



OUR WAY IN  
**ENERGY**

OUR WAY IN  
**SUSTAINABILITY**

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## Vision

- The Asian energy company at the heart of innovation, technology, and sustainability



## Mission

- Build sustainable value for all our stakeholders as a trusted partner, with emphasis on care for the earth and society
- Promote innovation, synergy, sustainability, and integration across the energy supply chain, between conventional and new energy technologies
- Foster our corporate values, operational excellence, and uphold Banpu's reputation for integrity, professionalism and best practices



# Message from CEO



Over the past decade, Banpu has transformed into an energy company that is leading global trends in Decentralization, Digitalization and Decarbonization. The company has become “Greener & Smarter”, delivering affordable, reliable, and eco-friendly energy to our customers. We enter the next decade with sustainability at the heart of the way we do business.

We aim for clean energy to comprise more than 50 percent of Banpu’s portfolio by 2025, and we have set long-term strategic goals for all core businesses. These include boosting renewable power generation capacity to 1.1 GWe, increasing the investment in our solar rooftop solution business to 0.5 GWe, and expanding our natural gas production capacity to more than 700 MMcf/day. In order to achieve reliable and sustainable growth over the coming decades, “Banpu Next Co., Ltd. or BNEXT” was also established as a flagship company that places emphasis on investment in clean energy and development of energy technology. This includes renewable power generation, installation of clean power generation solutions, the designing and manufacturing of electric vehicles (EVs), manufacturing and distribution of batteries, energy storage systems, and energy technology management systems.

Driving our success is our continued commitment at the operational level to Environmental, Social, and Governance (ESG) principles aligned with the UN Sustainable Development Goals (SDGs), and we are proud of being a participant and committed to operating the business according to the Ten Principles of the United Nations Global

Compact (UNGC). In particular, we are committed to ensuring sustainable management by establishing the ESG targets related to 7 SDGs most relevant to our business such as equal access to water and sanitation, modern energy, decent and productive employment, inclusive societies and accountable institutions, and promoting the protection of terrestrial ecosystems and biodiversity. We also believe that urgent action and global partnership is needed to combat climate change and its impact.

In 2019, we have successfully delivered products and services to customers as promised, accomplishing our goal of increasing our renewable power portfolio in China, Japan, and Vietnam. We also made significant progress in 2019 in our ESG performance, with no fatalities and no significant environmental incidents. Although we have not achieved our greenhouse gas (GHG) emissions target due to the geological conditions of our underground mines, additional measures will be deployed in 2020 to reduce the GHG emissions according to the long-term plan.

Banpu’s sustainability also encompasses a commitment to sustainable and ethical relationships with our suppliers, contractors, as well as other stakeholders. In 2019, we therefore announced the Supplier Code of Conduct as a foundation for creating sustainable growth together with our suppliers. Additionally, this sustainability report was verified by an external party for the third consecutive year, covering GHG emissions, energy consumption, and occupational health and safety, which helps to ensure the reliability of environmental and social information for stakeholders. We also plan to continue broadening the assurance scope of our sustainability report in terms of topics and business units.

As a result of these commitments and achievements, Banpu continues to be nationally and internationally recognized as a leader in sustainability in 2019:

- Selected as a member of Dow Jones Sustainability Indices (DJSI) for the sixth year running
- Recognized as Goal Class and Industry Mover in the Coal & Consumable Fuels sector of the Sustainability Award 2020 by S&P Global and RobecoSAM
- Rated increased to A (on a scale of AAA-CCC) in the MSCI ESG Ratings assessment
- Received the Sustainability Awards of Honor from the Stock Exchange of Thailand (SET) for the third consecutive year
- Listed on the Thailand Sustainability Investment (THSI) for the fifth consecutive year
- Achieved Excellent CG Scoring in the Corporate Governance Report of Thai Listed Companies 2019, carried out by the Thai Institute of Directors (IOD)

On behalf of Banpu management team, and the Sustainability Committee, I would like to express our gratitude to all stakeholders for their continuous trust and support. I believe that with our determination and strong corporate culture “Banpu Heart”, we will continue to make outstanding progress towards becoming a leading integrated energy solution company in Asia-Pacific under our brand promise: “Our Way in Energy”.

**Somruedee Chaimongkol**  
Chief Executive Officer and  
Chairman of the Sustainability Committee

Note: Banpu Next Co., Ltd. was officially registered on February 27, 2020.

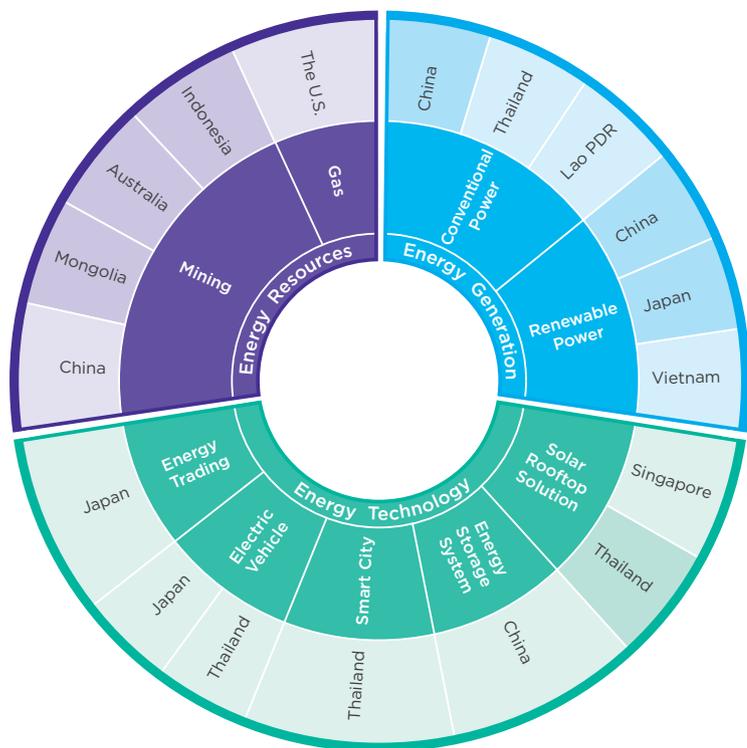
# About this Report

Banpu published a sustainability report annually, which contains a comprehensive overview of the Company's sustainability strategies, management approach, and sustainability performance of the topics related to governance, environmental and social issues that are most material to its stakeholders and business. This report has been prepared in accordance with the GRI Standards: Core option with additional indicators from Mining and Metals Sector disclosures and Electric Utilities Sector disclosures. This report also demonstrates the linkage between Banpu's sustainability performance and the Sustainable Development Goals (SDGs) and the United Nations Global Compact (UNGC).

## Reporting Boundary

This report covers performance from 1<sup>st</sup> January to 31<sup>st</sup> December 2019 in the business entities in which Banpu holds a greater than 50 percent of total shares and has management control. These entities include mining business in Indonesia and Australia, conventional power business in China, renewable power business in China and Japan, solar rooftop solution business in Thailand, as well as the head offices in Thailand, Singapore and Vietnam. In 2019, this report extended the scope to cover fuel procurement activities in Indonesia and six of solar power plants in China and Japan, which began commercial operation.

This report excludes the performance of the business entities that Banpu holds less than 50 percent either direct or indirect investment and does not directly participate in their management, in other words only supervision through their Board of Directors. Such companies include mining business in China, conventional power business in Thailand and Lao PDR, solar rooftop solution business in Singapore and natural gas business in the U.S. More reference information on each business is shown on pages 8-13.



## Reporting Content

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The content of this report covers 31 topics, namely ten topics for governance aspect, eleven topics for environmental aspect and ten topics for social aspect. In addition, the water data collection has been standardized according to GRI 303 (2018) in this reporting period. For the material topics, there was no significant change comparing to the previous year.

## Assurance

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This report was assured by an external party that it was prepared in accordance with the GRI Standards: Core option and the scope of performance data assurance are covered as details below:

- Assure energy and greenhouse gas (GHG) emissions data of the mining business in Indonesia and Australia, the conventional power business in China, and the renewable power business in China and Japan including the fuel procurement activity of mining business in Indonesia that it was disclosed in accordance with GRI 302 (2016) and GRI 305 (2016).
- Assure occupational health and safety data of the mining business in Indonesia and Australia, the conventional power business in China, the renewable power business in China and Japan and the head office in Thailand that it was disclosed in accordance with GRI 403 (2018).

Furthermore, the Company is committed to extending the external assurance scope in the future, both in terms of material topics and business units.

## Contact Details

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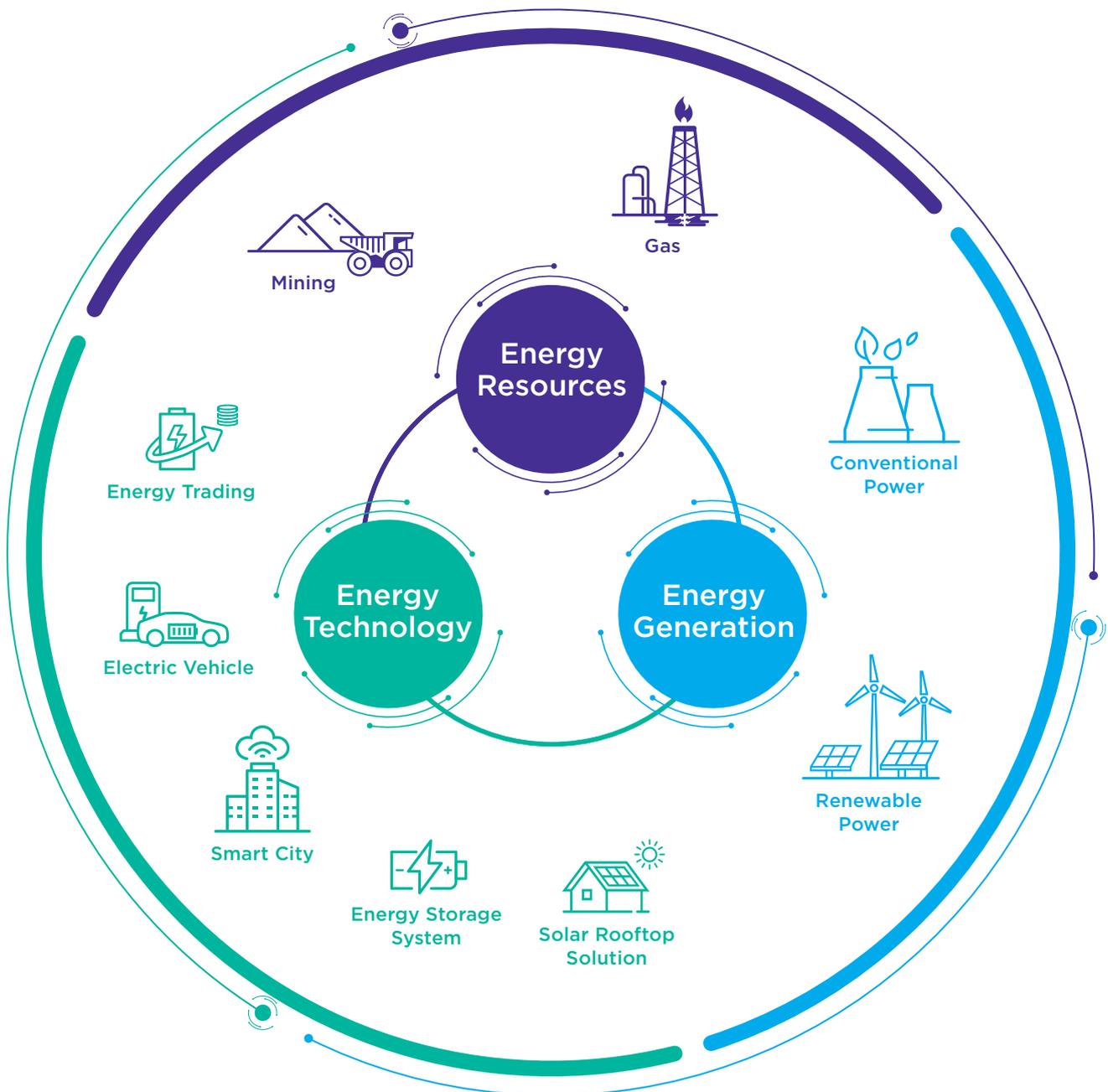


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# Our Business

Banpu is an “Integrated Energy Solutions Company” operating three core business groups across Asia Pacific under the “Greener & Smarter” strategy with experience for almost 4 decades.



**NOW** 2019 → **THEN** 2025 **Energy Resources**



The Company operates both open-pit and underground mining in Indonesia, Australia, and China. Our high-quality coal is sold primarily to industrial customers and coal-fired power plants in Asia and Europe.



Our shale gas production\* is based in the Marcellus shale in the state of Pennsylvania, United States of America. All of the produced gas is transferred via national gas pipeline network to serve domestic customers.

\*Banpu signed purchase and sale agreement for Barnett Shale in Texas in December 2019, which is subject to conditions precedent. The completion expected by the 2<sup>nd</sup> quarter of 2020.

**Energy Generation**



The thermal power plant provides both electricity and heat to serve industrial sectors as well as household consumers in China, Thailand and Lao PDR who require the reliable energy with high efficiency low emissions (HELE) technology.



The electricity generated from solar and wind energy to serve the clean energy demand in the Southeast Asia. Our production operates in China, Japan and Vietnam while some are under project development or construction.

**Energy Technology**



This business currently provides solar rooftop services in Thailand and Singapore, serving retail and industrial customers in the Southeast Asia who require the integration of clean energy and smart technology.



This business provides energy storage and power supply solutions for industrial sectors as well as battery for electric vehicles. The Company operates battery-manufacturing facilities in China.



The Company provides the comprehensive smart city solution with integration of the clean energy and new technology to serve the energy efficient demand in both private sectors and urban communities.

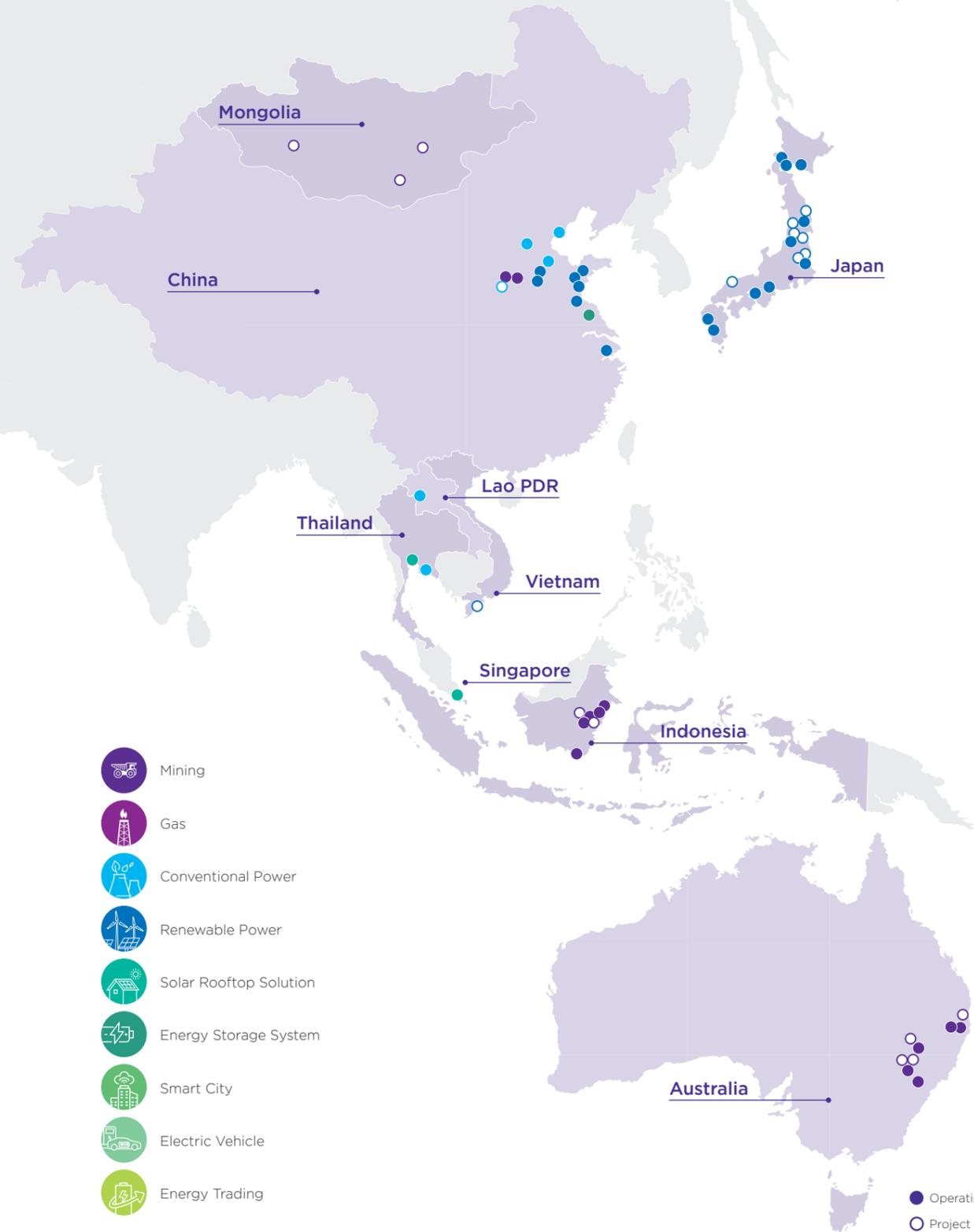


To extend across battery supply chain, the Company expands its business to cover the electric vehicles.



The energy trading is a digital platform of the electricity supply. The current investment is in Japan.

# Map of Operations



- Mining
- Gas
- Conventional Power
- Renewable Power
- Solar Rooftop Solution
- Energy Storage System
- Smart City
- Electric Vehicle
- Energy Trading

### Thailand

- 1 Coal-fired Power Plant
- Solar Rooftop Solutions

### China

- 4 Coal-fired Power Plants
- 7 Solar Power Plants
- 2 Coal Mines
- 1 Battery Factory

### Lao PDR

- 1 Coal-fired Power Plant

### Mongolia

- 3 Coal Mines

### Indonesia

- 7 Coal Mines

### Japan

- 17 Solar Power Plants

### Vietnam

- 1 Wind Power Plant

### Singapore

- Solar Rooftop Solutions

### Australia

- 9 Coal Mines

### United States of America

- 2 Shale Gas Operations

Banpu is currently active in ten countries worldwide: Thailand, Lao PDR, Vietnam, Indonesia, Singapore, China, Japan, Mongolia, Australia, and the United States of America.



## Lao PDR

Banpu invests in the Hongsa Power Plant through BPP, a mine mouth power plant with a capacity of 1,878 MW, located in Hongsa District, Xayaburi Province. Hongsa is a joint venture between BPP, RATCH Group Public Company Limited and Lao Holding State Enterprise (LHSE), a state-owned enterprise of Lao PDR.

## Vietnam

Banpu invests in the renewable power business through BPP\* in an 80 MW wind power plant located in Soc Trang province in southern Vietnam. The plant has 3 development phases with respective capacities of 30 MW, 30 MW, and 20 MW. It is anticipated that the plant will enter commercial service in 2020-2021.

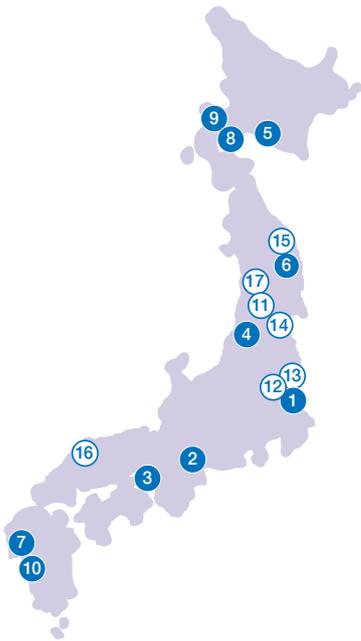
## Singapore

Banpu invests in the solar rooftop solution business through BPIN\*, which has an investment in Sunseap Group Pte. Ltd. Sunseap Group plays a major role in providing solar rooftop solution, with a share of the total production capacity amounting to 159.7 MWe. Banpu has also opened a sales office in Singapore to handle coal logistics and marketing.

## Thailand

Banpu invests in BLCP through Banpu Power Public Company Limited (BPP). BLCP is a joint venture between BPP and Electricity Generating Public Company Limited with a capacity of 1,434 MW coal-fired power plant located in the Map Ta Phut Industrial Estate in Rayong province on the Eastern Seaboard. Banpu also invests in solar rooftop solution business through Banpu Infinergy Co., Ltd. (BPIN)\* with current capacity of 17 MW.

## Japan



### Renewable Power

- |              |                   |
|--------------|-------------------|
| 1. Olympia   | 10. Tekeo 2       |
| 2. Hino      | 11. Yamagata      |
| 3. Awaji     | 12. Shirakawa     |
| 4. Nari Aizu | 13. Yabuki        |
| 5. Mukawa    | 14. Onami         |
| 6. Kurokawa  | 15. Kesenuma      |
| 7. Tenzan    | 16. Hiroshima     |
| 8. Muroan 1  | 17. Yamagata Iide |
| 9. Muroan 2  |                   |

Banpu invests in the renewable power business through BPP\* which currently operates 10 solar power plants in Japan, offering a total equity-based power generation capacity of 62.7 MW. Another 7 further projects are currently under the construction and development phase. It is anticipated that the total equity-based power generation capacity will reach 240 MW when all of these projects have entered commercial operation between 2020-2023.

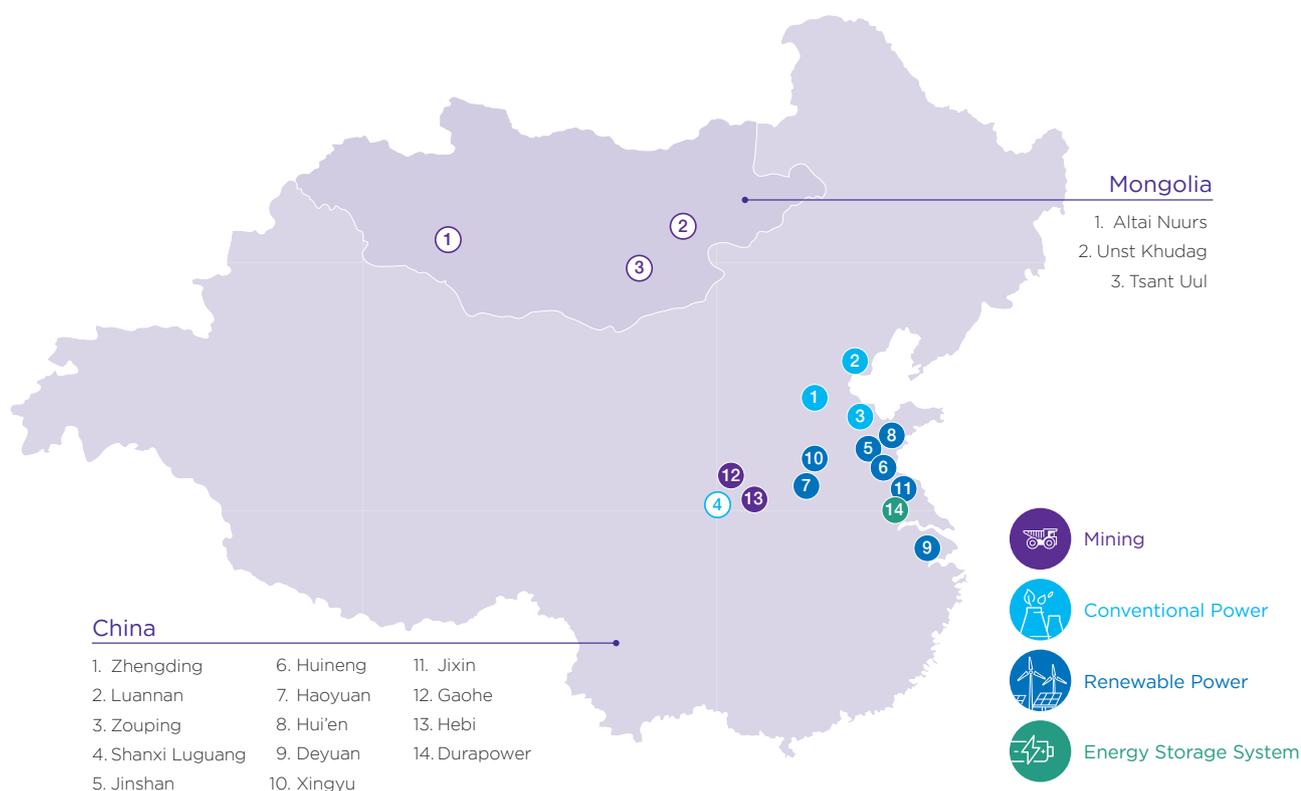
## Indonesia

Banpu invests in the mining business through PT. Indo Tambangraya Megah Tbk (ITM), a company listed on the Indonesian Stock Exchange. ITM operates 5 open-pit mines, which produced 23.4 million tonnes of coal in 2019 to serve both domestic and overseas markets. Exports are handled through Bontang Terminal, which has a current annual capacity of around 22 million tonnes. Banpu have recently undergone significant expansion in 2 mining projects set to become operational in the near future.



### Mining

- |              |                           |
|--------------|---------------------------|
| 1. Indominco | 5. Kitadin-Embalut        |
| 2. Trubaindo | 6. Tepian Indah Sukses    |
| 3. Bharinto  | 7. Nusa Persana Resources |
| 4. Jorong    |                           |



## Mongolia

Banpu invests in Hunnu Coal Pty Ltd., a company specializing in coal exploration and mine development in Mongolia. The Company is currently developing 3 projects: Altai Nuurs, receiving the mineral resources and petroleum authority of Mongolia approval of feasibility study of coal-fired power plant, Tsant Uul, involving feasibility study for the coal tar production, and Unst Khudag, carrying out preliminary feasibility study for coal conversion.

## China

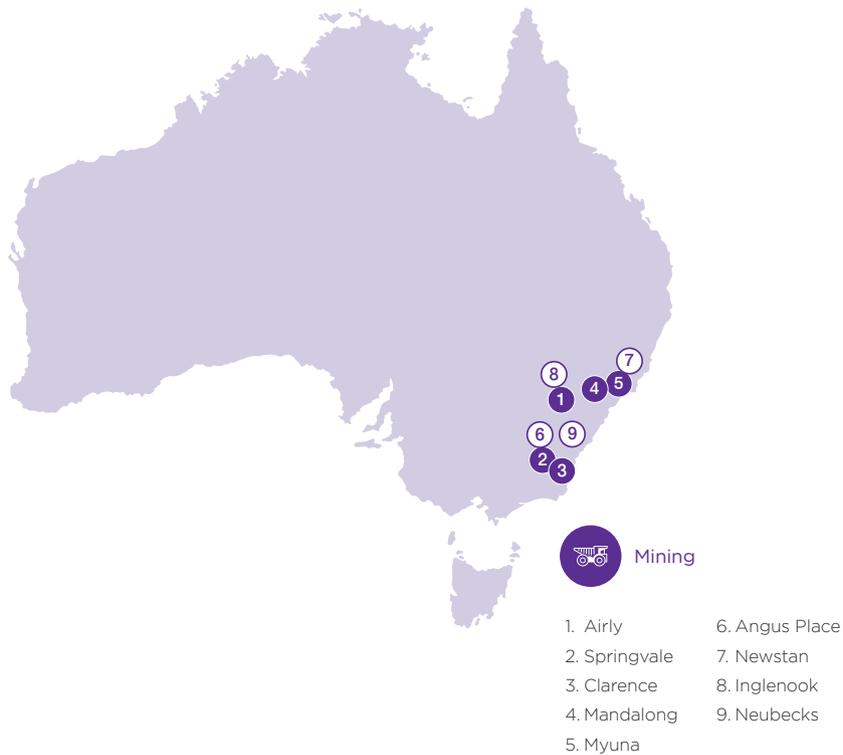
Banpu invests in the energy generation business through BPP. There are 3 Combined Heat and Power (CHP) plants in northern China, offering a total equity-based power generation capacity of 539 MW. Currently, a 1,320 MW coal-fired power plant project is under construction, which is slated to commence operations in 2020.

Beside, Banpu has made investments through BPP\* in the renewable power business in 7 solar power plants, providing a total equity-based power generation capacity of 177.3 MW and in the energy technology business in Durapower Holdings Pte., Ltd. Durapower provides expertise in the design, production, and installation of lithium ion batteries for the automotive industry and energy storage system with an annual battery production capacity of 1.0 GWh.

Banpu also invests in the mining business through BP Overseas Development Co., Ltd. and Banpu Mineral Co., Ltd. There are 2 underground mines in Shanxi and Henan provinces, offering a total production of 11.5 million tonnes in 2019.

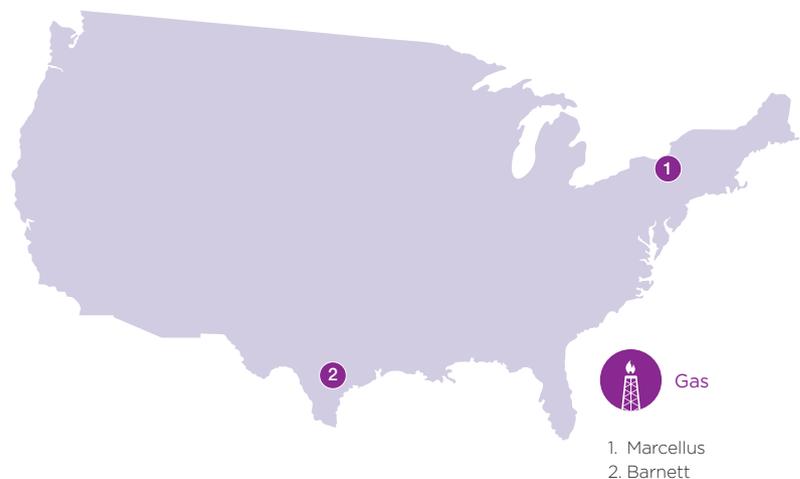
## Australia

Banpu invests in the mining business through Centennial Coal Co., Ltd., which is the operator of 5 underground mines producing 9.4 million tonnes of coal in 2019. This coal is distributed by conveyor, truck and rail to domestic customers, or exported via Kembla and Newcastle ports. The Company also has 4 mine projects currently under development or care & maintenance phases.



## United States of America

Banpu invests in the gas business\*\* through Banpu North America Corporation, which operates a shale gas production in the Marcellus Shale in northeastern Pennsylvania. The total equity-based production currently exceeds 189 MMcf/day. The gas produced is sold exclusively to the domestic market via the national gas pipeline network.



Remarks \* Since 2020, the investment in renewable power business will be managed through Banpu Next Co., Ltd. which was officially registered on February 27, 2020 as a result from an amalgamation between Banpu Infinergy Co., Ltd. and owned subsidiary of Banpu Power Public Company Limited.

\*\* Banpu signed purchase and sale agreement for Barnett Shale in Texas in December 2019, which is subject to conditions precedent. The completion expected by 2<sup>nd</sup> quarter of 2020.

\*\*\* Further details about each business unit can be found on page 112-113.

# Challenge and Opportunity

## Energy Resources

### Challenge and Opportunity

- Global thermal coal import continued to grow with significant demand drop in Europe offset by growing demand in Asia.
- Falling European coal demand driven by low gas prices, slow economic growth, and increased power generation from renewable energy.
- China's coal imports have been increased despite government restriction, as imported coal remains competitive against domestic coal.
- Trade conflicts between the U.S. and China have slowed economic growth across countries and affected coal demand growth.
- Global thermal coal market is oversupply driven by the significant growth of Indonesian exports which increased competition in the market and pushed downward pressure to the coal prices.
- The short-term of the U.S. natural gas market is expected to be challenging due to the short-term oversupply situation driven by committed production and associated gas production resulting in a suppressed natural gas price.
- In the longer-term, the U.S. gas prices will need to trade sufficiently higher to incentivize producers to bring supplies into balance with rising domestic and export demand.

### Banpu's Strategy

- Developing products to meet customer requirements focusing on markets in Asia.
- Creating value-added products by improving blending efficiency and cost minimization through optimization model.
- Being trust and reliable coal suppliers through owned high-capacity coal loading facilities.
- Improving coal sourcing management as well as stability of supply to support customer requirements.
- Creating market readiness and always being the provider of choice for the customer.
- Monitoring the natural gas demand and market price in the U.S. and seeking additional investment opportunities.

## Energy Generation

### Challenge and Opportunity

- Thailand's Power Development Plan 2018-2037 promotes the proportion of electricity purchasing from renewable energy sources and decreases the usage of the energy imported in order to minimize the impact of disruptive technology.
- Strict environmental standards, continuous economic growth, and clear energy management policy in Vietnam lead to increasing the energy demand.
- Japanese government reduced the Feed-in Tariff (FiT) for solar power and turned to the auction scheme.

