented water hyacinth project to create jobs for surrounding communities in the Ban Khai District, Rayong Province, and generate income toward the local communities through monthly employment. The communities can take water hyacinths from WHA's wastewater polishing pond dredging process for free and use them to make and sell hampers and wickerwork products. This enabled the community to generate income and save the cost to purchase water hyacinths, which can save around 100 Baht per basket containing 150 water hyacinth strips and have a reliable source of raw material monthly. WHAUP and WHA Group purchase 300 baskets made from the water hyacinth from the local community every year, totaling 120,000 Baht. Combining it with the local products WHAUP purchased from WHA PAN GAN Project as New Year gifts, this project generated 590,000 Baht in revenue for communities or an additional income of approximately 2,000 Baht per person per month.



Moreover, WHAUP and WHA Group have been partnering with PTT Global Chemical (GC) since 2021 to create innovations to create value of water hyacinth by developing a new kind of fabric through upcycling process, weaving water hyacinth fibers from the constructed wetlands in WHA industrial estates together with used PET bottle fibers, and cotton fibers.



FISH RELEASING TO PROMOTE BIODIVERSITY

WHAUP, WHA Group, together with the IEAT Director and officers of WHA Industrial Estate Eastern Seaboard 2, hosted an event to release fish breeds back into natural water sources. This initiative aims to promote biodiversity and natural ecosystem of communities, also enhance marine animal production and conserve aquatic resources for sustainable future. The activity took place in Ban Map Khla community, Khlong Kio Subdistrict, Ban Bueng District, Chonburi Province, with community leaders, residents, teachers, students, and monks participating in the event.



GREEN AREA CONSERVATION

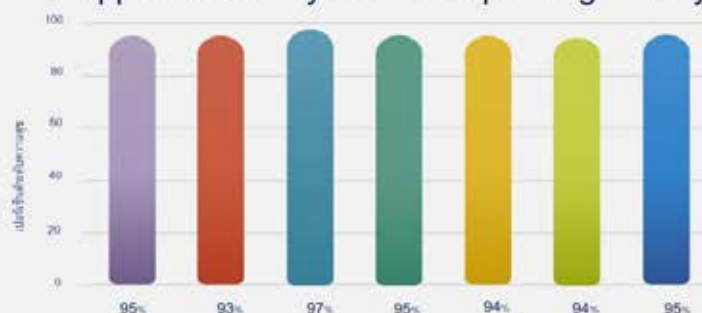


WHAUP and WHA Group collaborated with IEAT and 500 entrepreneurs in WHA industrial estates from 70 companies in plantation in a 100-rai area to sustainably reduce the GHG and global warming around WHA Industrial Estate Eastern Seaboard 2, and WHA Eastern Industrial Estate (Map Ta Phut). We planted a total of 29,030 trees which is equivalent to 260.8 tCO₂e of greenhouse gas reduction.



NRB PIOLAX NISSANSRING TOYOFILLING
SiamTohcello G TEKT SiamNistrans Valeo
PrinxChengshan Fabrinet MitsuiHygiene SekisuiKasei
TYROLIT Gulf KIRIU GJSteel KINGFurniture LLIT Muntions
STARSTECHNOLOGIES NIPPONSTEEL Kellogg HitachiAstemo
Yokohama Faurecia Ingress Kanemitsu MGC Coiltech
SANKOGOSEI SGF FUSERASHI Borgwarner
ThaiSummitRayongAutoparts Lanxin
WHABIT Danieli Hirotec MG BASF ALS
MSSLWH UCC Choenjian Akwel
SummitHiroTaniSugihara Co Ltd Mazda

Happiness Survey from Tree planting Activity



- Your level of happiness after being part in creating a green world
 - Impressive feelings towards today's activities
 - Everyone's cooperation in creating a green world for the next generation.
 - The 99 Rai Tree Planting Project can help absorb CO2 to meet the objectives of Let's Zero Together.
 - The Management system in 99 rai reforestation activities
 - Place and duration of the event
- If there is a forest planting activity next time, will you join the activity or not?

The result of the survey showed that 97% of participants were impressed to be a part of this project, 95% were happy to join the tree planting activity with WHAUP, agreed that the activity helped absorb the CO₂, in line with the “Let’s Zero Together” objective, and were willing to participate in the next tree planting activity.



Furthermore, WHAUP, together with volunteers from educational institutions, government sectors, and private organizations, helped planting landrace trees to expand green spaces in various areas. These activities took place in Bo Win and Khao Khansong Subdistrict, Si Racha District, Chonburi Province, Nong Bua and Nong Lalok Subdistrict, Ban Khai District, Rayong Province, Maenam Khu Subdistrict, Pluak Daeng District, Rayong Province, and Chum Saeng Subdistrict, Wang Chan District, Rayong Province. WHAUP also organized landrace tree planting activity in Ban Khao Hin School, Bo Win Subdistrict, Chonburi Province along with raising awareness among students from the school about the value of trees in the ecosystem and the impact of climate change on daily life. Because, apart from providing shade, trees also produce oxygen and help reduce carbon dioxide in the air, serve as habitats and food resources for wildlife, and help maintain the quality of water and soil.

ENVIRONMENTAL MONITORING NETWORK (ENVIRONMENTAL DETECTIVE) PROJECT



WHAUP was a part in hosting “Environmental Monitoring Network (Environmental Detective) Project 2023” to build environmental knowledge for youth around the industrial estates, raise awareness on environmental conservation, foster understanding about waste separation and how to identify clean water and wastewater in public water sources. Additionally, we encourage active participation and understanding so that they can share this knowledge with their families and communities. The activity was hosted for schools surrounding WHA industrial estates as follows:

1. Ban Khao Hin School, Bo Win Subdistrict, Si Racha District, Chonburi Province, with 103 participated students
2. Ban Hup Bon School, Khao Khansong Subdistrict, Si Racha District, Chonburi Province, with 178 participated students
3. Ban Pluak Daeng School, Pluak Daeng District, Rayong Province, with 80 participated students
4. Ban Maenam Khu School, Maenam Khu Subdistrict, Pluak Daeng District, Rayong Province, with 60 participated students



Additionally, students were taught about waste separation, effective use of resources, recycling, and eco-friendly living. Therefore, WHAUP provided classified trash bins for all four schools and explained the concept of waste separation and recycling to the students encouraging them to keep the world clean. The students showed interest in waste sorting methods and tips on reducing the amount of waste and finding ways to reuse materials, as well as caring for the environment from a young age, which is considered as a satisfying outcome.

“THAI YOUTH CARES FOR THE ENVIRONMENT: TOTE BAG INITIATIVE” PROJECT

WHAUP, in collaboration with WHA Group, organized the Thai Youth Cares for the Environment: Tote bag initiative” project to create knowledge and understanding of the 3Rs (Reduce, Reuse, and Recycle) as sustainable concepts and practices that promote environmental conservation. Participants could minimize the amount of waste by reducing, reusing, and recycling methods through this eco-friendly tote bag activity. The activity rose awareness about reducing plastic bags among young people in schools surrounding WHA industrial estates as follows:

1. Ban Muen Chit School, Klong Kiu Subdistrict, Ban Bueng District, Chonburi Province
2. Ban Nong Suea Chang School, Nong Suea Chang Subdistrict, Nong Yai District, Chonburi Province
3. Ban Map Lambit School, Klong Kiu Subdistrict, Ban Bueng District, Chonburi Province



6. DESIGNING WHA INDUSTRIAL ESTATE TO HAVE SOCIAL SPACES

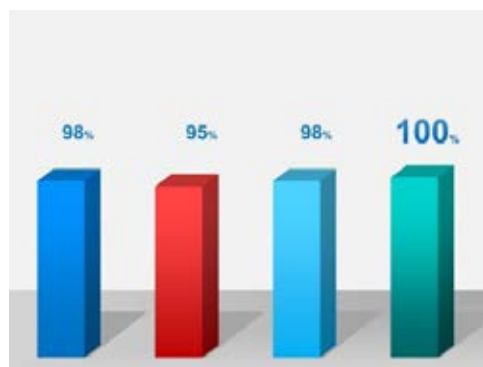
WHAUP promotes sustainable growth through business operations with social responsibility which is WHA Group's business practices. We focus on creating balance and societal and environmental friendliness, incorporating the Bio-Circular-Green Economic Model (BCG) principle, which places importance on social integration. WHAUP implemented BCG Model into utility and power operations, as well as developing utility structure to be more eco-friendly. Therefore, WHAUP takes social factors into consideration when designing or operating a business. Social integration criteria were developed and applied when constructing new building or renovating old buildings. We also integrate social integration criteria in the due diligence checklist, which is on the planning stage to become a developmental guide, as well as a part of advisory committee of handicapped people or cooperation with handicapped people's associations.

As social integration is material in utility and power industry and our operation is directly related to the community, WHAUP extended our contribution to society by implementing various social integration initiatives and criterias. In 2023, WHAUP and WHA Group has organized projects to design WHA industrial estates to have social spaces by providing opportunities for communities or people in need as listed below.

WHA PAN GAN MARKET IN EASTERN SEABOARD INDUSTRIAL ESTATE (RAYONG)

WHAUP and WHA Group organized a community market "WHA PAN GAN Market" by inviting local shops from WHA PAN GAN Project to use ESIE Plaza 1 building area in Eastern Seaboard Industrial Estate (Rayong). There were 16 shops joined to sell local products such as food, snacks, drinks, fruits, vegetables, wickers, natural-dyed shirts to employees working in companies within WHA industrial estates and surrounding residents. This event provided income about 70,000 Baht for shops.





The Satisfaction Survey from 16 Local shops at WHA Pan Gan Market
Monday 18th December 2023 at ESIE Plaza 1, Eastern Seaboard Industrial Estate (Rayong)

- 98% were extremely satisfied with the project.
- 95% agreed that the project helped them selling more products.
- 98% believed that joining this project gained them more income
- 100% all participated shops were willing to join the next WHA PAN GAN Market.

The result of satisfaction surveys from shops participating in the project showed that 98% agreed that joining this project gained them more income and were extremely satisfied with the project, while 95% agreed that the project helped them selling more products. Additionally, all participated shops were willing to join the next WHA PAN GAN Market.

DESIGNING ELECTRIC VEHICLE CHARGING STATION WITHIN WHA INDUSTRIAL ESTATE AREAS

WHAUP has successfully achieved in reaching carbon neutrality and is committed to achieving Net Zero CO₂ Emissions by 2050. Therefore, we collaborated with SAIC Motor-CP Co., Ltd., Thailand's MG car manufacturers and distributors to install electric vehicle charging stations to promote the use of environmentally friendly electric vehicles (EVs) within WHA industrial estate areas and reduce carbon dioxide emissions from combustion engines using fuel. WHAUP also support the use of EVs for monitoring, inspections, and document deliveries within the organization. Charging stations for EVs are designed to be accessible 24/7 in convenient locations within WHA industrial estates in Chonburi, Rayong, and Saraburi Province. We also planned on installing more EV charging stations in WHA industrial estates involving the design and preparation in 2023 with the installations to be completed and operational by 2024.



DESIGNING HEALTHCARE FACILITIES WITHIN WHA INDUSTRIAL ESTATE AREAS



WHAUP and WHA Group prioritize health and safety of residents within and around our industrial estates; therefore, we designed spaces within WHA industrial estate areas to include Samitivej Hospital Clinic to provide fast and accessible health services for workers in WHA industrial estates as well as community members.

DESIGNING FIRE STATIONS IN EVERY WHA INDUSTRIAL ESTATE

WHAUP, together with WHA Group, has designed all 12 industrial estates to have fire stations with trained safety personnel responsible at the stations, and modern and comprehensive fire fighting equipment. Regular inspections are conducted within the industrial estate areas 24/7 to ensure the safety of individuals within the areas and surrounding communities.



EVACUATION DRILLS TO PREPARE FOR DISASTERS AND EMERGENCIES

WHAUP and WHA Group prioritize community safety; therefore, we have a clear evacuation plan in place for emergency situations as well as conducts fire and evacuation drill every year in which all relevant stakeholders are required to participate (i.e., all employees, customers, tenants, and community representatives). As a result, the surrounding communities can be assured that WHAUP’s operations will have no negative consequences for them. This program can benefit both WHA Group’s employees and overall communities. In addition, WHAUP also applies Emergency Control Center (ECC) to assist local authorities in suspending emergencies in communities surrounding WHA industrial estates.

Implementing the aforementioned management system is considered as WHAUP’s performance in 2023 as the percentage of local community engagement, impact assessment, and project development as follows.

Implemented topics	Percentage of operations covered (%)
Social Impact Assessments, including Gender Impact Assessments	100%
Environmental Impact Assessments and Ongoing Monitoring	100%
Public Disclosure of Results of Environmental and Social Impact Assessments	100%
Stakeholder Engagement Plans based on Stakeholder Mapping	100%
Broad based Local Community Consultation Committees and processes that include Vulnerable Groups	100%
Works Councils, Occupational Health and Safety Committees and Other Worker Representation Bodies to Deal with Impacts	100%
Formal Local Community Grievance Processes	100%

WHAUP values all stakeholders involved with the organization, particularly the community residing near WHA industrial estates which is WHAUP's operational areas. As our business are directly related to the environment and society, which directly and indirectly impact the community. With our commitment to operating business with responsibility and environmentally and socially friendly, we have established policies and designed projects with WHA Group to mitigate negative impacts such as air pollution, wastewater, noise, waste, or accidents in the industrial zones. WHAUP also implemented projects to create positive impacts for communities including education, community development, environmental conservation, and designing social areas in industrial estates. WHAUP aims to create opportunities and livelihood for communities to foster sustainable economic growth of Thailand, in line of WHA Group's mission, "WHA : WE SHAPE THE FUTURE".

Moreover, WHAUP focuses on building and maintaining good relationships with community members, preventing any division that might impact business operations. WHAUP focuses on continuing implementing mutually beneficial projects which not only increase WHAUP's credibility within the community but also drive the organization, society, and environment to grow sustainably together, in line with our mission of being "The Ultimate Solution for Sustainable Growth" as well.

WHAUP has consistently managed to develop and engage with community and society. In 2023, WHAUP has adapted our corporate strategy aligning with WHA Group's "WHA : WE SHAPE THE FUTURE" mission which aims to create a sustainable future for Thailand. WHAUP recognizes that the Thailand's overall economy of Thailand stands on two legs: the industrial economy and the communityh economy. Therefore, we plan to continue working on economy and community and social development simultaneously. We are committed to advancing people in all sectors of the society through projects providing opportunities to access essential factors and a better quality of life, as we have done in our social projects.

In 2023, WHAUP set a target for 2024 community engagement at 99% and a long-term target at 100% by 2027. The Group plans to participate in community activities to reach the most areas possible to access surrounding community members. WHAUP also conduct community satisfaction surveys after the engagement projects or activities to ensure that our initiatives truly meet the needs of community members. The target for community satisfaction is set at over 95% in 2024 and over 98% in 2025. We have outlined strategies to increase community satisfaction such as implementing community relations department to oversee activities for various communities including communities within WHAUP's areas, and the environment team in CSR department to be responsible for activities affecting communities, directly report to Social and Environmental Responsibility Committee and working team.





ENVIRONMENT DIMENSION



ENVIRONMENTAL POLICY AND MANAGEMENT SYSTEM

MANAGEMENT APPROACH

As a producer and service provider of utilities and power in the industrial estates, WHAUP always recognizes the importance of environmental management. Since our business type is directly related to the environment, our operations may cause negative impacts on the environment if not managed properly. The evolving societal and environmental context and the current environmental situation including climate change, resource conservation, and the intensifying crisis of global warming, the public is increasingly interested in environmental issues, particularly investors and customer groups who consider organizations' environmental operations when making business decisions to conduct business sustainably and minimize negative environmental impacts. Thus, WHAUP has established the Environmental Quality, Energy Conservation and Biodiversity Policy with WHA Group to ensure that our business operations coexist with surrounding communities and the environment harmoniously and sustainably. WHAUP is committed to provide the highest quality of utility and power products and services with world-class solutions to our customers. We also ensure unyielding responsibility for environment preservation through operations that promote energy conservation, the use of renewable energy and biodiversity management. Continuously, WHAUP has been consistently engaged in environmental management and resource conservation to sustainably drive the business. We adapted the efficient environmental management systems and models, implemented proactive management and control measures through continuous monitoring of key environmental parameters such as biodiversity, wastewater quality, waste disposal, pollution control, and resource conservation, etc. These are the key parameters based on the nature of WHAUP's operations in relation to customers, suppliers, and surrounding communities, as well as our ability to operate the business.



Environmental Quality, Energy Conservation and Biodiversity Policy of WHA Group

WHAUP's efforts to drive sustainable operations are governed by the Environmental Quality, Energy Conservation, and Biodiversity Policy approved by the Board of Directors of WHAUP and WHA Group. The Policy outlines WHAUP's commitment to preventing and mitigating environmental impacts while continuing to improve quality, ensure regulatory compliance, and align practices with international standards such as the ISO14001 Environmental Management System and the ISO9001 Quality Management System from the International Organization for Standardization: ISO. As a result, we use it as a framework for ensuring our consistent environmental management approach.



Moreover, WHAUP and WHA Group has together developed a corporate environmental requirement, guidelines, and management program to manage our investments, covering the following aspects:

- Due diligence at the pre-purchase/acquisition/investment stage initial environmental audit of each new investment.
- Property/building development with environmental requirements and resource efficiency.
- Maintenance programs with a focus on environmental performance and resource efficiency.
- Guidelines, training, and newsletters to ensure that property managers and tenants are up-to-date on emerging best practices and regulatory developments.

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

All of WHAUP's projects have undergone the Environmental Impact Assessment (EIA) Study in accordance with the requirements and conditions outlined in the Promotion and Conservation of National Environmental Quality Act, B.E. 2535 (1992). The EIA study considers the environmental and social impacts within a 5-kilometer radius of the project site to ensure that these impacts are monitored, mitigated, and controlled appropriately. Prior to proceeding with project construction, commencement, and operation phases, EIA must be approved by the Office of Natural Resources and Environmental Policy and Planning (ONEP).



WHAUP ensures that all environmental schemes specified in the EIA requirements are followed. The project's performance against EIA requirements and standards is monitored and reported to the Industrial Estate Authority of Thailand (IEAT), Natural Resource and Environmental Policy and Planning, and local provincial offices on a bi-annual basis, covering the months of January to June and July to December, respectively. In 2023, no monitoring parameters were found to be in violation of environmental laws or EIA requirements. In addition, WHAUP oversees the overall environmental management schemes of our customers located within the industrial complex to ensure best practices and compliance with regulated requirements. If the policies are not suitable or sufficient, WHAUP will work with the IEAT to take appropriate next steps. Additional details regarding the environmental practices implemented in collaboration with customers are specified in the relevant section of this report.



Target:

Achieve a 100% rate in implementing the measures for monitoring and assessing environmental impacts in accordance with the EIA.

100

WHAUP, in collaboration with WHA Group, has developed various projects utilizing technology to facilitate environmental management in accordance with relevant policies and standards, including:

UNIFIED OPERATION CENTER (UOC)

WHAUP has implemented the Unified Operation Center (UOC) for more effective environmental management, which integrates and displays data from monitoring systems across projects and operational areas of WHAUP. We use the UOC system for real-time monitoring of various parameters within industrial zones, such as water production systems, solar energy production systems, etc. This is to transparently display environmental performance data in line with the aspirations of WHAUP and complying with the reporting requirements set by government agencies for public dissemination of monitoring results.

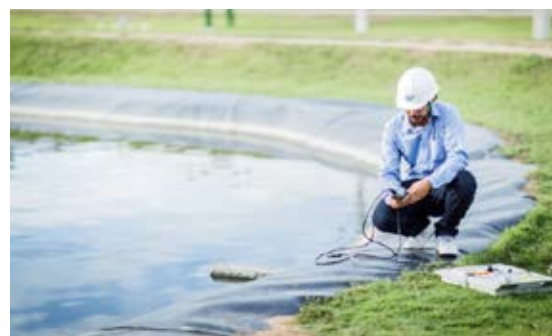


1. ENVIRONMENTAL MONITORING AND CONTROL CENTER (EMC²) FOCUSES ON FIVE MONITORING COMPONENTS AS FOLLOWS:

- Water Quality Monitoring Station (WQMS) monitors the water quality of treated water before it is discharged into natural sources. It measures the level of organic substances, Chemical Oxygen Demand (COD) and Bio-chemical Oxygen Demand (BOD). In the event of non-compliance, an alert will be sent to the appropriate operators, who will take immediate corrective action. The water will be retreated until it reaches the required quality standard.
- Air Quality Monitoring Station (AQMS) measures Total Suspended Particles (TSP), Particulate Matter with a diameter of 10 micrometers or less (PM-10), Sulfur Dioxide (SO₂), and Nitrogen Dioxide (NO₂) in ambient air, as well as meteorological data such as wind speed and wind direction.
- The EMC² discloses the results of environmental monitoring of industrial estates in accordance with EIA requirements. Indicators include the quality of ambient volatile organic compounds, noise pollution, and surface water quality and groundwater quality, etc.
- The EMC² serves as a channel for factory operators located within industrial estates to submit environmental reports in accordance with their respective EIA requirements, air emission quality via stack, EIA compliance, risk analysis, and boiler/steam generator inspection reports are examples of submission reports. This system allows IEAT to effectively review submitted reports while also reducing paper consumption.
- EMC² acts as a data recording and complaint tracking system until the complaint handling process is completed. The system records complaints from various sources and forwards them to the appropriate personnel so that they can carry out the necessary response actions.