### Banpu's Strategy

- Conducting business in line with market conditions using cost management and production efficiency strategies.
- Applying new technology to improve the efficiency of pollution control systems to meet strict environmental standards.
- Identifying the impacts of changing in related policies and standards that might have an effect on the developing projects in order to carry out a commercial launch as planned.
- Seeking investment opportunities and closely monitoring solar rooftop business across industry sectors, including the customer with renewable energy demand.
- Expanding the renewable power business and conduct the business development by collaboration with partners.

## Energy Technology

### Challenge and Opportunity

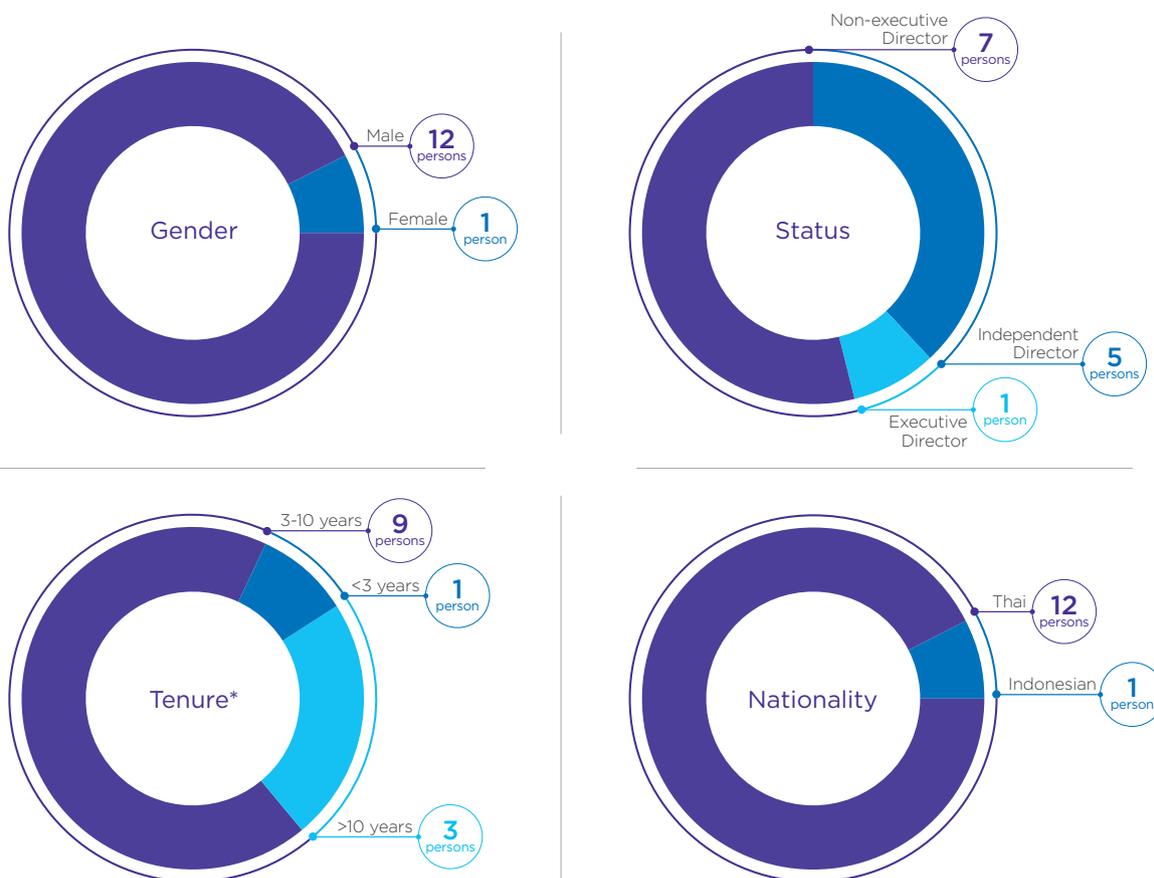
- Thailand's Power Development Plan 2018-2037 encourages the private sector to participate in solar rooftop business and promotes households to install solar rooftop by launching solar power projects for households, allowing them to sell their surplus output to the state grid.
- Thai government aims to turn 30 cities in 24 provinces into smart cities by 2020 as well as developing the infrastructure with new technology.
- Thai government promotes the policy to attract all manufacturers and buyers for electric vehicles (EVs) such as an exemption for corporate income tax and the exemption for parts and equipment imported tax.

### Banpu's Strategy

- Making a difference by being a provider of total solar energy solutions and smart city technologies.
- Focusing on best-in-class customer services, starting from project development to after-sales service.
- Proposing varieties of products to serve customer demands and conducting market surveys constantly.
- Seeking more opportunities to expand the energy storage system business to cater for the customers in China, Japan, India, Southeast Asia and Europe.
- Operating the business with clear marketing direction, business transparency and responsibility to related stakeholders.
- Collaborating with EV expertise to leapfrog EV business.

# Management Structure

The Board of Directors of Banpu Public Company Limited is a one-tier system with 3 sub-committees. The Board of Directors is responsible for ensuring that the Company's business operations are compliant with relevant laws, the Company's objectives and regulations, and shareholder resolutions. The Board of Directors' Practice has been formulated and regularly reviewed to ensure good governance.



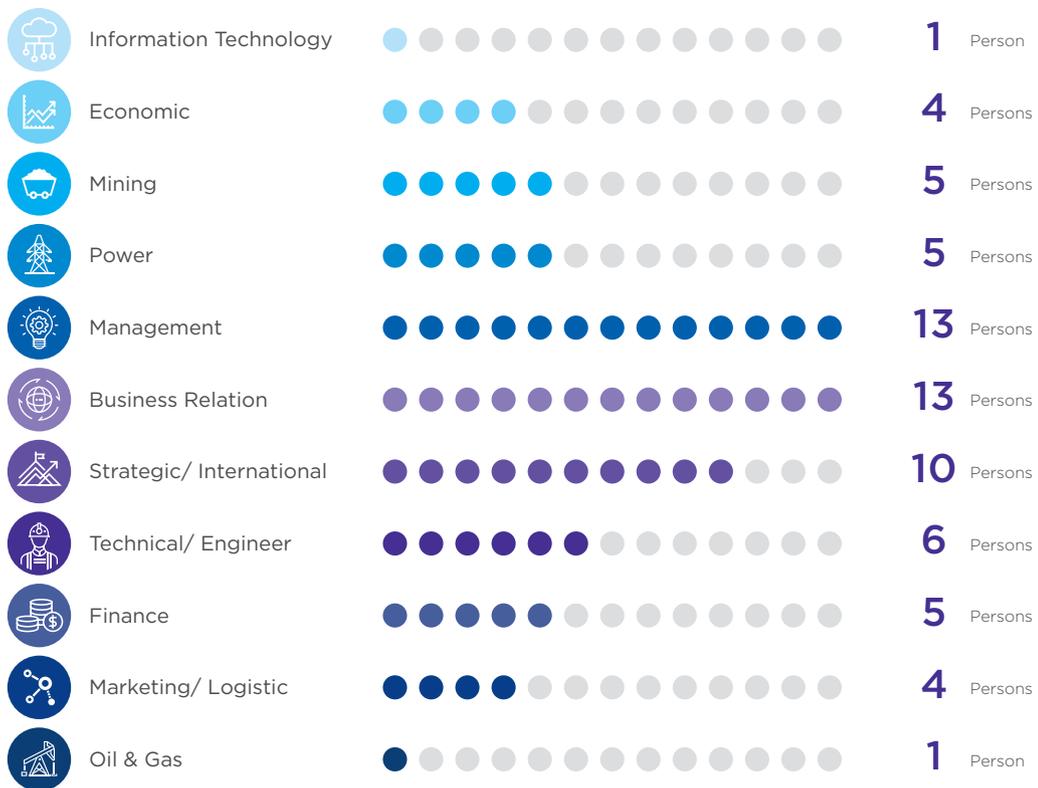
\*Average tenure 12.5 years

	Member	Role & Responsibility
Corporate Governance and Nomination Committee	1 Independent Director 3 Non-executive Directors	<ul style="list-style-type: none"> <li>Review and update the Corporate Governance Policy (CG Policy) and Code of Conduct to ensure their appropriation and adequacy</li> <li>Monitor compliance with the CG policy and Code of Conduct through CG Complaint Channel</li> <li>Review the Board composition and prepare a succession plan</li> <li>Recruit and nominate Directors, CEO and senior executives</li> </ul>
Audit Committee	3 Independent Directors	<ul style="list-style-type: none"> <li>Review the financial reports, internal controls and audits, risk management systems, and extent of the company's compliance with regulatory requirements</li> <li>Consider the information disclosed should any conflicts of interest arise</li> </ul>
Compensation Committee	3 Independent Directors 1 Non-executive Director	<ul style="list-style-type: none"> <li>Review remuneration, compensation, and benefits of the Board of Directors, sub-committees, and the CEO</li> <li>Review compensation structure and employee remuneration</li> </ul>

## Board of Directors Nomination

The Corporate Governance and Nomination Committee is responsible for setting nomination criteria and reviewing the qualifications of the directors. In general, the tenure of Independent Board Directors must not exceed 9 years or 3 consecutive terms and Directors must not hold more than 5 external directorships in other listed companies. Moreover, a number of aspects are taken into consideration when each candidate is assessed, including independence, gender, nationality, religion, age, experience, skill and expertise. The attributes of the candidates are assessed using the Board Skills Matrix to ensure benefits to the Company and expectations of the stakeholders. After the screening process, the Corporate Governance and Nomination Committee will nominate the candidate for the Board's approval to propose the candidate director to be elected by shareholder's approval in the Annual General Meeting.

## Board Skills Matrix



## Board of Directors Performance Evaluation

The Corporate Governance and Nomination Committee is responsible for reviewing methodology and criteria for the Board of Directors' performance evaluation. Annually, the Board of Directors performs the performance self-assessment, which covers the Board as a whole, sub-committees and individual directors. Assessment results and opportunities for improvement are discussed to ensure good governance and greatest benefit to the Company and shareholders.

# Performance Overview

## Governance



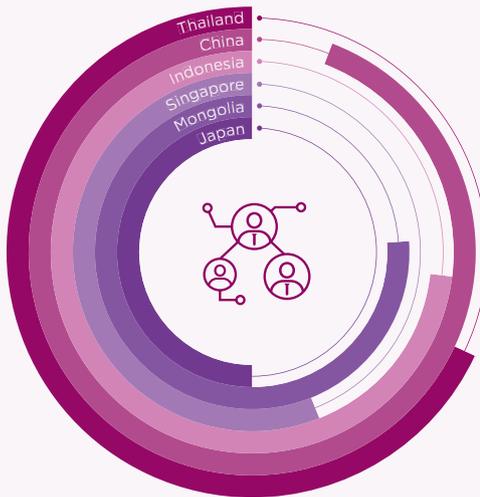
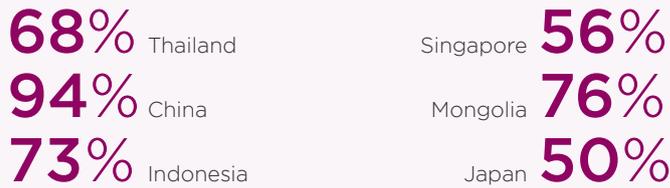
## Environment



- ✓ Achieved
- ! Not achieved
- ▶ In progress towards long-term target

## Social

### Employee Engagement Levels



### Lost Time Injury

**2.73**  
Employees  
(person/million man-hour)



**0.26**  
Contractors  
(person/million man-hour)



### BanpuHeart

**77%** Level of alignment between employee behavior and the corporate culture "Banpu Heart"



**2**  
Significant  
community complaints



**71%**  
Average stakeholder satisfaction level on  
community development projects in Indonesia



**100%**  
Critical positions  
with succession plan



**0** Significant  
resettlement  
complaints



**0** Indigenous peoples'  
rights violations



**0** Significant  
human rights issues



**0** Occupational  
fatalities

# Sustainability Recognitions

With long emphasized business ethics and strong corporate sustainability in governance, a number of leading sustainability authorities have recognized the Company's achievements both internationally and nationally.

## International Recognition

MEMBER OF  
**Dow Jones Sustainability Indices**



In collaboration with RobecoSAM brand

The Company has been chosen as a member of the Dow Jones Sustainability Indices (DJSI) in 2019, marking the company's sixth consecutive year on the DJSI.

**SAM** Sustainability Award Gold Class 2020

**SAM** Sustainability Award Industry Mover 2020

The Company remains the Gold Class and Industry Mover in the Coal & Consumable Fuels sector of the SAM Sustainability Award 2020.

**MSCI**  
ESG RATINGS



CCC B BB BBB A AA AAA

In 2019, Banpu received a rating of A (on a scale of AAA-CCC) in the MSCI ESG Ratings assessment.

## National Recognition



The Company received the Sustainability Awards of Honor 2019 from the Stock Exchange of Thailand (SET) for the third consecutive year.



The Company was listed as one of the companies in Thailand Sustainability Investment by the Stock Exchange of Thailand for the fifth consecutive year.



The Company remains on the list of the SET THSI index since the Stock Exchange of Thailand first introduced the index in July 2018.



The Company was awarded by Thailand Management Association for Thailand Corporate Excellence Awards in the area of Sustainable Development Excellence in 2019.



The Company was ranked one of the top listed companies with Excellent Corporate Governance Scoring, according to the Corporate Governance Report of Thai Listed Companies 2019 carried out by the Thai Institute of Directors Association (IOD).

# Voluntary Commitments

Banpu has supported and applied a number of global initiatives and international best practices to improve its sustainability performance.



Banpu has been listed in the Dow Jones Sustainability Indices (DJSI) presented by Robeco Sustainable Asset Management (RobecoSAM) since 2014. The Company has used the assessment findings to improve its sustainability practices.



Banpu publishes sustainability reports in accordance with the GRI Sustainability Reporting Standards and also submits sustainability reports for external verification based on GRI Standards: Core option.



Banpu has aligned its long-term corporate strategies with the United Nations Sustainable Development Goals (SDGs).



Since 2010, Banpu has been an active participant in the climate change assessment of the CDP, and has followed the CDP water management program since 2017. The findings have informed the company's measures to reduce greenhouse gas emissions and to optimize water management.



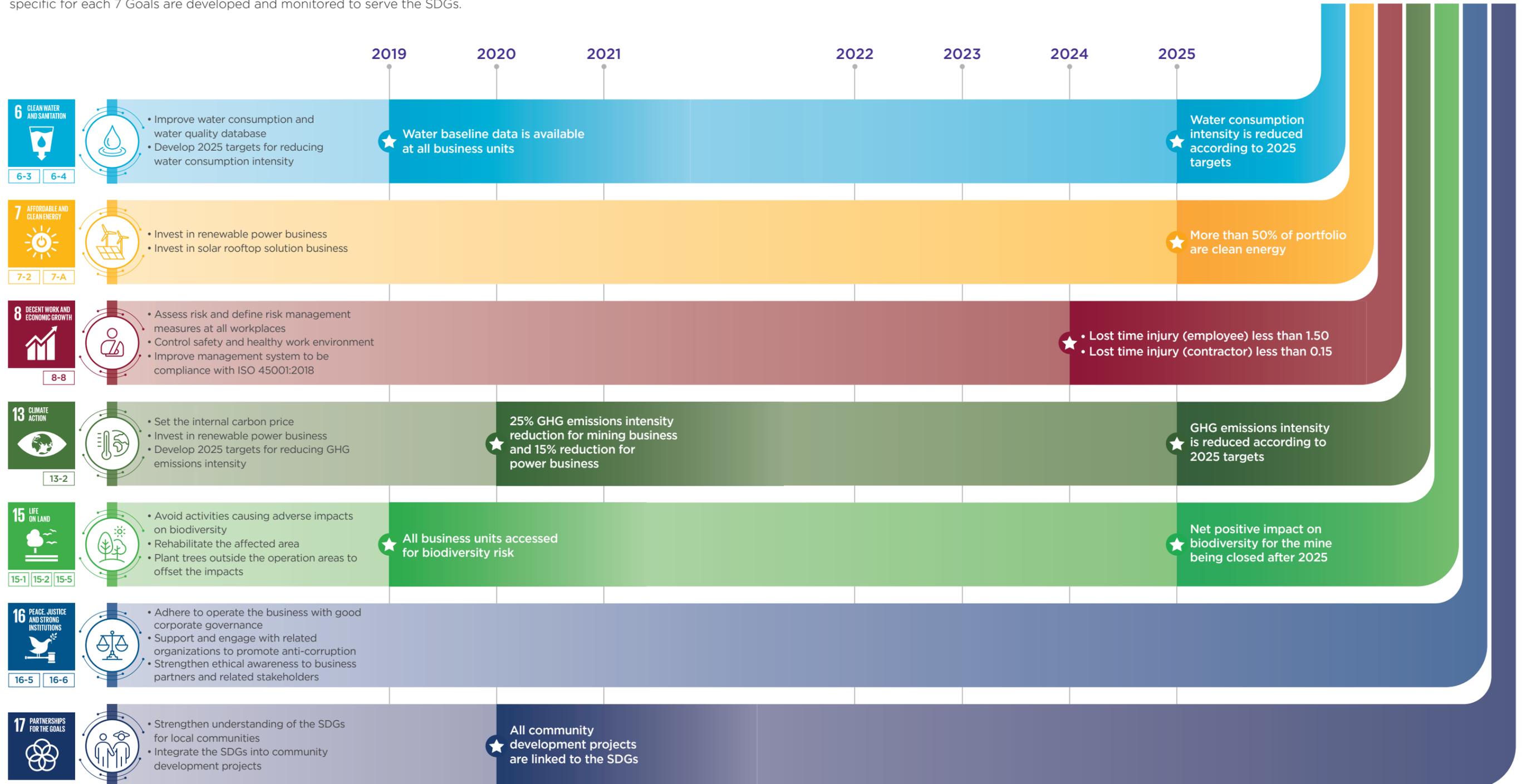
Banpu has adopted AA1000 Accountability Principles Standard (AA1000APS) and AA1000 Stakeholder Engagement Standard (AA1000SES) to create its stakeholder engagement and materiality assessment frameworks. The Company also submits sustainability reports for external verification using AA1000 Assurance Standard (AA1000AS).



Banpu aims to conduct its business activities in alignment with the United Nations Guiding Principles on Business & Human Rights and the Universal Declaration of Human Rights by integrating the content of these agreements into its human resources and human rights policies. To further support the UN development practice, Banpu also embeds principles of the UN Global Compact (UNGC), which focuses on the areas of human rights, labor, environment, and anti-corruption, into company's strategies and operations.

# Banpu and SDGs

The Company has placed great importance to be a part in driving 17 Goals of the United Nations Sustainable Development Goals (SDGs), and our contribution to the SDGs are highlighted throughout our sustainability report. Based on prioritization, 7 Goals most relevant to the business have been selected which are Goal 6, Goal 7, Goal 8, Goal 13, Goal 15, Goal 16, and Goal 17. Therefore, roadmaps, indicators, and long-term targets specific for each 7 Goals are developed and monitored to serve the SDGs.



# Banpu and UN Global Compact



Banpu strives to be a driving force for sustainable development. Being a participant of the UN Global Compact, the operation of the Company responds to 10 principles of UNGC, which highlight fundamental responsibilities in the areas of human rights, labor, environment and anti-corruption.

## Human Rights



**PRINCIPLE 1 :** Support and respect human rights

**PRINCIPLE 2 :** No human rights abuses

**Human Rights** P.106 **Indigenous Peoples** P.105

- Respect and comply with local laws and international principles responding human rights in every country where conducts business, especially the rights of indigenous peoples
- Provide equal opportunity, regardless of race, gender, religion, or nationality as well as assess human rights risks & opportunities

## Labor



**PRINCIPLE 3 :** Freedom of association

**PRINCIPLE 4 :** Elimination of forced labor

**PRINCIPLE 5 :** Abolition of child labor

**PRINCIPLE 6 :** Elimination of discrimination in workplace

**Human Rights** P.106 **Employee Management** P.86

- Allow employees to exercise freedom of association and collective bargaining such as forming labor union
- Comply with local laws and regulations regarding child and forced labor
- Provide opportunity to everyone with no discrimination across all stages of employee lifecycle

## Environment



- Comply with environmental regulations as well as actively monitor environmental risks to prevent negative impact
- Manage efficiently use of resources by using 3R principles to preserve natural resources, reduce waste generation and avoid waste to landfill
- Apply technology to improve environmental performance such as utilizing 3D photogrammetry in management of mine subsidence
- Promote biodiversity by avoiding to operate in the area of high biodiversity value and threatened species

**Biodiversity** P.78 **Mine Subsidence** P.81

**Waste** P.73 **Environmental Compliance** P.82

**PRINCIPLE 7 :** Precautionary approach to environmental challenges

**PRINCIPLE 8 :** Environmental responsibility

**PRINCIPLE 9 :** Environmentally friendly technologies

## Anti-corruption



- Build employees' awareness on business ethics through implementation of corporate governance policy, code of conduct, and related policy such as no-gift policy

**Business Ethics** P.38

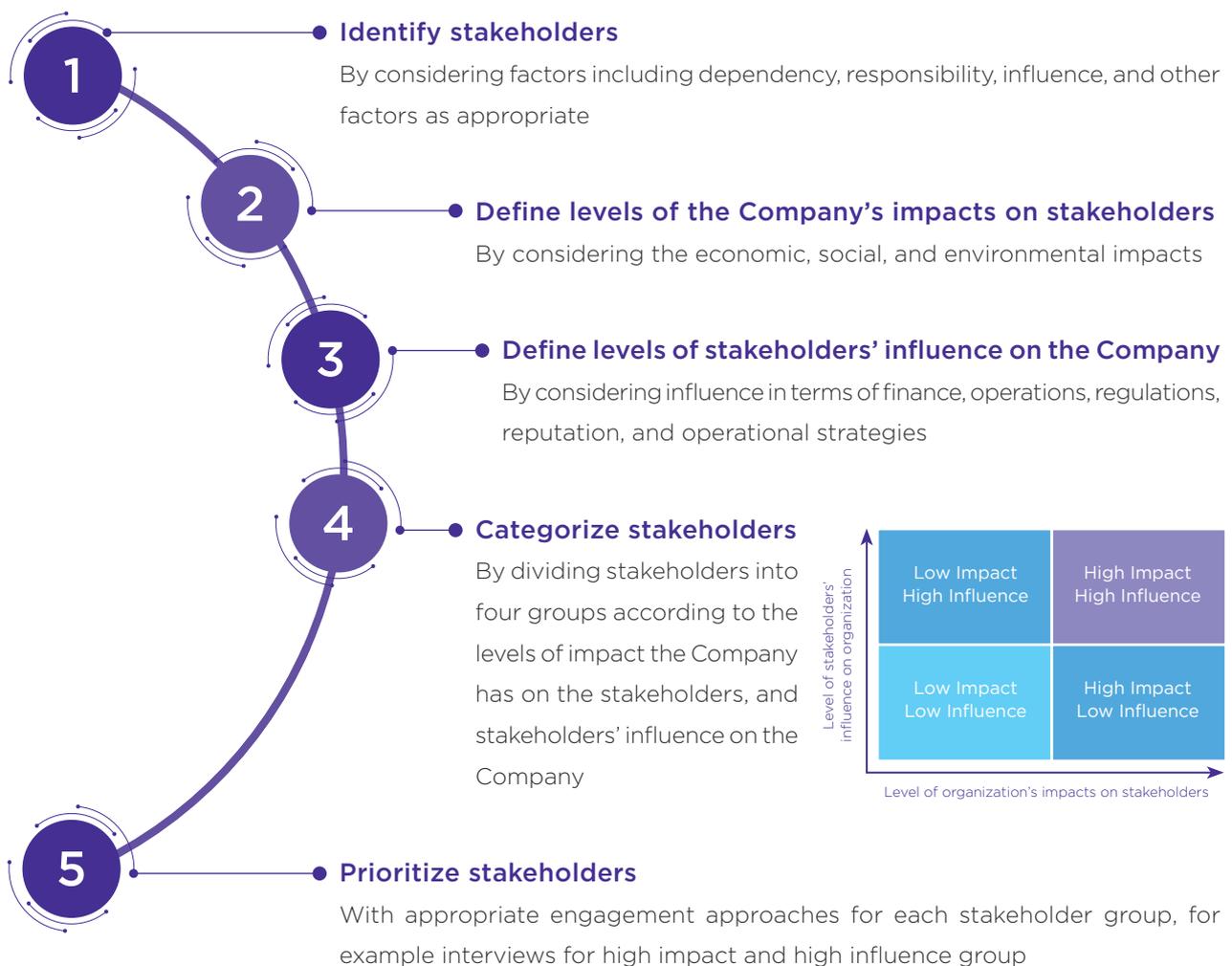
**PRINCIPLE 10 :** Work against corruption

# Stakeholder Engagement

The analysis of stakeholder interest is carried out through the corporate management standard, which was developed based on the international AA1000 Stakeholder Engagement Standard (AA1000SES) to assess issues that are important to stakeholders. Three principles – inclusivity, materiality, and responsiveness – underpin the stakeholder engagement framework.

Each business unit is responsible for identifying and analyzing stakeholders related to its business operations. Results from each business unit are collected and analyzed at the corporate level under the supervision of the Sustainability Committee.

## Process of Stakeholder Analysis



## Engagement Method and Stakeholder's Issue

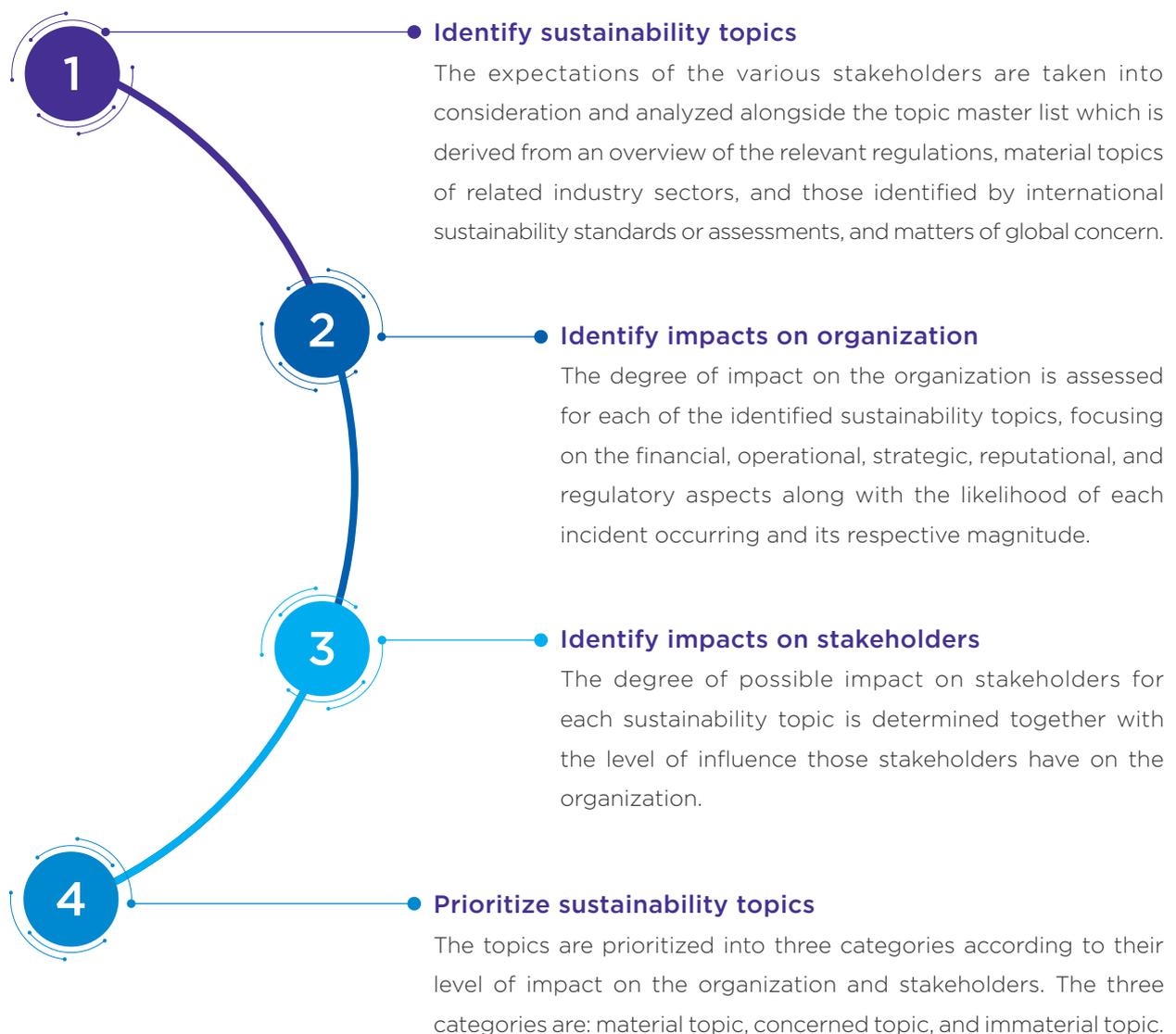
Stakeholder	Engagement Method	Stakeholder's Issue	Banpu's Sustainability Topic
 <b>Employee</b>	<ul style="list-style-type: none"> <li>• Communication between human resources department and employee</li> <li>• Employee involvement in committees</li> <li>• Complaint channel</li> <li>• "Banpu Heart" behavioral survey</li> <li>• Employee engagement survey</li> <li>• Town Hall Meeting</li> </ul>	• Direction of the Company	• Challenge and Opportunity
		• Business ethics and responsible business practices	• Business Ethics
		• Happiness in workplace • Reasonable wages and benefits • Career opportunities	• Employee Management
		• Capability development	• Human Capital Development
		• Safety in workplace	• Occupational Health and Safety
 <b>Community</b>	<ul style="list-style-type: none"> <li>• Community Consultative Committee (CCC)</li> <li>• Stakeholder satisfaction survey</li> <li>• Compliant channel</li> <li>• Communication with community development officers</li> <li>• Public information on the website</li> </ul>	• Social and environmental impact from the Company's activities	• Community Engagement • Air Emissions & Waste
		• Safety in life and residence	• Resettlement
		• Respect on human rights	• Human Rights • Indigenous Peoples
		• Community well-being and economic distribution	• Economic Distribution • Community Development
 <b>Customer</b>	<ul style="list-style-type: none"> <li>• Customer satisfaction survey</li> <li>• Compliant channel</li> <li>• Customer visit</li> <li>• Response the request for data disclosure</li> <li>• Report on annual maintenance plan and emergency drill</li> </ul>	• Quality and price of product • On-time product delivery	• Customer & Product Stewardship
		• Social and environmental impact from the use of product	• Customer & Product Stewardship • GHG Emissions
		• Availability of products and services	• Efficiency and Reliability of Power Plants
 <b>Government</b>	<ul style="list-style-type: none"> <li>• Occasional visit</li> <li>• Support to governmental initiatives and activities</li> <li>• Response the request for data disclosure</li> <li>• Publication of annual report and sustainability report</li> <li>• Public information on the website</li> </ul>	• Value creation for economy and society	• Sustainability Governance • Corporate Philanthropy
		• Business ethics • Data transparency and disclosure	• Business Ethics
		• Compliance with laws and regulations	• Environmental Compliance • Socioeconomic Compliance
		• Maximization of natural resource consumption	• Energy & Water
		• Supply chain management	• Supplier Management • Customer & Product Stewardship
		• Social and environmental impact from the Company's activities	• GHG Emissions • Water, Air Emissions & Waste • Biodiversity • Mine Closure
		• Driving SDGs into practices	• Banpu and SDGs • Banpu and UN Global Compact
 <b>Supplier</b>	<ul style="list-style-type: none"> <li>• Regular meeting with supplier</li> </ul>	• Fair and transparent procurement process	• Business Ethics
		• Future opportunity for doing business with the Company	• Supplier Management

Stakeholder	Engagement Method	Stakeholder's Issue	Banpu's Sustainability Topic
 <b>Contractor</b>	<ul style="list-style-type: none"> <li>• Regular meeting with contractor</li> <li>• Annual mining contractor meeting</li> </ul>	• Fair and transparent procurement process	• Business Ethics
		• Safety in the workplace	• Occupational Health and Safety
		• Reduction of energy consumption	• Energy
		• Future opportunity for doing business with the Company	• Supplier Management
 <b>Financial institution</b>	<ul style="list-style-type: none"> <li>• Analyst meeting</li> <li>• Publication of annual report and sustainability report</li> </ul>	• Business transparency	• Business Ethics
		• Business growth and financial performance	• Performance Overview
 <b>Business partner</b>	<ul style="list-style-type: none"> <li>• Board meeting at subsidiaries and associated companies</li> <li>• Publication of annual report and sustainability report</li> <li>• Report on annual maintenance plan and emergency drill</li> </ul>	• Business transparency	• Business Ethics
		• International reputation	• Awards & Recognitions
		• Business growth and financial performance	• Performance Overview
		• Business continuity	• Efficiency and Reliability of Power Plants
 <b>Shareholder</b>	<ul style="list-style-type: none"> <li>• Annual general meeting of shareholder</li> <li>• Publication of annual report and sustainability report</li> <li>• Compliant channel</li> <li>• Public information on the website</li> </ul>	• Qualification of Board of Directors and managements	• Management Structure
		• Business transparency	• Business Ethics
		• Risk management	• Risk Management • Business Continuity Management
		• Research & development for operational excellence	• Process Improvement and Innovation
		• Business growth and financial performance	• Performance Overview
 <b>Investor</b>	<ul style="list-style-type: none"> <li>• Opportunity investment roadshow</li> <li>• Presentation on Opportunity Day organized by Stock Exchange of Thailand</li> <li>• Publication of annual report and sustainability report</li> <li>• Public information on the website</li> </ul>	• Qualification of Board of Directors and Managements	• Management Structure
		• Business transparency	• Business Ethics
		• Value creation for economy, society and environment	• Sustainability Governance
		• Risk management	• Risk Management • Business Continuity Management
		• Business growth and financial performance	• Performance Overview
 <b>Media and NGOs</b>	<ul style="list-style-type: none"> <li>• Response the request for data disclosure</li> <li>• Fact sheet summary</li> <li>• Public information on the website</li> </ul>	• Value creation for economy and society	• Sustainability Governance • Corporate Philanthropy
		• Business transparency	• Business Ethics
		• Data transparency and disclosure	• Performance Data
		• Compliance with laws and regulations	• Environmental Compliance • Socioeconomic Compliance
		• Social and environmental impact from the Company's activities	• GHG Emissions • Water, Air Emissions & Waste • Community Engagement

# Materiality Assessment

The assessment and prioritization of material topics are carried out through the corporate management standard, which was developed based on the internationally recognized Global Reporting Initiative (GRI) Standard and AA1000 AccountAbility Principle Standard (AA1000APS), while taking into consideration the governance, environmental and social aspects for impacts on the Company and stakeholders. The material topics are annually reviewed and approved by the Sustainability Committee.