2. WATER AND WASTEWATER TREATMENT PLANT CONTROL CENTER

The Water and Wastewater Treatment Plant Control Center forecasts and controls the efficiency of equipment used in the water production and wastewater treatment systems to ensure that water meets standards before being delivered to customers or discharged into public waterways. (Further details regarding the UOC are specified in the Innovation and Technology Management section of this report.)



ENVIRONMENTAL STANDARDS AND PERFORMANCE

WHAUP has been certified with Environmental Management System Standard (ISO 14001) by the International Organization for Standardization (ISO). This certification underscores the business direction of the companies towards environmental considerations. Moreover, there is regular monitoring of environmental management system operations through internal and external audits conducted annually. Continuous efforts are made to adhere to various international standards, ensuring alignment with global trends and changes.



ENVIRONMENTAL COMPLAINT HANDLING PROCESS

WHAUP is committed to continuously improving the environmental management system process; therefore, we have established and communicated available channels for stakeholders to submit any environmental-related complaints and concerns. The complaint handling process follows the ISO14001:2015 guidelines in which root causes are identified, and appropriate preventive and mitigation measures are implemented to prevent future reoccurrences. Channels that are available include:



Telephone
038-954-543



Website
<https://water.wha-industrial-estate.com/envi>



In person



Complaint Center
at every industrial
estate

WASTE MANAGEMENT

The rapid growth of population and the pattern of products and services, as well as changing in consumer behaviors are factors contributing to the generation of a large amount of waste, which tends to continuously increase, causing pollution to the environment and to community's well-being and standard of living. Therefore, efficient waste management remains one of the global challenges we must face. According to the Global Waste Index 2022 report, each year the world produces over 2.1 billion tons of municipal solid waste. However, only 16% of this waste is properly managed. In the case of Thailand, data from the Department of Pollution Control for 2022 indicates that the country generates a total of 25.7 million tons of municipal solid waste. Only 34.2% of this waste is effectively utilized, while the remaining 65.8% cannot be recycled. Almost half of the latter is improperly disposed of, including activities such as dumping, using incinerators without air pollution control systems, and open burning. However, in 2023, many companies worldwide, especially in the utility and power sectors, have turned to adopting the BCG (Bio-Circular-Green Economy) economic model, focusing on developing a bio-based economy, circular economy, and green economy. This helps to sustainably reduce waste while promoting social, economic, and environmental development.

As a utility and power producer and service provider, WHAUP realizes that our business activities play a part in waste generation. Therefore, we strictly value waste management resulting from our business operations, and are continuously reducing waste generation by employing new strategies and technologies to conserve resources and utilize them efficiently. This includes managing a circular value chain in our business operations, as well as ensuring the adoption of appropriate waste management practices in the operations both in utilities and power. For instance, by embracing the BCG economic model, the focus is on recycling raw materials, utilizing various resources throughout their lifecycle, and repurposing waste materials into products. Not only does this help reduce waste and promote resource efficiency, but it also significantly mitigates overall environmental impacts. It prevents negative repercussions that may arise from business activities, benefiting entrepreneurs within the industrial estates, our employees, and surrounding communities. This is considered as a comprehensive environmental, social, and governance (ESG) management to safeguard the rights of all stakeholders and prevent waste management issues such as improper solid waste disposal, hazardous waste management that could pose hazards to communities, and pollution of soil, water, and air.

In addition, WHAUP has developed waste management systems for various types of waste generated in our business activities, particularly sludge from wastewater treatment systems that have direct social and environmental impacts. To address these issues effectively, WHAUP has studied and implemented new innovations, integrating circular economy concept, which is part of the Mission to the Sun initiative, to guide its operations. This involves shifting perspectives from waste management to waste prevention from the source. This approach not only reduces waste but also saves energy using in waste disposal and promotes the maximum utilization of resources. For example, switching to precast and creating value by transforming waste into new products, such as converting sludge into soil conditioners. This circular economy concept not only benefits WHAUP but also has a positive impact on stakeholders across our value chain, including society and the environment. WHAUP has achieved success in reducing the proportion of waste disposal through continuous efforts to minimize landfilling or incineration (without energy recovery) and remains committed to further minimizing waste.

MANAGEMENT APPROACH

WHAUP acknowledges that there are various types of waste and residues generated from our activities, primarily general solid waste, sludge from industrial water production plants and wastewater treatment systems, as well as hazardous waste from office buildings and machinery maintenance activities, such as fluorescent tubes and oil-contaminated rags. We are well aware that improper waste management practices can have adverse environmental impacts.

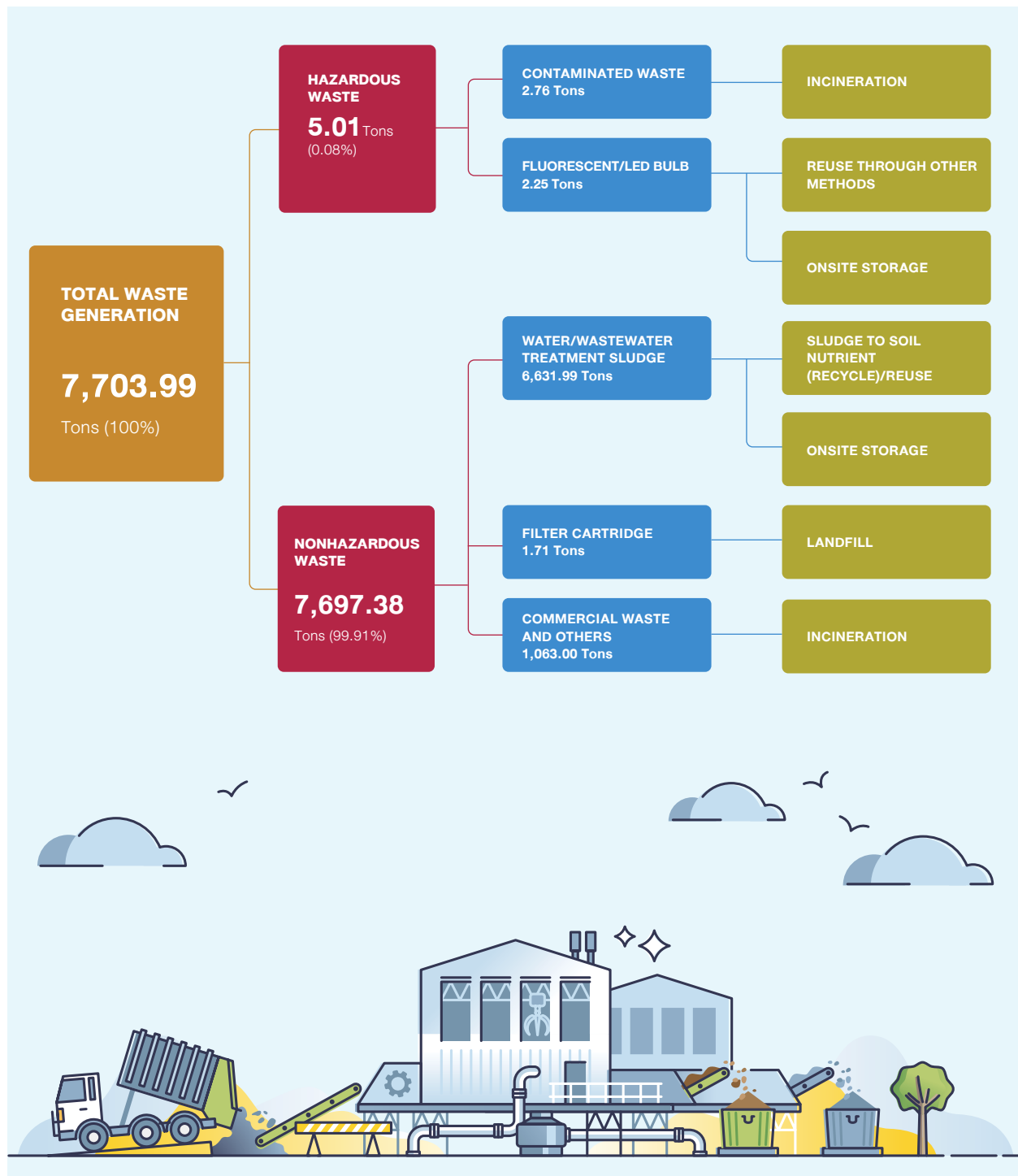
Therefore, we are committed to developing waste management processes in line with WHA Group's Environmental Quality, Energy Conservation, and Biodiversity Policy, as well as adherence to waste management procedures specified in Environmental Impact Assessments (EIA). We have set up a working team to manage and oversee waste management, ensuring compliance with legal requirements. The working team will assess and categorize each type of waste generated from WHAUP business operations and efficiently promote Waste Management Policy. Moreover, WHAUP has assigned our Environmental Committee to be responsible for promoting the participation of all executives and employees in waste management through various initiatives to control and minimize the impact of waste management.

To enhance the efficiency of waste management, WHAUP has set targets for short-term and long-term waste management aligning with WHA Group's targets. 2023 target to reduce the proportion of waste disposed of by landfilling or incinerating (without conversion to energy) is less than or equal to 20% by 2023. This target has been exceeded, with only 0.02% of waste disposed of by landfilling or incineration. Therefore, the long-term target is zero waste disposal by landfilling or incineration (without conversion to energy) for 2024 and subsequent years.

WHAUP continues to incorporate principles of the circular economy into our operational plans to reduce the rate of waste production that needs to be disposed of through landfilling or incineration (without conversion to energy). WHAUP collaborated with WHA Group to organize efficient waste management training for employees of WHAUP, workers in industrial factories, and all contractors involved. For example, contractors receive training before commencing work. This training includes emphasizing various waste management requirements, knowledge sharing through various projects such as SORT N' SAVE and WeCYCLE projects. These initiatives were implemented to ensure that all parties relevant to the business operations are educated in waste management and proper waste management techniques. Additionally, WHAUP adapted waste separation principles from construction projects to promote reuse, recycle, and proper disposal. Most of the waste generated during construction is reused by converting it into leveling materials. Other waste generated by contractors is transported and disposed of by the contractors as specified. Furthermore, WHAUP and WHA Group purchased construction materials and conducted business operations from recycled sources and sold recycled materials for approximately 36 tons in 2023, which helps reduce the volume of waste to be disposed of and promotes resource efficiency.

WHAUP has developed waste management projects with WHA Group such as converting sludge from wastewater treatment systems into soil conditioner, reducing waste from operations, promoting waste reuse and recycling, and investing in technologies for alternative waste disposal methods. Additionally, other projects include providing necessary resources to customers and communities, as well as organizing engagement activities to raise awareness and promote sustainability principles to be used in waste management process and related systems. These commitments and projects attribute to impressive improvements in WHAUP's waste management performance. In 2023, the total amount of waste sent to landfills decreased by 99% compared to 2022.

AMOUNT OF WASTE GENERATED FROM OPERATIONS



In developing new projects, WHAUP has implemented a waste management plan as part of the Environmental Impact Assessment (EIA) process to ensure that the waste management processes implemented throughout the project lifecycle are efficient. WHAUP also communicates with customers in industrial estates about these waste management plans, and oversee the progress based on the reports received from customers.

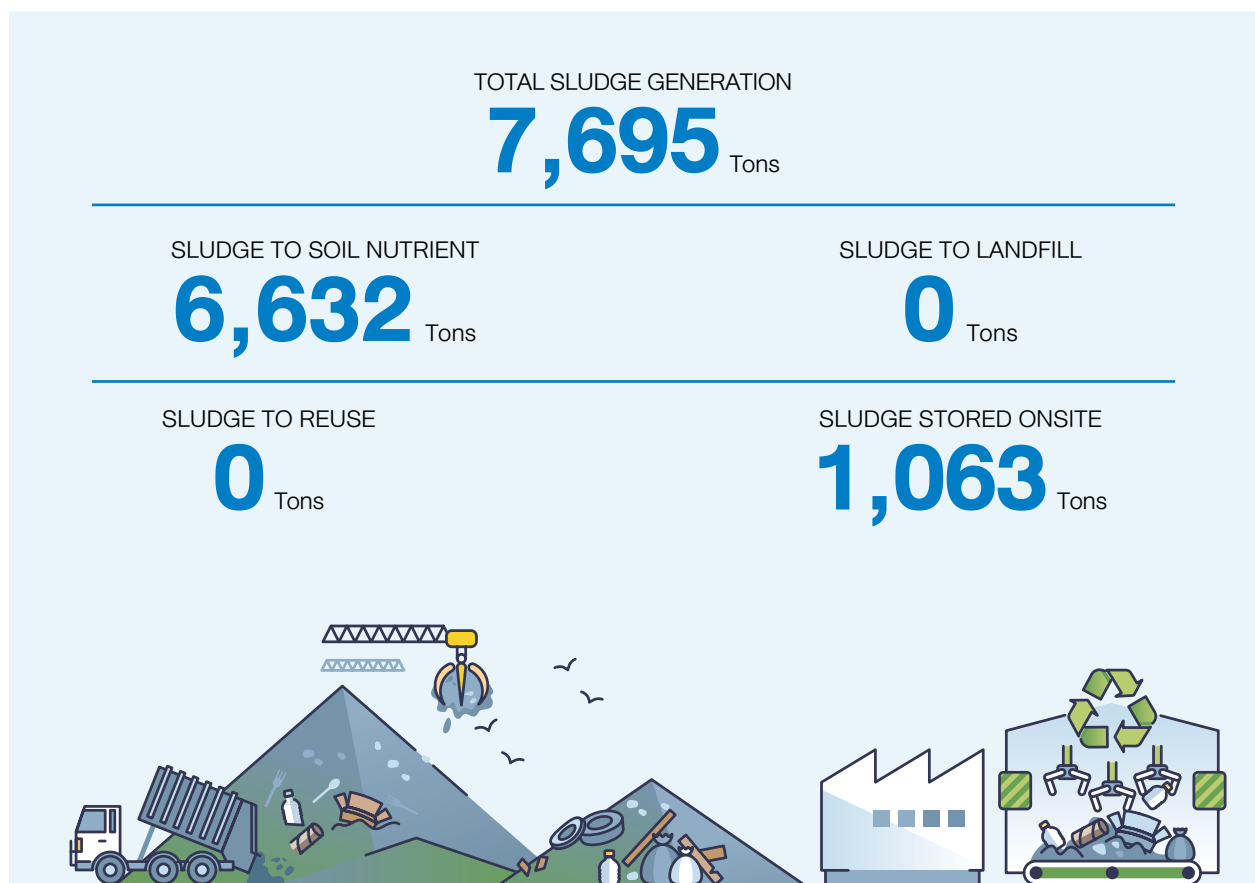
GOVERNANCE OF INDUSTRIAL FACTORIES TO PROPERLY MANAGE WASTE

Although WHAUP, as a provider of utility and power services in industrial estates, does not have direct authority over the waste management of industrial factories within the industrial zones, WHAUP has established the working group to oversee and manage waste with WHA Group. The objective is to ensure that the factories manage waste appropriately and in compliance with regulations. This includes implementing preventive measures by conducting factory or waste disposal facility assessments and adhering to other waste management policies as determined by the management committee. Additionally, we advocate industrial facilities to adopt the principles of the 3Rs (Reduce, Reuse, Recycle) and circular economy. WHAUP has promoted environmental management to the factories through “Green Industry” and “Green Star Award” projects in all industrial estates of WHA Group. In 2023, a total of 95 factories participated in these initiatives.

In 2023, WHAUP and WHA Group have consistently initiated projects for efficient waste management as follows:

SLUDGE TO SOIL NUTRIENT

WHAUP, together with WHA Group, has continuously organized the sludge to soil nutrient project. In 2023, the project aimed to produce soil nutrients to reduce the amount of waste disposed to landfills or through incineration. Soil quality analysis was conducted to ensure that there were no heavy metals, organic compounds, or plant pathogens present. WHAUP set a target to use sludge to produce soil nutrients replacing landfill disposal by 50% of the total sludge, equivalent to 3,621 tons in 2023. The project successfully reached the goal by producing 6,631.99 tons of soil nutrients from sludge or 86% of the total sludge. This is higher than the amount of sludge produced into soil nutrient in 2022 by 68%, representing a significant success. WHAUP is committed to continuing this project to further reduce landfill disposal to 0 by 2024.



WASTE TO ENERGY

WHAUP recognizes that converting waste into electricity is a way to address waste issues, leveraging all types of residues to produce value-added energy resources. This approach also addresses concerns regarding energy demand, aligning with the Alternative Energy Development Plan (AEDP) 2015 (B.E. 2558-2579), which aims to increase the proportion of clean or alternative energy to 30% of total energy consumption by 2036. Therefore, WHAUP and WHA Group have collaborated with two partners to invest in Chonburi Clean Energy (CCE), waste-to-energy power plant project, to produce alternative energy from waste.

CCE is the first industrial waste to energy facility in Southeast Asia to meet European emission standards. CCE was awarded by the Commission of Energy, Ministry of Industry to be constructed as the first industrial waste-to-energy power plant in the Eastern Economic Corridor (EEC). CCE falls in line with the concept of circular economy and sets a good example for sustainable non-hazardous industrial waste management. It has the capacity to generate electricity by converting non-hazardous waste to energy at 400 tons per day, or approximately 100,000 tons per year, enabling a maximum output of 8.63 MW of electricity energy per year.



CCE contribution in 2023:



CCE
has incinerated
181,333 ton waste

CCE
has generated
59,747 MWh to the PEA

CCE
has saved around
39,000 tco₂

Sustainable electricity
for around
32,000 homes



Since 2020, WHAUP and WHA Group have signed an agreement with Waste Management Siam, a transportation and waste disposal service provider. Under this agreement, WHAUP sends our waste to the CCE project annually to produce alternative energy. From 2020 to 2023, a total of 2,041 tons of waste were diverted from landfilling or incineration to be converted into electricity, generating a total of 1,768 MWh. Specifically, in 2023, 316.4 tons of waste were utilized to produce 274 MWh of electricity.

PAPERLESS TRANSFORMATION



Currently, worldwide companies including WHAUP have incorporated digital technology into conducting business operations to reduce the excessive use of resources, especially in documents where a lot of paper were used. This includes shifting data storage and meetings to online platforms to enable access from anywhere, which not only facilitates data access but also implicitly reduces paper usage. Moreover, WHAUP is determined to minimize paper consumption as part of organizational development towards digital transformation. To achieve this, we have implemented the “E-Paperless” project together with WHA Group. This initiative encourages staffs to utilize existing technologies and devices to enhance work efficiency. Employees are provided with tablets to promote a paperless work culture, facilitating easier access to presentation materials, reports, inspection forms, and minutes of meetings.

HAZARDOUS CHEMICAL CONTAINER REDUCTION

WHAUP realizes that our business operations require chemicals which generate hazardous waste that must be landfilled. Therefore, we are intended to reduce such waste from the origin for more sustainable waste management. WHAUP has transitioned to using loading tankers in chemical procurement for water and wastewater treatment system to reduce hazardous chemical containers since 2020. This approach helps reduce the amount of chemical packaging that goes to landfills by approximately 2 tons per year in 2023. Even though WHAUP still needs to purchase Poly Aluminium Chloride (PAC) with 20% concentration and liquid chlorine within chemical containers, we have made agreements with suppliers to be responsible for used packaging materials by either reusing them or disposing of them appropriately.

SORT N’ SAVE PROJECT

WHAUP, as a part of WHA Group, continued “Sort N’ Save” project that started in 2019. This project originated from one of WHA Innovation Leader initiatives aimed at raising environmental awareness among our employees and promoting business innovation under the concept of circular economy. Various activities have been organized and promoted through different media channels, such as communication through desktop screens, sending messages via LINE application, email, and WHAUP’s monthly newsletter. These efforts aim to encourage employees to change behaviors and recognize the importance of recycling and waste reduction.

REDUCE DEPENDENCY ON PLASTICS

Even though single-use plastics are cheap and easy to use, but without proper management, they can become a significant amount of waste that is difficult to degrade, posing hazards to the economy. It leads to severe and irreversible impacts on climate change and biodiversity. To address this issue, WHAUP and WHA Group have been continuously reducing the use and disposal of single-use plastics since 2020. We have discontinued providing bottled water in plastic bottles to visitors and switched to paper packaging, which reduced over 68,940 plastic bottles in 2023 alone. All these initiatives have helped reduce plastic waste by 0.7 tons from the reduced plastic usage.