## Process of Materiality Assessment



# Materiality Matrix



Governance	Environment	Social
1. Sustainability Governance*	11. GHG Emissions	22. Employee Management
2. Business Ethics	12. Energy	23. Corporate Culture
3. Risk Management	13. Water	24. Human Capital Development
4. Business Continuity Management	14. Air Emissions	25. Occupational Health and Safety
5. Efficiency and Reliability of Power Plants*	15. Waste	26. Community Engagement
6. Process Improvement and Innovation	16. Mineral Waste	27. Community Development
7. Supplier Management	17. Specific Waste from Power Plants	28. Resettlement
8. Customer and Product Stewardship	18. Biodiversity	29. Indigenous Peoples
9. Economic Distribution	19. Mine Closure	30. Human Rights
10. Socioeconomic Compliance	20. Mine Subsidence	31. Corporate Philanthropy
	21. Environmental Compliance	

\*Additional topics in 2019

## Re-validation of Material Topics

In 2019, the Company used the 2018 materiality assessment to identify sustainability topics for this report. To cover all matters of stakeholder interest, this report includes 2 additional topics: sustainability governance, and efficiency and reliability of power plants. Hence, the report contents cover all 31 topics which no significant difference among the 11 material topics in this report when compared with that of the previous year. In addition, one of the topics is renamed in order to represent the current circumstances of the Company, which is socioeconomic compliance. Currently, the Company is reviewing material topics for the next sustainability report to ensure that the content meets stakeholders' expectation, and in line with global trend.

## Impact Boundary of Material Topics

Material Topic	Impact Boundary									
	Employee	Business Partner	Community	Contractor	Financial Institution	Customer	Government	Investor	Shareholder	Supplier
2 Business Ethics	●	●		●	●		●	●	●	●
7 Supplier Management				●			●			●
10 Socioeconomic Compliance							●			
11 GHG Emissions						●	●			
12 Energy				●			●			
21 Environmental Compliance							●			
22 Employee Management	●									
24 Human Capital Development	●									
25 Occupational Health and Safety	●			●						
26 Community Engagement			●							
27 Community Development			●							

# Governance



# Sustainability Governance

The Company believes that good governance is a foundation for the business. Consequently, integration of ESG strategy into day-to-day business operations is the key success factor for the Company's sustainable growth.

## Performance Summary

	2019	Target 2019
Coverage of significant ESG aspects set as corporate ESG targets	100%	100%
Coverage of corporate ESG targets deployed to senior executives	100%	100%

## Progress 2019

- Supplier Code of Conduct and Corporate Philanthropy Policy were approved in Sustainability Committee Meeting No.1/2019

## Reporting Boundary

The sustainability governance data in this report includes mining business in Indonesia and Australia, conventional power business in China, renewable power business in China and Japan, solar rooftop solution business in Thailand, including the head office, other related business in Thailand and regional offices in each country.

## Management Approach

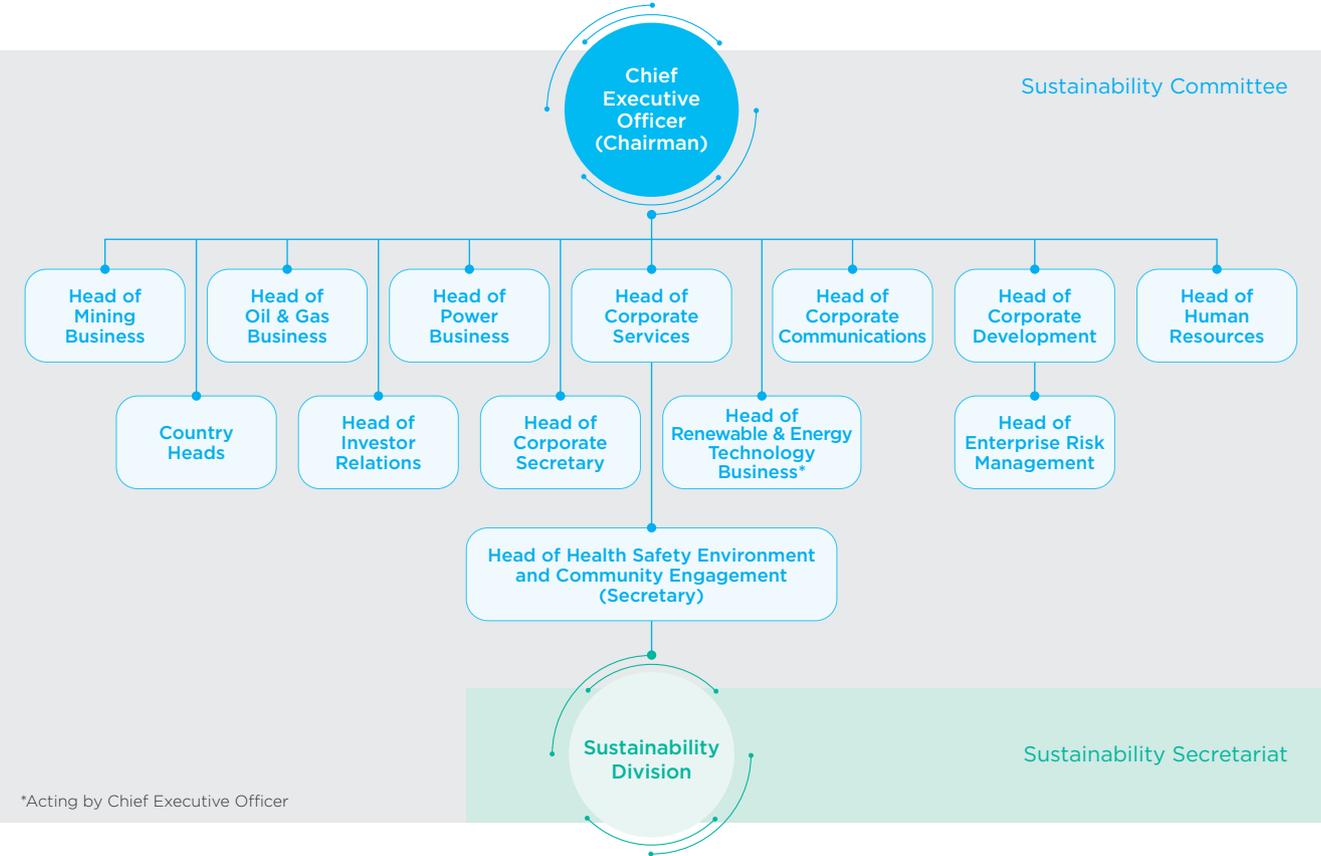
[Sustainability Policy](#)



To ensure good governance, the Company adheres to operate the business with fully comply with laws and regulations where we have operations. Apart from ensuring compliance with laws, regulations and shareholders' resolutions, the Board of Directors also ensures that ESG risks are properly managed. Sustainability performances are discussed at BoD meetings on a quarterly basis. In addition, the BoD site visit is annually performed to the business units, especially for the new directors.

	Role & Responsibility	Performance Indicator
Board of Directors (BoD)	<ul style="list-style-type: none"> <li>• Ensure compliance with relevant laws and regulations</li> <li>• Ensure that significant ESG risks are properly identified and managed</li> <li>• Set up the KPIs of CEO and evaluate CEO's performance</li> </ul>	<ul style="list-style-type: none"> <li>• Percentage of meeting attendance</li> <li>• BoD's performance assessment score</li> <li>• Coverage of significant ESG risks quarterly reviewed through the Audit Committee</li> </ul>
Chief Executive Officer (CEO)	<ul style="list-style-type: none"> <li>• Ensure the deployment of sustainability policy and ESG strategy into day-to-day business operations</li> <li>• Set up the KPIs of senior executives and evaluate performance</li> </ul>	<ul style="list-style-type: none"> <li>• Coverage of significant ESG aspects set as corporate ESG targets</li> <li>• Coverage of corporate ESG targets deployed to senior executives</li> <li>• Achievement of corporate ESG targets</li> </ul>
Senior executives and heads of business unit	<ul style="list-style-type: none"> <li>• Review related policies and strategies</li> <li>• Review results of stakeholder analysis and materiality assessment</li> <li>• Review global trends in sustainability</li> <li>• Review ESG targets and performances</li> <li>• Ensure the achievement of ESG targets</li> </ul>	<ul style="list-style-type: none"> <li>• Achievement of ESG targets at each business unit</li> </ul>

To drive sustainability strategy, the Company has established the Sustainability Committee. The committee, chaired by the CEO, consists of senior executives and heads of business unit from every country in which the Company operates, Committee meetings are held twice annually.



Annually, the Board of Directors performs the performance self-assessment, which consists of 3 types of assessment, namely group assessment of Board of Directors, sub-committees, and individual directors. In 2019, the results of assessment were as follows:

**BoD's Meeting Attendance and Performance Assessment**

	Board of Directors	Corporate Governance and Nomination Committee	Audit Committee	Compensation Committee
No. of meeting	12	4	9	6
Meeting attendance*				
Performance assessment	Group 4.76 of 5 Individual 4.51 of 5	Average of Sub-committee 4.89 of 5		

\*Minimum requirement for BoD's meeting attendance is 50%

The Sustainability Committee Meeting is held twice a year. During the meeting, the ESG or sustainability performances were reviewed whether the performances achieved the target. Besides, the global trends in sustainability were also discussed to seek the impacts and opportunities for the Company.

	Meeting No.1	Meeting No.2
Date	26 April 2019	6 November 2019
Key agenda	<ul style="list-style-type: none"> <li>Review 2018 ESG performances</li> <li>Review 2019 ESG risks</li> </ul>	<ul style="list-style-type: none"> <li>Set up 2020 ESG targets</li> <li>Update global trends (e.g. air pollution control from the International Maritime Organization (IMO))</li> </ul>
Approval	<ul style="list-style-type: none"> <li>Supplier Code of Conduct</li> <li>Corporate Philanthropy Policy</li> </ul>	<ul style="list-style-type: none"> <li>2020 ESG targets</li> </ul>

 **HSEC Summit 2019**

Annually, the Company arranges "HSEC Summit" which is participated by the Board of Directors, CEO, executives of all business units, and HSEC members in all countries. The objective of the meeting is to create cooperation and partnership among Banpu groups to collectively join hands to improve ESG performance of the Company across all aspects. In 2019, the summit was held in Thailand under the theme "Strengthen In-site and Shine up" on October 9. In the event, there was an announcement on the ESG challenges for 2020 which will emphasize on GHG emissions, safety, and supply chain management.

Besides, there were sharing sessions in which employees from operations in Australia, China, and Indonesia shared their good practices on Environment, Safety, and Community aspects. The purpose was to encourage other participants from different countries to apply



knowledge with the strategy for building a sustainable company and society. Example topics in the sharing session consisted of Clean water access program for community in Indonesia and Mobile incident reporting application.

For this meeting, there was a carbon footprint assessment to calculate GHG emissions emitted from the meeting arrangement. To offset emissions, participants collaborated to plant trees for compensation. 10,652 trees have been planted since the 2018 Summit, and it helped to compensate all carbon footprint of the event. Accordingly, the meeting was considered "The Carbon Neutral Meeting".

## Sustainability in performance evaluation

To ensure long-term sustainable growth, the Company integrates corporate ESG indicators into the KPIs of CEO, which is approved by the Board of Directors. In parallel, the KPIs of senior executives are established with alignment to the KPIs of CEO.

The performance of the CEO is reviewed annually by the Board of Directors. The CEO's compensation is considered referring to the Company's ESG performances, such as greenhouse gas emissions. The same basis is also applied for performance appraisal of senior executives, which is evaluated by the CEO.

## ITM SD workshop



In 2019, ITM, our subsidiary in Indonesia, arranged the first SD communication session or SD workshop for relevant employees

during 7-8 August. The workshop was participated by those related managements from both Jakarta office and all ITM subsidiaries with key objectives to refresh understanding and strengthen accountability in regard to sustainability. There was a guest speaker from Trisakti Sustainability Center (TSC) to share knowledge on sustainability topics such as Sustainability concept and approach, Sustainability business trend as well as Materiality survey introduction. In addition, the result of the materiality survey of 2019 was discussed. It showed that stakeholders gave great concern to 5 topics which are Biodiversity, Waste and effluent, Economic performance, OHS, and Digitalization. Each materiality topic was considered, and response plans were developed.

## Competency development of the Board of Directors

The Company encourages all directors to keep their skills and knowledge up to date. Throughout the year, directors attended the following competency development programs:

Program	Organization	Number of directors attending
Cyber Resilience Leadership Mission in Action 2019	Bank of Thailand	1
Risk Management for Corporate Leaders (RCL) Class 15/2019	Thai Institute of Directors	1
National Director Conference	Thai Institute of Directors	3
Director Certificate Program (DCP) Class 278/2019	Thai Institute of Directors	1
IIA Thailand Annual Conference 2019: Indispensable IA Insightful, Agile & Innovative"	The Institute of Internal Auditors Thailand	1
Annual Forum 2019 "Thai Businesses Amidst Mega Trends: Risks and Opportunities"	Thammasat Economic Association	4
Board Matters and Trends (BMT) Class 8/2019	Thai Institute of Directors	1
Senior Executive Program 2019 (SEP-33)	Sasin Graduate Institute of Business Administration of Chulalongkorn University	1

# Business Ethics



Business ethics is a material issue interested by all stakeholders since operating the business without adhering to ethical practices may result in damage to the reputation of the Company and stakeholders' confidence. Upholding business ethics is therefore an essential part of running the business successfully.

## Performance Summary

	2019	Target 2019
Number of significant corporate governance complaints	10	0
Proportion of significant corporate governance complaints resolved through a dispute mechanism	100%	100%

## Progress 2019

- Held a "CG Switch It On" event to raise business ethics awareness

## Reporting Boundary

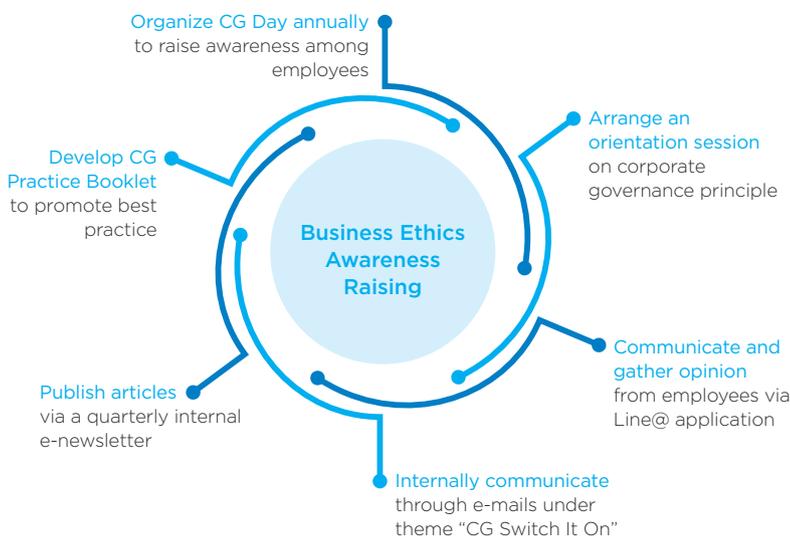
The business ethics data in this report includes mining business in Indonesia and Australia, conventional power business in China, renewable power business in China and Japan, solar rooftop solution business in Thailand including the head office, other related business in Thailand and regional offices in each country.

## Management Approach

Corporate Governance Policy and Code of Conduct



The Company published a Corporate Governance Policy and Code of Conduct that aligns with internationally standard such as the ASEAN Corporate Governance Scorecard, the Organization for Economic Co-operation and Development (OECD), and the CG principles of Thai listed companies according to the Securities and Exchange Act, the Stock Exchange of Thailand and the Securities and Exchange Commission. The CG Policy and Code of Conduct have regularly reviewed with the latest revision announced in 2018.



The Company developed CG Practice Booklet to give employees information about the CG Policy and Code of Conduct. This booklet also includes related policies and information including:

- Whistleblower policy
- Anti-corruption policy
- No-gift policy
- Conflict of interests
- Keeping confidential information
- Use of computer and information technology
- Trading partners and/or creditors policy and practices

## Performance

The Company was ranked one of the top listed companies with Excellent CG Scoring, according to the Corporate Governance Report of Thai Listed Companies 2019 developed by Thai Institute of Directors Association (IOD). In 2019, the Company received 10 corporate governance complaints from the whole Banpu Group. All of which have been dissolved.

### Complaint Channels



**Letter:** Corporate Governance and Compliance Division  
Banpu Public Company Limited,  
27<sup>th</sup> Floor, Thanapoom Tower,  
1550 New Petchburi Road, Makkasan,  
Ratchathewi, Bangkok 10400



**Company website:** <https://www.banpu.co.th/complaint/>



**Company web portal:** <http://portal.banpu.co.th>



**Email:** GNCchairman@banpu.co.th or  
GNCsecretariat@banpu.co.th

### Complaint Investigation Procedure



1 Conduct a full investigation in accordance with the guidelines of the Corporate Fraud Management manual once there is a sufficient evidence



2 Inform the complainant the investigation outcome through appropriate communication channels



3 Decide what action to take when the allegation was proven



4 Quarterly report to the Corporate Governance and Nomination Committee and annually report to the Board of Directors



### CG Day 2019



The Company organized the event “CG Switch It On” to launch the new CG Policy and Code of Conduct on 14 June 2019. In addition, the CG day, which is an event organized annually to raise awareness of business ethics in all employees, was held on 25 November 2019. The highlight activity was “You Wonder, We Answer” which allowed employees to ask questions in regard to the good practices according to the Company’s CG Policy and Code of Conduct.



### Anti-corruption Day 2019



The Company as a member of Thailand’s Private Sector Collective Action Coalition against Corruption (CAC), joined Anti-corruption Day 2019 with an aim to express commitment to tackle all forms of corruption. The event was held on 6 September 2019 by the Anti-corruption Organization of Thailand under the theme “Joining Forces against Corruption”.

# Risk Management



The business environment undergoes volatility and uncertainty situation. Paying great attention to the effective risk management not only prevents any possible adverse impact on the business but also enhance the business opportunities for the Company.

## Performance Summary

	2019	Target 2020	Target 2021
Proportion of business units with key risk indicators	100%	100%	100%
Coverage of ESG issues* in the enterprise risk management	-	>70%	100%
Proportion of business units** with ESG risk management plans	-	100%	100%

\* Based on COSO

\*\* For business unit(s) with high priority ESG risks

## Progress 2019

- Educated risk managers of all business units on the ESG issues
- Developed Compliance Risk Management (C-RIM) application

## Reporting Boundary

The risk management data in this report includes mining business in Indonesia and Australia, conventional power business in China, renewable power business in China and Japan, and solar rooftop solution business in Thailand, including the head office, other related business in Thailand and regional offices in each country.

## Management Approach

The Company's group-wide risk management is under the supervision of the Board of Directors through the Audit Committee. Risk management is integrated into all business processes, from strategic development to operational activities. At a corporate level, Risk Management Committee (RMC) chaired by the CEO has been established to monitor the high priority risks including the mitigation plans and performances of all business units. RMC reports performance to the Audit Committee and the Board of Directors on a quarterly basis. Risk appetite is reviewed regularly to align with the Company's strategy with the latest revision in 2018. Apart from the RMC, there are also other meetings relevant to risk management such as the financial management committee and the commodity risk management committee.

At an operational level, each business unit identifies, analyze, mitigate and monitor its risks with requirement to set key risk indicator and quarterly report to the enterprise risk management team. Environmental, social and governance (ESG) aspects are also integrated as part of the risk identification and management process. It is also required for all business units with high priority ESG risks to develop the risk management plans.

To ensure that risk management is integrated into day-to-day operations, the Company promotes risk awareness of the employee through various communication channels, such as e-learning, e-news letter, game and town hall event.



## Performance

In 2019, the Company educated risk managers of all business units on the ESG issues based on the Committee of Sponsoring Organizations of the Treadway Commission (COSO) framework with plan to integrate ESG issues into the enterprise risk management. To enhance corporate value through a coherent sustainability strategy, the 2020-2021 targets of ESG risk management were set. In addition, the Company had developed the Compliance Risk Management (C-RiM) application to improve efficiency in supervision and monitoring of legal compliance and compliance risks.

Risk category	Key risk
1. Strategic risk	<ul style="list-style-type: none"> <li>Strategic planning and implementation</li> <li>Human resource management and development to accommodate future growth</li> <li>Corporate reputation</li> <li>Inability to increase coal reserve for commercial purpose</li> <li>Investment in new businesses</li> <li>Climate change</li> </ul>
2. Financial risk	<ul style="list-style-type: none"> <li>Exchange rate</li> <li>Taxation</li> <li>Volatility in coal and natural gas prices</li> </ul>
3. Operating risk	<ul style="list-style-type: none"> <li>Mining business</li> <li>Power business</li> <li>Shale gas business</li> <li>Solar rooftop solution business</li> <li>Occupational health, safety and environment</li> <li>Social and community impact</li> </ul>
4. Compliance risk	<ul style="list-style-type: none"> <li>Legal compliance</li> <li>Policy and regulatory changes</li> </ul>
5. Emerging risk	<ul style="list-style-type: none"> <li>Technology disruption</li> <li>Digital transformation</li> <li>Changed climate (physical climate-related risk)</li> </ul>



## Emerging risks

According to the Company's risk assessment, two major emerging risks were found namely risk from a changed climate, and risk from technology disruption. The Company realizes the significance of such risks by taking into the Company's agenda in order to strive toward improvement for sustainable energy company via various types of energy technology and mitigation measures.

### Risk from a changed climate

With the increasing frequency of extreme weather events and a growing body of data about their impacts, companies will face mounting pressure from investors to get serious about a physical climate-related risk toward the business. Since there are operations in various countries, the Company has been exposed to different types of natural disasters such as Australia's bushfires and heavy rainfall in Indonesia. To prepare for a changed climate which is unexpected and unpredictable, the Company has mitigation measures to deal with such risks by

- Embedding physical climate-related risks, especially those that create high impact (e.g. heavy rainfall) to the business operation, into existing enterprise risk management
  - Include natural disaster arising from a changed climate, which possibly impacts to business continuity, as one of the potential risks in Business Continuity Management (BCM) plan
- Besides, as an energy provider, the Company has set clear strategy in being part of low-carbon society, some measures are being implemented such as
- Committing to reduce emissions with rigid long-term targets
  - Setting the internal carbon pricing as information for deciding whether to invest in new projects and as a tool to achieve the target of GHG emissions
  - Plan to disclose climate-related information based on four-core elements of the Task Force on Climate-Related Financial Disclosure (TCFD) guidance

### Risk from technology disruption

Facing the challenge of environmental issues such as biodiversity loss, a circular economy gradually replaces linear business models while emerging energy technology trends become a pathway to a low-carbon society. This also leads to changes in consumer behavior demanding for redesign of products and services to use less material and energy or release less emission. In order to respond to such risks, the Company put more effort to develop the new technology and innovation to support clean energy products and services which could be done by

- Having R&D in battery technology to create new energy storage innovations
- Setting up the Digital Center of Excellence to effectively improve the standard working to be more efficient and responsive to both internal and external customers' demands
- Launching BanpuNEXT as flagship company to focus on investment in the clean energy as well as development of the new energy business models

# Business Continuity Management



The environment in which business is conducted can experience disruption resulting from both natural and man-made causes. To minimize the potential losses and adverse consequences, the Company considers business continuity management as one of the key strategies.

## Performance Summary

	2019	Target 2019	Target 2025
Coverage of annual BCP exercise*	25%	50%	100%

\* At country and corporate levels

## Progress 2019

- Conducted BCP exercise at the corporate level
- ISO 22301:2012 certificated for the head office and related business in Thailand

## Reporting Boundary

The business continuity management data in this report includes mining business in Indonesia and Australia, and conventional power business in China, renewable power business in China, as well as, the head office and related business in Thailand.

## Management Approach

Business Continuity Policy



The Company's business continuity management system was developed based on the international standards such as ISO 22301:2012 and encompasses various processes including critical business function identification, business impact analysis, risk assessment, business continuity plan (BCP) development and BCP exercise. The Company has classified the business continuity management into 4 levels: corporate level, country level, site level, and front line level. The BCP exercises at each level are carried out regularly. For example, the head office in Thailand annually conducts the BCP exercise at the corporate and country levels on an alternate year basis. For country and site levels, the Company set a target to conduct exercise annually after 2025. The system performance is then reviewed annually by the Company through a process of internal audits and management reviews.

## Performance

In 2019, the head office and related business in Thailand received the ISO 22301:2012 certification for its business continuity management system. However, the target of 50% coverage of annual BCP exercise was not achieved as the exercise was conducted only at the head office, which accounted for 25%.



## Business continuity plan exercise

In 2019, BCP exercise at the corporate level was conducted on 3 October with simultaneous situations, including environmental protest and site invasion at the offices and mines in Australia and Indonesia, cyber-attack at the data centers in Thailand and Indonesia, and accident at China's power plant. Besides, BCP exercises of 3 critical business functions consisting of Disaster Recovery Team (DRT), Crisis Communication Team (CCT), and Relative Response Team (RRT) was also conducted. All of these exercises met the desired target. For instance, the RRT exercise conducted on 18 October by using LINE application for employee's check-in was successful as the Company can contact all employees within 30 minutes.



# Efficiency and Reliability of Power Plants



Customers expect the availability and reliability of both electricity and heat supply. Even though the Company's key customer is the national grid, unplanned downtime may interrupt the supply to end-user. Maintaining the highest efficiency and reliability of power plants is thus priority of the Company.

## Performance Summary

	2019	Target 2019
Availability factor of power plants*	94.07%	91.66%

\* Includes 3 combined heat and power plants in China only

## Progress 2019

- Improved production efficiency at Zouping power plant

## Reporting Boundary

The efficiency and reliability of power plants data in this report includes only the conventional power business in China, where there are 3 combined heat and power (CHP) plants.

## Management Approach

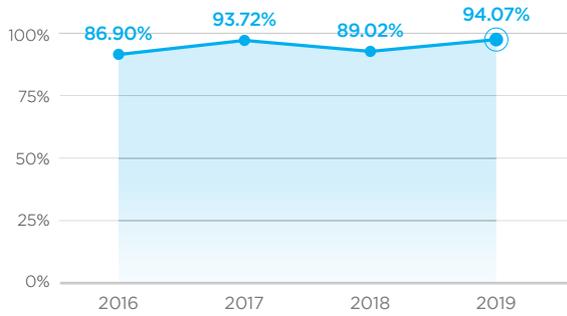
The electricity generated from CHP plant is sold to the national grid; however, the steam and hot water are sold directly to the industry and residential customers, with high demand in winter. To ensure the reliability during peak season, all maintenances are planned to complete within summer. There are 2 types of maintenance. The major maintenances are scheduled every two years, taking 30-45 days while the minor maintenances are scheduled annually, taking 10-20 days each time. The planned maintenances are performed to maintain reliability and also enhance efficiency and reliability of the plants.

## Performance

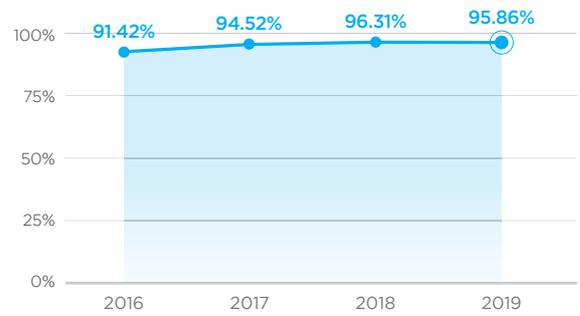
In 2019, the Company achieved the target as the average availability factor for 3 CHP plants in China was 94.07%. Furthermore, the unplanned and outage factor was also in line with the target since the plants were able to deliver electricity, steam, and hot water continuously.



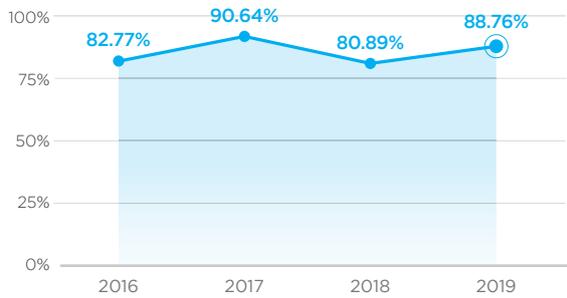
Availability Factor of 3 CHP Plants



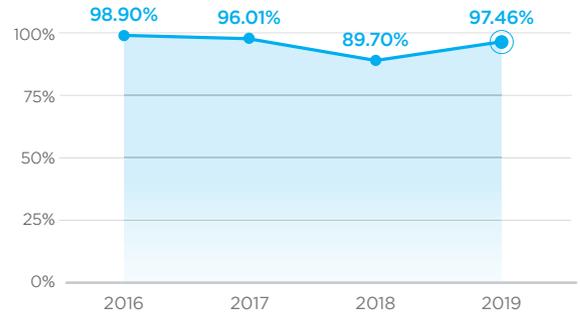
Availability Factor - Zhengding CHP Plant



Availability Factor - Luannan CHP Plant



Availability Factor - Zouping CHP Plant



### Energy conservation program at Zouping

Zouping power plant has been operated for many years and there was a significant reduction of energy consumption efficiency. To improve the efficiency, Zouping has implemented a series of energy conservation programs as follows:

Energy conservation program	Energy saving	Cost saving (RMB/yr)
Relocated fly ash silo to reduce energy consumption in fly ash transportation	44 kWh/tonne	955,000
Installed additional bin pumps into the fly ash removal system to improve balance of the system	1,421 MWh/yr	640,000
Installed speed controllers of the forced draft fans and induced draft fans to reduce motor speed during low operation mode	9,290 MWh/yr	4,200,000

After carrying out several measures, energy consumption of Zouping is significantly decreased, and at the same time, production cost can also be saved, together with the reduction of SO<sub>x</sub> and NO<sub>x</sub> emissions.

# Process Improvement & Innovation

Increase of productivity and efficiency is the most concern of the Company since it is directly related to the operational costs. Continuous improvement in the process through innovation and technology development is the key to ensure the Company's competitiveness.

## Performance Summary

	2019	Target 2019
Monetary value creation from innovation (USD million)	136	>114

## Progress 2019

- Digital transformation being implemented in Indonesia, Australia, China and Thailand.