WeCYCLE PROJECT

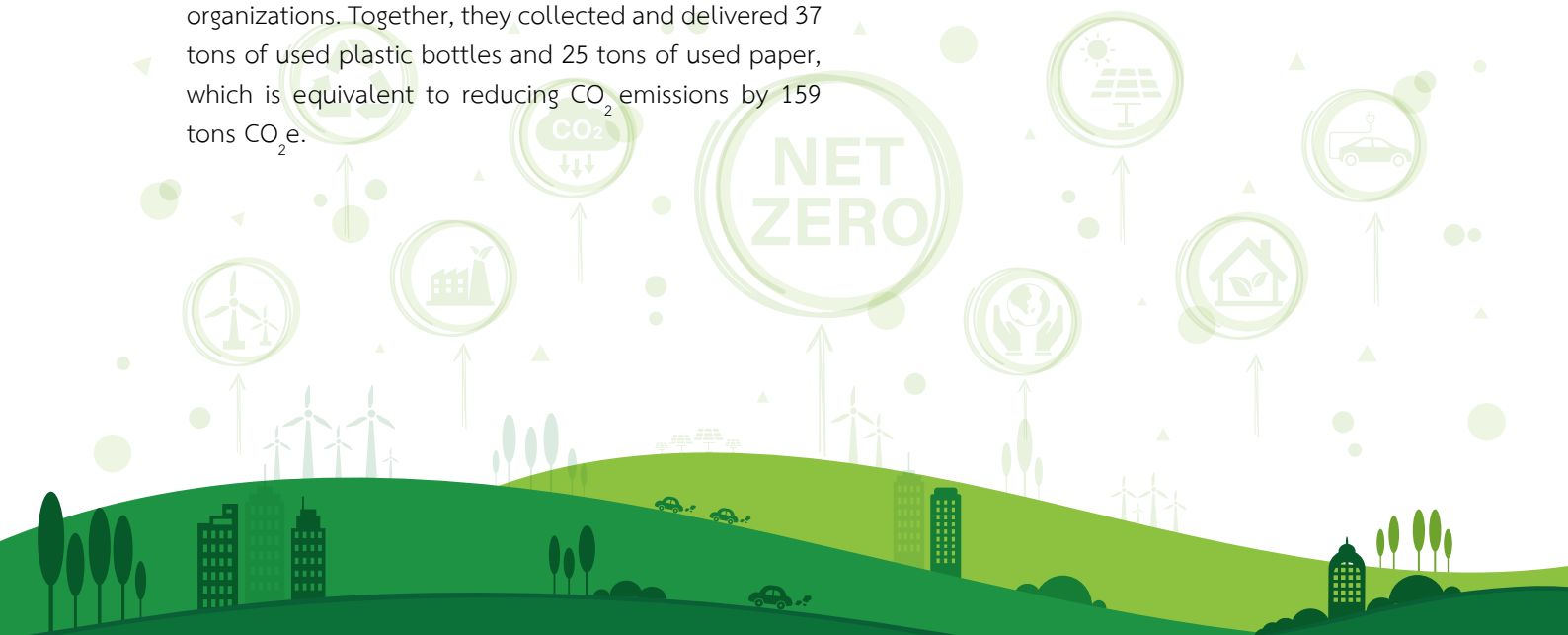
WHAUP, in collaboration with WHA Group, initiated the WeCYCLE project to support clean and safe environment. This project encourages PET plastic bottles separation for upcycling and used paper recycling. In 2023, the main activities are as follows:

1. WeCYCLE: used plastic bottles: This collaboration between WHAUP and GC aimed to collect used PET plastic bottles from our plastic drop-off points (YOUturn). These bottles were then mixed with water hyacinth fibers obtained from wastewater treatment reservoirs within WHA industrial estates to produce school bags for children in schools around the industrial estates.

2. WeCYCLE: used paper: . This collaboration between WHAUP and SCGP aimed to collect unused paper and recycle it to design and produce communication materials for internal use.



In 2023, both types of projects were highly successful and received cooperation from 79 businesses and organizations. Together, they collected and delivered 37 tons of used plastic bottles and 25 tons of used paper, which is equivalent to reducing CO₂ emissions by 159 tons CO₂e.



Performance

The proportion of waste disposal through landfilling or incineration (without conversion into energy)



2018	2019	2020	2021	2022	2023
58.60%	89.93%	55.66%	25.46%	19.57%	0.02%

Performance

Reduce the proportion of waste disposal through landfilling or incineration (without conversion into energy) to 0 by 2024

WHAUP recognizes the environmental and social impacts of waste generated from business operations and has continuously implemented waste management initiatives. WHAUP has adopted the BCG economic model, particularly focusing on the concept of the circular economy, into utility and power service to reduce waste volume. WHAUP emphasizes maximizing resource efficiency and minimizing waste, starting from procurement processes, logistics, material selection, to reuse and recycling waste to prevent waste generation at the source. These efforts have helped reduce waste volume around 454 tons. Additionally, they have led to significant cost savings and resource efficiency in operations and construction around 1 Million Baht, leads to rapid growth of WHAUP’s business operations. Furthermore, in waste management processes, WHAUP collaborates with customers, suppliers, contractors, and partners to ensure proper waste management practices. WHAUP has increased the amount of reused and recycled waste or converted waste into electricity, which does not only reduce energy consumption and environmental pollution as well as mitigate health impacts of waste disposal on local communities, but also greatly enhance income and reputation of customers, suppliers, and contractors. Additionally, it is also considered as the alternative energy source for society.

WHAUP is committed to continuously manage waste to take responsibility for the society and environment. WHAUP has set a target for 2024 to reduce the volume of waste requiring landfilling or incineration (without conversion into energy) to the minimum or zero, and maintain that in every following year. WHAUP plans and sets targets for sub-projects aimed at reducing waste such as using %100 of sludge to produce soil nutrient instead of landfilling in 2024. WHAUP also plans to implement projects to reduce waste in long-term.

AIR EMISSION



The industrial estate business is one of the industries that creates air pollution, significantly impacting the surrounding communities and people, especially businesses related to the provision of public utility and energy systems within industrial estates. This air pollution problem is highly likely to affect the country's economy if there is no integrated cooperation to solve the issue among all sectors in the near future. For this reason, leading companies worldwide emphasize managing and addressing air pollution problems, both directly and indirectly caused by business operations, by integrating technology to control and reduce air pollution from their operations. At the same time, fostering good awareness about air pollution management among people within the organization and nearby communities is crucial for sustainably combating air pollution issues.

WHAUP has been continuously working on reducing air pollution emissions in collaboration with WHA Group. WHAUP also understands that operating utilities and power businesses in the Eastern Economic Corridor (EEC), the largest special economic zone in ASEAN, may raise concerns about air pollution from industrial facilities within the estates. WHAUP views air emission management as both a challenge and an opportunity to demonstrate operational efficiency in environmental management. Therefore, WHAUP has implemented measures and plans to address air emission issues in both the short and long term. These include importing innovative and environmentally friendly technologies to develop air quality control systems for WHAUP's industrial operations. Additionally, there is an internal policy emphasizing environmental quality, energy conservation, and biodiversity preservation through the use of green technologies. This is part of WHA Group's project, the "Mission To The Sun", which prioritizes reducing environmental impacts from industrial activities. The core principle is that industrial estates, communities, and nature must coexist in a balanced and sustainable manner without infringing upon others' rights or interests in other sectors.

MANAGEMENT APPROACH

WHAUP has consistently prioritized air pollution management and has continuously improved operational standards and updated regulations and measures to control air pollution in line with global trends. Additionally, WHAUP has implemented air pollution reduction projects and developed systems for continuous monitoring of pollution from utilities and power systems. With the primary goal of preventing air pollution that affects public health and the environment, WHAUP has designated environmental personnel responsible for the environmental protection system and strictly monitors emissions from pollution sources in compliance with the Ministry of Natural Resources and Environment and Ministry of Industry regulations.

AIR EMISSION CONTROL MEASURE

Initially, WHAUP and WHA Group have been screening the types of industries of their clients, focusing on collaborating with clients committed to reducing air pollution emissions. This commitment starts from the signing of service agreements to the operation of the client's business, ensuring compliance with WHAUP's Environmental Quality, Energy Conservation, and Biodiversity Policies. WHAUP has set measures to control air pollution emissions, such as total suspended particulates (TSP), nitrogen oxides (NOx), and sulfur dioxide (SO₂), according to the specified standards. Additionally, WHAUP has measures in place to oversee the air pollution emissions of industrial plants located within WHA Group's industrial estates, which are clients of WHAUP. These measures ensure compliance with the air emission standards from sources as per the announcements of the Ministry of Industry and the Industrial Estate Authority of Thailand, and in accordance with the emission rates specified in the environmental impact prevention and mitigation measures outlined in the Environmental Impact Assessment (EIA) reports.

If it is found that any factory has an emission rate exceeding the specified limits, WHAUP and WHA Group will notify the factory to improve their pollution control systems to meet the standards. They will also notify the Industrial Estate Authority to oversee the factory's corrective actions. However, if the factory fails to comply with the standards, WHAUP, WHA Group, and the Industrial Estate Authority will take measures to suspend the factory's operations. Additionally, WHAUP has set internal standard targets for our business operations and industrial plants within the industrial estates. These targets require air pollution levels to be below 20% of the specified concentration rate of air pollution emissions per unit area.

ENERGY MANAGEMENT TO REDUCE AIR EMISSIONS

WHAUP, in collaboration with WHA Group, has implemented the use of renewable energy in various activities, such as solar power. They have also initiated a project for efficient energy use by employing clean and energy-saving technologies, such as LED lighting and motor control systems to optimize the operation of electrical equipment. This includes replacing electrical equipment to better suit their usage and managing energy consumption to be reduced and more efficient. Additionally, WHAUP promotes the use of renewable energy in their clients' businesses through Peer-to-Peer (P2P) energy trading projects and Smart Microgrid systems. This renewable energy project has reduced energy consumption by approximately 823,846 kWh per year, equivalent to a reduction in carbon dioxide emissions of about 411,841 kilograms of CO₂. More information on renewable energy use can be found under the Energy Management section.

CLEAN TECHNOLOGY TO REDUCE AIR EMISSIONS

Since 2022, WHAUP, as a leading power service provider, has been promoting the use of clean energy as a replacement for fossil fuels, such as using electric vehicles as the central transportation mode for WHA Group, to reduce fuel consumption from fossil fuels and effectively decrease air pollution. Additionally, WHAUP has promoted the use of alternative energy sources among customers instead of purchasing electricity generated from natural gas, aiming to reduce air pollution from customers' direct industrial operations.

TRIPARTITE MEETINGS TO MONITOR AND INSPECT THE AIR QUALITY OF FACTORIES WITHIN INDUSTRIAL ESTATES

Annually, WHAUP participates in a Tripartite Committee meeting, which is established by WHA Group a Tripartite Committee consisting of representatives from WHA Group, government representatives, and community representatives. All three parties will work together to monitor compliance with environmental measures of all WHA group, including WHAUP, as specified in the Environmental Impact Assessment (EIA) report. WHAUP’s representatives will also act as representatives for disseminating and receiving information regarding WHAUP’s business operations, as well as serving as the contact point for environmental complaints and air quality issues from stakeholders. Additionally, the committee will review projects to promote and develop the quality of life for the community and the surrounding environment. Air quality has been identified as one of the continuous monitoring points in the meetings to ensure that the air quality within the industrial estate meets the specified standards. The meeting outcomes will be recorded in the EIA report for presentation to relevant government agencies and local administrative organizations.

TARGET

Ensure the proper management and control of air pollution emissions from industrial factories located within the industrial estate of WHA Industrial Group in accordance with the air emission standards set by the Ministry of Industry of Thailand

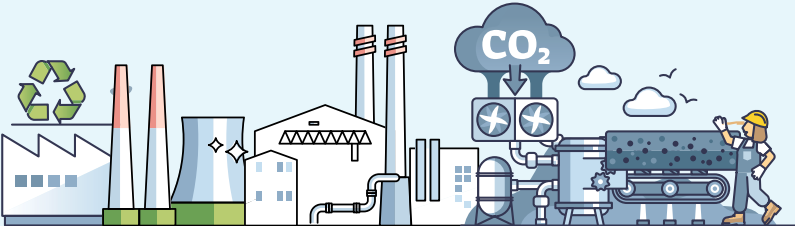
TARGET

Ensure the proper monitoring and control of air pollution to comply with the specified emission standards as stated in the environmental impact assessment (EIA) reports of each industrial estate.

TARGET

Control and maintain air pollution levels below 20 percent of the specified emission intensity per unit of designated area

Additional air quality performance can be found in the performance data at the end of this report.



WHAUP has played a crucial role in driving WHA Group’s air pollution control operations to meet their set targets. This includes the production and use of renewable energy, which is passed on to clients within the industrial estates, such as through Peer-to-Peer (P2P) energy trading and Smart Microgrid systems. These projects significantly reduce the environmental and community air pollution impact, effectively mitigating conflicts with nearby communities. Additionally, they represent a major step forward in developing the environment and economy in tandem with the communities surrounding WHA Group’s industrial estates.

WHAUP plans to maintain excellent efficiency in air pollution management going forward. They have plans to develop new technologies in the future to address air pollution issues resulting from their business operations. This includes continuous development of Electric Vehicle (EV) projects, increased use of solar energy to reduce greenhouse gas emissions, and initiatives such as reforestation to absorb greenhouse gases.

CLIMATE STRATEGY

In recent years, climate change resulting from the increase in global temperatures has intensified. Particularly in 2023, the global and sea temperature has risen, breaking previous records, while there has been a drastic decrease in polar ice caps, marking historical trends. There are also predictions suggest that global temperatures are expected to increase by up to 1.5 degrees Celsius in the next 5-10 years. This climate situation is considered a crisis impacting not only the environment but also the economy, communities, people, and all living creatures that depend on nature for survival. Therefore, all relevant sectors must prepare comprehensively for potential impacts. Considering this, the world has come together to organize the 28th session of the Conference of the Parties to the United Nations Framework Convention on Climate Change, or COP28, held from November 30 to December 13, 2023. Representatives from various countries, including Thailand, participated in the conference, which encouraged all sectors to accelerate the transition from fossil fuel energy to renewable energy. The goal is to achieve the target of limiting the global temperature increase to no more than 1.5 degrees Celsius above the pre-industrial levels of 1850, as outlined in the Paris Agreement and the United Nations Framework Convention on Climate Change (UNFCCC). Additionally, there is a goal to reduce greenhouse gas emissions by 43 percent by 2030 and by 60 percent by 2035 since greenhouse gas emissions still increases.

WHAUP closely monitors the global climate change trends all the time since our businesses that directly involve natural resources consumption and depend on natural factors, including rainwater for water procurement and production, or solar for renewable energy services. Therefore, the impacts of climate change (e.g., flood, drought, and windstorm) can directly affect our business operations and subsequently affect other stakeholders both internal like employees, and external such as customers and communities, as they will gain benefit if WHAUP's business operations run smoothly and lose out if operations are disrupted. Consequently, WHAUP has been continuously addressing the climate crisis while accelerating efforts to align with the Paris Agreement's goal of limiting global temperature rise to no more than 1.5 degrees Celsius. This is being achieved by adhering to sustainable development strategies, considering the dimensions of Environmental, Social, and Governance (ESG) criteria to ensure that our business operations do not violate on the rights of individuals, legal entities, or stakeholders in other sectors including business operations, the livelihoods of people, and equal access to various resources.

From the process of analyzing climate change, including both risk assessment and prevention of direct and indirect impacts on WHAUP, we have been comprehensively addressing all risks and opportunities over the past several years. Additionally, WHAUP has been measuring and controlling greenhouse gas emissions across Scope 1 and Scope 2 throughout the supply chain to ensure that WHAUP continuously monitors performance to reduce greenhouse gas emissions in alignment with both business and national goals. To prepare for alignment with international agreements, WHAUP has been relentlessly advancing towards sustainable business operations.

WHAUP not only considers climate change as a challenge but also an important opportunity to use our potential in environmental technology efficiently and sustainably add value to the business. We use this opportunity to expand our services and products that meet the needs of customers to address issues and minimize impacts caused by climate change. One of the significant transitions in the past few years is the increased development of renewable energy usage. Therefore, WHAUP collaborated with WHA Group to initiate various projects including renewable energy to minimize carbon emissions from traditional energy usage. For example, the solar rooftop project, the solar carpark project, and the solar floating project which is installed within WHA Group's buildings and provided to customers. In 2023, WHAUP achieved our goal

of signing agreements to purchase and provide renewable energy systems totaling 311 MW, which reduce greenhouse gas emissions by up to 51,497 tCO₂e per year. WHAUP aims to increase this target to 600 MW by 2026. Additionally, WHAUP focuses on supporting WHA Group's commitment to continuously increasing the proportion of renewable energy in the operations. For instance, installing of solar rooftops at the water treatment plant in WHA Eastern Industrial Estate (Map Ta Phut) (WHA EIE) which reduce traditional energy usage by up to 315,857 KWh per year, and installing solar carparks in WHA Eastern Seaboard Industrial Estate 2 and WHA Eastern Seaboard Industrial Estate 4 reducing traditional electricity usage by up to 352,015 KWh. Furthermore, in 2023, WHAUP installed solar rooftops on office buildings in WHA Eastern Seaboard Industrial Estate 3 and a floating solar project in WHA Eastern Seaboard Industrial Estate 1, reducing traditional electricity usage by up to 675,089 KWh per year. WHAUP has also been studying the installation of solar panels combined with batteries, a project that has helped reduce traditional energy usage by 1,150 MWh per year, equivalent to 4 million Baht per year.

In the past year, WHAUP and WHA Group have promoted various measures and expanded controls to reduce greenhouse gas emissions extending to Scope 3, among a wide range of stakeholders. This includes the management of contractors, customers, and utilities and power management in all dimensions. In 2021, WHAUP achieved carbon neutrality and is now fully committed to achieving net zero carbon emissions by 2050. These efforts represent a significant transition for WHAUP towards a new era of environmentally conscious operations.

MANAGEMENT APPROACH

WHAUP recognizes the urgency of the issues arising from climate change and has accelerated the implementation of relevant plans. We are also committed to expand our business growth together with creating balance in the economy, environment, and society, by playing a crucial role in utility and power sector to manage greenhouse gas, a main cause of global warming. Therefore, WHAUP studied global trends to address the issue and monitored the COP meeting closely. We also planned our operational framework to comply with national and international policies, laws, and regulations that become stricter every year. These efforts aim to reduce the impact caused by climate change and the amount of greenhouse gas emissions according to the goal set in COP28, as well as to increase renewable usage instead of fossil fuels. This supports the transition away from fossil fuels that Thailand agreed upon at the recent COP28 conference. The government has set goals for Thailand to achieve carbon neutrality by 2050 and net-zero greenhouse gas emissions by 2065. The Group achieved carbon neutrality in 2021 and aims to reach net-zero greenhouse gas emissions by 2050, positioning as a leader in the Thai real estate sector in addressing climate change.

WHAUP has established an Environmental Quality, Energy Conservation, and Biodiversity Policy, in line with WHA Group's environmental policies, which is continuously adjusted to align with global trends. The core of the policy is to promote the adoption of new innovations in business development, focusing on and promoting the use of green energy, such as solar energy and other renewable energy, to reduce greenhouse gas emissions from WHAUP's related activities, energy consumption in business operations, as well as impacts on biodiversity. (More information on the biodiversity and deforestation topic.) Furthermore, WHAUP has adopted the Task Force on Climate-Related Financial Disclosure (TCFD) framework to manage risks related to climate change, integrating risk management into strategies, analyzing, and assessing risks, ranking management actions, and monitoring results. WHAUP also conducts analyses on risk data, impacts, and opportunities arising from climate change following the TCFD guidelines. (More information in the scenario analysis topic.)

WHAUP and WHA Group will review and update our Environmental Quality, Energy Conservation, and Biodiversity Policy every to ensure that it is updated and effective. We have Mr. Natthapatt Tanbon-ek, a climate change executive, driving environmental performance with transparency and maximum efficiency on economy, environment and society, in line with the policies and commitments set forth.

CLIMATE CHANGE GOVERNANCE

WHAUP, as a part of WHA Group, operates our business by adopting WHA Group's environmental strategy. We have established a Sustainable Development and Corporate Governance Committee and a Risk Management Committee, both of which work together and are under the supervision of the Board of Directors. The Sustainable Development and Corporate Governance Committee is responsible for developing strategies related to climate change and monitoring the performance to be in line with the plan. Meanwhile, the Risk Management Committee related to climate change appoints a risk management task force to manage risks and opportunities related to climate change in line with the strategy. The task force has conducted discussions and assessments of risks from external and internal factors, such as strategic risks, operational risks, financial risks, compliance risks, as well as emerging risks, including climate policy risks, and digitalization & business model disruption. (See details of emerging risks in the Risk Management and Crisis section.) They gather data and report on operations to the Risk Management Committee to assess the effectiveness of risk management, and then report to the Board of Directors at least four times a year to closely monitor the results, as well as oversee the risk to be at an acceptable level (Risk Appetite), leading to the achievement of the goals set by WHAUP.



CLIMATE CHANGE GOVERNANCE AND RESPONSIBILITIES

ROLE	RESPONSIBILITIES
Board of Directors (BOD)	The BoD provides visions, missions, directions, and operational strategies with an efficient performance monitoring as well as evaluation system in place, which is independent from the management, to review the operation of Executives.
Corporate Governance and Sustainable Development Committee	The Corporate Governance Committee is responsible for developing strategies associated with climate change, monitoring, inspecting, and prioritizing the implementation of the planned policy, which is a part of WHAUP's agenda on planning and performance related to sustainable development.
Chief Executive Officer (Group CEO)	The CEO is responsible to manage the company according to the established and agreed policies, plans and budget under the authority granted by the Board of Directors. Regarding Climate Change, CEO has the responsibility of strategic movement to manage climate related risk and opportunities, and ensure sufficient resources are allocated for mitigating climate related risk.
Risk Management Working Team, Sustainable Development Working Team	The risk management working team and sustainable development working team set policy framework and practices to manage risk related to climate change. They assess and review risks, taking into account both internal and external factors which may affect the achievement of WHAUP's goals in order to ensure that appropriate measures that in line with the business are taken place to tackle climate change.