## Reporting Boundary

The process improvement and innovation data in this report includes mining business in Indonesia and Australia, conventional power business in China, renewable power business in China and Japan, and solar rooftop solution business in Thailand, as well as the head office and regional offices in each country.

## Management Approach

To maximize productivity, the Company adopts the lean manufacturing and the operational excellence concepts. Various training sessions are conducted to strengthen problem-solving skill of the front-line staffs to ensure that the root causes are identified and managed. Annual seminars are held both at the operational and corporate levels to promote the sharing culture. In practice, the activities vary across the business unit. For instance, ITM in Indonesia works through the process named "KOMPAK" while Centennial in Australia has carried out the process named "Step Change Productivity".

Moreover, the Company has taken the step of setting up a Digital Center of Excellence (DCOE) to drive the digital transformation. Agile methodology is promoted when performing the process improvement project. The Company also established the Digital Capability Centers (DCC) in Indonesia and Australia to inspire creativity among the employees and collaborate across business units.

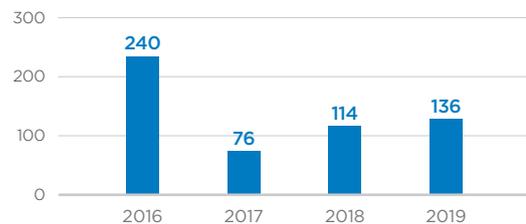
Since 2012, the Company has incorporated innovation into the corporate strategies and arranges "Banpu Innovation Convention", a corporate knowledge-sharing forum, annually to provide an opportunity for front-line staff in each country to share their innovation. The leading teams receive recognition from top management that includes the Chief Executive Officer.



## Performance

In 2019, the latest Banpu Innovation Convention was arranged in April 2019, at which the leading 11 teams from Thailand, Indonesia, China, and Australia shared their innovation projects. The target of increasing the value creation from the previous year was succeeded as 11 innovations can generate USD 136 million of value.

Monetary Value Creation from Innovation  
(USD million)



### ITM Digital Capability Center

To motivate employees to apply digital technology into their works according to the Company's digital transformation plan, Digital Capability Center (DCC) at ITM, our subsidiary in Indonesia, was officially rolled out on 8 July 2019. The center has built partnerships with digital institutions to prop up employee's capability and with technology providers to help improving business process. DCC is expected to become the organization's development center which is taking roles to improve work processes and facilitate new ways of working in the digital transformation era by utilizing solutions from creative digital technology. These new ways of working allow employees to have an agile mindset, so they will be able to quickly adjust to changes, respond to customers' and stakeholders' needs, and deliver business value.



### The 7<sup>th</sup> Banpu Innovation Convention



Banpu Innovation Convention is the annual corporate seminar to promote Banpu's employees in all countries to be creative, innovative, and daring to attempt new things, which is in line with "Innovative," one of Banpu Heart's core values. In 2019, the value was made tangible through the 7<sup>th</sup> Innovation Convention under the theme of "Dynamic of Innovation". On 5 April 2019, there were 11 teams from 4 countries, namely Australia, China, Indonesia and Thailand, presented their innovative projects in the final round. These 11 finalists impressively performed a total value creation for the Company around USD 136 million.

# Supplier Management



Supply chain management plays an important role in moving the Company forward as efficient management does reduce not only the risks of business interruption but also enhance the operational efficiency. Promoting ESG principles across the supply chain is thus one of the Company's missions.

## Performance Summary

	2019	Target 2020
Proportion of contracts that include ESG clauses*	28%	>20%
Proportion of new critical tier-1 suppliers assessed for ESG risks*	23%	>20%
Proportion of critical tier-1 suppliers assessed for ESG risks**	69%	>20%
Proportion of spending on local suppliers	66%	50%

\* Included data of conventional power business in China only

\*\* Included data of mining business in Indonesia and conventional power business China only

## Progress 2019

- Published supplier code of conduct and deployed across business units

## Reporting Boundary

The supplier management data in this report includes mining business in Indonesia and Australia, and conventional power business in China. However, the data excludes renewable power business in China and Japan, and solar rooftop solution business in Thailand, as the data collection system is under standardization, which expected to disclose in Sustainability Report 2021.

## Management Approach

[Sustainable Supply Chain Policy](#)



The Sustainable Supply Chain Policy was announced as a commitment to creating long-term value for all stakeholders. Moreover, 5-year strategic plan (2018-2022) was also developed as roadmap. The Supplier Code of Conduct has been published as guideline for all existing and potential suppliers to ensure that they operate the business in adherence to environmental, social and governance (ESG) principles.

At present, the supplier ESG due diligence process is under standardization, when the process is fully implemented, critical suppliers will be identified and carried out a preliminary ESG risk assessment. In case there is a critical supplier identified as high ESG risk, such supplier shall prepare preventive or corrective measures with a comprehensive audit plan. The Company then conducts an audit as specified in the plan once a year.

The Company also supports local procurement by seeking to engage goods and services with local suppliers in the areas of business operations. However, the data collection system is being developed. Furthermore, the spending analysis has been performed in each country to identify areas for cost reduction and seek opportunity to improve process efficiency.

## Performance

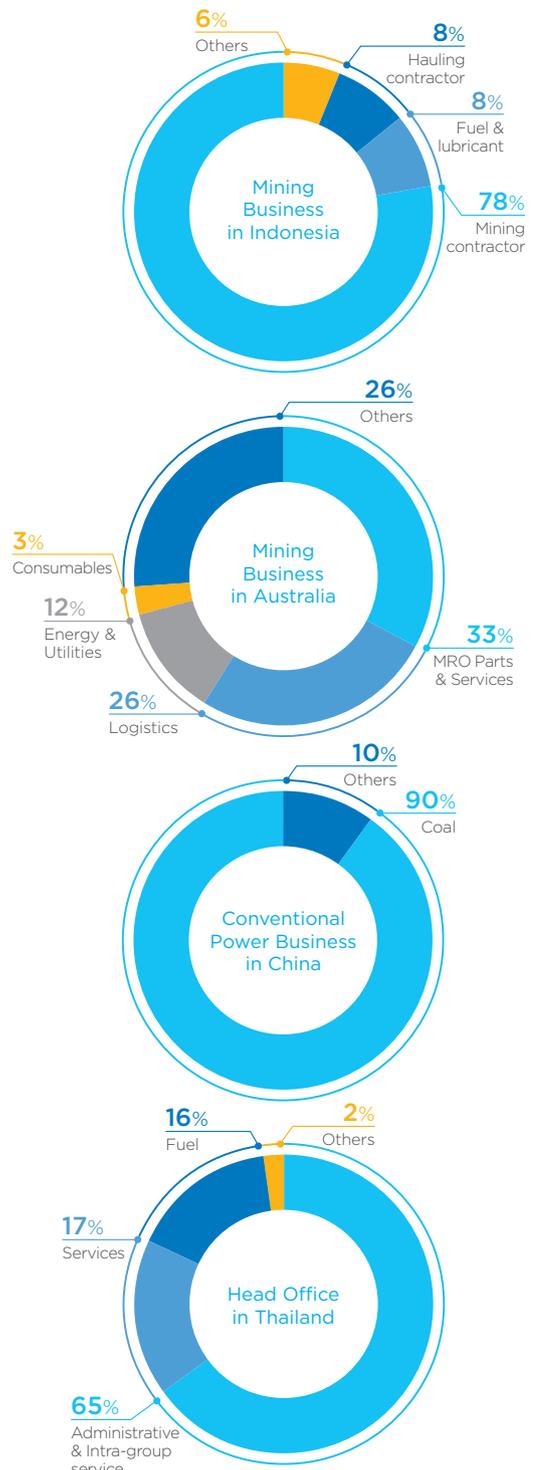
In 2019, the Company engaged with 1,992 suppliers in Indonesia, 1,536 suppliers in Australia and 509 suppliers in China. For mining business in Indonesia, 48 suppliers were identified as critical suppliers and 43 of them were assessed for ESG risks, consisting of mining and hauling contractors. For conventional power business in China, out of the 147 suppliers identified as critical suppliers, 92 were assessed for ESG risks, including 37 new critical suppliers. However, the corporate standard and data collection system are being developed for business units in other countries.

In 2019, the procurement spending with local suppliers, which refers to the supplier operated in the same region, is 66% on average. Moreover, the spending analysis has been performed in each country.

	China	Indonesia	Australia
No. of suppliers	509	1,992	1,536
No. of critical tier-1 suppliers	147	48	-*
No. of critical tier-1 suppliers assessed for ESG risks	92	43	-*
No. of new critical tier-1 suppliers assessed for ESG risks	37	-*	-*

\* Under standardization

### Spending Analysis



### Contractor's capacity building in Indonesia

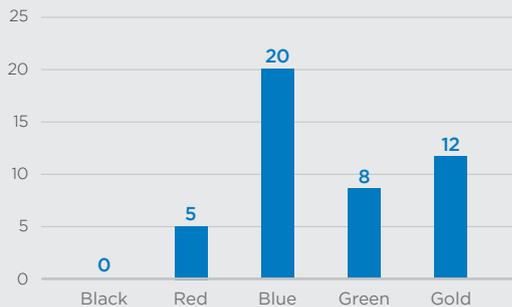
Risk of business interruption tightly links to the supply chain, especially the key resources such as fuel. In 2019, ITM, the Company's subsidiary in Indonesia arranged a workshop for contractors regarding a new fuel distribution management system to ensure compliance against the new standard. In addition, the workshop also gave an opportunity for participants to share best practices in regard to safety management and quality control.





## Contractor's ESG risk assessment in Indonesia

HSE-CMS Assessment Result  
(No. of contractor)



To ensure that the ESG risks associated with contractor operation are properly managed, ITM, the Company's subsidiary in Indonesia, has integrated contractor's risk assessment into day-to-day operations by establishing the Health, Safety and Environment of Contractor Management System (HSE-CMS). The HSE-CMS covers from the selection of new contractors to annual contractor performance review. In 2019, all new contractors were selected based on this standard and 90% of the existing contractors were assessed for ESG risks with classification into 5 levels - Gold, Green, Blue, Red, and Black. Assessment result demonstrated significant improvement of contractor's performance as the proportion of the Green level and higher are 45%.



## Supplier Code of Conduct

Supplier Code of Conduct



In 2019, the Company officially published the Supplier Code of Conduct which would become binding conditions included in supplier contracts, ensuring that they operate business adhering to ethical, social, and environmental responsibility. The Supplier Code of Conduct emphasizes 7 areas as follow;

- 1. Business Ethics:** operate the business with integrity and transparency in information disclosures to the public, prevent any possible corruption in all dimensions, refrain from conflict of interests, and respect customers confidentiality and intellectual property
- 2. Labor and Human Rights:** conduct business with the respect of human rights and non-discrimination by complying with labor laws and human rights practices, preventing force labor as well as providing good working conditions
- 3. Occupational Health and Safety:** comply with occupational health and safety laws in each country, provide a safe work environment to employees, and monitor OHS risks
- 4. Environment:** fully comply with environmental regulations, protect the environment by all means to reduce impacts on biodiversity and conserve natural resources, as well as transparently report environmental issues with effective solutions
- 5. Community and Society:** respect the interest of people in local communities, especially indigenous peoples, immigrants, and vulnerable groups as well as open contractive dialogue with such people
- 6. Business Continuity:** identify possible risks, conduct emergency drills, and immediately notify where situations may become liable to the Company
- 7. Supply Chain Collaboration:** encourage its suppliers to practice the same in accordance with this Supplier Code of Conduct as a standard for joint business



# Customer & Product Stewardship



Customer is the foundation of the business. Commitment to understanding customer's needs and strengthening customer satisfaction is the company's priority. This is to ensure achievement of the Company's mission to be a trusted partner with social and environmental responsibility.

## Performance Summary

	2019	Target 2019
Number of complaint regarding customer privacy	0	0
Number of complaint regarding safety and environmental issues from the use of products	0	0
Proportion of customer complaints being timely handled	NA*	100%

\* No complaints

## Progress 2019

- Maintained great performance on customer and product stewardship

## Reporting Boundary

The customer and product stewardship data in this report includes mining business in Indonesia and Australia, conventional power business in China and renewable power business in China and Japan. However, the performance data in this report does not include the solar rooftop solution business in Thailand, as the data collection system is under standardization. The Company expects to publish performance data to cover such business in Sustainability Report 2021.

## Management Approach

Code of Conduct



The code of conduct clearly states the practices towards customers that the Company will deliver the quality of products and services that customers expect. To guarantee the customers' trust and expectation, several management approaches have been developed and standardized across business units.

### Complaint management

The Company provides various complaint channels such as telephone, email, and websites. The complaint management system was also established with the standard operating procedure, for example, response time to customer within the next business day.

### Customer satisfaction management

The customer satisfaction survey is regularly conducted. The individual interview is also performed to gain insights into the specific issues.

### Customer data protection

Customer data shall be kept secure and confidential. Sensitive and personal identifiable information is limited access only to employees that need to know for the purpose of ensuring service quality. Such information shall be disclosed to the third party only upon given consent by the customers and let it be certain that such doing is mandated by law and with proper reasons.

In practice, the management approach may vary according to each business context as the following examples:

Business	Example of customer relations approach
Mining	<ul style="list-style-type: none"> <li>Regular customer site visits</li> <li>Knowledge sharing sessions</li> <li>Quarterly performance reports</li> <li>Open house for customers</li> </ul>
Conventional power	<ul style="list-style-type: none"> <li>Regular customer site visits</li> <li>Technical supports</li> </ul>
Renewable power	<ul style="list-style-type: none"> <li>Knowledge sharing sessions</li> <li>Performance reports</li> </ul>
Solar rooftop solution	<ul style="list-style-type: none"> <li>Technical supports</li> <li>Returns on investment (ROI) evaluation</li> <li>24-hour customer services</li> </ul>

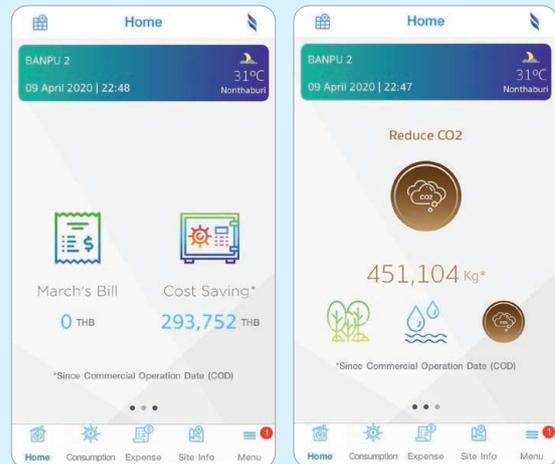
Safety and environmental issues from the use of products are also identified and managed with specific measures, for example, providing a material safety data sheet (MSDS) upon request, and providing technical support in terms of environmental and safety aspects.

## Performance

In 2019, there were no complaints received regarding neither customer privacy nor safety and environmental issues from the use of the Company's products.

### Digital platform of after-sales-service

The Company developed a mobile application “Banpu” as an after-sales-service platform to meet changing consumer lifestyles in the 4.0 era. With this application, customers can monitor the real-time performance of solar rooftop as well as their power-saving and CO<sub>2</sub> emissions. Also, billing and payment status can be accessed at all times, enabling customers to better plan the use of solar energy. In addition, a control room at the head office was also designed to monitor the solar system operation on sites in real-time. When there are any problems, the service response team and customers will be notified promptly by the application. All these features were developed to guarantee customer satisfaction.



# Economic Distribution



The Company believes that business should not focus only on profitability but it should also consider how the economic values generated are distributed to related stakeholders. The economic distribution is therefore important for the Company at the heart of sustainability.

## Performance Summary

	2019	Target 2019
The ratio of the dividend payout to net profits	NA*	50%

\*The Company recorded a net loss in 2019.

Note: Dividend payments are dependent upon cash flow, the investment initiatives of the Company and its subsidiaries, and other legal requirements.

## Progress 2019

- Updated data collection system for corporate community and social investment in accordance with London Benchmarking Group (LBG) framework

## Reporting Boundary

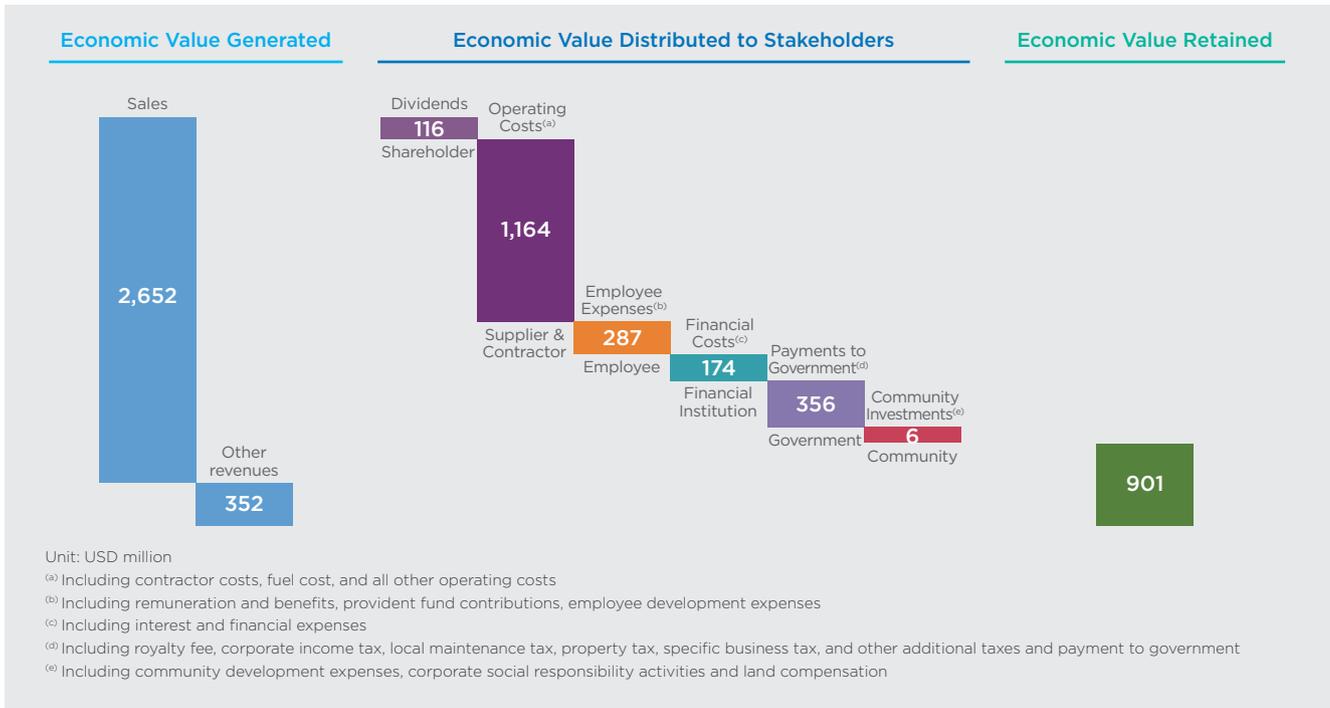
The economic distribution data in this report includes mining business in Indonesia and Australia, conventional power business in China, renewable business in China and Japan, solar rooftop solution business in Thailand, as well as the head office, other related business in Thailand and regional offices in each country. The key channels that the Company distributed economic value generated are as follows:

Stakeholder	Key distribution
Shareholder	<ul style="list-style-type: none"> <li>• Dividends</li> </ul>
Supplier and Contractor	<ul style="list-style-type: none"> <li>• Contractor costs</li> <li>• Fuel cost</li> <li>• All other operating cost</li> </ul>
Employee	<ul style="list-style-type: none"> <li>• Remuneration and benefits</li> <li>• Provident fund contribution</li> <li>• Employee development expense</li> </ul>
Financial Institution	<ul style="list-style-type: none"> <li>• Interest</li> <li>• Finance expenses</li> </ul>
Governance	<ul style="list-style-type: none"> <li>• Royalty fee</li> <li>• Corporate income tax and local maintenance tax</li> <li>• Property tax, specific business tax and other taxes</li> <li>• All other payment to government</li> </ul>
Community	<ul style="list-style-type: none"> <li>• Community development programs</li> <li>• Corporate social responsibility activities</li> <li>• Land compensation</li> </ul>

## Management Approach

The Company aims to balance the economic value generated between each stakeholder. Besides the dividends paid to shareholders, the Company places emphasis on taking responsibility to the countries where it operates by paying taxes and fees to the local authorities, local employment, and spending on the local products or services as much as possible. For transparency, the economic value distributed data and the transfer pricing documents for intra-group services transactions are verified by the third party and made available to related stakeholders. The data related to community and society is collected based on international standards such as London Benchmarking Group (LBG) framework.

In 2019, the Company recorded a net loss; however, the dividends were paid with amount of USD 116 million to the shareholders. The economic value generated and distribution to stakeholders are details as follows:

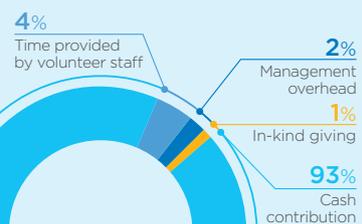
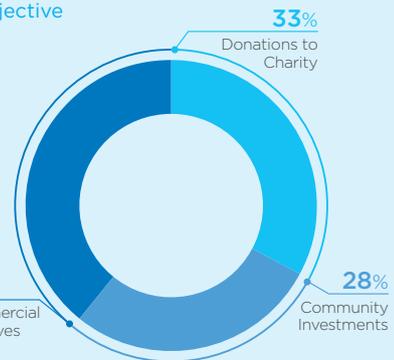
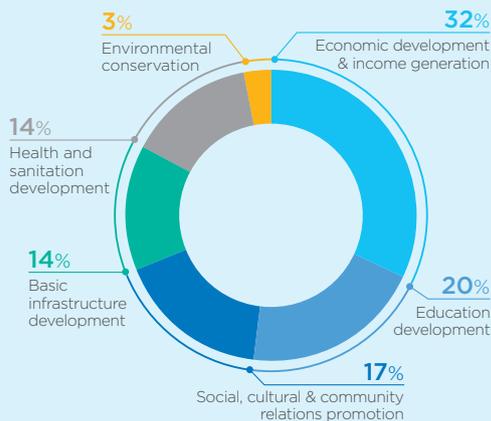


### Corporate community and social investment

The Company places great importance on supporting and investing in the development of communities and society with the goal to balance beneficial value across stakeholders. To ensure a clear direction on community investment, the Company has applied the London Benchmarking Group (LBG) framework as guideline in categorizing the corporate community investment.

#### Proportion of Contribution by Objective

#### Proportion of Contribution by Type



# Socioeconomic Compliance



The Company's business is subject to permits, licenses, laws and regulations, especially in the social and economic area. A failure to comply with such requirements can result in significant fines, non-monetary sanctions, or loss of license to operate. Monitoring socioeconomic compliance is therefore part of day-to-day business operations.

## Performance Summary

	2019	Target 2019
Number of significant socioeconomic non-compliance	0	0
Number of significant fines from socioeconomic non-compliance	0	0

## Progress 2019

- Deployed mobile application as real-time compliance data platform

## Reporting Boundary

The socioeconomic compliance data in this report includes mining business in Indonesia and Australia, conventional power business in China, renewable power business in China and Japan, solar rooftop solution business in Thailand including the head office, other related business in Thailand and regional offices in each country. The key risks which may lead to a non-compliance are described as follows:

Aspect	Example of laws and regulations
Business ethics	<ul style="list-style-type: none"> <li>• The securities and exchange act</li> <li>• The code of best practices of directors of listed companies</li> <li>• The principle of good corporate governance</li> </ul>
Employment	<ul style="list-style-type: none"> <li>• Labor law</li> <li>• Occupational health and safety law</li> </ul>
Community	<ul style="list-style-type: none"> <li>• National heritage and culture law</li> <li>• Indigenous protection law</li> </ul>

## Management Approach

The corporate compliance management system has been developed based on ISO 19600 with 4 key measures as follows:

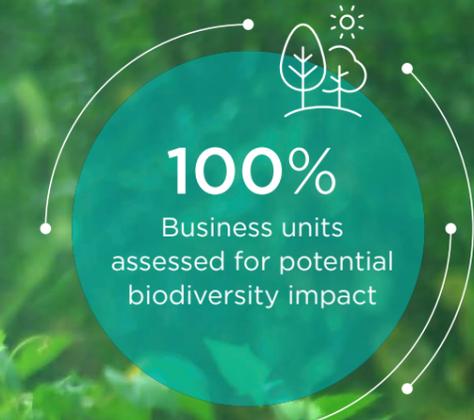
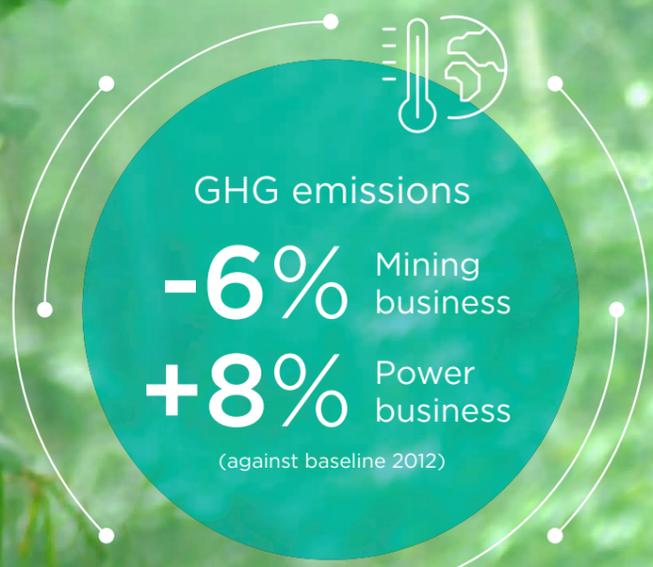
- 1. Identify** compliance risks by monitoring relevant laws and regulations at all countries where the Company operates
- 2. Conduct** compliance self-assessment whether there are any risks in regards to non-compliance at each business unit
- 3. Provide** support to business units to ensure compliance status
- 4. Report** compliance status to the management and the Audit Committee on a regular basis

To ensure the effectiveness of compliance management system, the Company enhances compliance awareness of the employees through various communication channels including monthly e-newsletters and in-house training sessions. Moreover, compliance department has been established at each business unit as directly responsible function.

## Performance

In 2019, the Company achieved the target as there were no significant socioeconomic non-compliance or fines in all business units. Moreover, the compliance management application was developed with real-time compliance database, covering Thailand, China, Indonesia and Australia.

# Environment



# GHG Emissions



Climate change presents a significant concern for every stakeholder. Collaboration across countries to prevent further increases in the global temperature and restrict GHG emissions is thus the global agenda. As an energy provider, the Company has an important role to play in reducing GHG emissions, and this is why the Company aims to increase clean energy portfolio and set specific targets for reducing GHG emissions.

## Performance Summary

	2019	Target 2020
GHG emissions intensity* - Mining business	-6%	-25%
GHG emissions intensity* - Power business	+8%	-15%

\*Target and performance against 2012 baseline

## Progress 2019

- Prepared to disclose GHG data by using Task Force on Climate-related Financial Disclosures (TCFD) recommendation
- Established the Climate Change Committee

## Reporting Boundary

The GHG emissions data in this report includes mining business in Indonesia and Australia, conventional power business in China, renewable power business in China and Japan, and solar rooftop solution business in Thailand. The sources of GHG emissions for each business are explained below:

Business	Key activity	GHG source (Scope 1)										GHG source (Scope 2)
		Diesel	Biodiesel	Gasoline	Coal	Methane	Explosive	HFC <sub>s</sub>	SF <sub>6</sub>	CaCO <sub>3</sub>	Waste gas	Electricity imported
Mining	Electricity generation		●		●	●					●	
	Coal extraction		●									●
	Coal hauling	●	●									●
	Coal processing											●
	Coal seam & stockyard					●						
	Barging		●									
	Supporting activities	●	●	●					●			●
Conventional power	Boiler	●			●						●	
	Coal stockyard					●						
	Air quality control									●		●
	Substation								●			
	Auxiliary system											●
	Supporting activities	●		●					●			
Renewable power	Auxiliary system											●
	Supporting activities	●		●								
Solar rooftop solution	Auxiliary system											●
	Supporting activities	●		●								



Climate change risk is considered and integrated into the Company's enterprise risk management. The Company has set a climate change management as one of the KPIs of CEO and senior management of relevant business units, as well the Climate Change Committee has been established to ensure the implementation of the climate change management strategy focusing on 4 areas.

Focus area	Measure	Key progress
Mitigation	<ul style="list-style-type: none"> <li>Ensuring compliance related to climate change</li> </ul>	<ul style="list-style-type: none"> <li>Announced climate change policy since 2010 and revised in 2018</li> </ul>
	<ul style="list-style-type: none"> <li>Seeking to reduce greenhouse gas emissions</li> </ul>	<ul style="list-style-type: none"> <li>Announced long-term GHG reduction targets since 2010 (2015 targets in 2010 and 2020 targets in 2016)</li> </ul>
	<ul style="list-style-type: none"> <li>Integrating carbon pricing in our investment</li> </ul>	<ul style="list-style-type: none"> <li>Implemented internal carbon price since 2018</li> </ul>
Adaptation	<ul style="list-style-type: none"> <li>Monitoring risks, opportunities and implications of climate change</li> </ul>	<ul style="list-style-type: none"> <li>Assessing the risks from climate change and reporting the findings to the Risk Management Committee since 2004</li> </ul>
	<ul style="list-style-type: none"> <li>Planning for business continuity regarding climate change</li> </ul>	<ul style="list-style-type: none"> <li>Considered the threat from the changed climate when developing the Business Continuity Management (BCM) plan since 2011</li> </ul>
Being a part in a low carbon society	<ul style="list-style-type: none"> <li>Seeking to invest in low carbon or renewable energy</li> </ul>	<ul style="list-style-type: none"> <li>0.3 GW of electricity from renewable power</li> <li>0.1 GW of solar rooftop operating capacity</li> </ul>
	<ul style="list-style-type: none"> <li>Supporting initiatives, research and development (R&amp;D) of low greenhouse gas emissions technologies</li> </ul>	<ul style="list-style-type: none"> <li>Invested in R&amp;D for energy storage system, electric vehicle, and smart city</li> </ul>
	<ul style="list-style-type: none"> <li>Seeking to engage with stakeholders to reduce greenhouse gas emissions</li> </ul>	<ul style="list-style-type: none"> <li>On progress</li> </ul>
Participation in a climate change community	<ul style="list-style-type: none"> <li>Sharing the information of our performance to climate change platform</li> </ul>	<ul style="list-style-type: none"> <li>Participated in CDP-Climate change since 2010 and CDP-Water since 2017</li> </ul>
	<ul style="list-style-type: none"> <li>Being a member of the climate change committee /taskforce</li> </ul>	<ul style="list-style-type: none"> <li>On progress</li> </ul>

To determine the GHG emissions, the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5) was used on Global Warming Potential (GWP), except in the case of Australia, which applied the IPCC Fourth Assessment Report (AR4) for calculations based on national guidelines. The emission factors were derived from the revised edition of the Corporate Accounting and Reporting Standards and if applicable, the specific emission factors taken from the regional guidelines were used.

In this report, 5 gases are discussed due to their relationship with normal operational activities including carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs) and sulfur hexafluoride (SF<sub>6</sub>). The GHG target was set based against the 2012 baseline – coincidentally the same year that the Australian business unit was integrated into the overall corporate performance. Furthermore, the Company also takes into account the indirect GHG emissions (Scope 3) in 3 specific categories: the use of products sold; business travel associated with the Head Office in Bangkok, and upstream transportation and distribution.

In 2019, the Company established the Climate Change Committee, whose meeting is held quarterly, consists of representatives from related functions in order to monitor risks and identify the potential impacts of climate change. As well, the management approach will be proposed to the management for further actions. Besides, the Company is preparing to disclose GHG emissions climate-related risk and opportunities by using Task Force on Climate-related Financial Disclosures (TCFD) recommendation.