STRATEGY AND PROCESS FOR MANAGING CLIMATE CHANGE RISKS



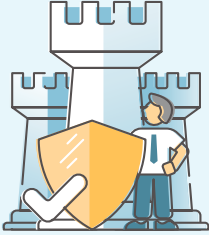

WHAUP believes that an effective climate change risk management plan will enable us to deal well with problems stemming from volatile weather conditions, such as droughts and floods. Therefore, WHAUP has demonstrated our commitment to managing climate change risks by implementing WHA Group's Environmental Quality, Energy Conservation, and Biodiversity Policy to motivate employees at all levels, from executives to general staffs, and raise awareness of operational goals related to climate change within the organization. This reflects the significant role of management in achieving these goals.

Additionally, WHAUP emphasizes considering the impact of climate change from the planning stage of utility system development and services to ensure the appropriate management of significant impacts from climate change at each location. Furthermore, preventive measures have been established and will be implemented throughout the project operations. Climate change-related risks are regularly reviewed and assessed as a key issue in organizational risk management to prevent impacts that may occur in factories within WHA Group's industrial estates.

WHAUP is aware of the climate-related risks to our utility and power business operations, which are directly related to our customers' business operations as well. Since in case that risk management does not meet standards, it could lead to business disruptions or damage to assets. The risk management process includes the following steps:

- Identify significant risks based on hazards, vulnerability, and exposure
- Understand the impacts of climate change on business operation
- Evaluate the effectiveness of existing mitigation measures
- Address future challenges imposed by climate change

WHAUP's RISK MANAGEMENT PROCESS

			
Risk Identification	Risk Assessment	Risk Response and Mitigation Measures	Risk Reporting, Monitoring, and communication
<ul style="list-style-type: none"> • Identification of internal and external risk, along with business impacts. • Categorization of identified risks under four categories: Strategic, Financial, Operation and Compliance. 	<ul style="list-style-type: none"> • Calculation of risk levels following standardized assessment criteria. • Prioritization of risks based on risk profile and appetite. 	<ul style="list-style-type: none"> • Determining actions to respond, mitigate potential impacts and ultimately reduce high level risks to acceptable levels • Implementing measures to restore those affected to their pre-impact condition 	<ul style="list-style-type: none"> • Communication of risks to all executive and employees to build a strong risk management culture and report to Risk Management Committee on a quarterly basis. • Optimize internal communication channels to disseminate relevant risk information

WHAUP recognizes the impacts of climate change, such as resource scarcity, raw material price volatility, and changes in laws or regulations related to business operations, which directly affect our business operations, including financial aspects and reputation. Therefore, WHAUP does not underestimate the risks and has incorporated climate change issues into our organizational risk management to prevent, mitigate, and reduce the impacts of various risks that may occur along the value chain, from upstream activities to downstream activities. WHAUP has established a timeframe for climate change-related risks, both physical risk and transition risk, dividing them into short-term (1-3 years), medium-term (3-10 years), and long-term (more than 10 years). WHAUP has also developed projects and plans to adapt to physical risks, such as plans to adapt to physical risks and plans to adapt to regulatory environmental risks, to cope with various future risks. This includes conducting scenario analysis referencing simulated scenarios based on the type of risk as follows:

PHYSICAL RISK

SCENARIO 1: RCP 8.5 BUSINESS AS USUAL (4 degree Celsius)

The policies addressing climate change issues are still not stringent enough, and greenhouse gas emissions remain high. The risks associated with physical changes, transitional changes, and the impacts of climate change persist. This may lead to increased temperatures, water scarcity, and more volatile and severe weather conditions. And assume that there is no significant difference in business opportunities compared to the current situation.

SCENARIO 2: RCP 2.6 LOW FUTURE CARBON (1.5 degree Celsius)

There is a rapid transition towards a low-carbon economy, driven by the development of new technologies and policy changes aimed at limiting global temperature increase to no more than 1.5 degrees Celsius.

THE PHYSICAL RISKS AND TRANSITION RISKS ASSOCIATED WITH CLIMATE CHANGE

WHAUP has identified the financial risks associated with climate change and its impact on the following areas, as detailed in the table below:

THE PHYSICAL RISKS AND TRANSITION RISKS ASSOCIATED WITH CLIMATE CHANGE

WHAUP has identified the financial risks associated with climate change and its impact on the following areas, as detailed in the table below:

Type of Physical Risk	Financial impact	
	RCP 8.5	RCP 2.6
Acute Risk: The increasing volatility and severity of weather patterns, including the occurrence of natural disasters, pose significant risks to WHAUP's operational areas.	<ul style="list-style-type: none"> The development and construction of projects may experience delays, which can result in increased costs. These delays can also impact the reputation of WHAUP and erode customer trust if projects are not delivered on schedule. The client's business operations in the industrial estate may be temporarily halted due to natural disasters, impacting both their confidence in WHAUP and the image of their business. Additionally, there can be indirect repercussions on the supply chain management, such as the inability to deliver products on time and an increase in product prices. Increased cost from flood management and prevention expenses. Increased cost from increased insurance premium payment. Damage to assets and properties, such as infrastructure deterioration and premature wear and tear, can result in additional expenses for maintenance and repairs of buildings or machinery. <p> Short-term: Medium Medium-term: Medium Long-term: Medium </p>	<p>The impact is less severe on maintenance expenses and revenues if the global temperature increases by no more than 1.5 degrees Celsius. The severity and frequency of natural disasters will be lower than anticipated in the case of a temperature increase of more than 4 degrees Celsius. Therefore, there will be a lower impact on maintenance costs and revenues.</p> <p> Short-term: No impact Medium-term: Low Long-term: Low </p>

Type of Physical Risk	Financial impact	
	RCP 8.5	RCP 2.6
Acute Risk: The increasingly severe and frequent fluctuations in weather conditions, including droughts, pose a risk to the operational areas of WHAUP	<ul style="list-style-type: none"> The insufficient water supply to meet the demands of customers within the industrial estate can impact the trustworthiness of WHAUP and the confidence of our customers. However, the group has planned to effectively manage water resources by increasing the capacity of Reclaimed Water production. This will reduce dependence on natural water sources to the maximum extent possible. The increased cost resulting from the expenses incurred in sourcing water resources. Customers may reduce their production capacity, resulting in reduced water demand and subsequently decreased revenue. Furthermore, this could be a reason for customers to decide to relocate their facilities to other countries or areas. There is a need to increase research and development investment in new products and services to combat the challenges of drought. Short-term: Medium Medium-term: Medium Long-term: Medium	<ul style="list-style-type: none"> Drought-related problems would have a lesser impact on financial capital and R&D costs at a lower temperature increase of 4 degrees Celsius. Short-term: No impact Medium-term: Low Long-term: Low
Acute Risk: Increasingly severe and unpredictable weather conditions, including storms, thunderstorms, and lightning.	<ul style="list-style-type: none"> Thunderstorms and lightning can cause damage to the assets of WHAUP which can impact overall operations, such as increased repair and maintenance costs and higher insurance premiums. Damage to assets and properties, such as infrastructure deterioration and premature aging, can result in additional expenses for maintenance and repairs of buildings and machinery for WHAUP Indirect impacts from supply chain management, such as delayed product deliveries and increased product prices, can occur as a result. Short-term: Medium Medium-term: Medium Long-term: Medium	<ul style="list-style-type: none"> Minor impacts to operation if the global temperature increases by no more than 1.5 degrees Celsius. The severity and frequency of natural disasters would be lower than anticipated compared to a scenario where the global temperature rises by more than 4 degrees Celsius. Consequently, there would be minimal effects on maintenance costs and revenue. Short-term: No impact Medium-term: Low Long-term: Low
Chronic Risk: Increasing mean temperature	<ul style="list-style-type: none"> The increasing average temperature may result in inadequate ventilation within warehouses, prompting tenants to request building improvements or additional equipment installation to enhance heat dissipation efficiency. Consequently, WHAUP may incur higher operating and maintenance expenses. The use of construction materials such as metal sheets for the building's roof may deteriorate more quickly, leading to increased maintenance costs and higher construction project expenses Short-term: Medium Medium-term: Medium Long-term: Medium	<ul style="list-style-type: none"> In this case, the risk is low and the impact is less than when the temperature increases by 4 degrees Celsius. However, it may result in a slight lack of ventilation inside the warehouse. Therefore, the tenant may request building improvements or additional equipment installation to enhance heat dissipation efficiency, which may increase the operating/ maintenance costs for the Group. The construction materials used in the building may deteriorate or be damaged quickly. Short-term: No impact Medium-term: Low Long-term: Low

Type of Transition Risk	Financial impact	
	Business as Usual + 4 °C	Low future carbon + 1.5 °C
Market: Due to the rapid advancement of technology, customers from certain industrial sectors have been developing their production processes by incorporating machinery and robots to enhance efficiency and reduce costs. Furthermore, there is an increasing demand for environmentally friendly buildings (both in terms of construction processes and controlling greenhouse gas emissions).	<ul style="list-style-type: none"> Due to the rapid changes in technology, customers may seek to improve their production processes by utilizing machinery or robotics to increase efficiency and reduce costs. As a result, the demand for factory space may decrease. However, WHAUP has introduced various innovations to meet the evolving needs of customers and provide solutions that can adapt to changes over time. The decrease in demand for certain products and services is due to changing customer preferences and needs. Impact: Low Period: Medium to Long (More than 5 years)	<ul style="list-style-type: none"> Due to rapid changes in technology, customers may need to upgrade their production processes by using machinery or robots to increase efficiency and reduce costs. As a result, there is a decrease in the space requirement within factories. However, WHA Group has utilized various innovations to present to customers to meet their ever-changing needs and provide solutions that can be adaptable over time. Customers are placing increasing importance on green energy and renewable energy. WHAUP is capable of offering renewable energy solutions to customers to meet their demands. The decreasing demand for certain products and services is due to changing customer preferences and needs. Impact: Low Period: Medium to Long (More than 5 years)
Reputation: The stakeholders of WHAUP may have an increased interest in environmental issues and demand that WHAUP takes measures to reduce greenhouse gas emissions.	<ul style="list-style-type: none"> If WHAUP fails to meet the expectations and demands of stakeholders (such as customers, investors, communities, and society) regarding environmental responsibility and raising awareness about climate resilience, it could have an impact on its reputation and lead to long-term financial consequences. Impact: Low Period: Medium to Long (More than 5 years)	<ul style="list-style-type: none"> If WHAUP fails to meet the expectations and demands of stakeholders (such as customers, investors, communities, and society) regarding environmental responsibility and increasing awareness of climate resilience, it could have an impact on its reputation and lead to long-term financial consequences. If stakeholders lose confidence in WHAUP, it can undermine the company's reputation and have financial implications in the long run. Impact: Low Period: Medium to Long (More than 5 years)

Financial opportunities for WHAUP resulting from climate change are detailed in the following table:

Type of Physical Risk	Financial impact	
	Business as Usual + 4 °C	Low future carbon + 1.5 °C
Resource Efficiency & Energy Source: Increasing the proportion of renewable energy production.	<ul style="list-style-type: none"> Using more efficient production and distribution processes and utilizing sustainable materials sourced from renewable sources can increase the proportion of energy production from renewable energy sources. For example, implementing alternative and renewable energy projects, such as installing solar panel systems on rooftops, can help reduce electricity costs and minimize greenhouse gas emissions. This presents financial opportunities for WHA Group. Reducing waste generation and adopting circular economy principles. Enhancing resource and energy efficiency. Impact: Low Period: Medium to Long (More than 5 years)	<ul style="list-style-type: none"> Using more efficient production and distribution processes and utilizing sustainable materials sourced from renewable sources can increase the proportion of energy production from renewable energy sources. For example, implementing alternative and renewable energy projects, such as installing solar panel systems on rooftops, can help reduce electricity costs and minimize greenhouse gas emissions. This presents financial opportunities for WHA Group. Reducing waste generation and adopting circular economy principles. Enhancing resource and energy efficiency. Impact: Low Period: Medium to Long (More than 5 years)

Type of Physical Risk	Financial impact	
	Business as Usual + 4 °C	Low future carbon + 1.5 °C
Market: The increasing demand for renewable energy, including environmentally-friendly buildings and energy-saving initiatives, will provide an opportunity to drive the growth of WHA Group's business.	<ul style="list-style-type: none"> The market demand for renewable energy, environmentally friendly practices, and energy-efficient buildings presents a significant business opportunity for WHA Group. This is due to the diverse range of services that cater to customers' specific needs, such as international standard certifications for buildings and their environmental impact. Additionally, WHA Group also offers solar panel installation services to support customers who seek to utilize renewable energy sources. Impact: Low Period: Medium to Long (More than 5 years)	<ul style="list-style-type: none"> The market demand for renewable energy, environmentally friendly practices, and energy-efficient buildings presents a significant business opportunity for WHA Group. This is due to the diverse range of services that cater to customers' specific needs, such as international standard certifications for buildings and their environmental impact. Additionally, WHA Group also offers solar panel installation services to support customers who seek to utilize renewable energy sources. Impact: High Period: Medium to Long (More than 5 years)

The business strategy and operational approach of WHAUP encompass not only the market opportunities but also address the risks and opportunities arising from climate change. This ensures that the business model remains flexible and drives continuous organizational development. Based on the assessment of risks associated with climate change mentioned above, WHAUP has developed plans to adapt to future risks. Our plans corresponding with WHA Group's climate strategy are as follows:

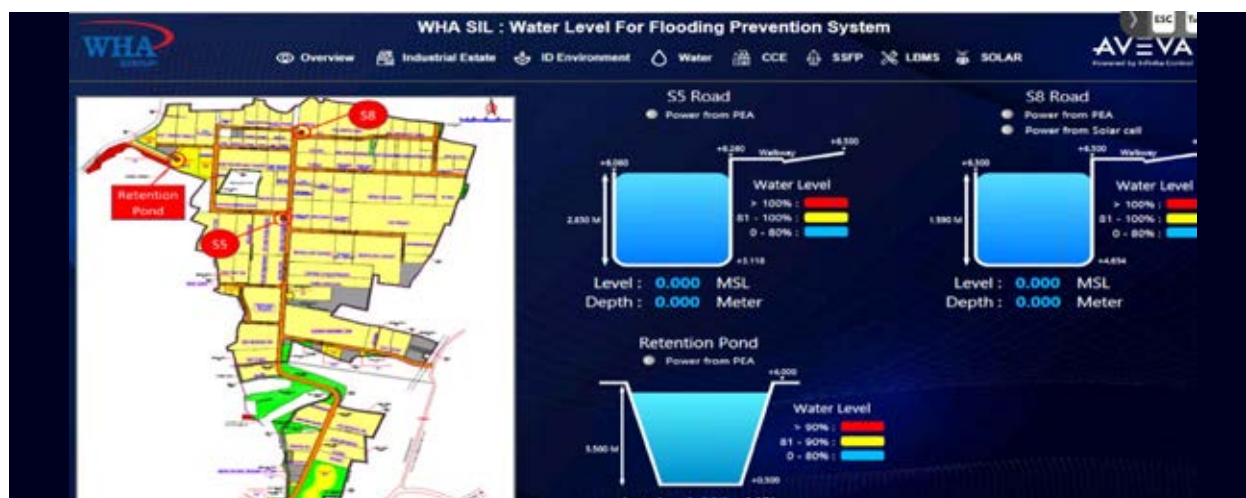
Projects and adaptation plan for physical risks

MANAGING FLOOD RISK

- Designing and constructing flood prevention systems that are appropriate for the rainfall and water conditions in each project area, including the installation and monitoring of water levels in water storage reservoirs and rainwater retention ponds for every industrial estate project. Additionally, WHA Group excavates pits to accommodate continuous water drainage in the event of regular flooding. However, it is essential that the design of the drainage system does not impact the natural water systems and surrounding communities by avoiding the construction of barriers to natural watercourses.
- Continuously installation and monitoring of rainfall depth measurements in every industrial estate.
- Inspect and maintain water barriers and water pumps as required to ensure they are in proper working condition at all times.
- Install water level monitoring and alert systems in the drainage channels of the WHA SIL industrial estate in order to provide timely notifications and enable proactive planning and problem prevention in case of flooding.
- Install water level monitoring and alert systems, including SCADA systems, to control the operation of water pumps and closely monitor water levels. Additionally, allocate raw water quantities in the raw water reservoir and water retention ponds within ESIE, WHA ESIE 1, WHA RIL, WHA CIE 1, and WHA ESIE 2
- Establish emergency response plans and procedures, including conducting drills to prepare for and respond to volatile weather conditions.



MANAGING DROUGHT RISK



MANAGING DROUGHT RISK

- Implement the Natural Water SCADA project to efficiently manage the utilization of water from natural sources. This includes installing water level monitoring devices in water storage reservoirs and an automated control system for water pumping equipment to closely monitor water levels. Additionally, allocate the raw water quantity in raw water storage tanks and water retention ponds in ESIE, WHA ESIE 1, WHA RIL, WHA CIE 1, and WHA ESIE 2
- Consider local government or private sector water sources that have the potential to increase the raw water supply for industrial customer services (Alternative Raw Water Resources). Study and develop desalination technologies to convert seawater into fresh water (Desalination Technologies).
- Monitor and assess the usage of water from natural sources and provide reports to relevant parties at least once a month to keep them informed.
- Repairing and maintaining the surrounding soil around the water barriers in the water distribution system to prevent erosion and instability.
- Constructed additional ponds and reservoirs to ensure an adequate water supply in the WHA SIL industrial zone. A new reservoir will be built in the WHA SIL area, increasing the water capacity from 416,671 cubic meters to 800,271 cubic meters. In addition, floating pumps will be installed to maximize the water pumping capability up to the minimum capacity level of the reservoir, which is 998,798 cubic meters.
- Upgrading the groundwater reservoir at WHA RIL industrial zone to increase the water supply efficiency within the area by a daily increment of 1,121 cubic meters, which accounts for 10% of the water demand.
- WHA Group implements a water reclamation system, which helps reduce reliance on natural water sources. This system enables the reuse of wastewater and reduces the volume of discharged water into public water sources. The project not only reduces the cost of sourcing raw water but also avoids potential conflicts arising from shared resources with the local community. As a result, the project has been considered for license renewal to continue our sustainable business operations.
- Assessing the changes in the environment and the surrounding areas of each project on a regular basis.



Reclamation plant at ESIE

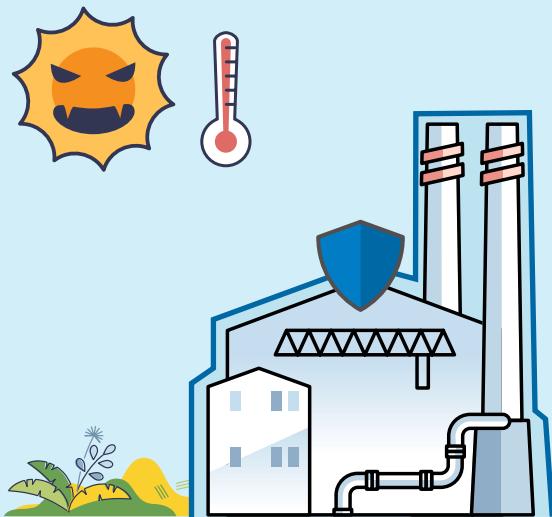


WHA SIL



MANAGING STORMS AND LIGHTNING RISK

- Selecting construction materials and equipment in utility and power systems that meet high standards to ensure durability and withstand severe weather conditions.
- Studying and developing innovative materials and equipment used in the construction of solar power generation projects to reduce temperatures, prevent overheating, and protect against lightning strikes.
- Monitor closely the weather conditions and changes through various news channels and inform customers to be prepared.
- Regularly assess the environmental changes and the surrounding areas of each project.



MANAGING RISKS FROM INCREASE IN AIR TEMPERATURE

- Choose innovative materials for constructing utility and power systems that can help reduce internal temperatures and enhance the efficiency of the overall structure, including air ventilation.
- Develop a long-term disaster management and risk mitigation plan.
- Upgrade the utility and power infrastructure to accommodate events that may arise from climate change
- Enhance awareness and capabilities to effectively manage the entire value chain



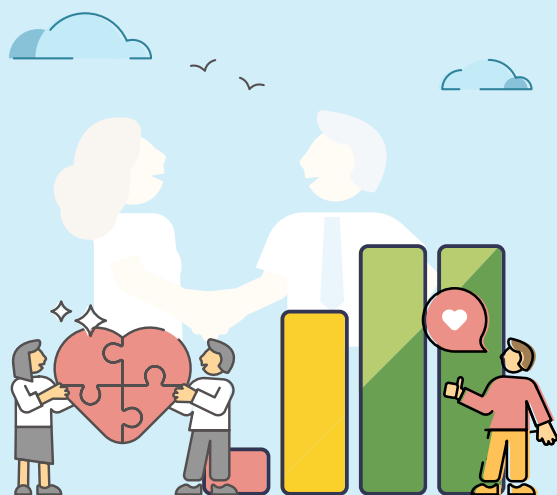
TRANSITION CLIMATE RISK ADAPTATION PLAN MANAGING POLICY & LEGAL RISK

- Track relevant legal changes and establish guidelines for effective mitigation actions
- Plan to increase energy production from renewable energy to reduce greenhouse gas emissions and environmental impact as well as control greenhouse gas emissions



MANAGING TECHNOLOGY RISK

- Expand to alternative energy services for customers. With the readiness from the design process of the building that can install solar panels on the roof immediately. The aforementioned solar panel installation service is provided by WHAUP, an expert who can offer a full range of services to customers.
- Study various technologies in the reabsorption and storage of carbon dioxide to reduce the impact of climate change in the future.