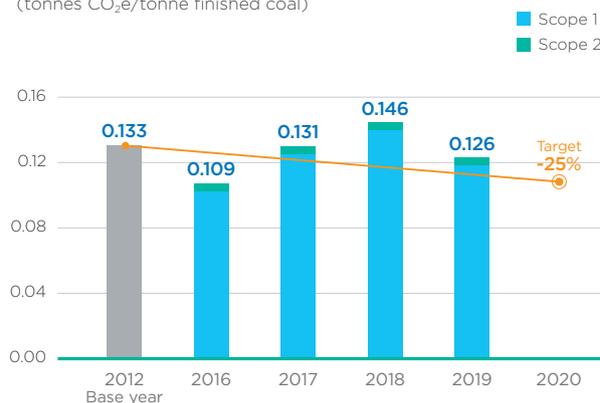
**Mining Business**

In 2019, even though the GHG emissions intensity was 0.126 tonnes CO<sub>2</sub>e/tonne finished coal which decreased by 6% compared to the 2012 baseline, the GHG emissions intensity was not achieved the Company’s annual target. This is due to the dynamic nature of coal seam gas resulting in greater-than-anticipated emissions at one of the underground mine. The gas emissions exceed the capacity of our abatement systems. With the new gas engines at Mandalong which are under construction and will generate electricity for the mine site by the year 2020, the Company expects to have our downward trajectory of both GHG scope 1 from the combustion of methane and GHG scope 2 from the reduction of grid consumption.

Moreover, the 2 MWe captive solar power plant is being installed and expected to be completed in 2020 at Airly mine. This leads on to 3,000 MWh reduction of electricity imported and at the same time reduces GHG scope 2 of around 2,430 tonnes CO<sub>2</sub>e per annum.

In Indonesia, the Company installed a microgrid system consisting of 3 MW of Solar PV and 2 MW of battery storage at Indominco mine and started operation at the end of December. Another microgrid system with 2 MW of Solar PV and 2 MW of battery storage is being installed at Trubaindo mine and expected to be completed in 2020. In addition, all Indonesia mine sites including barging activities use biodiesel (B20) as a substitute for diesel fuel resulting in the increase of biogenic GHG scope 1 since it consists of palm oil.

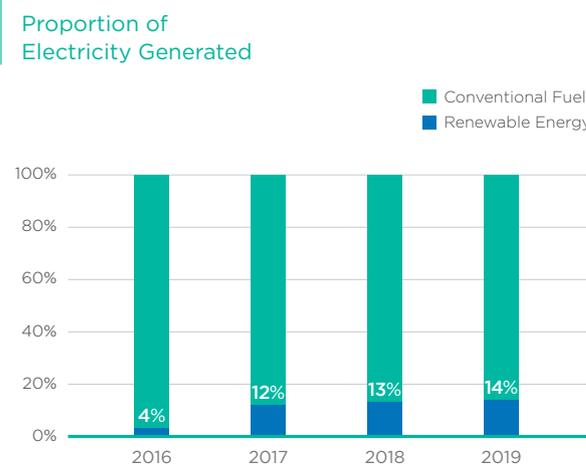
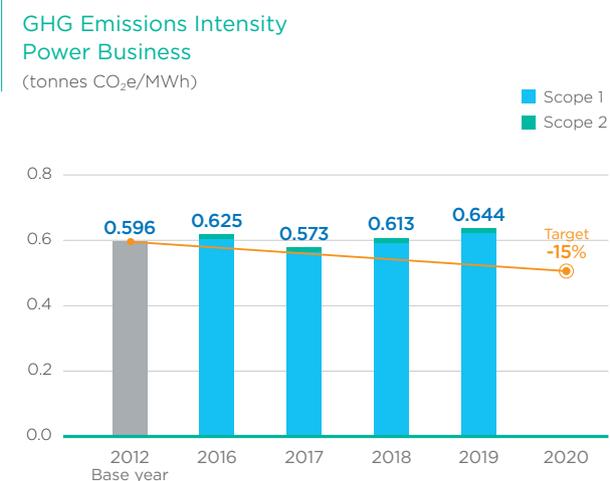
**GHG Emissions Intensity Mining Business**  
(tonnes CO<sub>2</sub>e/tonne finished coal)



**Power Business**

The significant increase in energy consumption intensity as a result of the varieties of customer demand in conventional power business caused a different trend compared to the previous year in our GHG emissions. In 2019, the GHG emissions intensity was 0.644 tonnes CO<sub>2</sub>e/MWh which increased by 8% compared to the 2012 baseline.

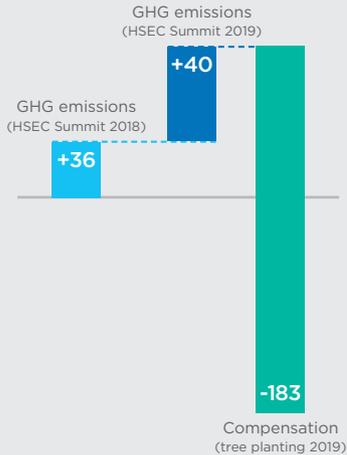
However, 2 solar power plants in China and Japan started commercial operation this year, helping to increase the proportion of electricity generated from renewable energy to 14% of total electricity generated.



## Carbon footprint of HSEC Summit

### Carbon footprint from HSEC Summit

(tonnes CO<sub>2</sub>e)



The Company has a carbon footprint assessment for HSEC Summit for two consecutive years. In 2019, the amount of GHG emissions from the HSEC Summit arrangement was 40 tonnes CO<sub>2</sub>e. 95 percent of total GHG emissions came from transportation while the other 5 percent came from accommodation in hotel, food, energy consumption, and decoration, respectively. To offset the emissions, all business units joined hands to plant the trees for compensation and then assessed the amount of GHG emissions absorbed by those trees. It was found that 10,652 trees planted by participants could absorb 183 tonnes CO<sub>2</sub>e. This amount was cover all GHG emissions of the 2018 Summit, which was 37 tonnes CO<sub>2</sub>e, and the 2019 Summit, which was 40 tonnes CO<sub>2</sub>e. This activity was not only compensated the carbon footprint of the event but also sequester an additional 106 tonnes CO<sub>2</sub>e of GHG emissions.



## U-Solar programme for solar industry ecosystem

In 2019, Banpu Next Co., Ltd. (BNEXT) becomes a partner with UOB to drive the adoption of renewable energy across Thailand under the “U-Solar programme”, which was officially launched on 5 February 2020. UOB with its partners will offer a one-stop service for the end-users including companies and consumers for installation, operation, and after-service of solar power systems. With solar financing support from UOB, companies and consumers seeking solar power solutions for their factories, offices or homes can easily switch to solar power. After that, BNEXT will provide them solar rooftop installation and maintenance services. U-Solar will help end-users to minimize large investments through support from UOB, and at the same time, they will enjoy energy saving through solar rooftop solution from BNEXT.



## Indirect GHG emissions (Scope 3)

Since 2018, the Company has conducted an assessment of indirect GHG emissions (Scope 3) associated with operation of the Company in 3 specific categories. In 2019, the assessment results were as follows;

Category	Amount of indirect GHG emissions (Scope 3)	GHG emissions source
Use of products sold	33,427,638 tonnes CO <sub>2</sub> e	Customer use of coal for electricity generation
Business travel*	611 tonnes CO <sub>2</sub> e	Fuel consumed for business travel by plane of employees and executives at the head office
Downstream transportation and distribution**	7,993 tonnes CO <sub>2</sub> e	Fuel consumed for coal distribution to overseas customers

\* Calculated based on the International Civil Aviation Organization (ICAO) standard

\*\* Calculated based on the International Maritime Organization (IMO) standard

# Energy



Energy drives global economic development. The energy markets around the world are currently experiencing challenges in balancing supply and demand since the rapid rise of energy demand. This resulted in the price fluctuation and thus affected the production costs across the industrial sectors. Facing these challenges can best be accomplished through an efficient energy management strategy.

## Performance Summary

	2019	Target 2019
Energy consumption intensity - Mining business (GJ/tonne finished coal)	0.45	<0.47
Energy consumption intensity - Power business (GJ/MWh)	1.87	<1.72

## Progress 2019

- Improving the data collection system to encompass various businesses

## Reporting Boundary

The energy consumption data in this report includes mining business in Indonesia and Australia, conventional power business in China, renewable power business in China and Japan, and solar rooftop solution business in Thailand. The key energy-consuming activities for each business are described below:

Business	Key activity	Energy source								
		Diesel	Biodiesel	Gasoline	Coal	Methane	Solar	Waste gas	Electricity imported	Electricity self-generated
Mining	Electricity generation		●		●	●	●			
	Coal extraction		●						●	
	Coal hauling	●	●						●	
	Coal processing								●	●
	Barging		●							
	Supporting activities	●	●	●			●		●	●
Conventional power	Boiler	●			●			●		
	Auxiliary system							●		
	Supporting activities	●		●			●			
Renewable power	Electricity generation						●			
	Auxiliary system							●		
	Supporting activities	●		●						
Solar rooftop solution	Auxiliary system							●		
	Supporting activities	●		●						

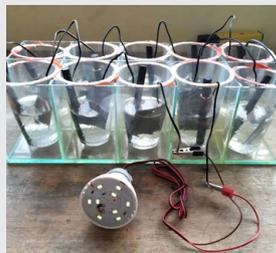
## Management Approach

The Company integrates an energy management plan with the GHG emissions management strategy. However, the energy consumption patterns in the different businesses are varied; for instance, open-pit mining is prevalent in Indonesia, while mining in Australia is carried out underground. This can explain some of the differences in energy consumption and leads on to different energy conservation activities for example:

- **Open-pit mining business:** Most of the energy consumption is in the overburden removal and coal hauling activities. Accordingly, the energy conservation projects focus on improving the efficiency of these systems. For instance, change of haul truck to conveyor belt and improvement of transportation routes to get shorter distance and reduce curve of road for maximum efficiency of fuel consumption.
- **Underground mining business:** Most energy usage is for coal drilling and coal transportation by conveyor belt. Therefore, the energy conservation projects focus on enhancing the electricity consumption efficiency through the use of automatic control systems. Furthermore, there are regular inspections to maintain equipment efficiency.
- **Conventional power business:** Most of the energy consumed in the boiler. The Company accordingly emphasizes the efficiency improvement by properly balancing the proportion of electricity and heat production in order to meet the changing customer demand across different seasons.
- **Renewable power and solar rooftop solution business:** Energy is primarily consumed for transportation activities. The Company therefore places emphasis upon the proper traveling plan to maximize fuel consumption efficiency.



### Research on the utilization of acid mine drainage for electricity generation



Jorong mine with ULM University, in 2019, conducted research on the possibility of utilizing the acid mine water for electricity generation. Since October 2019, acid water with pH 3.3 was filled into a pilot-scale battery that was connected to a 3-watt bulb. It found that the bulb could be lit for three days or 53 hours, and the quality of water used in the experiment was also improved as its pH was increased to 6.2.

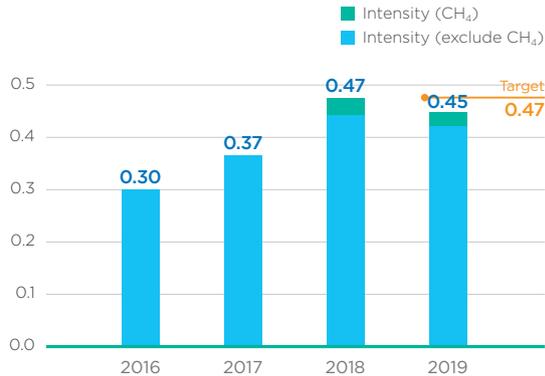
However, this is one of the Company's initiatives in finding an alternative way for energy generation together with improving environmental management. The Company has an intention to continually research to find the possibility for the full-scale production.

## Performance

In 2019, the data collection system is under improvement to encompass the different businesses of the Company. Moreover, baseline data for each of the business are being analyzed and the new long-term energy intensity targets for each business unit are also being discussed.

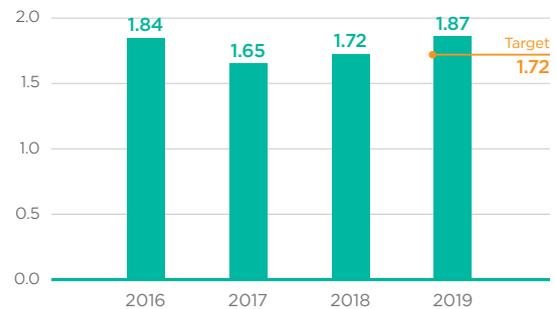
### Energy Consumption Intensity Mining Business

(GJ/tonne finished coal)

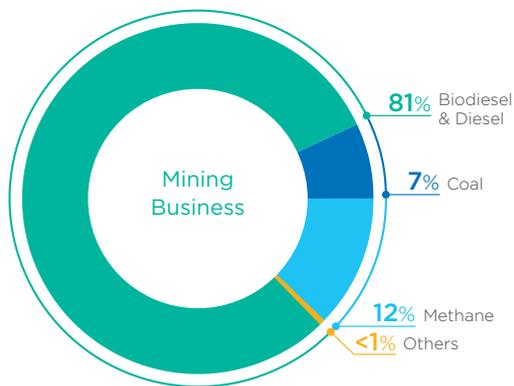


### Energy Consumption Intensity Power Business

(GJ/MWh)



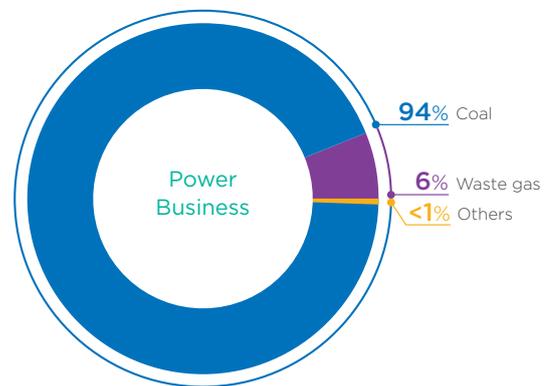
### Proportion of Energy Consumption Mining Business



### Mining Business

In 2019, the energy consumption intensity was 0.45 GJ/tonne finished coal, which decreased 4% compared to previous year making the Company achieved the target. Regarding to the GHG emissions reduction measure, the Company uses biodiesel (B20), which is an alternative energy and consists of palm oil, as substitute for diesel fuel for all activities at mining operations in Indonesia including barging activity.

### Proportion of Energy Consumption Power Business



### Power Business

For many years, ongoing energy conservation projects have been implemented helping to reduce the energy consumption intensity continuously. However, there was no significant changing in the energy consumption intensity from the last 2 years, the Company has therefore intended to set the target based on performance of the previous year. Even though the Company emphasized the efficiency improvement by balancing the proportions of electricity, steam, and heat generation in response to the demand, the energy consumption intensity increased 9% compared to the previous year because the variety of customer demand was higher than expectation.

# Water



Limited water resources are the utmost concern to all stakeholders as water is essential to human life and also a raw material of most industries. Inefficient management may cause water crisis both in terms of availability and quality. This can lead onto a conflict with local communities and finally impact credibility of the Company.

## Performance Summary

	2019	Target 2019
Water consumption intensity - Mining business (m <sup>3</sup> /tonne finished coal)	0.154	≤0.138
Water consumption intensity - Power business (m <sup>3</sup> /MWh)	0.827	≤1.103

## Progress 2019

- Complete water balance at all business units in China

## Reporting Boundary

The water data in this report includes mining business in Indonesia and Australia, conventional power business in China and renewable power business in China and Japan. However, the data excludes the solar rooftop solution business in Thailand because this business consumes an insignificant amount of water. The key water-consuming activities are described below:

Business	Key water-consuming activity	Water source				
		Surface water	Ground water	Seawater	Produced water	Third-party water
Mining	Coal processing	●	●			●
	Dust control	●	●			
	Mine rehabilitation	●	●			
	Electricity generation (as cooling water)	●		●		
Conventional power	Boiler		●			●
	Cooling system		●			●
	Air quality control		●			●
Renewable power	Panel cleaning		●			
	Office		●			●

The Company has also conducted the preliminary water risk assessment for all business units to identify which business units contain high potential risk. According to the assessment, it was confirmed that several businesses except the solar rooftop solution were identified as such.



The Company carries out water risk assessment for each business unit. One of the processes is to determine whether the operational sites are located in water stress areas under the database of Aqueduct Water Risk Atlas of the World Resources Institute. The outcomes are quarterly reported to the Risk Management Committee.

Business	Operational status	No. of business unit		
		Total	Assessed	In water stress area
Mining-Indonesia	Operating	5	5	0
	Project	2	2	0
Mining-Australia	Operating	5	5	3
	Project	4	4	2
Conventional power-China	Operating	3	3	3
Renewable power-China	Operating	7	7	6
Renewable power-Japan	Operating	10	5	0
	Project	7	5	0

The Company's water management covers water withdrawal, water consumption, and water discharge. Several measures are applied to minimize potential impacts with the long-term target towards reduction of water footprint throughout product's life cycle. In order to do so, the Company is expanding the management of both surface water and groundwater to the watershed level, starting from completing a water balance at each operational site.

Besides, the Company also closely monitors the quality of water discharge. In mining business, there are several parameters measured such as TSS, pH, Fe, Mn, and Cd. In conventional power business, temperature is one of the key concerns as most of the water is used for the cooling system.

## Performance

In 2019, the data collection system is under improvement according to GRI 303 (2018) and encompasses the different business of the Company. The improvement was completed in China and the water balance for all business units is available. However, it is under development for the mining business in Indonesia and Australia.

### Mining Business

The water consumption intensity was 0.154 m<sup>3</sup>/tonne finished coal, which increased by 12% compared to the previous year. The Company promoted water reuse at key water-consuming activities such as coal washing. However, it is common that the water consumed by some activities such as dust control and rehabilitation

cannot be reclaimed. Therefore, water reused was just 3% of total water consumption. To increase the percentage of water reused & recycled, the Company developed a project to reuse the mine water from the underground mine as cooling water for the power plant, which is one of the Company's customers.

## Power Business

The water reduction programs have been implemented helping to reduce the water consumption intensity continuously over the past few years. Since more than 90% of process water at the conventional power plants is a reused water. The Company therefore set the annual target based on performance of the previous year. In 2019, the water consumption intensity was 0.827 m<sup>3</sup>/MWh, which decreased by 25% compared to the previous year.

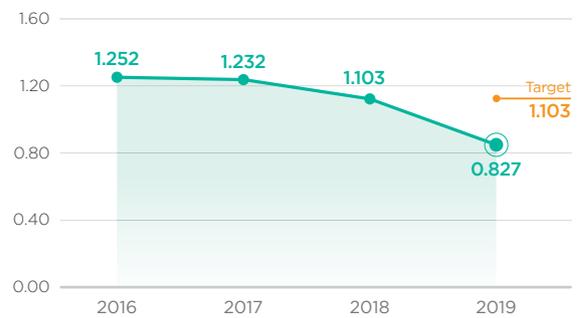
### Water Consumption Intensity Mining Business

(m<sup>3</sup>/tonne finished coal)



### Water Consumption Intensity Power Business

(m<sup>3</sup>/MWh)



## Wastewater reuse project of Springvale



Springvale is one of the underground mines with mine water. Normally, the mine water is brought to the surface and treated prior to discharge. In 2018, Springvale with Energy Australia Company Limited corporately developed a project on reusing the mine water as cooling water for the Mount Piper Power Station. The project has a capacity to treat water at the amount of 42 million liters per day and already completed construction since the end of 2019. However, because of the bushfire in Australia, it can reduce only 4,126 million liters of effluent from Springvale and Angus Place. At present, the project is expected to fully operate in January 2020.

### Water Balance - Conventional Power Business in China



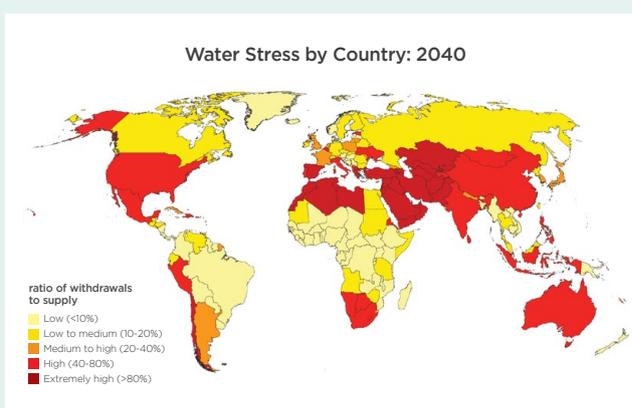
### Water Balance - Renewable Power Business in China



### Water stress area identification

The Company refers to the World Resource Institute's Aqueduct Water Risk Atlas for the baseline water stress level when determining whether the operational sites are located in water stress area. The most updated information was published in 2015 with projection to 2040 based on a business as usual scenario according to SSP2 and RCP 8.5. It was found, from the assessment in 2019, that several operations of the Company are locating in the area associating with high risk to water stress.

To minimize potential impact, the Company has identified water risks and opportunities of all business units and developed water management plan for each specific site.



Source: World Resource Institute (2015)

# Air Emissions



Limits on air pollutants released to the atmosphere, especially from conventional power plants is a serious concern as they are harmful to both human health and the environment. Air emissions management is thus considered an important issue for the Company. Since every country sets strict levels on the emissions standards, poor management may suspend the existing operations and lead onto losing stakeholder's confidence.

## Performance Summary

	2019	Target 2019
Air emissions intensity - Mining business (g/tonne finished coal)	SO <sub>2</sub> = 5.6 NO <sub>x</sub> = 63.0 PM <sub>10</sub> = 13.2	≤6.5
Air emissions intensity - Power business (g/MWh)	SO <sub>2</sub> = 25.8 NO <sub>x</sub> = 41.4 TSP = 3.0 Hg = 0.0006	≤76.6 ≤118.4 ≤23.0

## Progress 2019

- Maintained great performance on air emissions intensity at power business

## Reporting Boundary

The air emissions data in this report includes mining business in Indonesia and Australia, and conventional power business in China. However, the data excludes renewable power business in China and Japan, and solar rooftop solution business in Thailand because the small amount of emissions load can be considered insignificant. The key activities involved in pollution generation are outlined below:

Business	Key activity	Point source emissions			Nonpoint source emissions		
		SO <sub>2</sub>	NO <sub>x</sub>	PM	SO <sub>2</sub>	NO <sub>x</sub>	PM
Mining	Electricity generation	●	●	●			
	Coal extraction						●
	Coal hauling & storage				●		●
Conventional power	Boiler	●	●	●			



**Mining Business**

There are 2 types of emissions; point source and nonpoint source. The point source emissions typically generate at the diesel generator are controlled by preventive maintenance. For nonpoint source, 2 main pollutants include sulfur dioxide (SO<sub>2</sub>) from fuel combustion at the hauling trucks and particulate matter (PM) from coal hauling and storage activities. Several initiatives to manage SO<sub>2</sub> and PM are undertaken such as using conveyor belts instead of trucks. To reduce the PM at source, a number of measures are performed. Examples are water spraying at haul roads and coal stockyards, and the truck speed control. Furthermore, the Company regularly conducted air quality monitoring by the third-party in both operational areas and surrounding communities.

**Power Business**

Since most of the emissions at conventional power plants is a point source, the Company has placed emphasis on prevention at source by engineering control, such as using a Circulating Fluidized Bed (CFB) boiler. In addition, to ensure that the emissions can meet more stringent level in the future, the 5-year plan (2013-2018) to improve air pollution control systems at 3 CHP plants in China has been developed with over USD 43 million investment cost through latest technology, such as flue gas desulfurization

(FGD), selective non-catalytic reduction (SNCR) and electrostatic precipitators (ESP). Moreover, continuous emission monitoring system (CEMS) is also installed at the stack and surrounding communities to real-time monitor the air quality so that any potential incident from the undesired emissions levels can be addressed immediately. The monitoring covers 4 key indicators; SO<sub>2</sub>, NO<sub>x</sub>, PM (total suspended particles: TSP) and Mercury (Hg).

Air Pollutants	Prevention at Source	Air Emissions Control
SO <sub>2</sub>	<ul style="list-style-type: none"> <li>Using a circulating fluidized bed (CFB) boiler</li> <li>Using low sulfur coal</li> </ul>	<ul style="list-style-type: none"> <li>Using flue gas desulfurization (FGD) unit</li> </ul>
NO <sub>x</sub>	<ul style="list-style-type: none"> <li>Using circulating fluidized bed (CFB) boiler</li> <li>Using low NO<sub>x</sub> burner</li> </ul>	<ul style="list-style-type: none"> <li>Using selective non-catalytic reduction (SNCR) and selective catalytic reduction (SCR) methods</li> </ul>
TSP	<ul style="list-style-type: none"> <li>Using low ash coal</li> </ul>	<ul style="list-style-type: none"> <li>Using electrostatic precipitators (ESP)</li> </ul>

Performance

**Mining Business**

In 2019, the SO<sub>2</sub> emissions intensity was 5.6 g/tonne finished coal, which decreased 15% compared to the previous year making the Company achieved the annual target. However, the NO<sub>x</sub> and PM<sub>10</sub> emissions intensity increased compared to the previous year.

SO<sub>2</sub> Emissions Intensity - Mining Business

(g/tonne finished coal)



**PM<sub>10</sub> Emissions Intensity - Mining Business**  
(g/tonne finished coal)



**NO<sub>x</sub> Emissions Intensity - Mining Business**  
(g/tonne finished coal)



## Power Business

The 5-year plan (2013-2018) on air emissions reduction was a great success since air emissions intensity has been reduced continuously and far beyond the regulatory standards. However, there was no significant change for the last 2 years. The Company therefore intended to maintain emissions control measures at the existing level. In 2019, the air emissions intensity was 25.8, 41.4 and 3.0 g/MWh for SO<sub>2</sub>, NO<sub>x</sub> and TSP respectively. In addition, the Hg was also measured with a significant level as low as 0.0006 g/MWh and considered no impact on the environment.

**TSP Emissions Intensity - Power Business**  
(g/MWh)



**SO<sub>2</sub> Emissions Intensity - Power Business**  
(g/MWh)



**NO<sub>x</sub> Emissions Intensity - Power Business**  
(g/MWh)



# Waste



Waste, especially hazardous waste is a significant issue for the Company. Since, if not managed properly, waste can contaminate the environment and affect occupational health of the employees. Failure in managing waste has a great impact on the Company's reputation and social license to operate.

## Performance Summary

	2019	Target 2019
<b>Mining business</b>		
• Hazardous waste to landfill	0	0
• Proportion of hazardous waste reused & recycled	99%	≥90%
• Proportion of non-hazardous waste reused & recycled	30%	≥40%
<b>Conventional power business</b>		
• Hazardous waste to landfill	0	0
• Proportion of non-hazardous waste which was reused and recycled	60%	≥10%

## Progress 2019

- Updated data collection system in accordance with GRI 306 (2016)
- Updated corporate general waste management standard

## Reporting Boundary

The waste data in this report includes mining business in Indonesia and Australia, and conventional power business in China. However, the data excludes solar rooftop solution business in Thailand, as data collection system is under standardization, which expected to disclose in Sustainability Report 2021. By the way, specific waste generated from each business is discussed separately and not included under this category. Such specific waste includes tailing and overburden from mining, ash and gypsum from coal-fired power plants, and decommissioned solar panels from solar rooftop solution. The key types of both hazardous and non-hazardous wastes are described below:

Business	Hazardous waste							Non-hazardous waste	
	Used lubricant	Coolants	Used battery	Contaminated container	Laboratory waste	Transformer	Electronic waste	Organic waste	General waste
Mining	•	•	•	•	•			•	•
Conventional power	•		•		•	•	•	•	•

## Management Approach

The Company emphasizes waste reduction by avoiding the initial use of resources, as well as promoting the reuse, recycling, and recovery to minimize amount of waste disposed by landfill and incineration. The Company's general waste management standard developed in compliance with international best practices as well as the local laws and regulations, comprising of 5 key measures.

## 5 Key measures of waste management



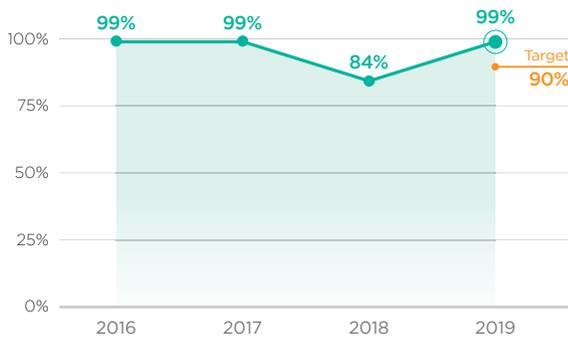
## Performance

In 2019, the corporate general waste management standard was updated and deployed to all business units. As well as, the data collection system was updated in accordance with GRI 306 (2016).

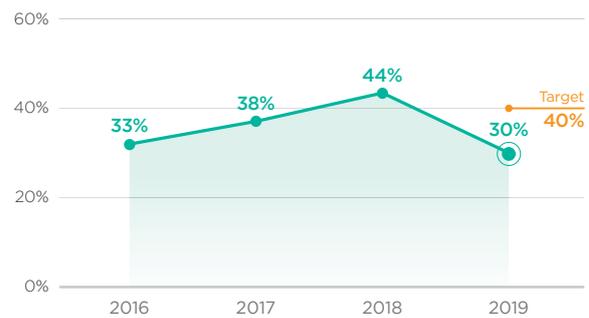
### Mining Business

In 2019, the Company achieved the target of zero hazardous waste to landfill, while there were 9,108 tonnes of hazardous waste generated, which 99% was reused and recycled, exceeded the target of 90%. However, only 30% from the total of 4,686 tonnes of non-hazardous waste was reused and recycled, falling short of the annual target of 40%.

Proportion of Hazardous Waste Reused & Recycled - Mining Business



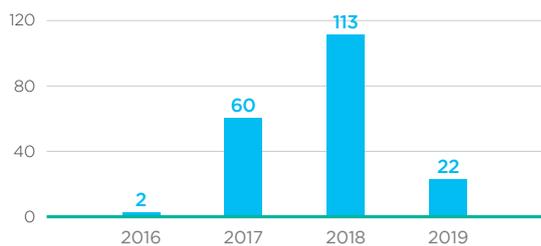
Proportion of Non-hazardous Waste Reused & Recycled - Mining Business



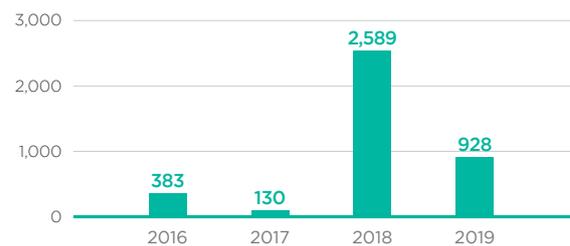
### Power Business

The Company succeeded in reducing amount of non-hazardous waste from 2,580 tonnes of the previous year to 928 tonnes which 90% of those were disposed by landfill. This means that the reused and recycled target was not achieved. However, there was no hazardous waste sending to landfill.

Hazardous Waste - Power Business (tonne)



Non-hazardous Waste - Power Business (tonne)



# Mineral Waste



Mining processes generate 2 kinds of specific waste, overburden/waste rock and tailings. The overburden or waste rock is typically not toxic; however, it may generate acid-mine water if it contains a Potential Acid Forming material (PAF). For the mines requiring the coal washing process, tailings management is another key focus of the Company since inefficient management can have adverse consequences on the environment.

## Performance Summary

	2019	Target 2019
Progress of in-pit backfilling against plan*	93%	≥80%
Proportion of mines with acid mine drainage management plan**	100%	100%
Number of significant tailings spills	0	0

\* For open-pit mine only

\*\* For business unit(s) identified as potential acid mine drainage issue

## Progress 2019

- Announced waste management standard specific to the mineral waste

## Reporting Boundary

Activity	Mineral waste
Coal extraction	Overburden/waste rock
Coal processing	Tailings

The mineral waste data in this report includes mining business in Indonesia and Australia. The following activities are associated with the mineral waste:

## Management Approach

The Company carries out the preliminary risk assessment for all business units to identify whether there are any risks in regard to the mineral waste. The waste management standard specific to the mineral waste has been developed and deployed across operations, covering from the pre-mining until the post-mining stages.

### Overburden

The Company integrates an overburden management plan with the mine plan for each specific mine. Since, the pre-mining stage, the geological survey has been performed to determine the geochemistry of overburden and to create a geological model with aims to minimize amount of overburden removal and maximize in-pit backfilling.

### Tailings

Tailings management plan is developed for each operation where there is a tailings pond. The plan has been developed by applying a risk-based approach, throughout their entire life, from the location selection in pre-mining stage to the reclamation in mine closure stage. In Australia, over the past few years, the Reject Emplacement Area (REA) Oversight Committee has been appointed and carriage of the standard and audit process. All tailings storage facilities are designed and inspected regularly by external experts, as well as the tailings management plans that are periodically reviewed to reflect significant changes in the mine plans.

## Acid Mine Drainage Management

Since geochemistry of overburden varies from mine to mine. Besides, the acid mine drainage management standard has been developed and used as a framework with several preventive measures. Where acid mine water exists, water quality must be improved prior to the mine closed or discharge to the environment. The acid mine drainage is one of the key issues discussed in the mine planning review meeting to ensure that resources such as budget and mandates are sufficiently allocated.