MANAGING MARKET RISKS

- Continue to adopt cutting-edge technologies to complement the concept of SMART ECO Industrial Estates
- Provide alternative energy services, especially solar energy, fully integrated in the Group's warehouse building that can enable customers to reduce energy costs including reducing the environmental impact of customers as well.



MANAGING REPUTATION RISK

- Planning and implementing strategy towards becoming Net Zero while also supports customer and partners in utilizing and transitioning to renewable energy.
- WHAUP hopes to work together with our customers and partners to reduce climate change challenges throughout our business value chain.

STRATEGIES AND BUSINESS OPPORTUNITIES IN RESPOND TO CLIMATE CHANGE

WHAUP is aware that climate crisis cannot be delayed, so we have implemented sustainability projects to address the gaps of climate crisis that may impact business operations in both the short and long term. These projects include reducing energy consumption, promoting the use of renewable energy, and minimizing the use of water from natural sources in industrial sectors. Additionally, WHAUP operates through the circular economy and green economy models, which aim to maximize resource efficiency throughout their life cycles. For example, developing water reclamation systems, and investing in various waste management technologies to create the highest value from waste and residual materials for the longest time (more details can be found in the Water Management and Waste Management sections). Furthermore, WHAUP has been continuously developing energy solutions, especially renewable energy projects, focusing on solar panel installation to increase renewable energy usage in our own operations and support customers to have efficient access to clean energy. WHAUP also has projects to enhance the efficiency of energy and resource use in various activities within the organization.

These projects not only help reduce climate change risks but also reduce operational costs of WHAUP. Additionally, they enhance the flexibility of utility business operations, leading to greater business sustainability for all businesses under WHA Group. Furthermore, WHAUP sets short-term and long-term goals for Scope 1 and Scope 2 greenhouse gas emissions, as well as long-term goals for Scope 3 greenhouse gas emissions to respond to climate change based on Science-based Targets.

CLIMATE CHANGE ADAPTATION

WHAUP recognizes that the impacts of climate change can affect business operations and may also impact other stakeholders, such as customers in industrial estates and surrounding communities. To promote efficient business operations and prevent disruptions that could affect other stakeholders in the value chain, WHAUP has developed a risk management process to address climate-related risks. This process plays a crucial role in managing both the risks and opportunities arising from climate change. WHAUP also assess and establish comprehensive risk mitigation measures to manage risks effectively. WHAUP is consistently prepared to respond to and adapt to climate change scenarios, with the CEO setting policies and monitoring environmental operations within the organization. WHAUP also set environment as a key performance indicator (KPI) for executives, with a variation for each position and role.

GHG emission reduction targets (e.g. scope 1, scope 2, scope 3)



In 2023, WHAUP achieved our goal of providing renewable energy systems, including solar power, which amounted to a total of 311 MW. Considering the amount of renewable electricity sold in 2023, this can be equivalent to a reduction in greenhouse gas emissions (Scope 2) of up to 51,497 tCO₂e. However, WHAUP still set a long-term targets with WHA Group for reducing greenhouse gas emissions in alignment with the Science Based Targets Initiative (SBTi) guidelines as follows:

Performance
Offset from Grid
Electricity Consumption
(tCO₂e) per year



Performance
2023

51,497
tCO₂e

Target
2026

160,000
tCO₂e



TARGETS WITHIN 5 YEARS FROM THE BASE YEAR:

- Absolute greenhouse gas emission reduction target (Scope 1 and 2) by **18.7** by **2025** from the base year **2021**.
- Greenhouse gas emission intensity target per total revenue and share of profit (Scope 1 and 2) to be **1.45** tCO₂e per 1 million THB of total revenue and share of profit by 2025 from the base year **2025** from the base year **2021**.



TARGETS BEYOND 5 YEARS FROM THE BASE YEAR:

- Absolute greenhouse gas emission reduction target (Scope 1 and 2) by **42.0%** by **2030** from the base year **2021**.
- Net zero emissions target by **2050**.

WHAUP has set greenhouse gas reduction targets in line with SBTi including absolute greenhouse gas emission reduction (Scope 1 and 2) by 42% by 2030 from the base year 2021, and greenhouse gas emission intensity reduction by 73.7% per 1 kWh in 2030 from the base year 2021.



WASTE MANAGEMENT TARGET

- WHAUP has set a target to operate our business based on the principles of a fully circular economy (100% Circularity) by 2050. This will be achieved through operations under three main principles: Design & Resource, Green Products, and Operational Excellence
- WHAUP has a strategy to operate according to circular economy principles and to achieve our zero waste goal for waste management through the following initiatives:
 - Integrating circular economy principles into the operations of utilities and power processes
 - Promoting the use of renewable energy and recycled materials in construction and manufacturing processes to reduce waste and waste
 - Extending the lifespan of products, such as reuse, repair, adding value, and refurbishing products to have properties similar to new ones
 - Promoting product leasing programs instead of purchasing
 - Rethinking and transforming business models towards Products as a Service and Sharing Platforms
 - Utilizing digital technology to improve business operations
 - Studying and researching innovations and new materials to extend the life of materials and products
 - Collaborating with customers, partners, suppliers, regulators, and oversight agencies throughout the product value chain to promote a circular economy
- WHAUP set a target to optimize proportion of waste to landfill or incineration without energy recovery by 2025

COMMITMENT TO MANAGING CLIMATE CHANGE

As WHAUP's business directly relies on natural factors and aims to avoid having a negative impact on the environment, WHAUP sees an opportunity to address this issue through technology. One of the material issues that WHAUP is committed to managing is greenhouse gas emissions and addressing global warming by reducing negative impacts through greenhouse gas reduction and create important infrastructure. For example, promoting the use of renewable energy, and adapting existing technologies as well as studying various innovations and technologies to sustainably address global warming throughout our value chain.

WHAUP already achieved Carbon Neutrality in 2021. However, we remain committed to reducing our environmental impact and being part of the solution to climate change, aiming for Net Zero Emission by 2050, following the Science Based Targets Initiative (SBTi) guidelines. WHAUP has planned operations to reduce greenhouse gas emissions through business operations, such as developing projects and constructing buildings with efficient resource use concepts, reducing energy consumption from greenhouse gas-emitting sources to the maximum extent possible, and promoting renewable energy. WHAUP achieved our goal by installing and selling 300 MW of electricity from renewable energy sources in 2023. We also committed to managing climate change by promoting the use of alternative energy to customers through offering solar rooftop system installation services. WHAUP invests in installing solar rooftops and is a distributor of electricity through long-term power purchase agreements (PPAs). Through investing in such projects, in 2023, WHAUP had a return on investment from the solar energy business of approximately 424 million baht.

Moreover, WHAUP has also established channels for receiving complaints and feedback from stakeholders, including customers and the surrounding community, in order to listen to their opinions and suggestions for future development and improvement. In this regard, WHAUP has implemented a complaint management process in line with the ISO 14001:2015 standard, which involves investigating the root causes, implementing corrective actions, and mitigating recurring impacts. Appropriate preventive measures are also established to prevent the recurrence of similar issues.

For performance indicators, WHAUP emphasizes the importance of measuring various gas emissions, including Scope 1, Scope 2, and Scope 3 greenhouse gas emissions that impact the atmosphere. This is achieved by controlling the emission rates to comply with relevant legal standards. WHAUP also reports on the release of ozone-depleting substances (ODS), such as chlorofluorocarbon CFC-11 or its equivalent. (Additional information on gas emissions can be found in 2023 performance data.)



In 2023, WHA has enhanced Thailand's climate change management to another level as WHAUP and WHA Group collaborated with partners from leading educational institutions, private companies, and public sector organizations to establish the Thailand CCUS Consortium in 2023. This consortium aims to enhance Thailand's competitiveness in Carbon Capture Utilization and Storage (CCUS) technology to drive the development of CCUS technology in Thailand in a sustainable manner for maximum benefits in the future.

CLIMATE-RELATED MANAGEMENT INCENTIVES

In addition to economic performance, WHAUP has set climate change as a key performance indicator (KPI) for all executives and employees involved in related operations. The KPI varies for each position and role, reflecting different proportions of responsibilities. For example, Increasing the capacity of electricity production from renewable energy sources is a KPI for WHAUP, accounting for 10% of the overall business group's KPIs. This is coupled with financial performance evaluation. Setting climate change as a KPI is crucial for motivating the organization to achieve set goals. In 2023, all executives and employees involved were able to achieve their KPIs. WHAUP will continuously enhance and challenge the climate change KPI in each succeeding year.

ACTION PLANS TO REDUCE THE IMPACTS OF CLIMATE CHANGE

WHAUP has responded to climate change with two main objectives: to prevent risks that directly and indirectly impact WHAUP, and to prevent the environment, and society from impacts from our operations. WHAUP believes that our environmental operations, setting strategies to address climate change and energy management, plays a crucial role in driving Thailand to achieve its goal of carbon neutrality by 2050 and net zero greenhouse gas emissions by 2065. This is being pursued through various projects such as renewable energy, energy efficiency, and environmental awareness programs. WHAUP achieved carbon neutrality in 2021 and aims to achieve net zero emissions by 2593. Additionally, WHAUP measures and controls greenhouse gas emissions in Scope 1 and Scope 2 throughout the supply chain to ensure that our business operations align with the organization's, national, and global goals. Moreover, WHAUP has expanded our controls to reduce greenhouse gas emissions to Scope 3 for all stakeholders, including contractors, customers, and utility and power activities in all dimensions.

In the meantime, WHAUP also places significant emphasis on reducing business impacts on biodiversity and deforestation in our operational areas. WHAUP has committed to operate the Avoid, Reduce, Regenerate, Restore, and Transform measure to manage risks and impacts on biodiversity. Additionally, WHAUP has expanded our scope by encouraging suppliers to participate in operations aimed at biodiversity goals.

Even though in 2023 WHAUP was able to achieve our energy and environmental goals, we will not rest but continue to pursue new projects that incorporate technology to drive towards becoming a net zero emissions organization by 2593.

ENERGY CONSERVATION PLAN

WHAUP is committed to efficiently using energy to maximize benefits and focuses on developing energy conservation projects to improve energy efficiency and reduce greenhouse gas emissions as well as encourage employees to develop energy efficiency programs. We aim to improve the working process to increase products, reduce costs, increase income, and minimize loss in every step of our process. We also focus on the outcome corresponding with our sustainable strategy while cooperating with suppliers. We promote policies regarding energy conservation by linking to projects and activities that focus on environmental conservation and energy conservation as daily operational principles. The operations demonstrate the ability to reduce energy consumption and greenhouse gas emissions, such as installation of solar LED lighting on roads in WHA Group's industrial estates, and the application of technology in the operations process to analyze and improve energy use and reduce unnecessary losses. These projects create positive impacts on energy use and sustainable business continuity in WHAUP's future.

CLIMATE CHANGE PLAN

WHAUP has assessed climate change as a material issue and has defined key operational strategies to reduce greenhouse gas emissions in the short, medium, and long term, aiming for net-zero emissions by 2593. The detailed action plan includes:

- Increasing the proportion of production and use of renewable energy.
- Supporting the use of electric vehicles in the organization, industry sector, and Thailand.
- Improving and changing business processes to enhance energy efficiency.
- Developing and offering products and services that help reduce greenhouse gas emissions throughout the value chain.
- Planning reforestation, forest conservation, and increasing green spaces to naturally absorb carbon dioxide from the atmosphere.
- Raising awareness of energy conservation and climate change among employees, business partners, and stakeholders involved.

BIODIVERSITY AND NO DEFRESTITATION PLAN

WHAUP is committed to promoting biodiversity and comprehensive environmental systems in our operations, extending these efforts to key stakeholders, including suppliers and business partners. Recognizing the importance of conserving biodiversity and preventing deforestation, WHAUP has developed plans for biodiversity conservation and deforestation to prevent the loss of biodiversity in our operational areas. WHAUP has plans to implement reforestation projects in the green areas around WHA Group's industrial estate to enhance the environment and benefit from the carbon sequestration of trees, which has a positive impact on climate change mitigation. Furthermore, WHAUP collaborates with local organizations and communities to care for, maintain, and support reforestation projects, aiming for sustainable and environmentally friendly reforestation results in the long term.

WHAUP believes that managing climate change risks, energy management, biodiversity conservation, and ending deforestation are key transitions towards a new era of environmentally conscious operations. These initiatives positively impact stakeholders and society comprehensively. Starting with WHAUP's ability to save on energy costs through renewable energy projects, there are also opportunities to extend these services to customers, promoting environmental conservation among other stakeholders. Simultaneously, the community and society can trust that they will not be impacted from WHAUP's operations.

ENERGY MANAGEMENT



As WHAUP is an energy service provider, we inevitably depend on energy production and onsumption which directly affect climate change, as well as create pollution to the society and nearby communities if lack of balanced management. WHAUP is committed to conducting business with quality and global standards, alongside environmental conservation efforts through energy conservation activities. WHAUP was an important part in establishing an energy conservation policy approved by management, assigning WHAUP and WHA Group’s Environmental Committee to develop plans and guidelines for environmental operations. This includes setting targets for environmental and energy conservation operations, as well as implementing activities and projects to demonstrate the necessity of energy conservation projects within WHAUP. This policy covers the practices of all employees, as well as the management of construction and utility systems of all four business groups to comply with the Building Control Act B.E. 2540 (1997) and the Environmental Conservation Promotion and Enhancement Act (No. 2) B.E. 2550 (2007). This is to align with the global move towards the Net Zero emissions target and Low Carbon Society. WHAUP’s energy conservation projects, along with various factors such as market mechanisms and conditions, government plans, relevant regulations, business opportunities, and social demand, all contribute to driving the transition to a green economy. They also accelerate the adoption of modern innovations and technologies to enhance operational efficiency and reduce carbon emissions in business operations.

As “The Ultimate Solution for Sustainable Growth,” WHAUP offers alternative energy services to customers seeking to offset their carbon footprint. The use of renewable energy helps customers manage energy more efficiently, reduce reliance on the electricity grid, minimize environmental impact, and add business value. WHAUP provides customers with a comprehensive solar energy service on a long-term post-installation contract basis, without any upfront costs. This includes design services, permit applications, long-term operations, and maintenance.



Even though WHAUP, as a utility and power service provider in industrial estates, does not have the authority to control industrial operators in industrial estates or warehouse tenants to reduce energy consumption, we are committed to supporting our customer base in transitioning to renewable energy. This is achieved by offering a variety of renewable energy solutions and projects to meet the specific needs of every customer. We use our expertise in renewable energy to provide solar energy system services. This commitment is evident in WHAUP's achievement the goal to increase our renewable energy production capacity to 300 MW in 2023. Additionally, WHAUP has set targets to reduce electricity consumption from non-renewable sources in our own operations through various activities. Furthermore, WHAUP has projects to reduce energy consumption in industrial estates and office buildings, coupled with solar energy services.

OVERVIEW OF ENVIRONMENTAL PROJECTS AND PROGRESS IN REDUCING GREENHOUSE GAS EMISSIONS

In order to reduce the impact of climate change and mitigate negative effects on biodiversity, WHAUP has integrated technologies that WHAUP and WHA Group specialize in to develop projects to reduce greenhouse gas emissions into the rapidly changing climate. This is to move towards the goal of achieving net zero greenhouse gas emissions. Projects initiated are as follows:

RAISING AWARENESS ON ENERGY CONSERVATION



WHAUP believes that fostering a strong foundation will drive the implementation of effective and sustainable energy management. This foundation is for every personnel within the organization who has knowledge, skills, and a sense of responsibility towards energy conservation. Therefore, in 2023, WHAUP and WHA Group organized the development of personnel skills related to energy management as follows:

- A practical workshop on energy conservation awareness and energy-saving techniques was conducted for the operational staff of Eastern Seaboard Industrial Estate (Rayong) Co., Ltd. (ESIE) on October 30, 2023, with a total of 43 participants.

- The “Walk Rally” event for Energy Conservation Promotion was organized for the operational staff of Eastern Seaboard Industrial Estate (Rayong) Co., Ltd., WHA Eastern Industrial Estate Co., Ltd., and WHA Industrial Development PLC. on Wednesday, November 22, 2023, with a total of 167 participants.

WHAUP also encourage employee participation in environmental management within the organization through various projects hosted together with WHA Group, such as the Bootcamp project, which encourages employees to collaborate and compete in creating innovative projects that promote sustainability. Additionally, employees are provided with knowledge through training and WHAppy project, with the theme “WHAppyVerse: The Land of Sharing”. This event provided knowledge and activities to raise employee awareness about the importance of sustainability operations, consisting of environmental and energy management as key components.

ENERGY EFFICIENCY PROJECT

WHAUP has implemented energy-saving projects in industrial estates, utility systems within industrial estates, and warehouse rental projects, including the WHA Tower building, to foster energy conservation mindset for all relevant stakeholders including WHAUP’s employees, suppliers, and customers, as well as promote energy efficiency, as follows:

ENERGY SAVING IN INDUSTRIAL ESTATES

WHAUP was a part in the energy-saving project in industrial estates by designing the utility systems and warehouse rental projects to be more energy-efficient. For example, using LED lights for signage and streetlights in WHA Group’s industrial estates which is our operational areas, using motor control systems to regulate the appropriate operation of electrical equipment, and replacing proper electrical equipment, managing electricity to be less and suitable. In 2023, the energy-saving project within the industrial estates was able to reduce electricity consumption by approximately 509,655 KWh per year, or equivalent to reducing greenhouse gas emissions by about 255 tCO₂e.

ENERGY SAVING IN OFFICE BUILDINGS

In addition to implementing energy-saving projects within the industrial estates, WHAUP collaborated with all business groups under WHA Group to fully support energy conservation efforts in the WHA Tower and office buildings within the industrial estate through the “Let’s Save the World Together” project. The objective of this project is to inspire employees to change their energy consumption behaviors to help save energy. This includes optimizing the use of air conditioning and lighting systems, such as turning off electrical appliances, using stairs instead of elevators, and more. This project has led to positive behavior changes towards energy conservation. Furthermore, in 2023, WHAUP was able to significantly reduce electricity consumption within the WHA Tower office building through various measures. These measures included optimizing the efficiency of operation of the cooling water and air replenishment system for the building’s air conditioning system, adjusting the light control system to better suit the nature and working hours of the building’s occupants, and installing equipment such as inverters to control electricity usage for optimal efficiency compared to the energy used. These measures implemented in 2023 resulted in a reduction in electricity consumption of more than 445,308 KWh, or approximately 222 tCO₂e in greenhouse gas emissions.



SOLAR ENERGY PROJECT WITHIN WHAUP'S OPERATIONAL AREA

WHAUP has been highly successful in increasing the use of renewable energy in the operations each year. Clean energy produced from solar panels on the roofs of industrial water treatment plants in WHA EIE and ESIE has allowed the Group to reduce our use of electricity from commercial fuel sources by approximately 1,249,074 KWh per year, resulting in a significant reduction of 624 tCO₂e in Scope 2 greenhouse gas emissions. In 2023, WHAUP expanded the solar energy system installation on the roofs of office buildings in WHA ESIE 1, and ESIE, which efficiently produced solar energy to replace electricity from the grid by 164,400 KWh per hour, preventing 82 tCO₂e of greenhouse gas emissions. When combined with the solar energy systems installed in parking lots at WHA Plaza 1 and WHA Plaza 2 in ESIE and WHA ESIE 4, WHAUP's solar energy projects efficiently produced solar energy to replace electricity from the grid by a total of 411,898 KWh per hour, preventing more than 206 tCO₂e of greenhouse gas emissions. Additionally, in 2024, WHAUP plans to further expand our solar energy system installations with a target to reduce electricity consumption by 1,473,500 KWh per hour or prevent approximately 700 tCO₂e of greenhouse gas emissions per year.