## Performance

### Overburden

In 2019, the mining business in Indonesia has progress of in-pit backfilling accounted for 93% against plan, which is far beyond the target. The significant increase compared with the previous year is a result of the effective mine planning.

### Tailings

At present, there are 3 active tailings facilities at Northern Coal Services, Western Coal Services and Clarence mines in Australia, and 2 closed facilities in Indonesia. In 2019, the amount of tailings in Australia significantly increased by 39% from the previous year. However, all the tailings facilities are properly managed, and there is no report on significant tailings spills.

### Acid Mine Drainage Management

The acid mine drainage management plans are available at all the mines which have potential acid forming materials. All mines proceeded as planned and the quality of treated water met the local standards. Moreover, in 2019, ITM, our subsidiary in Indonesia with Brawijaya University conducted research on applying biological treatment for acid mine drainage management.



## Biological treatment for acid mine drainage



The Company's acid mine drainage management plan covers all mines which have Potential Acid Forming material (PAF). One of the management plans is to improve water quality by chemical treatment such as limestone. For cost-effectiveness, the Company with Brawijaya University conducted research on applying biological treatment for acid mine drainage management. In this research, native plants having the potential to absorb

acid and heavy metal are planted in the wetland to neutralize acid mine drainage prior to discharge. Moreover, this research is internationally recognized as it was published in the Journal of Applied Environmental and Biological Sciences. The Company planned to utilize the method in the other mines where also have PAF and will encourage other mining companies facing the same problem to apply this approach.

# Specific Waste from Power Plants



Ash and gypsum are by-products from the coal-fired power plants, while the solar panels are specific waste from solar power plants. Even though ash and gypsum can be used as raw materials for other industries and solar panels can be recycled, they can be an environmental hazard if they are not properly managed.

## Performance Summary

	2019	Target 2019
Percentage of ash reused and recycled	100%	100%
Proportion of synthetic gypsum reused and recycled	100%	100%

## Progress 2019

- Maintained 100% reused & recycled for both ash and gypsum

## Reporting Boundary

The specific waste from power plants data in this report includes conventional power business in China and renewable power business in China and Japan as well as solar rooftop solution business in Thailand. Moreover, the data of a captive coal-fired power plant at the mining business in Indonesia is also included. The following activities are associated with such specific waste.

	Activity	Specific waste
Coal-fired power plant	Boiler	Bottom ash
	Electrostatic precipitator (ESP)	Fly ash
	Flue gas desulfurization (FGD)	Synthetic gypsum
Solar power plant	Plant decommissioning	Decommissioned solar panel

## Management Approach

Since ash and synthetic gypsum can be used as raw material in the cement and concrete industry, the Company focuses on managing ash and synthetic gypsum as by-products by categorizing based on sizes to serve different market needs and providing proper storage facilities in compliance with local regulations, as well as closely monitoring environmental impact from such storage areas. This practice does not only provide financial benefit to the Company but also minimize any adverse impacts upon the environment. The 100% reused of all by-products is set as annual target.

During decommissioning, solar panels will become a significant source of electronic waste from solar power plant. According to the Company's waste management standard on specific waste from power business, solar panels will be classified based on type and will be sent to authorized agencies in accordance with the local regulations.

## Performance

### Ash

In 2019, the fly ash and bottom ash generated by 3 CHP plants in China were sold to the 3<sup>rd</sup> parties for reuse in the cement production. While ash generated by the captive coal-fired power plant in Indonesia was sent to an authorized agency in accordance with local regulations.

### Gypsum

In 2019, 100% of gypsum generated by the FGD at 3 CHP plants in China were sold to the 3<sup>rd</sup> parties for reuse, which achieved the annual target same as the previous year.

# Biodiversity



The Company understands that certain types of business operations, such as open-pit mining, can affect ecosystems and biodiversity. It is therefore one of the priorities of the Company to manage those impacts by seeking to reduce the negative consequences of company activities.

## Performance Summary

	2019	Target 2019
Proportion of business units assessed for potential biodiversity impact	100%	100%
Proportion of business units assessed for biodiversity value*	100%	100%

\*For business unit(s) identified as high potential for biodiversity impact

## Progress 2019

- Assessed biodiversity value at 5 mine sites in Australia

## Reporting Boundary

The biodiversity data in this report includes mining business in Indonesia and Australia, conventional power business in China and renewable power business in China and Japan. The Company has conducted the preliminary biodiversity risk assessment for all business units to identify which business units contain high potential for biodiversity impact. According to the assessment, 2 mines in Indonesia and 5 mines in Australia were identified as such. This report will therefore focus solely upon those 7 mines.

Business	Operational status	No. of business unit		
		Total	Assessed for potential biodiversity impact	Identified as high potential
Mining-Indonesia	Operating	5	5	2
	Project	2	0	-
Mining-Australia	Operating	5	5	5
	Project	4	3	3
Conventional power-China	Operating	3	3	0
Renewable power-China	Operating	7	7	0
Renewable power-Japan	Operating	10	10	0
	Project	7	7	1

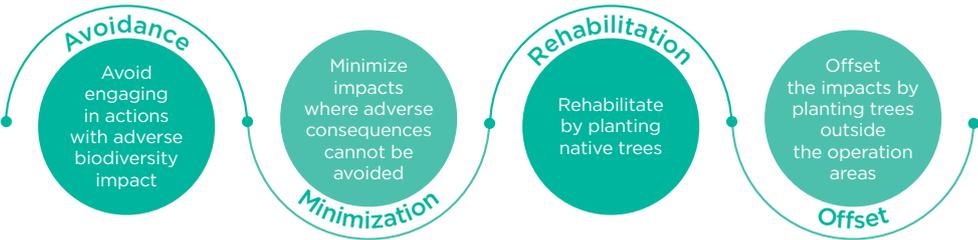
## Management Approach

Biodiversity Policy

The Company has implemented a Biodiversity Policy which underlines the Company's commitment to refrain from conducting any kind of operation in or adjacent to the World Heritage sites or the protected areas classified by the International Union for Conservation of Nature (IUCN) Types I to IV in order to avoid any adverse impact upon biodiversity.

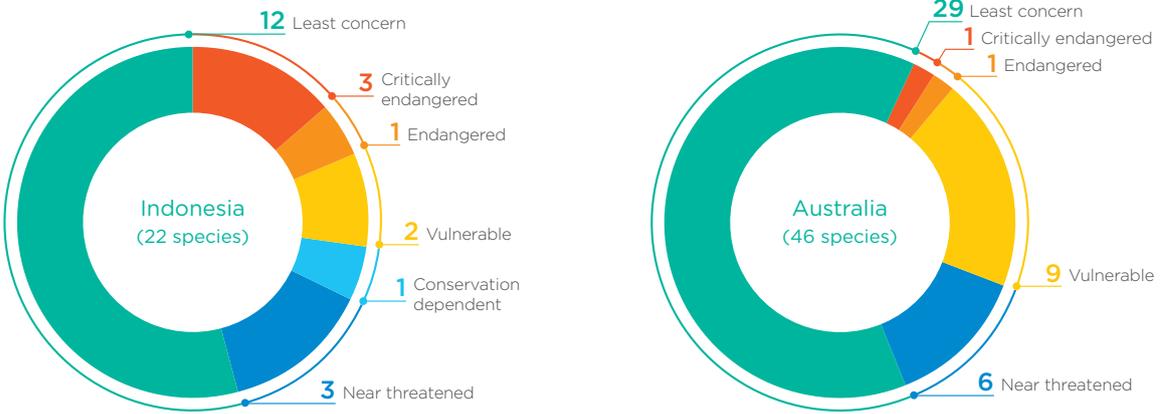


The biodiversity management system based on IUCN's concept has been developed with 4 approaches: avoidance, minimization, rehabilitation, and offset.



The Company carries out a preliminary biodiversity risk assessment for each of its business units prior to the commencement of production by considering whether the operational sites are located in or adjacent to the protected or high biodiversity value areas. A survey on vulnerable and native species is also performed to ensure that such species are protected.

**IUCN Red List of Mining Business**



In case there is an operation site exposed to the high potential for biodiversity impact, the Company then conduct a biodiversity value assessment in line with the Convention on Biological Diversity (CBD) guideline. In addition, the biodiversity management plan (BMP) is developed for each specific site with the target to achieve a net positive impact on biodiversity upon closure of the mine after 2025.

**Performance**

In 2019, the Company assessed the biodiversity value at the mines in Australia, including 3 mines related to the protected area and 2 mines related to the high biodiversity value area. Hence, the Company was successful in carrying out a biodiversity value assessment for all business units that identified as high potential for biodiversity impact.

Business entity		Area characteristic		Biodiversity value assessment	Biodiversity management plan
		Relation to protected area	Relation to high biodiversity value area		
Indonesia	Indominco	●		●	●
	Bharinto		●	●	●
Australia	Airly	●		●	●
	Springvale		●	●	●
	Clarence	●		●	●
	Mandalong		●	●	●
	Myuna	●		●	●

Furthermore, the biodiversity management plans have been developed for all those business units and related activities were performed as planned according to the BMP.

# Mine Closure



It is a normal character of the mining business that the coal reserves will be finally depleted in every mining operations. The Company therefore places emphasis upon the need to prepare for mine closure from the beginning and carries on throughout the mining life. This ensures that all disturbed areas are returned to a native ecosystem with acceptance of related stakeholders.

## Performance Summary

	2019	Target 2019
Proportion of mines with mine closure plan	100%	100%
Progress of revegetation against plan*	94%	≥90%
Progress of mine closure activity against plan**	100%	≥90%

\* For open-pit mine only

\*\* For underground mine only

## Progress 2019

- Arranged the quarterly performance review meeting specific to mine closure

## Reporting Boundary

The mine closure data in this report includes mining business in Indonesia and Australia. The following mines are those involved in this category.

Country	Status		
	Mining	Mine closure	Closed
Indonesia	Indominco	Tandung Mayang	
	Trubaindo		
	Bharinto		
	Jorong		
	Embalut		
Australia	Airly		Ivanhoe North
	Springvale		Charbon
	Clarence		Vale of Clywdd
	Mandalong		Ivanhoe
	Myuna		Munmorah
			Endeavour
			Blue Mountains
		Awaba	

## Management Approach

The Company's mine closure standard developed in line with the International Council on Mining & Metals (ICMM) and applied across business units. With aim to minimize the environmental impact, the guideline encompasses several measures such as area stabilization, waste management, water management, and mine rehabilitation. For each site, the environmental impact assessment is performed and the mine closure plans are developed. For mines both in the operational and closure phases, the Company monitors progress with reference to the mine closure plan. For open-pit mining in Indonesia, the progress of revegetation is monitored. While, in Australia, the progress of mine closure activities such as land management and land stability is monitored.

## Performance

In 2019, mine closure plans were available at all operating mines in both Indonesia and Australia. For open-pit mine, the average progress of revegetation was 94% against a target of 90%. In Australia, the mine closure activities of the underground mines were progressed as planned.

# Mine Subsidence



Subsidence is common over underground mines. Inefficient subsidence management leads to fatal injury of miners while surface subsidence may affect the infrastructure and residents surrounded. Moreover, subsidence may create adverse consequences to the environment such as changing morphology of land settlements and interrupting the hydrologic environment.

## Performance Summary

	2019	Target 2019
Progress of subsidence management activities against plan*	100%	≥90%

\*For underground mine only

## Progress 2019

- Continued the 3D photogrammetry in subsidence monitoring at Airly mine

## Reporting Boundary

The mine subsidence data in this report includes mining business in Australia since this is the only operation in which underground mining is carried out.

## Management Approach

Since the mine subsidence movement can be predicted, Centennial, a subsidiary of the Company operating underground mines in Australia, has performed numerous analysis and developed the subsidence management plan to minimize possible subsidence impact. The mine plans together with subsidence management plan which described how subsidence impacts will be managed are submitted and approved by related government agencies. Moreover, the view of communities are taken into account during the assessment process.

Mine	Subsidence management plan
Airly	●
Springvale	●
Clarence	●
Mandalong	●
Myuna	●

Through the implementation, subsidence monitoring has been undertaken over the application areas to access subsidence impacts. The monitoring results have been used to compare subsidence model estimated against actual results and this information has been used to further refine the subsidence model then finally improve the subsidence management plan.

## Performance

Subsidence management plans are available at all operating mines in Australia. Those plans are regularly reviews especially if there are any changes in the mine plans. Subsidence management activities are performed following the plan at all mines. To date, the existing monitoring has not detected any mining related impacts. The ongoing monitoring program will continue to access the risk of the current operations on environment and communities.

# Environmental Compliance



Compliance plays an important role in conducting business since it is a basic requirement to maintain a license to operate. Non-compliance costs the Company both directly in financial terms and indirectly in terms of reputation. Environmental compliance is thus one of the Company's priorities.

## Performance Summary

	2019	Target 2019
Number of significant environmental incidents	0	0
Number of significant fines from environmental non-compliance	0	0

## Progress 2019

- Jorong attained Green level - PROPER from Ministry of Environment and Forestry of the Republic of Indonesia

## Reporting Boundary

The environmental compliance data in this report includes mining business in Indonesia, Australia and Mongolia, conventional power business in China, renewable power business in China and Japan, and solar rooftop solution business in Thailand. The key risks, which may lead to an environmental incident, are described as follows:

Business	Activity	Key environmental risk					
		Oil spill	Effluent spill	Tailings spill	Water quality	Air quality	Ash management
Mining	Coal processing			●			
	Wastewater treatment		●		●		
	Fuel storage	●					
	Diesel generator	●				●	
	Captive power plant					●	●
Conventional power	Coal stockyard		●		●		
	Fuel storage	●					
	Wastewater treatment		●		●		
	Fuel gas treatment					●	
	Ash storage						●

## Management Approach

The Company commits to fully comply with all environmental legislation as stated in the corporate environmental policy. To ensure the compliance of all operations, the Company has implemented a number of environmental management standards across the different business units. Annual and long-term targets have also been set and deployed to all business units since environment management is integrated as part of operational activities. One of the targets is zero significant environmental incidents or fines.

In regard to the environmental incident reporting standard, the Company classifies environmental incidents into 3 severity levels. The significant incident is determined according to the following criteria:

- Damage to a larger than 5 km from the source
- Irreplaceable changes to animals or plants
- More than USD 10,000 of potential fine
- Greater than USD 20,000 of remedial cost, lost time cost, or legal cost

To ensure compliance against regulations and internal standards, the Company has established a global internal audit and compliance department to assure the practices at each business unit. Moreover, the verification by an independent certification body is also performed.

## Performance

In 2019, the Company can maintain achievement against the annual target as there were no significant environmental incidents or significant fines from environmental non-compliance in all business units.

### Environmental management system certification

In addition to the internal audits, the environmental management system at each business unit is verified by the third party with details as listed below:

Country	Business unit	System coverage	Third-party	
			Independent audit	ISO 14001
China	Zhengding	●	●	●
	Luannan	●	●	●
	Zouping	●	●	●
	7 solar power plants	●		
Japan	10 solar power plants	●		
Indonesia	Indominco	●	●	●
	Trubaindo	●	●	●
	Bharinto	●	●	●
	Jorong	●		
	Kitadin-Embalut	●		
Australia	Airly	●	●	
	Springvale	●	●	
	Clarence	●	●	
	Mandalong	●	●	
	Myuna	●	●	

### Jorong mine achieves Green PROPER

In Indonesia, Program for Pollution Control, Evaluation, and Rating (PROPER), an environmental performance assessment managed by the Indonesian government, is used to grade companies' performance against the regulatory standards into 5 levels, represented by 5 colors - Gold, Green, Blue, Red, and Black. Jorong mine has been assessed since 2004 and maintained its Blue level until 2018. After long time striving, Jorong mine finally attained the Green level from PROPER, meaning that the company's environmental management system goes beyond the expected compliance level.



On 8 January 2019, ITM Sustainability & Risk Management Director, who also President Director of Jorong mine, received the PROPER plaque from the Minister of Environment and Forestry at the Indonesia's Vice Presidential Palace.

# Social



71%

Average stakeholder satisfaction level on community development projects in Indonesia



2 Significant community complaints



0 Occupational fatalities



Employee engagement levels

68% Thailand

73% Indonesia

94% China



0 Indigenous peoples' rights violations



# Employee Management



Human capital is at the heart of enhancing the Company's competitive edge. Effective employee management is significantly associated with work achievement and reflected by the level of employee engagement. As such, employee management is an integral part of the Company's business operations.

## Performance Summary

	2019	Target 2019
Level of employee engagement		
• Thailand	68%	>65% in each country
• Indonesia	73%	
• China	94%	
• Japan	50%	
• Mongolia	76%	
• Singapore	56%	

## Progress 2019

- Expanded employee engagement survey into Japan, Mongolia and Singapore
- Deployed a new digital global human resources management system (B Success Application)

## Reporting Boundary

The employee management data in this report includes mining business in Indonesia, Australia, and Mongolia, conventional power business in China, renewable power business in China and Japan, and solar rooftop solution business in Thailand, as well as the head office and regional offices in each country. However, the Company is in the process of expanding an employee engagement survey to cover the mining business in Australia.

## Management Approach

Employee Management



The Company has devised an employee relations policy to set the framework for creating excellence in employee relations. Employee management is managed under the "Say, Stay, Strive" principle with 5 engagement drivers including Engaging leadership, Talent focus, The work, The basics and Agility.

Employee drivers	Engagement outcomes
<ul style="list-style-type: none"> <li>• Engaging leadership</li> <li>• Talent focus</li> <li>• The work</li> <li>• The basics</li> <li>• Agility</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Say:</b> Employees say positive things about the Company both to internal and external stakeholders</li> <li>• <b>Stay:</b> Employees work happily and want to continue to stay with the organization</li> <li>• <b>Strive:</b> Employees form a deep bond with the Company and strive to improve its performance</li> </ul>

The Company entrusts the third party to conduct an annual employee engagement survey since 2012 and applied across business units. The survey is translated into local languages to ensure that employees in every country have a thorough understanding and are able to express their opinions honestly. Survey results are accessible to all employees and are reported to the Board of Directors on an annual basis.

In practice, each business entity develops its own engagement plan based on the Company's strategy and the survey results. Progress is updated monthly in the performance review meeting. Furthermore, to strengthen the level of employee engagement, the Company has developed a leadership development program specifically for middle management under the theme "Banpu Engaging Leaders".

## Performance

In 2019, the Company expanded the employee engagement survey into Japan, Mongolia and Singapore. In addition, the engagement results were analyzed with breakdown by generation and gender to effectively address the particular needs of employees. As a result, the employee engagement levels at most countries exceeded the target of 65%. The level of employee engagement in Thailand increases continuously; however, there was a slight decline in Indonesia, while it is no change in China.



### Retirement readiness program

Due to the unique nature of the mining business that reserves are gradually diminished, the Company has a retirement management system to prepare employees for the retirement readiness based on mine closure schedule with two management approaches in the following

- Relocate the employees who are willing to work in other mining sites so that they can continue their working life
- Arrange pre-retirement workshops to ensure retirement readiness of employees, both financially and mentally



In 2019, Tandung Mayang mine was entering closing stage. For this reason, the Company arranged workshops on mapping self-potentials and designing the business models based on employees' respective passions and advantages. On this occasion, senior management and external experts were invited to share a positive attitude toward retirement and advice the retirement readiness journey.



### Performance management system

The Company's performance management system consists of two sets of KPIs: work-related KPIs, which account for 70% of the overall performance, and behavior-based KPIs, which account for the remaining 30%. The behavior-based KPIs are measured by actions that demonstrate the Banpu Heart core values. The Company promotes employees' involvement in developing their own plans and KPIs by working closely with their teams and aligning their goals with those of the Company. Besides, the Company specifically assigned Leadership KPIs to division managers and above levels, collected through a 360 Degree Feedback system to measure their performance in team management and engaging work environment.



### Compensation management system

Under the governance of the Compensation Committee and Job Evaluation Committee, the Company determines compensation based on job scope and individual competencies. The compensation structure is reviewed every two years to ensure its competitive advantage. In addition, annual bonus payments based on the Company's business performance are also awarded.

# Corporate Culture

Workforce diversity is one of the Company’s key challenges since there are several different languages, religions, cultures and races in the organization. A strong corporate culture is the key to manage such diversities as well as strengthens employee engagement level and increase productivity.

## Performance Summary

	2019	Target 2019	Target 2025
Level of alignment between employee behavior and the corporate culture “Banpu Heart”	77%	>70%	>80%

## Progress 2019

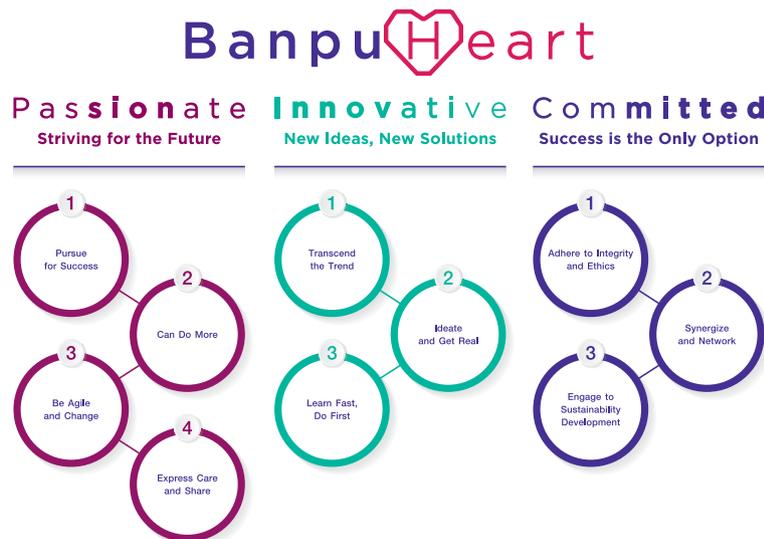
- Conducted “Banpu Heart Experience” activities in Thailand, China, Mongolia, and Indonesia

## Reporting Boundary

The corporate culture data in this report includes mining business in Indonesia, Australia and Mongolia, conventional power business in China, renewable power business in China and Japan, and solar rooftop business in Thailand as well as the head office and regional offices in each country.

## Management Approach

Banpu Heart



The management strategy involves the implementation of “Banpu Heart”, the corporate culture which comprises 3 core values: Passionate, Innovative and Committed. In order to turn the theoretical “Banpu Heart” corporate culture into practice, 10 key behaviors and a systematic implementation scheme have been developed, covering all stages across employee life cycle. The implementation is driven by Banpu Change Leaders (BCL) through a wide range of activities. The Company monitors the level of alignment between employee behavior and the corporate culture by conducting an annual survey by the third party. Furthermore, all activities and surveys are provided in the various local languages to ensure that all staffs can truly comprehend the culture “Banpu Heart”.

 <b>Recruitment</b>	 <b>On-boarding</b>	 <b>Development</b>	 <b>Performance evaluation</b>
Access personalities and behaviors by using “personality inventory test” and “culture fit assessment”	Corporate culture “Banpu Heart” workshop for new recruits	Strengthen through various activities and communication channels	Embed “Banpu Heart” as part of behavior-based KPI

## Performance

In 2019, the activities under the theme “Banpu Heart Experience” were conducted in Thailand, China, Mongolia, and Indonesia. Moreover, the Company expands the scope of survey into China, Mongolia, Indonesia, Japan, Australia, and Singapore. The survey results indicated that the level of alignment between employee behavior and the corporate culture, “Banpu Heart” was 77% against annual target of 70%.

### Banpu Heart activity

Due to diversity in the company’s workforces in terms of cultural backgrounds and languages, “Banpu Heart” becomes a corporate culture that bound employees together with 3 core values; Passionate, Innovative, and Committed, and 10 key behaviors. Annually, the Company has conducted “Banpu Heart Experience” activities to all employees and across countries to engage all employees to correctly understand the 10 key behaviors in the same way across the organization. In 2019, Banpu Heart Experience was conducted in Thailand, China, Mongolia, and Indonesia with a total of 1,070 participants. To ensure a full understanding of Banpu Heart, the Company also conducted “Extraordinary Heart - A Journey of Banpu Heart Sharing Event” at the head office in Thailand to show and share how employees can adapt 10 key behaviors of Banpu Heart into their daily work.



Besides, the Company this year launched Banpu Heart Chatbot “Hato” via Line application as one of the communication channels to facilitate quick and easy access to HR-related information such as welfare and benefit.



# Human Capital Development



Human capital is one of the most important resources of the Company. To lead the business in a complex environment, maintaining a competitive advantage through human capital development is the key success factor.

## Performance Summary

	2019	Target 2019
Proportion of critical positions with succession plan	100%	100%
Proportion of employees having individual development plan	62%	100%

## Progress 2019

- Arranged 4 digital literacy courses to prepare employees for digital era
- Expanded Banpu Leadership Program for Future Leader into China and Indonesia

## Reporting Boundary

The human capital development data in this report includes mining business in Indonesia, Australia and Mongolia, conventional power business in China, renewable power business in China and Japan and solar rooftop solution business in Thailand as well as the head office and regional offices in each country.

## Management Approach

HR Learning and Development



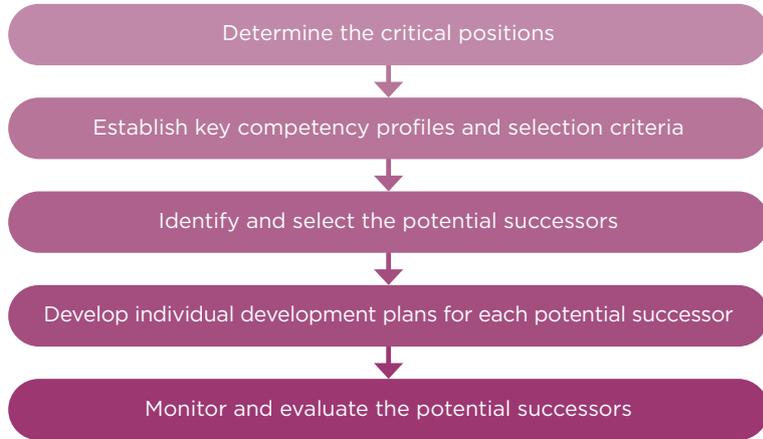
To ensure a competitive advantage, the human capital development plan has been formulated based on the competency gaps and long-term business strategy. Training roadmaps specific for each job level and job function have been identified and reviewed annually. The individual development plan for each employee is also developed by considering the required competencies of such position and personal competency profile, covering both functional/technical and leadership skills.



For management level, the specific curriculum of leadership development programs has been developed. There are 4 levels of program for 4 groups of management; Strategic leader, Business leader, First line leader and Future leader. Currently, the methodology to evaluate the return on employee development investment is being standardized based on international practices such as the Kirkpatrick

model, which expected to disclose in Sustainability Report 2020. Moreover, the succession planning committee has been appointed to oversee the succession planning and high potential management. The successor's in-depth information regarding competency and personality is reviewed to address the gap and managing challenges to future-proof the complex business environment of tomorrow.

**Succession planning and high potential management**



**Performance**

In 2019, to maintain competitiveness, the functional/technical competencies of 4 job functions were updated, including geologist, geotechnics, mining engineer and maintenance engineer. The training sessions for reskilling and upskilling were organized with an average time of 22 hours per person. This program offers in house and outside training courses as well as short courses. In addition, to prepare employees for the digital era, 4 additional digital literacy courses facilitated by “Banpu Digital Academy” were developed, comprising of Power of digital, Agile 101, Intro to design thinking, and Defining a minimum viable product.

In 2019, the Company achieved the target of having succession plans in place for all critical positions.

Moreover, training on the commercial and global mindset has been organized to strengthen the capability of potential successors. However, the proportion of employees having individual development plan was 62% which was not achieved the annual target.

For leadership development programs, Banpu Leadership Program for Future Leader was expanded into China and Indonesia. Banpu Global Leadership Program for Business Leader and Banpu Global Leadership Program for First Line Leader were organized for 28 and 26 executives from all countries. The training evaluation resulted that more than 90% of participants are able to apply the knowledge to their day-to-day management.

**Banpu Engaging Leader**

The findings from the 2014 employee engagement survey conducted at the head office in Thailand inspired the Company to develop a new course “Banpu Engaging Leader” in 2015. This course has been conducted several times since its inception for both first-line managers and higher senior levels. The aim of the training

**Level of employee engagement to the Company**



is to raise employee engagement level, using the notion that these managers work closely with operational staffs. This course seeks to develop coaching competency, enhance motivation levels, and be role models. In 2019, 40 participants took the course. As a direct consequence of running this training program, the engagement level of employees at the head office in Thailand has risen significantly from 57% in 2016 to 68% in 2019.

# Occupational Health and Safety



It is well-understood that shortcomings in occupational health and safety (OHS) management can have serious adverse consequences for the reputation of a company and for the health and well-being of the employee and their family members. Therefore, the Company has made a conscious commitment to create a working environment in which all employees including anyone who works for us are guaranteed the safest possible workplace and conditions.

## Performance Summary

	2019	Target 2019
Number of fatalities	0	0
Lost time injury frequency rate - Employees	2.73	≤2.48
Lost time injury frequency rate - Contractors	0.26	≤0.20

## Progress 2019

- Conducted safety culture assessment at 5 mine sites in Australia and 2 power plants in China
- Improved safety training program in Australia

## Reporting Boundary

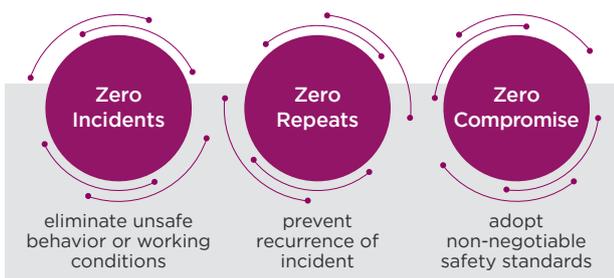
The occupational health and safety data in this report includes mining business in Indonesia and Australia, conventional power business in China, renewable power business in China and Japan, solar rooftop solution business in Thailand including the head office and other related business in Thailand.

## Management Approach

Occupational Health and Safety Policy



The Company has clearly stated the OHS Policy and “3 Zeroes” target as follows:



The Sustainability Committee annually reviews all OHS policies, strategies, and annual targets. This committee is chaired by the CEO since it is the highest governance body for OHS management. In addition, OHS performance is one of the KPIs of CEO and management at all business units.

To achieve 3 Zeroes, the corporate OHS management system, based upon the ISO 45001:2018 has been developed. This management system is regularly

reviewed to ensure its compliance against the relevant laws and regulations and industry best practices. Moreover, the verification by an independent certification body is also performed.

### Hazard identification and risk assessment

The Company makes use of hazard identification and risk assessment tools to evaluate both routine and non-routine tasks. These include the Green Card/ Yellow Card system, the Job Safety Environment Analysis (JSEA), the Safety Health Environment Accountability Program (SHEAP) used in the mining business in Indonesia, the SLAM (Stop, Look, Assess, and Manage) used in the mining business in Australia, and the Safety Walk Down program used in the power business in China.

### **Risk management measure determination**

The Company manages work-related risks using a hierarchy of controls. Supervisors have the role of carrying out a risk assessment and then communicating both risks and control measures to the employees prior to the commencement of any operation. Moreover, if any hazard or threat to workplace safety is discovered at any time, all employees and contractors should stop work immediately until the issue has been suitably addressed.

### **A safe and healthy work environment**

The Company closely monitors the quality of the air as well as noise and lighting levels in the workplaces against legal requirements, enabling all workers to enjoy a safe and healthy work environment. Furthermore, the Company ensures that emergency equipment and first aid kits are readily accessible in suitable quantities, and that personal protective equipment is provided for all workers depending upon the needs of their jobs.

### **Incident reporting and investigation**

Should an incident take place, it must be reported by those involved or those who witnessed it to their direct supervisors in order to determine its severity level, prior to further report via the specified channels. In the case of major incidents, the Company will typically create an experienced team to find the root cause, suggest preventive measures, and determine the sources of any similar potential dangers. The incident investigation, along with corrective and preventive actions, will be reported in the monthly performance review meetings.

### **Emergency response**

The Company has established medical service centers to advise employees on health-related matters. The medical center is also then on standby should an emergency arise in the workplace. In addition, the Company also provides medical evacuation services through International SOS Services.

### **Employee engagement & Communication**

Employees at all levels have a part to play in OHS management. The safety health and environmental (SHE) committee comprising representatives of the workforce and of the company has been established. They together inspect all working areas for any unsafe conditions. In addition, the Company promotes OHS awareness through various communication channels, including:

- Electronic newsletter
- Safety talk
- Engagement activities at the business unit level
- Annual corporate strategic meeting

### **Training and development**

The Company provides OHS training to all staffs in accordance with the risks identified and in line with the relevant regulations. Typical training courses include safety for newcomers, safety at the supervisory level, safety at the managerial level, basic firefighting, work permit management, and lockout-tagout system. The employees then undergo further assessment to determine whether they have acquired sufficient OHS knowledge.