BATTERY ENERGY STORAGE SYSTEM: BESS

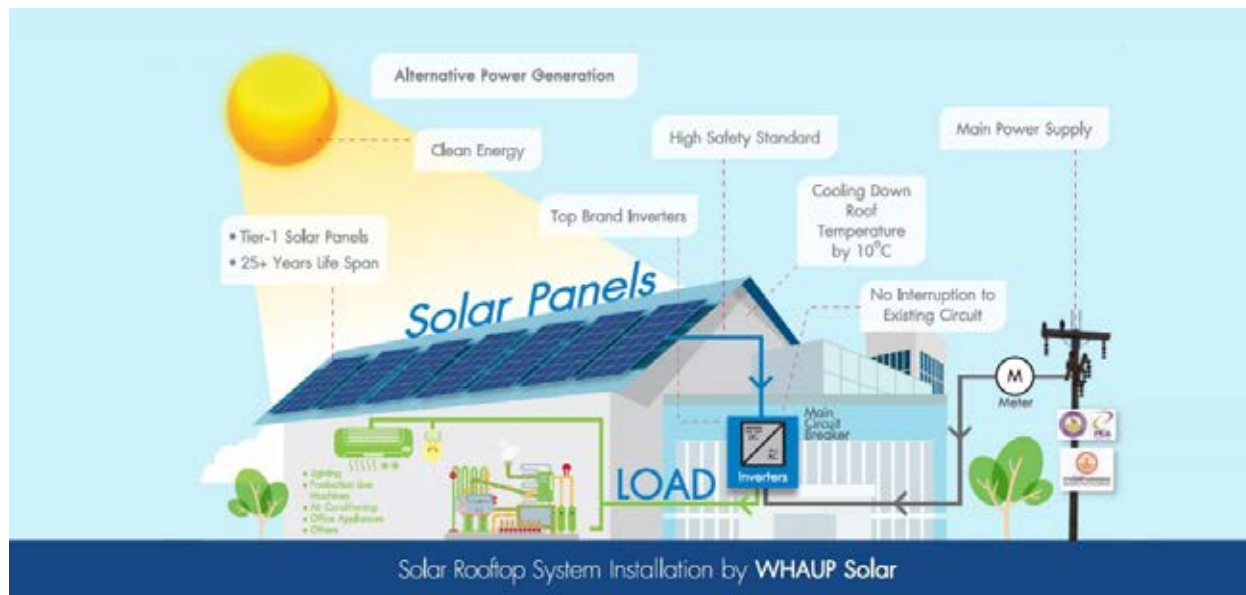
In 2022, WHAUP has undertaken a pioneering project to install solar panels along with a Battery Energy Storage System (BESS) on the roofs of water treatment plants in the Eastern Seaboard Industrial Estate (Rayong) (ESIE) to enhance the Group's ability to produce renewable energy. In 2023, WHAUP installed solar panels with a total capacity of 813.2 KW, along with a BESS system capable of storing 550 KWh of electricity. This project has helped WHAUP reduce its electricity consumption from the grid by approximately 1,150 MWh per year, or equivalent to saving about 4 million baht per year in electricity costs. It has also helped WHAUP reduce greenhouse gas emissions over the project's lifespan by 16,100 tCO₂e from using renewable energy instead of grid electricity. To further expand renewable energy production capacity, WHAUP plans to install solar panels with a total capacity of 40,000 KW and a BESS system with a capacity of 24,000 KWh by 2572, with a goal to reduce electricity consumption by 56,000,000 KWh per year, or equivalent to saving about 195 million baht per year in electricity costs. Additionally, this expansion will enable WHAUP to reduce greenhouse gas emissions by 784,000 tCO₂e over the project's lifespan.



INTEGRATED SOLAR SYSTEM SOLUTIONS FOR CUSTOMERS



Due to the increasing interests from industrial operators looking to transition to green energy for lower costs and to protect the environment, WHAUP offers the preferred solution of solar rooftop installation service. With our expertise in high engineering and safety standards along with solar rooftop installation, customers believe and trust us to be a part in shifting towards renewable energy.



WHAUP offers an all-in solar rooftop service package for customers including design, permitting, installation, and long-term operation and maintenance at no upfront cost to customers with zero investment and zero maintenance costs. WHAUP's solar rooftop package helps businesses be a part of the green energy cycle since customers do not have to prepare fundings or maintenance costs. This solar rooftop is also cost-effective and has less impact on the environment. The integrated solar system solutions for customers are as follows:

FORD SOLAR CARPARK PROJECT

The solar power project for Ford Motor Company (Thailand) Limited, a global car manufacturing plant, is the largest Solar Car Park project in Thailand. It has a capacity of 7.7 MW, installed on the company’s parking lot area of 59,000 square meters. This installation will supply electricity to the company’s factory. This initiative will help reduce greenhouse gas emissions and electricity costs for customers, saving over 755 Million Baht over the project’s 25-year lifespan.



MEGA BANGNA SOLAR PROJECT

The solar power system for Mega Bangna is installed on the roof of the Mega Bangna shopping mall, covering an area of 60,000 square meters. It has a capacity of 9.89 MW, which can reduce greenhouse gas emissions and electricity costs, saving over 1.04 Billion Baht over the project’s 25-year lifespan.

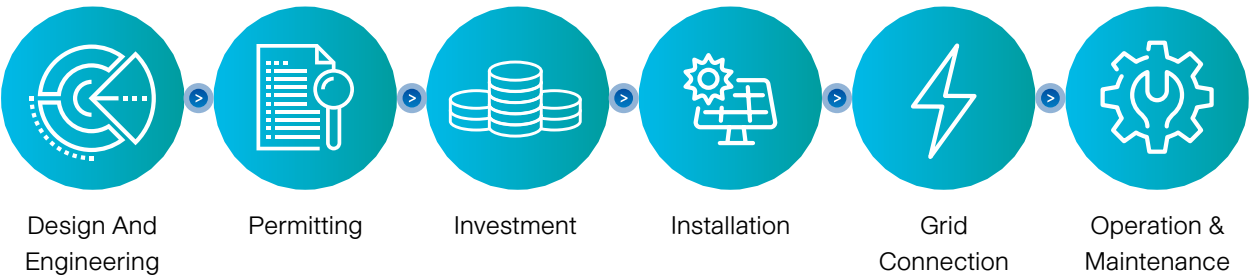


AAT SOLAT FLOATING PROJECT

The solar power project for AutoAlliance (Thailand) Co., Ltd., a manufacturer and assembler of Ford and Mazda vehicles, is a Solar Floating project with an 8-megawatt capacity installed on a 60,000 square meter water surface in the Eastern Seaboard Industrial Estate (Rayong). It is expected to start commercial operation in September 2024, which will help AAT reduce energy costs, use clean energy up to 9.6 million units per year, and reduce greenhouse gas emissions by over 5,400 tons of carbon dioxide per year.










In 2023, WHAUP installed a total of 106 MW of full-cycle solar power systems for all customers.



WHAUP is constantly developing and improving energy-saving and renewable energy projects to be more efficient. We also listen to the viewpoints and feedback of stakeholders, including the surrounding communities, employees, and business partners, to develop energy projects that meet the needs of all stakeholders. This approach benefits the environment as a whole in the long run.



WHAUP'S GHG EMISSION DATA

Performance	Unit	2018	2019	2020	2021	2022	2023
Direct (Scope 1) GHG emissions 	tons CO ₂ e	119.60	89.28	251.57	274	356	415
Energy indirect (scope 2) GHG emissions 		14,758.82	15,730.07	15,782.32	13,458	12,083	12,944
GHG emissions (Scope 1 and Scope 2) 		14,878.42	15,819.34	16,033.88	13,732	12,439	13,359
GHG emissions Intensity (Scope 1 and Scope 2) 	tons CO ₂ e/ THB Million	0.0000087095	0.0000085178	0.0000094428	0.0000062968	0.0000050918	0.000004803
Coverage	%	100	100	100	100	100	100

Performance	Unit	2020	2021	2022	2023	Target 2023
Amount of energy consumed from non-renewable sources 	kWh	27,205,620	29,618,017	32,640,273	29,584,556	26,000,000
Amount of energy consumed from non-renewable sources per total revenue and share of profit 	kWh/ THB Million	10,610	11,856	12,560	7,108	7,000
Amount of energy consumed from renewable sources 	kWh	313,810	491,458	1,681,694	1,598,262	1,600,000

RENEWABLE ENERGY CONSUMPTION AND ON-SITE ENERGY GENERATION

In 2023, WHAUP achieved the goal of contracting and providing renewable energy systems totaling 300 MW. By the end of 2023, WHAUP had installed solar rooftop systems for customers, with a total installed capacity of 109 MW. The electricity generated from these solar panels can replace power from the grid, thereby reducing Scope 2 greenhouse gas emissions by approximately 51,497 tCO₂e per year. We also set long-term targets to increase production capacity and expand long-term contracts in the future as follows:

Production Capacity	Performance	Target	
	2023	2023	2026
Capacity of Renewable Power Purchasing Agreement (PPAs) at Year-End (MW) ¹	311	300	600
			
	51,497	50,000	160,000
Annual reduction of the amount of greenhouse gases from substituting electricity of the power supply system provided to customers per year which can be used to offset the carbon emissions of WHA Group (tCO ₂ e) (assuming full year operation basis) ²			
			

หมายเหตุ:

- ^{1/} รวมจำนวนเมกะวัตต์ที่เปิดดำเนินการเชิงพาณิชย์แล้วและอยู่ระหว่างการพัฒนา ณ สิ้นปี 2566 (ดำเนินการเชิงพาณิชย์จำนวน 109 เมกะวัตต์ และอยู่ระหว่างพัฒนาอีกจำนวน 74 เมกะวัตต์)
- ^{2/} ปริมาณก๊าซเรือนกระจกที่ลดลงจากการทดแทนการใช้ไฟฟ้าจากระบบจ่ายพลังงาน (tCO₂e) ต่อปีที่คาดการณ์ไว้ว่าจะมีการเปลี่ยนแปลงได้ขึ้นอยู่กับตัวแปรที่ถูกนำมาใช้และมาตรฐานการคำนวณ kg CO₂e/kwh ของระบบจ่ายพลังงาน



BIODIVERSITY AND NO DEFORESTATION



WHAUP understands that our business operations and activities throughout the value chain, from water consumption from natural sources to utility and power service process, inevitably create direct impacts on the surrounding biodiversity, ecosystems, and nature. Therefore, WHAUP is committed to minimizing the impact of business operations on diversity by establishing a biodiversity policy. The policy is approved by a dedicated oversight committee, and WHAUP and WHA Group's Board of Directors annually to align with the global trends and follows the principles of the mitigation hierarchy (avoid, reduce, regenerate, restore, transform) to manage the risks and impacts on biodiversity. Additionally, WHAUP also annually conducts a biodiversity risk assessment to ensure that our business activities impact the least on biodiversity.

WHAUP committed that our business operations can generate net positive impact or, at the very least, no net loss in terms of biodiversity values by 2031. As a part of our current operations, we strictly adhere to legal requirements and regulations specified in Environmental Impact Assessment (EIA) reports. Additionally, we avoid negative impacts by carefully selecting business sites and implementing appropriate design and construction plans. We have a policy in place to avoid conducting business operations in areas registered by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as World Heritage Sites or protected areas under IUCN Category HIV. However, if any business operations areas are in proximity to these conservation areas, WHAUP will undertake measures to mitigate any negative impacts. If the forest resource destruction is unavoidable, the Group will compensate for the loss by replanting forests in another area. The compensatory forest plantation must be equal to or larger than the area affected by deforestation. Furthermore, WHAUP implements control measures to reduce other negative impacts, restore any damages resulting from our business activities, and compensate any negative impacts occurred.

Additionally, WHAUP also establish the biodiversity policy to cover all our suppliers and contractors, especially contractors and suppliers directly engage with the Group (Tier-1), and business partners. If any entities are unable to follow the regulations in the policy, we will immediately investigate to raise awareness of contractors and business partners on forest and biodiversity conservation during the operations. We also conducted a risk assessment from business activities to ensure that such activities do not generate negative impacts on biodiversity.

BIODIVERSITY ACTION PLAN

WHAUP has developed the Biodiversity Action Plan (BAP) as a part of WHAUP's risk management plan together with to mitigate the impacts on plants, wildlife, and the environment. The BAP includes:

- Assessing and managing biodiversity through the enforcement of the Group's Environmental Quality, Energy Conservation, and Biodiversity Policy
- Conducting a biodiversity risk assessment in our own operations and critical suppliers to ensure that areas with biodiversity risks are strictly controlled and managed
- Operating business with the highest responsibility in the Group's operational areas and addressing biodiversity sensitivities
- Identify actions to avoid and mitigate negative impacts on biodiversity.
- Applying the Mitigation Hierarchy framework (avoid, reduce, regenerate, restore, transform), starting with avoiding and reducing severe impacts by improving the operations while regenerating and restoring the affected ecosystems as well as addressing the nature loss
- Encouraging community and key stakeholder engagement to improve the efficiency of biodiversity management, emphasizing participation and consultation in related operations
- Collaborating with external partners and biodiversity experts to conserve, restore, and evaluate biodiversity to find the biodiversity management approach to achieve the business commitment to no net loss of biodiversity values.

BIODIVERSITY CONSERVATION MEASURES

EIA results show that 2 out of 11 WHA Group's industrial estates (total 667 hectares) were identified to have biodiversity concerns due to their proximity to protected areas. These industrial estates are WHA Chonburi Industrial Estate 2 (WHA CIE 2) with an area of 101 hectares, and WHA Eastern Seaboard Industrial Estate 2 (WHA ESIE 2) with an area of 566 hectares, which are located close to Khao Khiao-Khao Chompu Wildlife Sanctuary in Chonburi Province. However, WHAUP collaborated with WHA Group to strictly adhere to the preventive and mitigative measures stipulated in the report of each industrial estate to minimize and alleviate the impacts.

At WHA ESIE 2, WHAUP is required to monitor the species count and abundance of wildlife within the industrial complex and surrounding areas every two years. Furthermore, WHA ESIE 2 will monitor ambient air quality and provide support for research conducted by local forest conservation organizations or educational institutions on the effects of industrial operations on the ecosystem.

WHAUP, as a utility and power system management provider, follows the scope of operations in the industrial estates that WHA Group has clearly determined and operates only in the industrial estates area to avoid disturbance to the surrounding forest. Furthermore, WHAUP cooperated with WHA Group to promote the planting of trees that have the potential to reduce pollution from industrial factories, such as the Burma Padauk and the Mast Tree, etc. Additionally, employees of WHAUP are not permitted to cut down trees, hunt, or engage in illegal activities that harm habitats and wildlife.

WHAUP monitors nearby aquatic ecology within the reservoirs into which the industrial estates discharge their treated wastewater. A baseline study of each biodiversity parameter (phytoplankton, zooplankton, aquatic animals, aquatic plants, and benthos) was conducted to allow for comparison with monitoring results. On a biannual basis, such monitoring is carried out at the upstream and downstream of the wastewater discharging point. Based on 2023 monitoring results, the diversity index remains at a moderate level, confirming that the operation of WHA's industrial estates has no significant impact on biodiversity. Moreover, WHAUP also

initiated water quality development project to promote biodiversity.

All EIA-required monitoring results are reported to local authorities as well as the Industrial Estate EIA Committee. Furthermore, biodiversity risks at WHA ESIE 2 and WHA CIE 2 are re-assessed every two years, as required by the EIA, to investigate changes and additional impacts caused by industrial developments on forest resources and wildlife.

NO DEFORESTATION

WHAUP follows the no-deforestation policy which is approved by WHA Group's dedicated oversight committee in line with biodiversity guidelines. WHAUP committed to compensating for deforestation resulting from the operations of WHAUP, tier-1 suppliers, and partners with future reforestation (no net deforestation) which we have successfully achieved. We are currently focusing on our commitment to end all deforestation (no gross deforestation) in our own operations, tier-1 suppliers, and partners by 2050.

Furthermore, WHAUP has developed supporting plans to manage and mitigate risks and impacts in line with the anti-deforestation policy together with WHA Group. A monitoring and compliance system has been established to ensure the diligent implementation of the policy and adherence to relevant forestry regulations and/or mandatory standards. The implementation and oversight of these measures are assigned to the Operations Department (IEO) to conduct regular inspections and controls, including reporting on the results. These actions are specified in the Environmental Impact Assessment (EIA) conducted every 6 months.

BIODIVERSITY RISK ASSESSMENT

In 2023, WHAUP, in collaboration with WHA Group, conducted a biodiversity risk assessment, considering dependency-related biodiversity risks and impact-related biodiversity risks of our own operations, adjacent areas, upstream activities, and downstream activities. This assessment analyzed the risks and impacts of business operations on biodiversity in these areas. In the assessment, we considered 3 levels of biodiversity including 1) genetic diversity, 2) species diversity, and 3) ecological diversity. This assessment was conducted under the framework of the National Environmental Protection and Preservation Act B.E. 2535 (1992) and (No. 2) B.E. 2561 (2018) using the Integrated Biodiversity Assessment Tool (IBAT). The risk assessment results are used to develop the Biodiversity Action Plan (BAP) in the potential high biodiversity risk area.

In 2023, we conducted a biodiversity risk assessment in the areas with biodiversity concerns including WHA Chonburi Industrial Estate 2 (WHA CIE 2) and WHA Eastern Seaboard Industrial Estate 2 (WHA ESIE 2) with a total area of 667 hectares covering our own operations areas and other nearby areas, as detailed in the following table.



BIODIVERSITY EXPOSURE



Site	Areas	Exposure	Assessment	Management Plan
WHA Chonburi Industrial Estate 2 (WHA CIE 2)	631 rai or 101 hectares	located near Khao Khiao Khao Chompu Wildlife Sanctuary in Chonburi province.	Impact Assessment:EIA • Terrestrial: No impact • Marine: No impact	<ul style="list-style-type: none"> Monitoring ambient air quality and provide support for research conducted by local forest conservation educational institutions on organizations or the effects of industrial operations on the ecosystem.
WHA Eastern Seaboard Industrial Estate 2 (WHA ESIE 2)	3,536 rai or 566 hectares			
Upstream & Downstream		Aquatic ecology within the canal into which the industrial estate Withdraw water and discharges its treated wastewater	A baseline study of each biodiversity parameter (phytoplankton, zooplankton, aquatic animals, aquatic plants, and benthos) was conducted to allow for comparison with monitoring result	Biodiversity risks at are re-assessed every two years, as required by the EIA, to investigate changes and additional impacts caused by industrial developments on forest resources and wildlife.

Results from the biodiversity risk assessment indicate that while biodiversity risk remain, they are minimal. This is the result from WHAUP's adherence to acceptable environmental standards.



PROJECTS TO PROMOTE BIODIVERSITY

LOCAL FOREST CONSERVATION PROJECT 2023

WHAUP, in collaboration with WHA Group, Ta Sit Subdistrict Administrative Organization, Industrial Estate Authority of Thailand (IEAT) through Eastern Seaboard Industrial Estate (Rayong) office and WHA Eastern Seaboard office, organized the local forest conservation project 2023. This project aimed to conserve natural resources in Ta Sit subdistrict area, increase green space as oxygen-producing zones and the new lungs for the community, reduce GHG to mitigate global warming, and encourage sustainable business practices among industrial estate enterprises. This activity was held on June 23, 2023, at the multipurpose building of Ta Sit Subdistrict Administrative Organization. Participants, including local government officials, industrial estate developers, companies within the industrial estates, and community representatives, planted 100 trees of 4 species: resin trees, sarapee trees, trumpet trees, and angšana trees.



WATER QUALITY DEVELOPMENT PROJECT TO PROMOTE BIODIVERSITY

In addition to studying water quality to assess our impact on aquatic ecology, WHAUP also initiated various projects to ensure that our water-related operations are sustainable, of high quality, and not harmful to biodiversity. WHAUP organized the wastewater treatment project to minimize the amount of wastewater released into natural sources. The Amount of wastewater from this project is equivalent to the water consumption of 240,000 people per day (based on an estimated water consumption of 150 litre per person). This means that WHA Group can conserve natural land about 32% of the total population of Rayong (based on the registered population of 771,189 people in Rayong in 2023). Furthermore, WHAUP implemented measures to add oxygen in wastewater before discharging it into public water sources such as installing cascades at WHA Eastern Seaboard Industrial Estate 2 (WHA ESIE 2) and WHA Eastern Seaboard Industrial Estate 4 (WHA ESIE 4) to increase the oxygen levels in the water to over 4 milligrams per liters. This can help enhance the biodiversity of aquatic lives.

THE TRIPARTITE COMMITTEE MEETING TO RAISE AWARENESS ON ENVIRONMENTAL ECOSYSTEMS

WHAUP participated in a tripartite committee meeting to communicate with stakeholders to recognize the significance of the ecosystem in each WHA Group's industrial estate. The tripartite committees are appointed in accordance with the quality-of-life measures (society and economy) outlined in the EIA report. The tripartite committee is comprised of representatives from WHAUP, WHA Group, representatives from the public sector, and representatives from government agencies who work together to ensure that WHAUP's operations do not have a negative impact on the community, society, or the environment. WHAUP also supports and promotes the quality of life in the surrounding community and the environment. This is consistent with the foundation of determination to run the company for long-term growth. The Tripartite Committee will meet at least twice a year, depending



on the measures jointly established in each industrial estate to jointly monitor performance. This meeting also serves as a channel for listening, consulting, and resolving complaints from various stakeholder groups in order to further improve and develop environmental policy and measures. The meeting's outcomes will be reported in an EIA report to the Office of Natural Resources and Environmental Policy and Planning.

WATER MANAGEMENT



In addition to being an essential factor for the livelihood of people and nature, water is also an important component in the development and driving of the country's economy, whether in agriculture or industry. Currently, natural disasters caused by climate change have affected the quantity and quality of water resources, leading to water shortages (droughts) or flooding problems. Furthermore, there are issues of social inequality in access to clean water sources. These impact economic, environmental, and human systems across all sectors, especially businesses that rely on water sources.