### **Worker health promotion**

Various activities to promote good health have been implemented. For newcomers, health check-ups are provided by the Company, while all employees receive an annual health check related to their occupational risk factors, for instance, pulmonary function tests and audiometric tests. The employee health database is maintained. Moreover, mental health for the employee is also of concern.

### **OHS management in the supply chain**

Realizing the OHS risks in our supply chain, the Company has announced the Contractor's HSE Management Standards, while requiring that every business unit must implement the Contractor Management System, covering selection of the new contractors and management of the existing contractors. The HSE contractor audit is also regularly conducted to ensure that OHS risks are properly managed.

## Performance

In 2019, there was no significant change in regards to the operational risks compared to the previous year. As well, the monitoring results of work environment did not exceed the standards in all working areas. To align the data collection system with GRI 403 (2018), the Company started to disclose the High-consequence work-related injury. However, the system has been improving to cover work-related ill health, which expected to disclose in the Sustainability Report 2021.

Since the Company broadened the reporting boundary to cover the mining business in Australia and standardized the data collection of contractors in Indonesia to comply with local regulation, the annual targets have been revised. The Company uses the 2018 performance data including mining business in Australia as baseline for the 2019 targets. However, the LTIFR targets of both employees and contractors were not achieved.

**Lost Time Injury Frequency Rate (LTIFR) Employees**  
(person/million man-hour)



\*2016-2017 data exclude the performance of mining business in Australia

**Lost Time Injury Frequency Rate (LTIFR) Contractors**  
(person/million man-hour)



To achieve the Zero Incidents target, the Company has continued to enhance a safety culture by conducting the safety culture assessment at 2 power plants in China. Moreover, the outcomes from the assessment in 2018 showed that the Company needs to strengthen safety awareness. In 2019, the training competence management system at the mining business in Australia was improved by uplifting the required competency, reviewing the competency gap of each individual employee, and developing individual development plans.



### Engineering control for reducing musculoskeletal injury at Myuna

**Number of injuries caused by lifting heavy objects**

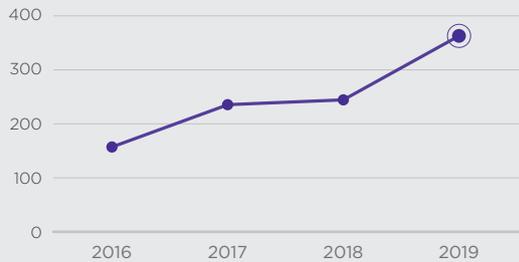


Myuna found that one of the root causes of work-related injuries is the heavy object lifting. For this reason, employees together with the safety committee have utilized engineering control techniques to develop “Monorail Hanging Bracket”, which is an equipment used for supporting the lifting of heavy objects locating above the head. After implementation, none of the injuries caused by lifting heavy objects was found. Furthermore, the project also helps to reduce working times and minimize the cost of consumable materials up to 2.3 USD million per year.



## Go Safe 24/7 application

Number of unsafe actions and unsafe conditions



“Go Safe 24/7” is a mobile application that was developed with an intention to reduce workplace risk by reporting unsafe actions and unsafe conditions. Based on application testing at Kitadin-Embalut mine for 4 years, it was found that the number of unsafe actions and unsafe conditions reported was significantly increased from 250 cases in 2018 to 359 cases in 2019. As a result, the Company can effectively respond to those risks.



## Safety culture assessment

Safety Culture is one of the management tools that the Company has used to achieve zero incidents. Initially, the Company set a target to access a safety culture maturity level at all business units that are currently operating by 2022. In 2019, the Company completed the safety culture assessments for 2 power plants in China, leading to 42 percent progress.

Progress of Safety Culture Assessment (% of business units)



## Certification of occupational health and safety management system

Country	Business unit	System coverage	Third-party certification	
			OHSAS 18001	ISO 45001
China	Zhengding	✓		✓
	Luannan	✓		✓
	Zouping	✓		✓
	7 Solar power plants	✓		
Japan	10 Solar power plants	✓		
Indonesia	Indominco	✓		✓
	Trubaindo	✓		✓
	Bharinto	✓	✓	
	Jorong	✓		
	Kitadin-Embalut	✓		
Australia	Airly	✓		
	Springvale	✓		
	Clarence	✓		
	Mandalong	✓		
	Myuna	✓		

To guarantee the reliability, the OHS management system at each business unit was assessed by an external party. Currently, business units are in the transition period from OHSAS 18001:2007 to ISO 45001:2018. This transition is expected to complete by 2020.

# Community Engagement



To create sustainable values and build stakeholder's trust as mentioned in the mission statement, the Company places a high priority on stakeholder engagement; in particular engagement with the local communities since they are live nearby the operational areas.

## Performance Summary

	2019	Target 2019
Number of significant community complaints	2	0
Proportion of significant complaints from communities resolved through a dispute mechanism	50%	100%

## Progress 2019

- Closed one compliant pending from the previous year
- Arranged 46 CCC meetings in Indonesia and 21 sub-committee meetings in Australia

## Reporting Boundary

The community engagement data in this report includes mining business in Indonesia and Australia, and renewable power business in China with community baseline data as follows:

Business unit		Number of villages	Number of people	Number of projects under community consultation
Indonesia	Indominco	10	29,472	81
	Trubaindo	20	13,631	21
	Bharinto	6	5,240	61
	Jorong	6	22,126	32
	Kitadin-Embalut	4	23,155	80
Australia	Airly	2	260	1
	Springvale	3	15,934*	-
	Clarence			2
	Mandalong	3	5,282	-
	Myuna	3	4,311	2
China	Jinshan	1	1,580**	Under development
	Huineng			Under development
	Huien	3	2,547	2
	Haoyuan	1	500	4
	Xingyu	1	620	Under development
	Deyuan	2	1,995	
	Jixie	1	3,532	

\* Springvale and Clarence shared the same communities.

\*\* Jinshan and Huineng shared the same communities.

## Management Approach

A stakeholder analysis framework has been devised in order to integrate the stakeholder analysis with strategic formulation process. Stakeholder engagement standard has been developed as basis for all business units. In addition, community complaint management standard has been introduced to ensure that all complaints are handle properly.

Process	Practice
<b>Understanding the basic characteristics</b>	<ul style="list-style-type: none"> <li>• Collect stakeholder baseline data</li> <li>• Conduct social mapping</li> <li>• Conduct stakeholder analysis</li> </ul>
<b>Building engagement</b>	<ul style="list-style-type: none"> <li>• Hold an annual meeting of the Community Consultative Committee (CCC) involving government, community, and company representatives</li> <li>• Support community relations activities to build a good relationship with the community</li> <li>• Provide various communication channels including letter, email, and telephone</li> </ul>
<b>Handling complaints</b>	<ul style="list-style-type: none"> <li>• Follow the corporate community complaint management standard</li> </ul>

In practice, the community engagement approach in each country may vary according to local business characteristics and community contexts. In Indonesia, the Company has appointed Community Development Officers (CDOs) who can cooperate with local communities to understand their requirements, facilitate community development programs, and address any complaints. On the other hand, in Australia, the Company has established sub-committees at the mine cluster level whose role is to ensure that local communities understand the operational plans and performance of the Company. In addition, the environmental and social impact assessment has been conducted during project development. The assessment reports are then communicated to the local community.

Business unit		Environmental and social impact assessment	
		Conducted	Communicated
Indonesia	Indominco	●	●
	Trubaindo	●	●
	Bharinto	●	●
	Jorong	●	●
	Kitadin-Embalut	●	●
Australia	Airly	●	●
	Springvale	●	●
	Clarence	●	●
	Mandalong	●	●
	Myuna	●	●
China	Jinshan	●	-
	Huineng	●	-
	Huien	●	-
	Haoyuan	●	-
	Xingyu	●	-
	Deyuan	●	-
	Jixie	●	-

## Performance

In Indonesia, the Company arranged 46 CCC meetings with all related villages across 2019. According to the meeting, most of communities put priorities on improving their quality of life, especially in health and economic development. The Company therefore gathered all required information to develop the project in response to their needs. In Australia, the Company arranged 21 sub-committee meetings to update the operational plans and performance, including gathering community concerns.

In 2019, there were 2 significant complaints from the communities in Australia. However, there was only 1 complaint that had completely resolved while the other one is in resolving process.

Business unit	Details	Complaint management status					
		Receive	Assess type	Investigate	Resolve	Monitor and close	Communicate result
Mandalong	The villagers concerned about the noise during the nighttime from drilling operations.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		The Company has restricted the nighttime activities and also constructed the noise attenuation bunds to reduce the noise levels which were monitored to ensure its compliance. In addition, the Company arranged the meeting with villagers to ensure that the issue was completely resolved.					
Springvale Coal Services	The villagers concerned about the noise and vibration affecting their daily life.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		The noise mitigation plan has been implemented to resolve the concern. However, the resident identified that the issue remains unresolved. The Company therefore maintains contact and attempt to address specific concerns. The complaints history, actions undertaken, and noise monitoring records were submitted to the Environmental Protection Authority (EPA) to demonstrate compliance with noise criteria.					



## Building engagement with Aboriginal peoples

Centennial, our subsidiary in Australia, has recognized the rights and interests of local communities, especially Aboriginal peoples in their cultural heritage. In the western mine cluster, there are 157 registered Aboriginal cultural heritage sites, identified as surface artifacts and Potential Archaeological Deposits (PADs), which are part of cultural identity of Aboriginal peoples. However, in the process of undertaking mining activities, there is potential for impact on heritage sites. For this reason, the Company recognizes the rights and interests of Aboriginal peoples in their cultural heritage and has therefore engaged them to play an active role in the cultural heritage planning process, as they are the primary source of information about the value of their heritage. Moreover, the Company reserves the rights of Aboriginal peoples to control the way in which information relating to their heritage is used, as this may be an integral aspect of its heritage value.



Examples of Aboriginal artefact scatters at Charbon Colliery



**Mr. H. Syurgawib**

Director of Bumdes Madani  
Santan Tengah

The promotion of Community development programs is very beneficial to the local communities. Indominco mine has been assisting Bumdes Madani, a community enterprise, on how to manage clean water supply project. Nowadays, the programs covered 95% of households in Santan Tengah village, and the improvement of quality of life are clearly seen.



**Mr. Badrudin**

Head of CCC Simpang  
Empat Sungai Baru Village

The Company has strongly supported the community in economy, health, and education development. There were various community development programs carried out at Simpang Empat Sungai Bura Village such as fish and chicken farming, healthcare services, and religious activities. We hope that the Company will continually contribute and support the development of communities.



# Community Development



Community is considered a key stakeholder of the Company since social license to operate is a foundation of the business. To build sustainable value for the community is thus one of the Company's key agendas.

## Performance Summary

	2019	Target 2019
Coverage of annual stakeholder satisfaction survey on community development projects in Indonesia	20%	100%
Average stakeholder satisfaction level on community development projects in Indonesia	71%	>68%

## Progress 2019

- Conducted annual stakeholder satisfaction survey on community development projects at Jorong mine

## Reporting Boundary

The community development data in this report includes mining business in Indonesia and renewable power business in China. By the way, a community-related activity of the mining business in Australia is not included in this topic since most of the activities place emphasis on community engagement.

## Management Approach

Community Development Policy



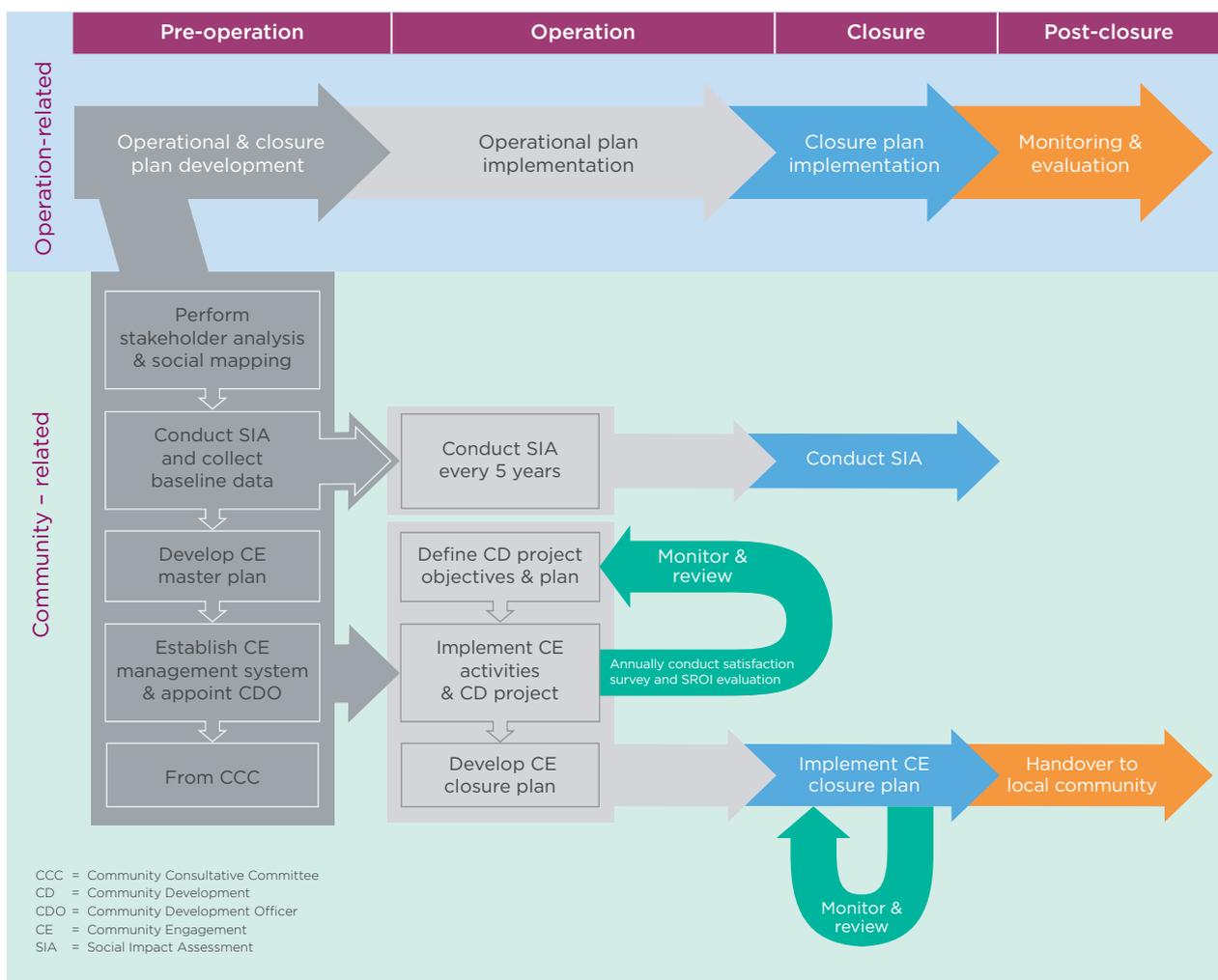
The Company set community development strategy in line with the UN Sustainable Development Goals (SDGs). With collaboration between the Company, the community, and the government, 6 dimensions of community development programs are prioritized. To ensure consistency in the actions taken at different locations, various management standards have been developed as framework for all business units. Furthermore, the Company adopts the Social Return on Investment (SROI) framework as a tool to measure the social impact and evaluate the effectiveness of the community development programs.



Throughout the business life cycle, community-related activities are integrated into day-to-day operations. The social impact assessment (SIA) has been conducted at the beginning of project, every 5 years during operational stage, and at the closure stage as the information will be used for the evaluation. Stakeholder analysis and social mapping are conducted during the pre-operation stage to identify target groups and their needs in order to design appropriate community development programs. Such actions will be revisited during operational stage to ensure an up-to-date information for the effective implementation of community development strategies. Performance of the projects including

stakeholder satisfaction is monitored and reviewed annually. Furthermore, the quality assurance review has been carried out by specific staffs who are not involved in the projects to ensure transparency.

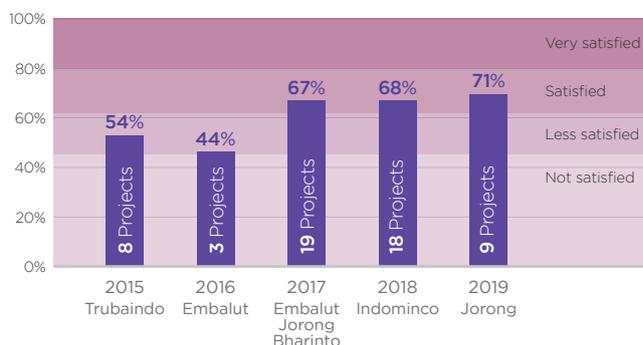
From 2019, the Company has set a goal to annually conduct the stakeholder satisfaction survey on community development projects including the SROI evaluation at all mines in Indonesia. To ensure that the projects meet stakeholder expectation, the Company also commit to improving the level of stakeholder satisfaction to at least "Satisfied" level or greater than 68%.



## Performance

In Indonesia, the Company completed the satisfaction survey on community development projects only at Jorong mine or 20% against the target. The surveys were conducted for 9 community development projects with average satisfaction level at 71%, which is considered as a “Satisfied” level. For China, 6 community development projects that have been developed and are planning to conduct stakeholder satisfaction survey. Results will be disclosed in the Sustainability Report 2022.

### Average Stakeholder Satisfaction Level



## Social Return on Investment (SROI)

The Company adopts the Social Return on Investment (SROI) framework as a tool to measure the outcomes of the community development programs in terms of social value. The results are used to determine how effectively the budget is utilized by the Company.

In 2019, the Company applied the SROI framework to measure the social return of 4 community development projects in Indonesia, and two of them gained successful outcomes. The first is “Chicken Farming Development”

at Jorong mine where the Company has provided knowhow on chicken farming management to increase productivity. Starting with the implementation in 2012, the project identified the 2019 SROI rate at 1:14.36. Another successful project is the “Community Learning Center” at Indominco mine with the SROI calculation at 1:2. As communities in fostered villages have limited access to formal education, the Company supported construction of the learning center which has continuously provided education to people since 2011.

## 1. Economic Development and Revenue Generation

### Organic fertilizer production

The Company arranged a comprehensive course on organic fertilizer production. A training session was conducted to train a group of 33 agriculturists in Karangrejo village. As a result, they can produce 17 tonnes of organic fertilizer per month which can be sold at the price of IDR 1.5 million per tonne. One of the customers is Jorong mine which used for rehabilitation activities.

### Laying hens

The Company collaborated with PAMA, our mining contractor, to support laying hens business of BASAPRI Cooperative by providing materials for facility construction and teaching villagers a farming management. There were 30 people joining this program, and it helped to generate income for people as they become egg suppliers in Benangin.





### School transportation

The Company has encouraged students to go to school by providing safe school transportation for students in 10 villages. From 2018 to 2019, Indominco mine provided a bus for each village to facilitate school transportation. As a result, more than 600 students in the villages can easily access the school with good transportation.



### Adiwiyata school

The Company has promoted Adiwiyata project (Green School) at Basiq school. The objective was to strengthen environmental awareness among the school community. Extracurricular activities for students were added such as school farming with an active learning technique. As a result, the school was awarded the best Adiwiyata school at the provincial level.

### Renovation of public facilities

The Company concerned health and safety of people, especially those living near the mine. Basic infrastructures have been built and renovated to improve the quality of life, such as boreholes for clean water in Karangrejo village, swimming pool in Pelaihari village, and river dredging in village of Swarangan.



### Road maintenance

The Company carried out maintenance of roads in Santan Ilir village, supported by Indominco mine in order to facilitate good accessibility for the community. As a result, over 600 people could easily travel to and from the village to perform economic activities such as buying and selling products, leading to a better economy of the village.



### Free medical service

The Company supported community health care promotion through free medical services and infant nutrition. In 2019, Trubaindo mine provided medical services for 135 people and additional food for babies in 6 fostered villages in order to improve the health and well-being of villagers and to prevent malnutrition and stunting in infants.



### Hygienic latrines

The Company with our partnerships in Indonesia, PHBS and KODIM 0908 Bontang, East Kalimantan, collaboratively promoted healthy and clean communities. Therefore, the Company carried out the construction of the water closet to build 31 hygienic latrines in Bontang city and strengthened hygiene awareness of the villagers.

## 5. Environmental Conservation



### Waste management

The Company has developed a waste management program to promote environmental protection. Garbage bins were provided to elementary schools and public offices in Jorong, Swarangan, Batalang, Karang Rejo, Asam-Asam, and Simpang Empat Sungai Baru villages to increase community awareness related to waste management.



### Coral restoration

The Company carried out the coral restoration program in the area near Bontang coal terminal to preserve the marine environment. The program consisted of coral planting and a monitoring process to measure the coral growth rate. The result showed that the marine ecosystem around this area has improved and the growth rate of coral has also increased.



## 6. Social, Culture and Community Relations Promotion



### Mosque renovation

The Company has supported cultural and religious activities of over 2,000 villagers, especially those living in Ring 1, to enhance good relationships and secure social license to operate. The mosque renovation project was carried out to help the villagers renovate the worship house, ensuring that the building was suitable for religious activities.



### Celebration of religious event

The Company has given the importance to preserve the cultural identity of people in local communities by always supporting cultural and religious activities such as Isra Mi'raj, Birth of Prophet Muhammad, Idul Adha, Ramadhan.

# Resettlement



The Company cannot freely choose the project location, especially the mine site. When a project is developed close to the community, it is sometimes necessary to relocate the people. Poor management can have adverse consequences on the quality of life of existing communities and the Company's social license to operate.

## Performance Summary

	2019	Target 2019
Number of significant resettlement complaints	0	0
Proportion of significant resettlement complaints resolved by a dispute resolution mechanism	NA*	100%

\* No significant complaints

## Progress 2019

- Deployed the resettlement management standard throughout each business unit

## Reporting Boundary

The resettlement data in this report includes mining business in Indonesia and Australia, conventional power business in China, renewable power business in China and Japan, and those joint ventures involving the Company even where the shareholding is less than half.

## Management Approach

The Company's resettlement management standard developed in line with the international guidelines such as the International Finance Corporation (IFC) and the International Council on Mining & Metals (ICMM). It is clearly stated that unnecessary resettlement should be avoided since it has a detrimental effect upon the quality of life of those affected communities. However, where resettlement is unavoidable, the Company then strictly follows the standard comprising of 6 key measures to minimize potential impacts.

- **Mutual agreement setting** to get approval of local governments and seek and mutual purpose
- **Strategy formulation** to develop implementation strategy by gathering relevant information such as laws and regulations
- **Expert consultation** to engage with external experts in managing resettlement strategy for maximum effectiveness
- **Stakeholder engagement** to address concerns of the affected communities and related stakeholders
- **Resettlement planning** to develop resettlement plan and use as a framework
- **Monitoring and evaluation** to measure the progress against plan and the outcomes

## Performance

In 2019, there was no resettlement taking place in the Company's ongoing projects, and therefore no resettlement complaints. In addition, the Company has deployed resettlement management standard, which was just developed in late 2018, throughout each business unit.

# Indigenous Peoples



It is common for mining business that some of its operational areas are adjacent to communities which, in some regions, are indigenous. Protection of the rights and the cultural heritage of indigenous peoples is therefore one of the important issues for the Company.

## Performance Summary

	2019	Target 2019
Number of indigenous peoples' rights violations	0	0
Proportion of indigenous peoples' rights violations resolved through a dispute mechanism	NA*	100%

\* No violations

## Progress 2019

- Conducted 4 times of Northern and Western Aboriginal Heritage Committee meetings
- Developed mobile application to record heritage inspections in Australia
- 6 Native title agreements

## Reporting Boundary

The indigenous peoples data in this report includes only the mining business in Indonesia and Australia, where those concerned are the Dayak and the Aboriginal peoples respectively. For other businesses, there are no indigenous peoples residing in areas close to the operations of the Company.

## Management Approach

The Company has conducted the preliminary assessment for all business units to identify whether there are indigenous communities in the areas surrounded. In case there is an operational site adjacent to indigenous peoples, the Company then carries out data collection to understand such peoples with regard to their substantial characteristics such as culture, religion and language. In addition, the cultural heritage management plan is developed for each specific site to ensure that the cultural heritage is respected and preserved as well as to avoid any violations against their rights.

	Indonesia	Australia
<b>Indigenous peoples</b>	Dayak Peoples: Tunjung, Benuaq, and Bentain	Aboriginal peoples
<b>Business unit</b>	Trubaindo and Bharinto	Airly, Springvale, Clarence, Myuna, and Mandalong
<b>Engagement approach</b>	<ul style="list-style-type: none"> <li>• Operate in compliance with Adat Law, under the same practices as other external businesses operating inside Dayak communities</li> <li>• Establish a Community Consultative Committee which includes representatives from the Dayak communities</li> <li>• Implement projects designed to preserve the Dayak cultural heritage as well as their quality of life</li> </ul>	<ul style="list-style-type: none"> <li>• Implement the Aboriginal Cultural Heritage Management Plan (ACHMP) at both western and northern mine clusters in accordance with the laws and management guidelines set out within the Aboriginal Land Rights Act (1983), Heritage Act (1977), and Environmental Planning &amp; Assessment Act 1979 (EP&amp;A ACT)</li> <li>• Establish sub-committees which includes the representatives from the Aboriginal peoples who are registered with the Company</li> <li>• Regularly conduct social impact assessment and engage the Aboriginal peoples through meetings at least twice a year</li> <li>• Support activities relevant to Aboriginal cultural heritage</li> </ul>

## Performance

In 2019, there were neither reports on rights violations of the indigenous peoples nor complaints due to the mining-related impacts from operations in both Indonesia and Australia.

# Human Rights



Human rights non-compliance can create severe adverse consequences for the Company's reputation and business operations. Throughout the Company, it is essential to uphold and respect human rights, freedom, and equality by disclosing how the Company addresses potential impacts on human rights, including how the Company prevents and mitigates such impacts.

## Performance Summary

	2019	Target 2019
Coverage of business units assessed for human rights risks	-	>10%
Proportion of business units with risk management plans*	-	100%
Number of significant human rights issues	0	0
Proportion of significant human rights issues resolved by a dispute mechanism	NA**	100%

\* For business unit(s) identified as high human rights risks

\*\* No significant issues

## Progress 2019

- Set long-term targets on human rights in Sustainability Committee Meeting No.2/2019
- In process of human rights due diligence standardization

## Reporting Boundary

The human rights data in this report includes mining business in Indonesia and Australia, conventional power business in China, renewable power business in China and Japan, solar rooftop solution business in Thailand, including the head office, other related business in Thailand and regional offices in each country. However, as the Company is currently in the process of human rights due diligence standardization, this report would focus upon the number of human rights issues. The Company expects to start disclosing the outcomes of human rights due diligence in the Sustainability Report 2020.

## Management Approach

Human Rights Policy



As a participant of the United Nations Global Compact (UNGC), the Company commits to respect and uphold human rights in accordance with the Universal Declaration of Human Rights (UDHR), United Nations Guiding Principles on Business and Human Rights (UNGPs) and ILO Declaration on Fundamental Principles and Rights at Work, including local regulations as stated in the corporate human rights policy. In practice, the Company adheres to the principles of liberty, equality and human dignity and shall not discriminate against gender, race, religion, and color in order to prevent and avoid human rights violations among employees, partners, customers, contractors, suppliers, communities, and vulnerable groups namely children, women, the disabled, indigenous peoples, migrant workers, and the elderly.

At present, a human rights due diligence process is under standardization, starting from human rights risk assessment. The Company intends to integrate the human rights risk into the corporate risk assessment with 7 focus areas as follows:

- Human resources
- Workplace health and safety
- Product quality and marketing practices
- Community impact
- Security arrangements
- Legal and governmental affairs
- Contractors and supply chain

The Company promotes human rights awareness through various communication channels, for both employee and concerned parties such as security personnel. Currently, the training material is being standardized to ensure the same practice across business units.

## Performance

In 2019, the long-term targets on human rights were approved in Sustainability Committee Meeting No. 2/2019. Moreover, the Company has not received any significant human rights issues. However, a human rights due diligence manual is under development, which expects to complete in 2020. In addition, the Company plans to conduct the human rights impact assessment in 2020 and the outcome will be disclosed in Sustainability Report 2020.

### Labor union and collective bargaining agreement

The Company respects for the rights of all employees to freely and voluntarily establish and join a union or similar bodies without interference or fear of retaliation as specified in the Employee Relation Policy. In addition, the Company also encourages regular communications with employees to maintain good relationships and enhance understanding of benefits, career paths, and business directions. In addition, the quarterly informal meeting with union leaders is also arranged to foster a collaborative environment. Members of unions represent 76% in Indonesia and 75% in Australia of the workforce in each country.

### Modern slavery

Centennial, our subsidiary in Australia has supported a legislative regime on the Australian Modern Slavery Act 2018, which took effect since January 2019. The Company aims to use the reporting requirements of the legislation to take approach to mitigate risk, review existing system, and improve social performance. Third-party was engaged to work along for undertaking a Modern Slavery Act (MSA) Readiness Assessment. A three-year roadmap has thus been created, while the Company will publish its first official Modern Slavery Statement in 2020.

### Security forces

There are no security forces across all business units. All of the Company's security personnel are unarmed while performing security duties in operational areas. With respect to the Voluntary Principles on Security and Human Rights, security risk assessment is undertaken at each operational site as part of the Company's human rights risk assessment. Training sessions have been provided to cover the need for security personnel to respect human rights.

### Child and forced labor

The Company has clearly set a minimum age for employment, which strictly adheres to local labor laws. In addition, the Company has established a transparent recruitment process and required that all employees must sign employment contracts.

# Corporate Philanthropy



Almost 4 decades, the Company has operated its business by embracing ESG principles to achieve business growth together with creating sustainable values for all stakeholders. The Company therefore supports a variety of philanthropic activities, both related and not directly related to the business that helps to create benefits for society.

## Performance Summary

	2019	Target 2019
Coverage of philanthropic activities	100%	100%

## Progress 2019

- Supported affected people from the earthquake in Begkulu and flood in Samarinda

## Reporting Boundary

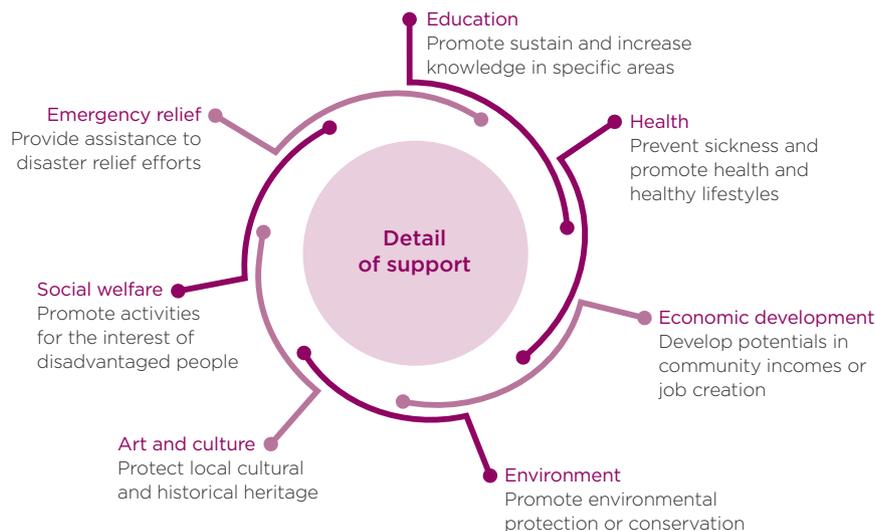
The corporate philanthropy data in this report includes mining business in Indonesia and Australia, conventional power business in China, renewable power business in China and Japan, solar rooftop solution business in Thailand, including the head office, other related business in Thailand and regional offices in each country.

## Management Approach

Corporate Philanthropy Policy



The corporate philanthropy policy is derived to provide a contribution framework for all business units. The Company is committed to supporting activities in 7 focus areas including education, health, economic development, environment, art and culture, social welfare and emergency relief as following details:



However, the Company does not support the activities that are associated with non-compliance with laws or ethics, disrespect to the nation or religion, and conflict with the Company's code of conduct.

## Performance

In the previous year, the Company continually supported various philanthropic activities in every country that the Company has operations. In Thailand, most of the activities are for educational development while key activities in Indonesia are for economic development.