WHAUP is well aware that water is an extremely important resource, which directly affects our business operations as a utility service provider. It also has widespread impacts on the economy, society, and environment. Therefore, importance is placed on efficient and responsible water use, or the principle of sustainable water use. For this reason, water resource management is considered a challenge for WHAUP due to the nature of the business, which requires procuring sufficient water for consumption and operations while respecting the rights of stakeholders along the water pipeline. This drives WHAUP to improve water management efficiency, secure backup water sources, and treat wastewater before discharging it outside of industrial areas to reduce impacts on society, communities, and the environment, in line with the intention to foster sustainable economic and environmental growth.

As a provider of utility systems in industrial estates, WHAUP recognizes that efficient water use, coupled with collaboration from all sectors in water management, is a good solution to sustainably address water shortage problems. Additionally, it helps create a sustainable environment and contributes to restoring ecosystems to their abundance, realizing maximum benefits in line with the circular economy principle. Over the past several years, WHAUP has transitioned from a traditional water management system to a digital system by adopting new modern technologies to help reduce the use of natural water sources. Examples include developing a water reclamation system, constructing water reservoirs as self-created natural water reserves

located both inside and outside the WHA Industrial Estates to reduce drawing water from external natural sources like reservoirs and canals which are crucial for people's livelihoods. Moreover, WHAUP conducts thorough inspections to ensure that no water is drawn from water-stressed areas or areas lacking sufficient water for sustainable long-term use.

In order to maintain our leadership in providing comprehensive utility and energy services, WHAUP has expanded our wastewater treatment for reuse outside the WHA Industrial Estates areas. In 2023, WHAUP initiated reusing treated wastewater within the Asia Industrial Estate, reaffirming our role as a utility and facility service provider in WHA Industrial Estates. This aligns with the strategy of continuously developing utility and energy businesses according to plans to expand utility services across all 12 industrial estates and operating zones of WHA Group and other areas, reflecting business operations based on the circular economy principle. This lays an important foundation towards becoming a leader in water management within industrial estates. Additionally, last year WHAUP began studying the water footprint process to prevent water scarcity and reduce the use of natural water sources to create sustainability for the water management system. The proportion of water supplied from wastewater treatment compared to natural sources was 6.8%, promoting sustainable community water use.

MANAGEMENT APPROACH

WHAUP is well aware of the importance of natural water sources to communities, the environment, and people, as well as the impacts of our business operations on various water sources. For this reason, as a producer and provider of industrial water and a comprehensive wastewater treatment service provider, WHAUP has established water management guidelines both in terms of meeting the demands of entrepreneurs in the WHA Group's industrial estates, and in terms of promoting water resources for surrounding communities. This ensures that all stakeholders have equal access to water resources without conflicts arising over water resource allocation.

WHAUP has a robust water management policy that places importance on all stakeholder groups, including the economy, environment, and society. Water management is set as a key agenda item in the executive meetings every quarter to formulate up-to-date environmental management policies and guidelines. They also jointly set challenging yet achievable water management targets. The water management policy is implemented in tandem with policies on environmental quality, energy conservation, and biodiversity, which have been approved and accepted by WHAUP's board of directors. This policy provides a practical framework for efficiently maintaining the water balance. WHAUP's intention is to maintain infrastructure, water production systems, and wastewater treatment systems according to standards to ensure operations have minimal environmental impact and reduce reliance on natural water sources. WHAUP has assigned our Environmental Committee to plan and set guidelines for achieving water management goals by encouraging executives and employees to participate in water resource management through controlled water production to reduce losses, as well as developing water reclamation systems and constructing water reservoirs. WHAUP's water management collaborates with the Industrial Estate Operation (IEO) department of the WHA ID Group to improve water resource quality and mitigate potential impacts on the surrounding nature and environment. Importance is also placed on wastewater quality management by treating wastewater to meet standards set by the Ministry of Industry, the Industrial Estate Authority of Thailand (IEAT), and the Ministry of Natural Resources and Environment. Water to be discharged into natural sources like rivers and canals must go through the central wastewater treatment system of WHA Industrial Estates and have its quality measured before being discharged or reused within the industrial estates. This prevents and preserves the surrounding environment and nearby communities, while also reducing reliance on external water sources.

THE APPLICATION OF TECHNOLOGY IN WATER MANAGEMENT

To work towards becoming a Tech Company alongside WHA Group, WHAUP has adopted appropriate and efficient water resource management guidelines for itself and other companies under the WHA Group. This covers water sourcing, industrial water production, wastewater treatment and water reclamation, reducing water losses in production and distribution systems, as well as using technology to discover new water sources through research and development to reduce reliance on surface water. WHAUP also applies various innovations and new technologies in water management, such as further developing existing technologies and products like wastewater treatment, which currently has a production capacity of 36,200 cubic meters per day for water reclamation projects. The target is to increase this to 60,400 cubic meters per day, or approximately 22 million cubic meters per year, by 2025, significantly reducing the use of natural water sources. The goal is to reduce the use of natural water sources by 22 million cubic meters per year by 2025. This water usage management approach not only helps reduce risks and ensures WHAUP complies with relevant regulations to achieve water resource management goals, but also mitigates the impacts of business operations on communities.

WHAUP is continually developing to add value and offer new utility products and services with WHA Group to meet the diverse needs of entrepreneurs. We have initiated projects with new management concepts and methods, transitioning from traditional to digital water service and management systems. For example, real-time monitoring and control of water management systems through SCADA systems, establishment of Unified Operation Centers (UOC), and implementation of Smart Utilities Solutions at industrial estates such as WHA Eastern Seaboard Industrial Estate (WHA EIE) through equipment upgrades, including smart meters, pressure transmitters, and data integration systems.

Furthermore, WHAUP has expanded the use of the “WHAUP Intelligence Platform” technology platform to transform the organization into a Tech Company by 2024. This platform helps enhance efficiency and accuracy in generating as-built drawings of digital wastewater management systems. Leveraging smart data analytics and smart operation technology, it has been utilized to develop various projects undertaken by WHAUP. These include the GIS Hydraulic Model system, Smart Metering system, OCR technology for image-to-digital data conversion, Automatic Meter Reading (AMR) system, Pressure Transmitter equipment, and Data Integration Database system. WHAUP has allocated a budget for projects under this platform amounting to 2 million Baht per year.

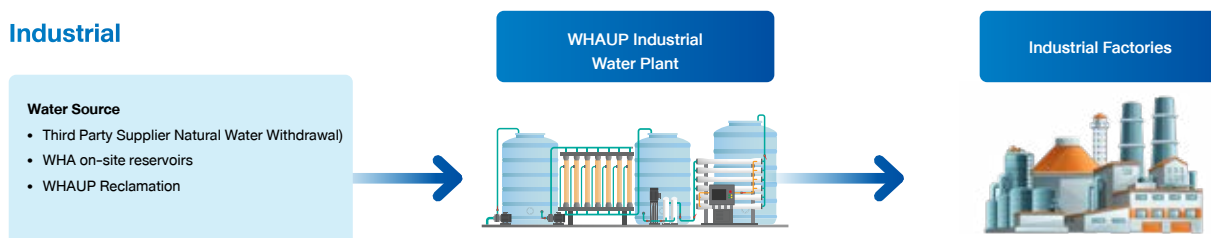
WATER RECLAMATION PROCESS, INPUT RECYCLE, AND PRODUCT RECYCLE

WHAUP integrates a water reclamation system to reduce dependency on natural resources and reusing for the ultimate benefit is considered a genuine alternative water production method to foster sustainable development, particularly in the Eastern Economic Corridor (EEC). This project integrates traditional technologies with new innovations to add value to wastewater by transforming it into demineralized water, removing various minerals to create high purified industrial water for the production process in certain industries such as power plants, petrochemicals, and electronics. We also have premium clarified water, the industrial water with higher quality than general industrial water produced by high quality membrane technology, mainly for customers in power plant industry. This is the process to create a higher market value product while reducing costs.

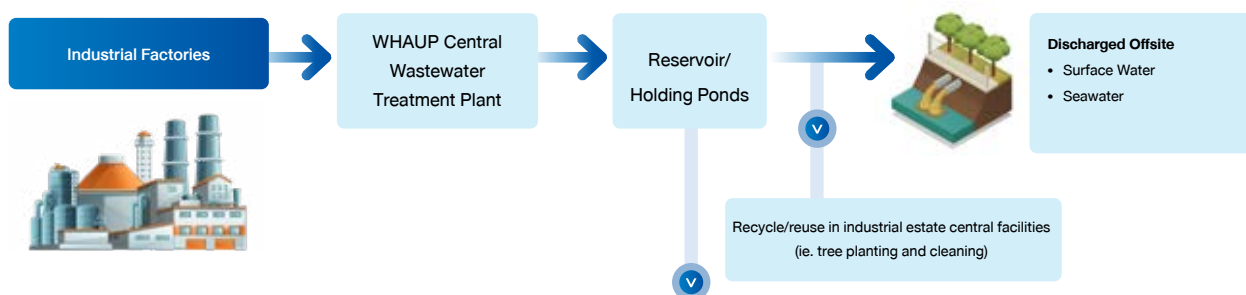
WHAUP has set a target to double our water production capacity from wastewater treatment processes from 30,200 cubic meters per day in 2020 to 60,400 cubic meters per day by 2025. In 2023, WHAUP's water production capacity was at 36,200 cubic meters per day, generating a revenue of 232.4 million Baht from the Water Reclamation project, representing 15.9% of total revenue and profit share from utility businesses, a significant increase from 7.6% in 2022. The strategy of reclaiming treated water for reuse helps WHAUP to reuse up to 7.3 million cubic meters of water, reducing water usage from natural sources by 7.3 million cubic meters, accounting for 9.5% of total water usage in 2023. Therefore, this project significantly benefits the environment and society by reducing wastewater discharge, minimizing water extraction from natural sources, and mitigating potential conflicts with nearby communities using the same water resources.

Reverse Osmosis : RO

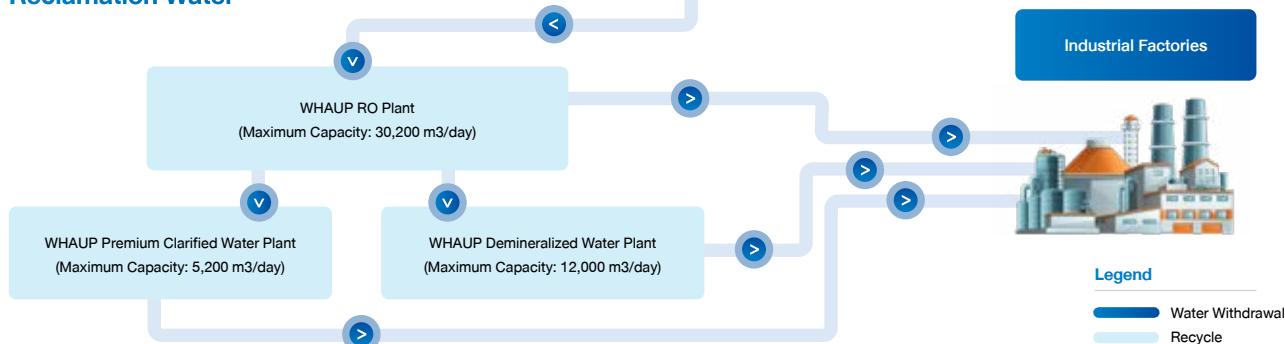
Industrial



Wastewater Treatment



Reclamation Water



WATER USAGE AND WATER MANAGEMENT

WHAUP obtains water from two sources: drawing from natural water sources, and directly purchasing from water suppliers. The sources and quality are thoroughly inspected according to set standards each time. This water is then used in production processes and sold to customers across various industries. To reduce the use of natural water sources and purchased water, WHAUP has constructed water reservoirs both inside and outside the WHA Industrial Estates to serve as backup water sources for use within the WHA Industrial Estates. Simultaneously, WHAUP has implemented measures for wastewater reclamation, which involve treating used water in central wastewater treatment plants primarily through the Reverse Osmosis (RO) process. This process purifies the treated water and reintroduces it into the manufacturing processes. Additionally, biological wastewater treatment methods are employed for wastewater intended for discharge into natural water bodies to ensure compliance with environmental standards and safeguard the health and well-being of surrounding communities and resources.

TREAT AND REUSE WASTEWATER VIA REVERSE OSMOSIS (RO)

WHAUP not only manages water used within the organization itself, but WHAUP also provides wastewater treatment services to other industrial estates according to the specific industrial processes of the clients, such as Activated Sludge (AS) treatment systems, Aerated Lagoon (AL) systems, and Hybrid-Rotating Biological Contactor (Hybrid-RBC) systems. The Hybrid-RBC system combines Rotating Biological Contactor (RBC) and Activated Sludge (AS) treatment systems, offering enhanced efficiency in treating wastewater with higher Organic Loading Rates (OLR) compared to conventional levels. Additionally, WHAUP utilizes Vertical Flow Constructed Wetland systems, which have been employed since 2003, and shares this knowledge with local communities to enhance wastewater treatment efficiency, providing appropriate techniques and budget allocation through the Clean Water for Planet project, aimed at promoting and developing wastewater treatment for external individuals.

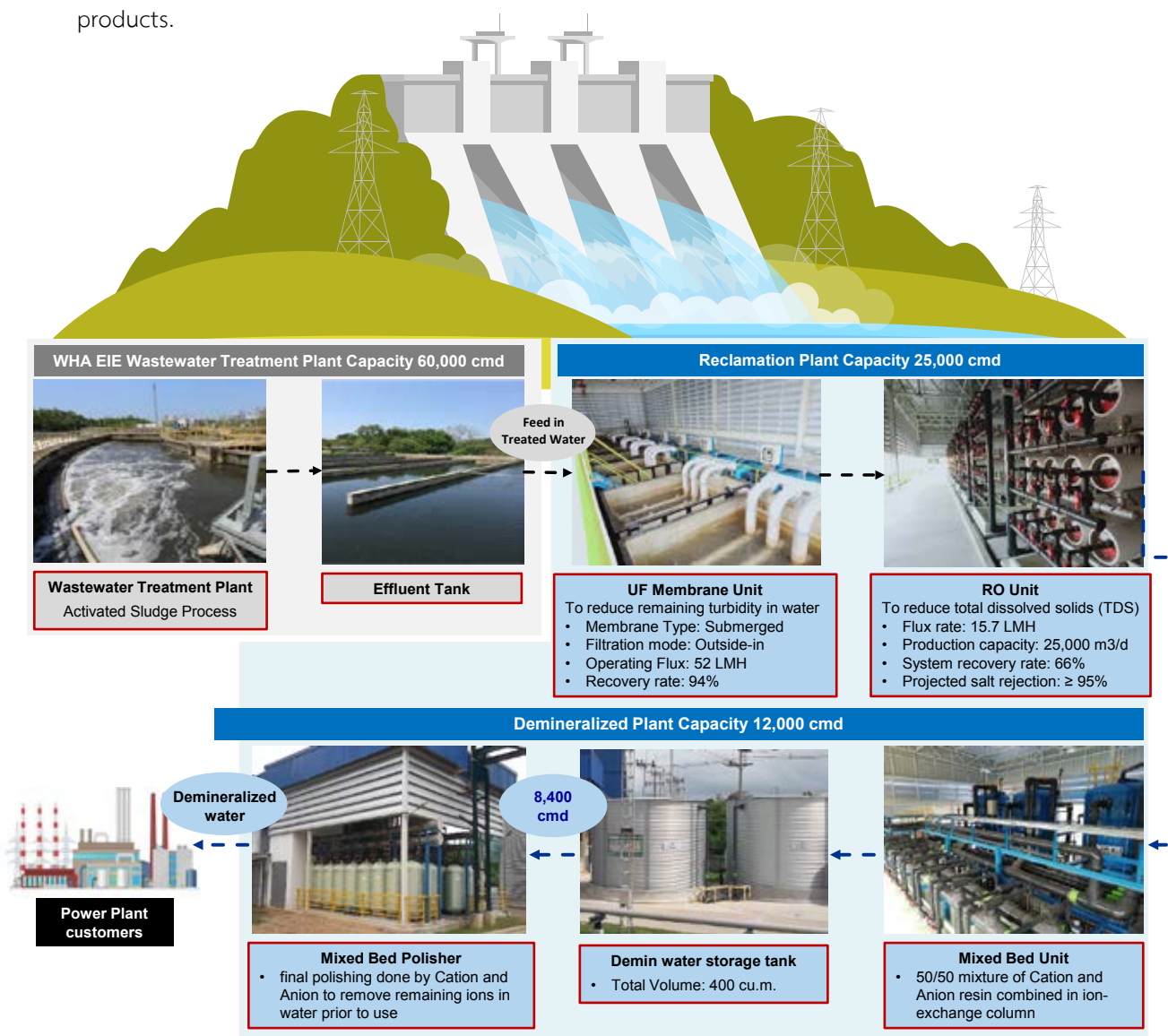
After wastewater treatment in centralized wastewater treatment plants, WHAUP conducts quality assessments of the water according to standards set by the Ministry of Natural Resources and Environment, the Ministry of Industry, the Industrial Estate Authority of Thailand, and Environmental Impact Assessments (EIA) before discharge. This ensures no adverse environmental effects. In 2023, all indicators remained within the standard criteria set. Furthermore, the water sources from which water was released have been verified not to be densely populated residential areas, and the residents there do not rely on water from these sources for their daily lives. Additionally, the water sources supporting wastewater discharge from industrial estates have been assessed since the industrial estate's EIA process, confirming their capability to discharge wastewater without adverse environmental impacts. The impacts of water on all stakeholders, including communities, customers, and contractors, are measured annually through engagement processes to identify impacts resulting from WHAUP's operations. The outcomes of this engagement are used to improve future operations, including planning mitigation measures for those affected by actual impacts, to restore their confidence that everything will return to its original state. In 2023, there were no complaints from stakeholders regarding the quantity and quality of water resulting from WHAUP's operations.

DEMINERALIZED RECLAIMED WATER: THE REAL SUSTAINABLE RESOURCE FOR FUTURE DEVELOPMENT

WHAUP has invested and operated in the Demineralized Water project, a large-scale project developed at the WHA Eastern Industrial Estate (Map Ta Phut) (WHA EIE) aiming to improve water quality in wastewater treatment systems with reduced costs and environmentally friendly processes. This project comprises two parts: the Demineralized Water Plant for WHA EIE, with a production capacity of 3.15 million cubic meters per year, and the Demineralized Water Plant for PURAC (Asia Industrial Estate), with a production capacity of 0.80 million cubic meters per year. Together, these two parts have a total production capacity of 3.95 million cubic meters per year, covering 3 percent of the total capacity of industrial water production. This project was developed to be an alternative water source for sustainable industrial development in the country. It integrates existing technologies while creating new innovations to enhance product value. By treating wastewater from treatment systems into mineral-free water for industrial use, it supplies various industrial operations.

This project has positively impacted WHAUP and society in several dimensions:

1. Significantly reduce the amount of wastewater entering the environment.
2. Reduce government investment budget in the development of water storage and delivery.
3. Reduce conflicts between the community and industry on the allocation of water resources.
4. The industry uses high quality water at a competitive cost.
5. Industrial operators in WHAUP's estates receive comprehensive utility services, with a wide variety of products.



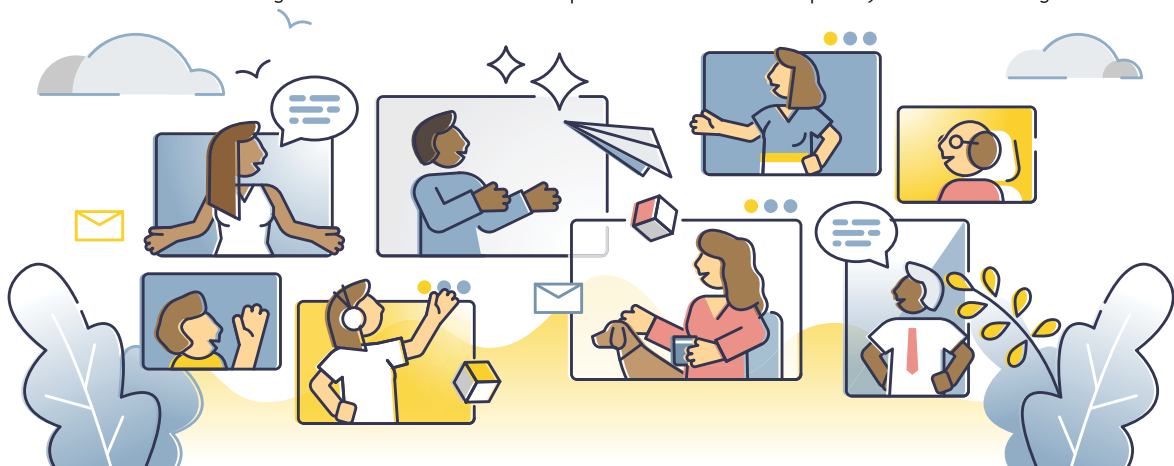
The Demineralized Water Project is considered a highly significant alternative water source for WHAUP. It helps WHAUP to reduce dependence on major raw water suppliers and avoid risks associated with uncertain situations, including impacts on the quantity and quality of water sources due to drought, pollution, contamination, etc. These factors are major risks for utility service providers, as inadequate water supply for production to meet industrial demand at any given time could severely impact operations within industrial estates and potentially cause business disruptions. Additionally, the project enables WHAUP's industrial customers to access high-quality water products and services at reasonable prices. It serves as a model project that can be expanded to new industrial estates of WHA Group and extended to communities. For example, treated wastewater from communities can be improved and converted into high-quality water. Currently, the Demineralized Water system helps WHAUP reduce the use of external water sources by approximately 3 million cubic meters per year, and it also saves about 35 million baht per year in raw water procurement costs.

SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) TECHNOLOGY AT WASTEWATER TREATMENT PLANT

WHAUP has initiated the use of SCADA technology to maximize efficiency in wastewater treatment plants across all WHA Group's industrial estates within the Eastern Economic Corridor of Innovation (EECi) in Wang Chan District, Rayong Province. This technology enables continuous monitoring of wastewater treatment operations 24 hours a day. By utilizing SCADA technology, WHAUP can save operational costs by reducing the need to employ on-site staff by up to four individuals, resulting in annual savings of up to 1 million baht. In 2023, WHAUP has established Control Center at WHA EIE and ESIE, and there are plans to integrate Artificial Intelligence (AI) technology. By utilizing data collected through SCADA technology, AI will be employed for Predictive Maintenance, forecasting maintenance requirements for machinery to ensure continuous operation and minimize the risk of equipment failure.

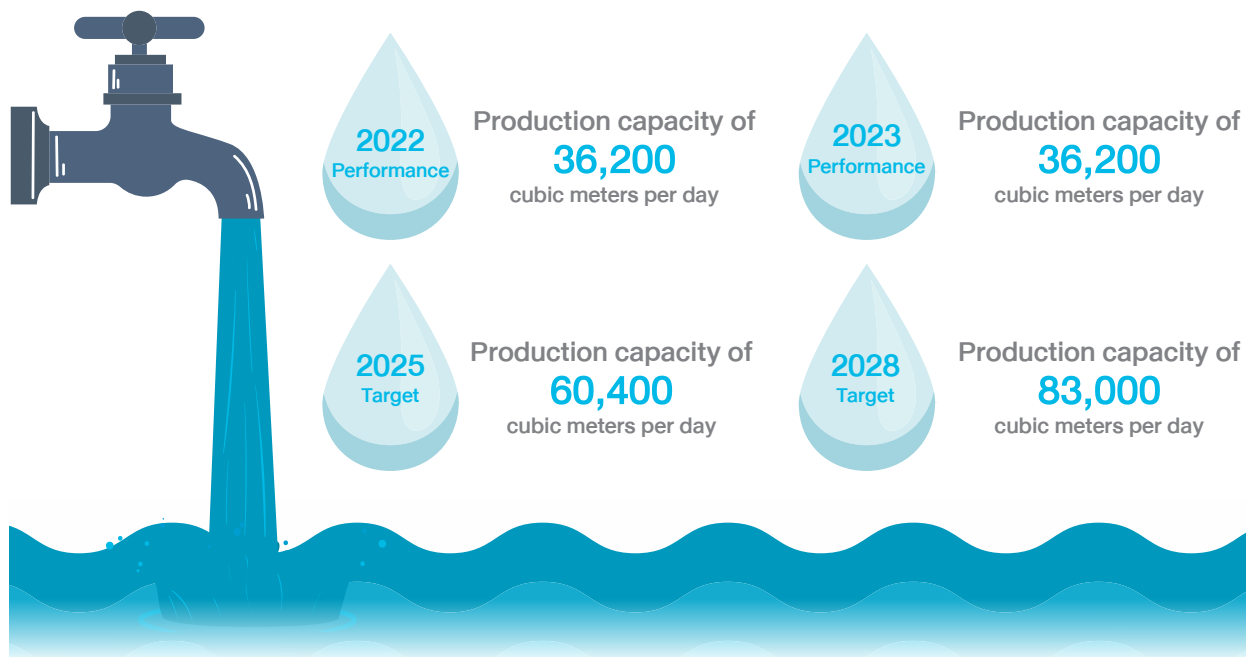
SMART METERING TECHNOLOGY

The "Smart Metering" technology has been implemented to enhance the capability of monitoring the entire water distribution of WHAUP by converting the water meters from analog system to digital display system, including the installation of Pressure Transmitters to observe the pressure values for operators within the industrial estate. Such digital data recording can reduce personnel costs for collecting data from all meters to prepare billing invoices, as all data will be sent and stored at the WHA Tower headquarters, facilitating employees to record data and prepare billing invoices without having to travel to the customers' premises, as well as not having to manually record water usage. Currently, the Smart Metering system in use within the WHA Eastern Industrial Estate (Maptaphut) can greatly reduce water management-related costs. In addition, this technology can be further developed to observe water usage behavior and irregularities in order to identify the causes immediately, as well as to inspect and identify leakage points that may occur in the water distribution system. This allows customers to access hourly water usage data themselves and monitor abnormalities in water usage at all times. WHAUP's personnel can also quickly fix meter irregularities.

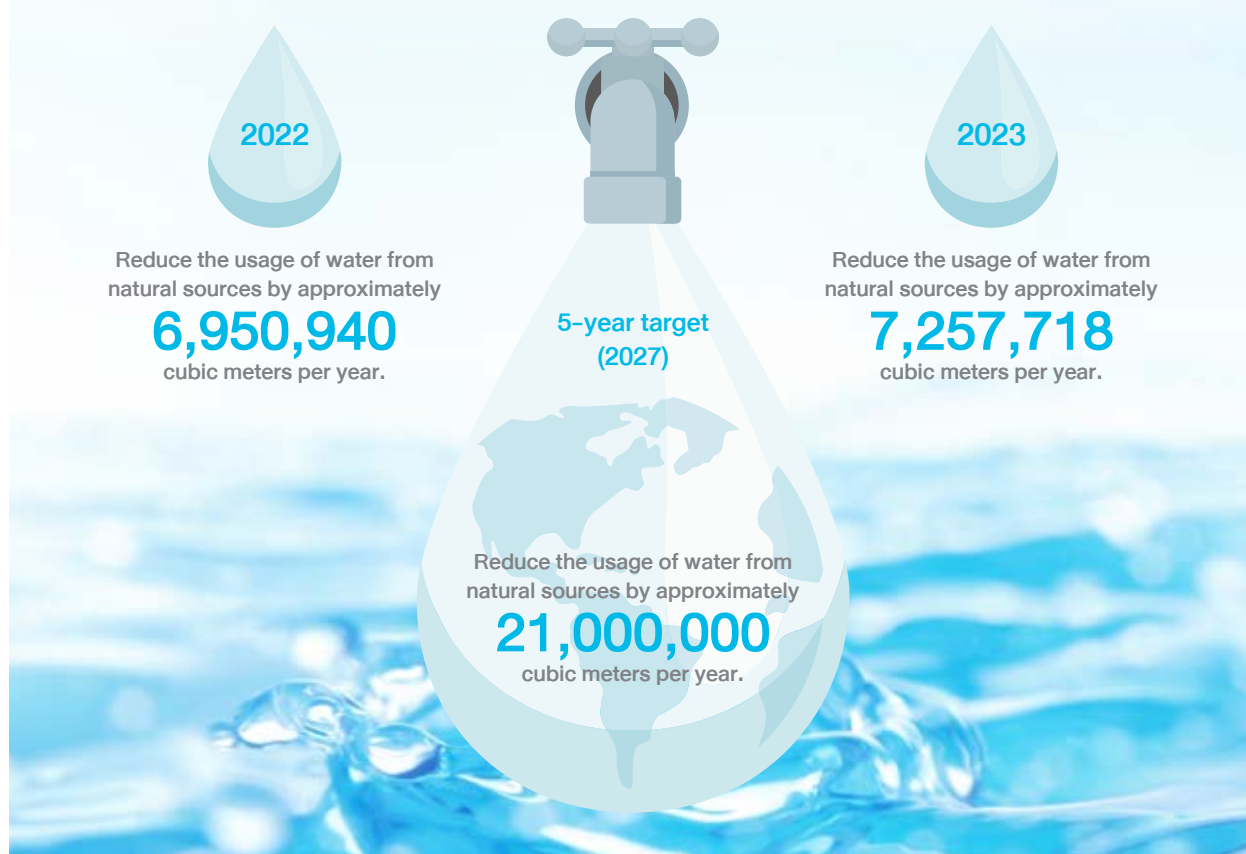


ONLINE METERING FOR CUSTOMERS

In addition to using Smart Metering technology for WHAUP's own business operations, WHAUP plans to extend our application to the Online Metering project for new customers operating in WHA Group's industrial estates. The objective is to support customers in managing their water usage more quickly and sustainably while reducing costs and the burden of manually recording water usage data. This will allow customers to monitor their water usage efficiency more conveniently and effectively. Currently, the project is in the development phase of the Online Meter Platform, which will enable customers to access their water usage data more efficiently. This service is expected to be available to customers starting in 2024.



THE REDUCTION OF WATER USAGE FROM NATURAL SOURCES



As a fully integrated industrial water service provider, WHAUP firmly believes that our sustainable water management in line with the circular economy framework is crucial in driving Thailand's industrial sector to achieve the government's goals, while also improving environmental quality. WHAUP's water management balances economic performance with environmental and social performance in a sustainable manner, aligning with rapid economic and climate changes.

The successful integration of innovation and technology into WHAUP's water management not only helps reduce negative environmental and social impacts, but also creates positive impacts on the environment and society. For example, the Water Reclamation project plays a key role in promoting society and the environment by reducing the amount of wastewater discharged into nature. The Water Reclamation project can reduce the extraction of water from natural sources by up to 7.3 million cubic meters in 2023, equivalent to the annual water usage of over 200,000 people. This is considered one of the most successful projects of WHAUP and the WHA Group. Furthermore, WHAUP has implemented the Clean Water for Planet project to manage water resources within communities, aiming to build environmental and economic strength and sustainability together with communities near WHA Group's industrial estates. It also encourages the public's intention and understanding of long-term water and natural resource conservation.

Although WHAUP's water management performance has been excellent in both economic and environmental terms, WHAUP does not stop striving to develop our water management capabilities in the short and long term through robust management plans. In 2023, WHAUP achieved our highest operational and environmental goals since our establishment. WHAUP aims to continuously build on this success in 2024 through various strategies, including increasing the production capacity of our wastewater reclamation project to reduce the use of water from natural sources by at least 21,000,000 cubic meters per year by 2027. It also plans to initiate new projects that leverage technology and innovation to maximize performance and positive environmental impact, such as the AI & SCADA project to enhance operational and maintenance capabilities, and the Online Metering project for water management purposes like assessing water losses, optimizing water distribution systems, reducing manpower requirements, and increasing accuracy and speed in recording data and issuing customer invoices.



GRI Content Index

GRI Standard	Disclosure	Location		Omission		
		Chapter	Page/Note	Requirement (s) Omitted	Reason	Explanation
General Disclosure						
GRI 2: General Disclosure 2021	2-1 Organizational details	About Report	7			
		WHAUP Strategic Locations	13-15, 20-21			
		Shareholding Structure	22-23			
	2-2 Entities included in the organization’s sustainability reporting	About Report	7			
		Shareholding Structure	22-23			
	2-3 Reporting period, frequency and contact point	About Report	7			
	2-4 Restatements of information	(No restatements in 2022)	-			
	2-5 External assurance	External Assurance	267			
	2-6 Activities, value chain and other business relationships	Shareholding Structure	22-23			
		Value Chain	25			
	2-7 Employees	Performance Data 2023	-			
	2-8 Workers who are not employees	Performance Data 2023	-			
	2-9 Governance structure and composition	Codes of Business Conduct	39-42			
	2-10 Nomination and selection of the highest governance body	Codes of Business Conduct	42			
	2-11 Chair of the highest governance body	Codes of Business Conduct	40			
	2-12 Role of the highest governance body in overseeing the management of impacts	Codes of Business Conduct	39-42			
2-13 Delegation of responsibility for managing impacts	Codes of Business Conduct	40-41				
2-14 Role of the highest governance body in sustainability reporting	Sustainability Material Issues	28-30				
	Codes of Business Conduct	41				
2-15 Conflicts of interest	Codes of Business Conduct	39-42				
2-16 Communication of critical concerns	Codes of Business Conduct	46-47				

GRI Standard	Disclosure	Location		Omission		
		Chapter	Page/Note	Requirement (s) Omitted	Reason	Explanation
	2-17 Collective knowledge of the highest governance body	Codes of Business Conduct	39-42			
	2-18 Evaluation of the performance of the highest governance body	Codes of Business Conduct	42			
	2-19 Remuneration policies	Codes of Business Conduct	43	a.) iv.	Data unavailable	No policy on clawbacks / on process of development
	2-20 Process to determine remuneration	Codes of Business Conduct	43			
	2-21 Annual total compensation ratio	-	-	a.) b.) c.)	Confidentiality Constraint	Annual total compensation ratio is confidential constraint information for WHAUP
	2-22 Statement on sustainable development strategy	CEO Message	3-4			
	2-23 Policy commitments	Codes of Business Conduct Labor Practices Human Rights	43-49 113 132			
	2-24 Embedding policy commitments	Codes of Business Conduct	43-49			
	2-25 Processes to remediate negative impacts	Codes of Business Conduct	47-48			
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	3-2 List of material topics	Sustainability Material Issues	30			

GRI Standard	Disclosure	Location		Omission		
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Corporate Governance & Ethics						
GRI 3: Material Topics 2021	3-3 Management of material topics	Codes of Business Conduct	39-49			
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	205-2 Communication and training about anti-corruption policies and procedures	Performance Data 2023	-			
	205-3 Confirmed incidents of corruption and actions taken	Performance Data 2023	-			
GRI 206: Anti-competitive Behavior 2016	206-1 Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	Performance Data 2023	-			
Technology and Innovation						
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GRI 203: Indirect Economic Impacts 2016	203-1Infrastructure investment and services supported	Technology & Innovation	93-101			
Risk Management						
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Data & Cyber Security, Privacy Protection						
GRI 3: Material Topics 2021	3-3 Management of material topics	Data Security	102-107			
GRI 418: Customer Privacy 2016	418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	Performance Data 2023	-			
Occupational Health and Safety						
GRI 3: Material Topics 2021	3-3 Management of material topics	Occupational Health and Safety	148-164			

GRI Standard	Disclosure	Location		Omission		
		Chapter	Page/Note	Requirement (s) Omitted	Reason	Explanation
GRI 403: Occupational Health and Safety 2018	403-1 Occupational health and safety management system	Occupational Health and Safety	150			
	403-2 Hazard identification, risk assessment, and incident investigation	Occupational Health and Safety	151-156			
	403-3 Occupational health services	Occupational Health and Safety	151			
	403-4 Work participation, consultation, and communication on occupational health and safety	Occupational Health and Safety	151			
	403-5 Worker training on occupational health and safety	Occupational Health and Safety	157-160			
	403-6 Promotion of worker health	Occupational Health and Safety	157			
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Occupational Health and Safety	157-160			
	403-8 Workers covered by an occupational health and safety system	Performance Data 2023	-			
	403-9 Worker-related injuries	Performance Data 2023	-			
	403-10 Work-related ill health	Performance Data 2023	-			
Water Management						
GRI 3: Material Topics 2021	3-3 Management of material topics	Water Management	253-261			
GRI 303: Water and Effluents 2018	303-1 Interactions with water as a shared resource	Water Management	253-258			
	303-2 Management of water discharge-related impacts	Water Management	256-258			
	303-3 Water withdrawal	Performance Data 2023	-			
	303-4 Water discharge	Performance Data 2023	-			
	303-5 Water Consumption	Performance Data 2023	-			

GRI Standard	Disclosure	Location		Omission		
		Chapter	Page/Note	Requirement (s) Omitted	Reason	Explanation
Energy Management						
GRI 3: Material Topics 2021	3-3 Management of material topics	Energy Management Environmental Performance Against Target	240-245 246-247			
GRI 302: Energy 2016	302-1 Energy consumption within the organization	Performance Data 2023	-			
	302-2 Energy consumption outside of the organization	Performance Data 2023	-			
	302-3 Energy Intensity	Performance Data 2023	-			
	302-4 Reduction of energy consumption	Performance Data 2023	-			
	302-5 Reductions in energy requirements of products and services	Energy Management	241-245			
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GRI 201: Economic Performance 2016	201-2 Financial implications and other risks and opportunities due to climate change	Climate Strategy	230-231			
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	Performance Data 2023	-			
	305-2 Energy indirect (Scope 2) GHG emissions	Performance Data 2023	-			
	305-3 Other indirect (Scope 3) GHG emissions	Performance Data 2023	-			
	305-4 GHG emissions intensity	Performance Data 2023	-			
	305-5 Reduction of GHG emissions	Performance Data 2023	-			
	305-6 Emissions of ozone-depleting substances (ODS)	Performance Data 2023	-			
	305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	Performance Data 2023	-			



LRQA Independent Assurance Statement

Relating to WHA Utilities and Power Public Company Limited 's GHG Assertion for the calendar year 2023

This Assurance Statement has been prepared for WHA Utilities and Power Public Company Limited in accordance with our contract but is intended for the readers of this Report.

Terms of engagement

LRQA (Thailand) Limited was commissioned by WHA Utilities and Power Public Company Limited (WHAUP) to provide independent assurance on its GHG Assertion 2023 against the AccountAbility's AA1000AS v3 assurance criteria to a moderate level of assurance with reference to the GRI specific standard disclosures listed below and materiality level of the professional judgement of the verifier is applied, where the scope was a Type 2 engagement.

Our assurance engagement covered WHAUP's financial control in Thailand only and specifically the following requirements:

- Evaluating the reliability of data and information for only the selected environmental indicators listed below:
 - GRI 305-1: Direct GHG emissions (Scope 1) ^{1, 2}
 - GRI 305-2: Energy indirect GHG emissions (Scope 2)

Our assurance engagement excluded the data and information of WHAUP's financial control and activities outside Thailand, as well as suppliers, contractors and any third parties mentioned in the report.

LRQA's responsibility is only to WHAUP. LRQA disclaims any liability or responsibility to others as explained in the end footnote. WHAUPs' responsibility is for collecting, aggregating, analysing and presenting all the data and information within the Assertion and for maintaining effective internal controls over the systems from which the Assertion is derived. Ultimately, the Assertion has been approved by, and remains the responsibility of WHAUP.

LRQA's Opinion

Based on LRQA's approach nothing has come to our attention that would cause us to believe that WHAUP has not, in all material respects:

- Met the requirements above.
- Disclosed reliable performance data and information as no errors or omissions were detected.

The opinion expressed is formed on the basis of a moderate level of assurance and at the materiality of the professional judgement of the verifier.

Note: The extent of evidence-gathering for a moderate level of assurance engagement is less than for a high level of assurance engagement. Moderate assurance engagements focus on aggregated data rather than physically checking source data at sites. Consequently, the level of assurance obtained in a moderate assurance engagement is substantially lower than the assurance that would have been obtained had a high assurance engagement been performed.

LRQA's approach

LRQA's assurance engagements are carried out assurance using AA1000AS v3. The following tasks though were undertaken as part of the evidence gathering process for this assurance engagement:

- Auditing WHAUP's data management systems to confirm that there were no significant errors, material mis-statements in the report. We did this by reviewing the effectiveness of data handling procedures, instructions, and systems, including those for internal verification. We also spoke with those key people responsible for compiling the data and drafting the report.
- Sampling of evidence during remote verification from facilities level, only the selected indicators to confirm its reliability.

¹ <https://www.globalreporting.org>

² GHG quantification is subject to inherent uncertainty.



Observations

Further observations and findings, made during the assurance engagement, is:

- Reliability: Data management systems are properly defined for the selected environmental indicators. However, should consider interim verification to further improve the reliability and timeliness of its disclosed data and information.

LRQA's Standards, competence and independence

LRQA ensures the selection of appropriately qualified individuals based on their qualifications, training and experience. The outcome of all verification and certification assessments is then internally reviewed by senior management to ensure that the approach applied is rigorous and transparent.

This verification is the only works undertaken by LRQA for WHA Utilities and Power Public Company Limited and as such does not compromise our independence or impartiality.

Dated: 19 April 2024

Opart Charuratana
LRQA Lead Verifier

On behalf of LRQA (Thailand) Ltd.

No. 252/123 (C), Muang Thai – Phatra Complex Tower B.

26th floor, Ratchadaphisek Road., HuayKwang, Bangkok, 10310, THAILAND

LRQA reference: BGK000001058/A

Table 1. Summary of WHA Utilities and Power Public Company Limited, GHG Assertion 2023

Scope of CO2 emissions	CY 2021 01 Jan - 31 Dec 2021	CY 2023 01 Jan - 31 Dec 2023
GRI 305-1: Direct GHG emissions (Scope 1). Biogenic emissions.	274 23	415 30
GRI 305-2: Energy indirect GHG emissions (Scope 2).	13,458	12,944

Notes:

- Data is presented in tonnes of CO2 equivalent.
- CY2021 is an organization selected base year.

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