Area	Example of Philanthropic Activities	Country			
		Thailand	Indonesia	China	Australia
Education	• Banpu education for sustainability	●			
	• Sponsorship for schools	●			●
	• CONNEXT ED project	●			
	• Partnership school project	●			
	• Light and learn: solar project for education	●			
	• Banpu table tennis club	●			
	• Support a young tennis athlete	●			
	• Banpu innovative learning program	●			
	• Power green camp	●			
Health	• Health and sanitation development program		●		
	• Mobile medical service	●			
	• Rugby league football club				●
Economic development	• Banpu champions for change	●			
	• Economic development and income generation program		●	●	
Environment	• Environmental development program		●	●	
Art and culture	• Social and culture development program		●		
	• Aboriginal cultural heritage				●
Social welfare	• Infrastructure development	●	●	●	
	• Meals on Wheels				●
Emergency relief	• Provided emergency response teams to survey and help victims for tropical storm Pabok in Nakhon Si Thammarat	●			
	• Supported affected people from 2 natural disasters: earthquake in Begkulu and flood in Samarinda		●		

For more details of each activity





## Power Green Camp



The Company in collaboration with the Faculty of Environment and Resource Studies, Mahidol University has been organizing the “Power Green Camp” since 2006 with the underlying concept “Environmental Science - Learning Through Action”. The camp is aimed to educate young people about natural resources and to encourage them to apply their scientific knowledge to solve environmental problems systematically. Nowadays, the camp has sown the seeds of care for the environment in the hearts of accumulated 910 young people and has created a network of 160 environmental leaders, who have the potential to become a driving force of sustainable development and natural resources conservation for the country.

Moreover, since 2015, the Company has extended the experience of the young participants from the camp by selecting outstanding youths and sponsoring them on an educational excursion to countries where the Company has operations. In 2019, the excursion was in Japan which is a successful model of the country in managing biodiversity to increase its economic value while sustainably preserving natural resources at the same time.



## Champion for Change



Over the past 8 years, the Company has funded young people who have passion to make changes for a better society through the project “Champion for Change”. Within the project, the Company collaborated with ChangeFusion, a non-profit organization, to launch an online learning platform “Social Enterprise School (SE school)”. The learning platform offers a wide range of topics relating to social enterprise operations such as business creation, understanding of social and market testing methods. It also aims to raise awareness of young entrepreneurs to conduct the business with sustainability. Furthermore, the Company provided an opportunity for young people to submit their business plans for the competition. Five social enterprises with the most distinguished and impactful operations in terms of solutions for mental health, stress, and environment were chosen and awarded with further funding to support their long-term business operations. Besides, the Company continuously supports other social enterprises whose business creates not only financial benefits to social enterprises but also creates social, environmental, and educational benefits to over 50 communities with more than 120,000 people each year.



## Partnership school



The Partnership School is a project developed in Thailand by the collaboration between the Ministry of Education and private sectors, with objective to create a model of initiative education management and enhance the learning achievement of students. The Company signed MOU with project partners on 5 June 2019 with the Company's intention to strengthen schools' capability in 4 areas, including educational performance, innovation, IT as well as the English language. Three schools from CONNEXT ED were selected and will receive 5-years support from the Company from 2019 to 2023. Such schools include Nonsaardpittaya School, Rongkhamhongthongwittaya School, and Chumchon Phonngam Phonsawang School.

In 2019, there were various training courses provided to teachers, such as High Scope course and Experience Design for Educators. In addition, lecturers from Chulalongkorn University Demonstration Elementary School were invited to share teaching techniques and encourage teachers to improve their teaching skills. Besides, the Company also provided IT experts and English teachers as well as technological devices to the schools.



## CONNEXT ED project



With belief that "Learning is the Power of Change and Development", the Company joined hands with public sector, civil society as well as the private sector in CONNEXT ED project to enhance educational quality, which is fundamental in creating sustainable economic growth and social prosperity. The Company has involved in the project since 2016 and has sponsored 12 schools in 3 northeastern provinces by providing volunteers who are the employees to work as partnership with schools on various activities as follows;

- Arrange training sessions for teachers to strengthen their teaching capabilities from traditional method to active learning
- Support various teaching enhancement activities and instructional media
- Support life skills activities including ethical awareness for the students' future

The success of CONNEXT ED was proved by the significant increase in the average Ordinary National Educational Test (ONET) score. For instance, the average ONET score of Grade 6 students was increased from 32.37 in 2017 to 36.82 in 2018. Besides, schools in the project have been recognized as role models and passed on their new teaching techniques to other nearby schools that not involved in the project.

# List of Business

## Energy Resources

As of 31 December 2019

Mining Business						
Country	Name	Type	Current status	Production volume		Ownership
				100% basis	Equity-based	
Indonesia	Indominco	open-pit coal mine	operating	12.6 Mt	8.5 Mt	67.13%
	Trubaindo	open-pit coal mine	operating	4.8 Mt	3.2 Mt	67.13%
	Bharinto	open-pit coal mine	operating	2.9 Mt	2.0 Mt	67.13%
	Jorong	open-pit coal mine	operating	1.6 Mt	1.1 Mt	67.13%
	Kitadin-Embalut	open-pit coal mine	operating	1.4 Mt	0.9 Mt	67.13%
	Tepian Indah Sukses	open-pit coal mine	project development	-	-	67.13%
	Nusa Persana Resources	open-pit coal mine	project development	-	-	67.13%
China	Gaohe	underground coal mine	operating	10.0 Mt	4.5 Mt	45%
	Hebi	underground coal mine	operating	1.5 Mt	0.6 Mt	40%
Australia	Airly	underground coal mine	operating	1.2 Mt	1.2 Mt	100%
	Springvale	underground coal mine	operating	2.2 Mt	1.1 Mt	100% <sup>(a)</sup>
	Clarence	underground coal mine	operating	1.9 Mt	1.6 Mt	85%
	Mandalong	underground coal mine	operating	3.9 Mt	3.9 Mt	100%
	Myuna	underground coal mine	operating	1.6 Mt	1.6 Mt	100%
	Angus Place	underground coal mine	care & maintenance	-	-	100% <sup>(a)</sup>
	Newstan	underground coal mine	care & maintenance	-	-	100%
	Inglenook	underground coal mine	project development	-	-	100%
	Neubecks	open-pit coal mine	project development	-	-	100%
Mongolia	Altai Nuurs	coal mine	project development	-	-	100%
	Unst Khudag	coal mine	project development	-	-	100%
	Tsant Uul	coal mine	project development	-	-	100%

Gas Business				
Country	Name	Type	Current status	Production capacity
				Equity-based
The U.S. <sup>(b)</sup>	Marcellus	shale gas production	operation	189 MMcf/day

## Energy Generation

Conventional Power Business						
Country	Name	Type	Current status	Production capacity		Ownership <sup>(c)</sup>
				100% basis	Equity-based	
Thailand	BSCP	coal-fired power plant	operating	1,434 MW	717 MW	50%
Lao PDR	Hongsa	coal-fired power plant	operating	1,878 MW	751 MW	40%
China	Zhengding	combined heat & power plant	operating	139 MW	139 MW	100%
	Luannan	combined heat & power plant	operating	227 MW <sup>(d)</sup>	227 MW	100%
	Zouping	combined heat & power plant	operating	247 MW	173 MW	70%
	Shanxi Luguang	coal-fired power plant	under construction	1,320 MW	396 MW	30%

<sup>(a)</sup> Centennial Coal Co., Ltd. acquired additional 50% ownership of the Springvale Coal Pty Ltd. in December 2019. This transaction brought Centennial's ownership in Springvale and Angus Place mines to become 100%.

<sup>(b)</sup> Banpu signed purchase and sale agreement for Barnett Shale in Texas in December 2019, which is subject to conditions precedent. The completion expected by 2<sup>nd</sup> quarter of 2020.

<sup>(c)</sup> Banpu Power's ownership (78.57% share is held by Banpu)

<sup>(d)</sup> Construction completion for Luannan (phase 3) in 4<sup>th</sup> quarter of 2019

Renewable Power Business						
Country	Name	Type	Current status	Production capacity		Ownership <sup>(c)(h)</sup>
				100% basis	Equity-based	
China	Jinshan	solar power plant	operating	28.95 MW	28.95 MW	100%
	Huineng	solar power plant	operating	21.51 MW	21.51 MW	100%
	Haoyuan	solar power plant	operating	20.00 MW	20.00 MW	100%
	Hui'en	solar power plant	operating	19.70 MW	19.70 MW	100%
	Deyuan	solar power plant	operating	51.64 MW	51.64 MW	100%
	Xingyu	solar power plant	operating	10.30 MW	10.30 MW	100%
	Jixin	solar power plant	operating <sup>(e)</sup>	25.22 MW	25.22 MW	100%
Japan	Olympia	solar power plant	operating	10.00 MW	4.00 MW	40%
	Hino	solar power plant	operating	3.50 MW	2.63 MW	75%
	Awaji	solar power plant	operating	7.90 MW	5.93 MW	75%
	Nari Aizu	solar power plant	operating	20.46 MW	15.35 MW	75%
	Mukawa	solar power plant	operating	17.00 MW	9.52 MW	56%
	Kurokawa	solar power plant	operating <sup>(f)</sup>	18.90 MW	18.90 MW	100%
	Tenzan	solar power plant	operating <sup>(g)</sup>	1.96 MW	1.96 MW	100%
	Muroran 1	solar power plant	operating <sup>(g)</sup>	1.73 MW	1.73 MW	100%
	Muroran 2	solar power plant	operating <sup>(g)</sup>	1.63 MW	1.63 MW	100%
	Takeo 2	solar power plant	operating <sup>(g)</sup>	1.00 MW	1.00 MW	100%
	Yamagata	solar power plant	construction	20.00 MW	20.00 MW	100%
	Yabuki	solar power plant	construction	7.00 MW	5.25 MW	75%
	Shirakawa	solar power plant	project development	10.00 MW	10.00 MW	100%
	Onami	solar power plant	project development	16.00 MW	12.00 MW	75%
	Kesenuma	solar power plant	project development	20.00 MW	20.00 MW	100%
	Hiroshima	solar power plant	project development	8.00 MW	8.00 MW	100%
Yamagata lide	solar power plant	project development	200.00 MW	102.00 MW	51%	
Vietnam	Vinh Chau	wind power plant	project development	80.00 MW	80.00 MW	100%

## Energy Technology

Solar Rooftop Solutions						
Country	Name	Type	Current status	Production capacity		Ownership
				100% basis	Equity-based	
Thailand	Banpu Infinergy	solar rooftop	operating	17.00 MW	17.00 MW	100%
Singapore	Sunseap	solar rooftop	operating	415.24 MW	159.70 MW	38.46%

Energy Storage System						
China	Durapower	battery factory	operating	1.0 GWh	0.5 GWh	47.68%

Electric Vehicle						
Thailand	Urban Mobility Tech	electric vehicle fleet	operating	0.3 km/year	0.1 km/year	30.70%
Japan	FOMM	electric vehicle	operating	500 EVs sold	100 EVs sold	21.50%

Smart City						
Thailand	Banpu Infinergy	smart city	operating	4 projects	4 projects	100%

<sup>(e)</sup> Commercial Operation Date (COD) in July 2019

<sup>(f)</sup> Commercial Operation Date (COD) in December 2019

<sup>(g)</sup> Invested in December 2019

<sup>(h)</sup> Since 2020, the investment in renewable power business will be managed through Banpu Next Co., Ltd. which was officially registered on February 27, 2020 as a result from an amalgamation between Banpu Infinergy Co., Ltd. and owned subsidiary of Banpu Power Public Company Limited

# Awards and Recognitions

## Thailand

Business unit	Award/Recognition	Host institution
Banpu	Member of Dow Jones Sustainability Indices (DJSI) in Emerging Markets	S&P Global
	Gold Class and Industry Mover in Coal & Consumable Fuels of the Sustainability Award 2020	S&P Global and RobecoSAM
	Rating of A (on a scale of AAA-CCC) in the MSCI ESG Ratings assessment	Morgan Stanley Capital International (MSCI)
	Sustainability Awards of Honor 2019	The Stock Exchange of Thailand
	Member of Thailand Sustainability Investment	The Stock Exchange of Thailand
	Thailand Corporate Excellence Awards 2019 in the area of Sustainable Development Excellence	Thailand Management Association
	Excellence CG Scoring, according to the Corporate Governance Report of Thai Listed Companies 2019	Thai Institute of Directors Association (IOD)
	Certified company of Thailand's Private Sector Collective Action Coalition Against Corruption	Thailand's Private Sector Collective Action Coalition Against Corruption (CAC)

## China

Business unit	Award/Recognition	Host institution
Zhengding Power Plant	Labor Security Law-abiding and Excellent Integrity Enterprise in Hebei Province	Hebei Provincial Department of Human Resources & Social Security
	Labor Security Law-abiding and Excellent Integrity Enterprise in Shijiazhuang City	Shijiazhuang Municipal Human Resources & Social Security Bureau
	Model Worker of Hebei Province	Hebei Provincial Party Committee of the Communist Party of China
Luannan Power Plant	Excellent unit of grassroots labor union in Luannan County in 2018-Labor union committee of Tangshan Banpu Heat & Power Co., Ltd.	Labor Unions of Luannan County
	Excellent research report on the research work of grassroots labor union in Luannan county in 2018-Employee innovation work report of Tangshan Banpu Heat & Power Co., Ltd.	Labor Unions of Luannan County
	Hebei Enterprise Safety Production Integrity B Level certificate (2018.12-2020.12)	Emergency Management Bureau of Luannan County
	Honor certificate of obeying the contract and paying attention to credit	Tangshan Federation of Industry and Commerce, Tangshan Enterprise Credit Management Association, and Tangshan Private Economy Association
	Luannan county table tennis center	Tangshan Table Tennis Association
	Model worker of Hebei Province-Zhang Xiaojian	Hebei Provincial Party Committee of the Communist Party of China
	Tangshan Safety Production Management Post Model (Zhou Guoqiang) and the Communist Youth League of Tangshan Municipal Party Committee Honor	Tangshan Emergency Management Bureau
	Integrity Enterprise of Tangshan city in 2019	Tangshan Social Credit System Construction Leading Group Office and Tangshan Spiritual Civilization Construction Committee Office
Zhouping Power Plant	Advanced Environmental Protection Units in 2018	Zouping Municipal Environmental Protection Bureau
	"Keeping Contracts and Paying Attention to Credit" Enterprises in 2018	Binzhou Municipal Market Supervision and Administration Bureau

## Australia

Business unit	Award/Recognition	Host institution
Centennial	Large Host Employer of the Year	Hunter Valley Training Company (HVTC) Excellence Awards
Myuna Mine	Annual Health, Safety, Environment and Community Conference safety category winner for Monorail Bracket System	NSW Minerals Council

## Indonesia

Business unit	Award/Recognition	Host institution
ITM	Best Contact Liaison Group based on Performance, Compliance and Governance	Bank of Indonesia
	Best Responsibility of the Board based on ASEAN CG Scorecard at the 11 <sup>th</sup> Indonesia Institute for Corporate Directorship (IICD) Corporate Governance Conference & Award	Indonesian Institute for Corporate Directorship (IICD)
	Human Rights Award	Foundation for International Human Rights Reporting Standard (FIHRRST)
	Platinum in the Asia Sustainability Report Rating (ASRRAT) 2019	National Center for Sustainability Reporting (NCSR)
	The Most Innovative Company in the Mining Sector given at the IDX Channel Innovation Awards 2019	Indonesian Stock Exchange (IDX)
Indominco Mine	Appreciation as a Government Partner in Protecting Conservation Areas	Ministry of Environment and Forestry
Trubaindo Mine	Blue Level - PROPER (National)	Ministry of Environment and Forestry
	Green Level - PROPER (Province)	Governor of East Kalimantan Province
	Zero Accident Award	Ministry of Manpower
Bharinto Mine	Adiwiyata School Partnership Award	West Kutai Regent
	Blue Level - PROPER (National)	Ministry of Environment and Forestry
	Education Development Contributor Award	Ministry of Energy and Mineral Resources
	Green Level - PROPER (Province)	Governor of East Kalimantan Province
	Zero Accident Award	Ministry of Manpower
	Zero Accident Award	Governor of East Kalimantan Province
Jorong Mine	Coaching Partner of Waste Bank	Tanah Laut Regency
	Green Level - PROPER	Ministry of Environment and Forestry
Kitadin-Embalut Mine	Blue Level - PROPER (National)	Ministry of Environment and Forestry
	Green Level - PROPER (Province)	Governor of East Kalimantan Province
	Zero Accident Award	Ministry of Manpower
	Zero Accident Award	Governor of East Kalimantan Province
TRUST	Zero Accident Award	Ministry of Manpower
	Zero Accident Award	Governor of East Kalimantan Province

# Membership

## Thailand

Organization	Status/Role
Thai Listed Companies Association (TLCA)	Chairman of Center for Building Competitive Enterprise
Thai Listed Companies Association (TLCA)	Director
Thai Institute of Directors Association (IOD)	Director of Thailand's Private Sector Collective Action Coalition Against Corruption (CAC)
Thammasat Economics Association	Chairman
The Foundation for Better Life	President

## Indonesia

Organization	Status/Role
Corporate Forum for Community Development (CFCD)	Member
Forum for Rehabilitation on Mined Land (FRHLBT)	Member
Indonesia Mining Association (IMA)	Member
Indonesian Chamber of Commerce and Industry (KADIN)	Member
Indonesian Coal Mining Association (ICMA)	Member
Indonesian Communication Forum of Mining Environmental Management (FKPLPI)	Member
Indonesian Corporate Counsel Association (ICCA)	Member
Indonesian Corporate Secretary Association (ICSA)	Member
Indonesian Institute of Accountant (IAI)	Member
Indonesian Public Listed Companies Association	Member
Indonesian Safety Mining Professional Association (APKPI)	Member

## China

Organization	Status/Role
Binzhou Overseas Chinese Entrepreneurs Association	Member
Committee on Urban and Rural Construction and Environmental Resources of the 14 <sup>th</sup> Shijiazhuang People's Congress	Committee member
Shandong Electric Power Enterprises Association	Member
Shandong Overseas Chinese Entrepreneurs Association	Member
The 14 <sup>th</sup> Shijiazhuang People's Congress	Representative

## Mongolia

Organization	Status/Role
American Chamber of Commerce in Mongolia	Committee member
Cover Mongolia	Committee member
Mongolian National Chamber of Commerce and Industry	Committee member

## Australia

Organization	Status/Role
ACALET IPAC Independent Project Assessment Committee	Member
Australian Coal Association Limited Project (ACARP)	Chairman
Australian Coal Association Limited Project (ACARP) - Mine Site Greenhouse Mitigation Committee	Member
Australian Coal Association Limited Project (ACARP) - Research Committee	Member
Australian Coal Association Limited Project (ACARP) - Underground Maintenance Committee	Member
Australian Standards	Member
Coal 21 Limited	Director
Coal Mining Abatement Technology Support Package (CMATSP) - Project Oversight Committee	Member, Committee secretary
Coal Services - Airborne Contaminants and Diesel Particulate Sub Committee	Member
Coal Services - NSW Mines Rescue Working Group	Member
Dept. Trade and Investment - Mine Safety/Competency Unit	Convener of the Undermanager examination panel
DII Examinations Committee	Member
Engineers Australia Organization	Assessor
Hunter Medical Research Institute Foundation	Member
MCA Coal Forum	Member
Mine Managers Association of Australia	Vice-president
Mining and Petroleum Competence Board	Member
Mining Competence Board	Member
Mining Equipment/Personnel Interaction Advisory Group (MEPIAG)	Chairperson
MSAC Culture Working Group	Member
NCIG Holdings Pty Limited	Director
Newcastle Coal Infrastructure Group (NCIG)	Director
Northern NSW Rescue Helicopter Service Limited	Director
NSW Freight Advisory Council	Member
NSW Minerals Council Board	Director
NSW Minerals Council Executive Committee	Member
NSW Underground Geotechnical Society (NUGS)	Executive committee member
Port Kembla Coal Terminal Limited	Director
TfNSW Rail Freight Industry Group	Member
Westcoast Group Australia	Director

# Data Boundary

Sustainability Topic	Mining business			Conventional power business	Renewable power business			Solar rooftop solution business	Office		
	Indonesia	Australia	Mongolia		China	China	Japan		Thailand	Thailand	Singapore
Sustainability Governance	●	●	●	●	●	●	●	●	●	●	●
Business Ethics	●	●	●	●	●	●	●	●	●	●	●
Risk Management	●	●	●	●	●	●	●	●	●	●	●
Business Continuity Management	●	●	NR	●	●	●	●	●	●	●	●
Efficiency and Reliability of Power Plants	NR	NR	NR	●	NR	NR	NR	NR	NR	NR	NR
Process Improvement and Innovation	●	●	NR	●	●	●	●	●	●	●	●
Supplier Management	●	●	NR	●	○	○	○	●	○	○	○
Customer and Product Stewardship	●	●	NR	●	●	●	●	●	NR	NR	NR
Economic Distribution	●	●	●	●	●	●	●	●	●	●	●
Socioeconomic Compliance	●	●	●	●	●	●	●	●	●	●	●
GHG Emissions	●	●	NR	●	●	●	●	●	NR	NR	NR
Energy	●	●	NR	●	●	●	●	●	NR	NR	NR
Water	●	●	NR	●	●	●	NR	NR	NR	NR	NR
Air Emissions	●	●	NR	●	NR	NR	NR	NR	NR	NR	NR
Waste	●	●	NR	●	○	○	○	NR	NR	NR	NR
Mineral Waste	●	●	NR	NR	NR	NR	NR	NR	NR	NR	NR
Specific Waste from Power Plants	●	NR	NR	●	●	●	●	NR	NR	NR	NR
Biodiversity	●	●	NR	●	●	●	NR	NR	NR	NR	NR
Mine Closure	●	●	NR	NR	NR	NR	NR	NR	NR	NR	NR
Mine Subsidence	NR	●	NR	NR	NR	NR	NR	NR	NR	NR	NR
Environmental Compliance	●	●	●	●	●	●	●	NR	NR	NR	NR
Employee Management	●	●	●	●	●	●	●	●	●	●	●
Corporate Culture	●	●	●	●	●	●	●	●	●	●	●
Human Capital Development	●	●	●	●	●	●	●	●	●	●	●
Occupational Health and Safety	●	●	●	●	●	●	●	●	○	○	○
Community Engagement	●	●	NR	NR	●	NR	NR	NR	NR	NR	NR
Community Development	●	NR	NR	NR	●	NR	NR	NR	NR	NR	NR
Resettlement	●	●	NR	●	●	●	NR	NR	NR	NR	NR
Indigenous Peoples	●	●	NR	NR	NR	NR	NR	NR	NR	NR	NR
Human Rights	●	●	○	●	●	●	●	●	○	○	○
Corporate Philanthropy	●	●	●	●	●	●	●	●	○	○	○

- Management approach and performance data cover such business.
- Management approach covers such business but performance data cover partially.
- Management approach covers such business but performance data have not covered.
- NR No significant or no relevance to such business.

Remark: This report excludes the business entities that the Company holds less than 50% of shares and does not have management control as listed below;

- Mining business in China
- Gas business in the U.S.
- Conventional power business in Thailand and Lao PDR
- Renewable power business in Vietnam
- Solar rooftop solution business in Singapore
- Energy storage system business in China
- Smart city business in Thailand
- Electric vehicle business in Thailand and Japan
- Energy trading business in Japan

# Performance Data

## Economic Performance

	2016	2017	2018	2019
Revenues (USD million)	2,259	2,877	3,481	2,759
EBITDA <sup>(a)</sup> (USD million)	540	968	1,178	695
Net profit (USD million)	47	234	205	(20)
Gross profit margin	33%	39%	35%	26%
Interest coverage ratio	5.3	5.7	3.8	2.4
Net debt to equity ratio	0.99	0.98	1.02	1.24

<sup>(a)</sup> Earnings before interest, taxes, depreciation, and amortization

## Tax Payment - by Country

	2016	2017	2018	2019
<b>Indonesia</b>				
• Net profit before tax (USD million)	192	362	367	186
• Income tax (USD million)	(61)	(109)	(109)	(59)
• Income tax paid (USD million)	(132)	(60)	(109)	(111)
• Income tax rate	25%	25%	25%	25%
<b>China</b>				
• Net profit before tax (RMB million)	385	257	126	162
• Income tax (RMB million)	(96)	(67)	(31)	(46)
• Income tax paid (RMB million)	(107)	(52)	(50)	(41)
• Income tax rate	25%	25%	25%	25%
<b>Australia</b>				
• Net profit before tax (AUD million)	(49)	79	85	30
• Income tax (AUD million)	3	(21)	(25)	(5)
• Income tax paid (AUD million)	-	-	-	-
• Income tax rate	30%	30%	30%	30%
<b>Banpu<sup>(a)</sup></b>				
• Net profit before tax (USD million)	166	477	504	117
• Income tax (USD million)	(69)	(134)	(189)	(76)
• Income tax paid (USD million)	(145)	(97)	(135)	(140)
• Income tax rate	20-25%	20-25%	20-25%	20-25%

<sup>(a)</sup> Consolidated

## Sustainability Governance

	2016	2017	2018	2019
Coverage of significant ESG aspects set as corporate ESG targets	-	-	-	100%
Coverage of corporate ESG targets deployed to senior executives	-	-	-	100%
<b>Number of meeting</b>				
• Board of Directors	13	12	12	12
• Corporate governance and nomination committee	4	5	4	4
• Audit committee	9	8	10	9
• Compensation committee	6	6	9	6
<b>Meeting attendance</b>				
• Board of Directors	99%	97%	94%	97%
• Corporate governance and nomination committee	100%	100%	88%	94%
• Audit committee	100%	100%	97%	100%
• Compensation committee	100%	100%	100%	94%
<b>Performance assessment of the Board of Directors<sup>(a)</sup></b>				
• Group	4.75	4.86	4.73	4.76
• Individual (average)	4.78	4.80	4.75	4.51
• Sub-committee (average)	4.93	4.79	4.92	4.89

<sup>(a)</sup> In the range of 0 to 5

## Business Ethics

	2016	2017	2018	2019
Number of significant corporate governance complaints	0	0	0	10
• Corruption	0	0	0	2
• Bribery	0	0	0	2
• Confidentiality of information	0	0	0	0
• Conflicts of interest	0	0	0	3
• Human rights	0	0	0	1
• Tax payment	0	0	0	0
• Antitrust/anti-competitive practices	0	0	0	0
• Other breaches against codes of conduct/ethics	0	0	0	2
Proportion of significant corporate governance complaints resolved through a dispute mechanism	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>	100%

<sup>(a)</sup> No significant complaints

## Risk Management

	2016	2017	2018	2019
Proportion of business units with key risk indicators	100%	100%	100%	100%

## Business Continuity Management

	2016	2017	2018	2019
Coverage of annual BCP exercise <sup>(a)</sup>	-	-	33%	25%

<sup>(a)</sup> At country and corporate levels

## Efficiency and Reliability of Power Plants<sup>(a)</sup>

	2016	2017	2018	2019
Efficiency rate				
• Electricity generation (g/KWh)	273	261	270	279
• Steam production (kg/GJ)	37.89	37.53	37.58	37.94
Availability factor	86.90%	93.72%	89.02%	94.07%
Overall efficiency	67.79%	69.70%	66.69%	65.07%

<sup>(a)</sup> Includes 3 combined heat and power plants in China only

## Process Improvement and Innovation

	2016	2017	2018	2019
Monetary value creation from innovation (USD million)	240	76	114	136

## Supplier Management

	2016	2017	2018	2019
Number of suppliers				
• All suppliers	-	-	3,056 <sup>(d)</sup>	4,037
• Critical suppliers	-	-	19 <sup>(a)</sup>	195 <sup>(c)</sup>
Proportion of suppliers assessed for ESG risks				
• All critical tier-1 suppliers	-	-	100% <sup>(a)</sup>	69% <sup>(c)</sup>
• New critical tier-1 suppliers	-	-	100% <sup>(a)</sup>	23% <sup>(b)</sup>
Proportion of spending on local suppliers <sup>(e)</sup>	-	-	49% <sup>(d)</sup>	66%
Proportion of contracts that include ESG clauses	-	-	-	28% <sup>(b)</sup>

<sup>(a)</sup> Includes data of mining business in Indonesia only

<sup>(b)</sup> Includes data of conventional power business in China only

<sup>(c)</sup> Includes data of mining business in Indonesia and conventional power business in China only

<sup>(d)</sup> Includes data of mining business in Indonesia and Australia only

<sup>(e)</sup> Supplier that operates in the same region

## Customer and Product Stewardship

	2016	2017	2018	2019
Number of complaints				
• Customer privacy	-	0	0	0
• Safety and environmental issues from the use of products	-	0	0	0
Proportion of customer complaints resolved in a timely manner	-	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>

<sup>(a)</sup> No complaints

## Economic Distributions

	2016	2017	2018	2019
Ratio of the dividend payout to net profits	1.51	0.35	0.55	NA <sup>(g)</sup>
Economic value generated (USD million)				
• Sales	2,163	2,792	3,307	2,652
• Other revenues	169	260	420	352
Economic value distributed (USD million)				
• Shareholder <sup>(a)</sup>	72	83	112	116
• Supplier and contractor <sup>(b)</sup>	805	1,021	1,204	1,164
• Employee <sup>(c)</sup>	231	259	283	287
• Financial institution <sup>(d)</sup>	123	131	166	174
• Government <sup>(e)</sup>	321	440	471	356
• Community <sup>(f)</sup>	2	5	7	6

<sup>(a)</sup> Dividends

<sup>(b)</sup> Includes contractor costs, fuel cost, and all other operating costs

<sup>(c)</sup> Includes remuneration and benefits, provident fund contributions, employee development expenses

<sup>(d)</sup> Includes interest and financial expenses

<sup>(e)</sup> Includes royalty fee, corporate income tax, local maintenance tax, property tax, specific business tax, and other additional taxes and payment to government

<sup>(f)</sup> Includes community development expenses, corporate social responsibility activities and land compensation

<sup>(g)</sup> The Company recorded a net loss in 2019.

## Socioeconomic Compliance

	2016	2017	2018	2019
Number of significant socioeconomic non-compliance	-	-	0	0
Number of significant fines from socioeconomic non-compliance	-	-	0	0

## Contributions to External Organizations and Associations

	2016	2017	2018	2019
Lobbying or interest representation (USD million)	-	-	0	0
Political party or political interest (USD million)	-	-	0	0
Trade association or tax-exempt groups (USD million)	-	-	0.54	0.53
Other contribution (USD million)	-	-	0	0

## Product

Mining Business	2016	2017	2018	2019
Finished coal (tonnes)	40,069,424	36,311,551	35,303,278	33,427,638
Power Business				
Electricity sold (MWh)	1,531,993	1,691,107	1,715,684	1,782,476
Steam sold (MWh)	4,017,692	4,236,338	3,975,903	3,328,603
Heat sold (MWh)	341,357	444,362	546,686	824,264
Solar Rooftop Solution Business				
Electricity sold (MWh)	-	-	182	1,439

## GHG Emissions

Mining Business	2016	2017	2018	2019
GHG emissions (tonnes CO <sub>2</sub> e)	4,387,280	4,752,727	5,157,510 <sup>(d)</sup>	4,203,408 <sup>(a)</sup>
• Scope 1	4,149,489	4,501,535	4,616,826 <sup>(d)</sup>	3,730,378 <sup>(a)</sup>
• Scope 1 (Biogenic)	-	-	283,352	226,857 <sup>(a)</sup>
• Scope 2	237,791	251,192	257,332 <sup>(d)</sup>	246,173 <sup>(a)</sup>
GHG emissions scope 3 (tonnes CO <sub>2</sub> e)	-	-	-	68,659,848 <sup>(a)</sup>
GHG emissions intensity <sup>(b)</sup> (tonnes CO <sub>2</sub> e/tonne finished coal)	0.109	0.131	0.146	0.126 <sup>(a)</sup>
Power Business				
GHG emissions (tonnes CO <sub>2</sub> e)	3,681,906	3,650,542	3,824,124	3,822,073
• Scope 1	3,681,214	3,648,340	3,821,632	3,814,884
• Scope 2	692	2,202	2,492	7,189
GHG emissions intensity <sup>(b)</sup> (tonnes CO <sub>2</sub> e/MWh)	0.625	0.573	0.613	0.644
• Electricity generation	1.067	0.954	0.991	0.575
• Steam & heat generation	0.470	0.435	0.470	0.673
GHG emissions intensity - China <sup>(c)</sup> (tonnes CO <sub>2</sub> e/MWh)				
• for all generation capacity	0.625	0.574	0.615	0.651
• for fossil generation capacity	0.631	0.591	0.635	0.675
GHG emissions intensity - Japan <sup>(c)</sup> (tonnes CO <sub>2</sub> e/MWh)				
• for all generation capacity	-	0	0	0
• for fossil generation capacity	-	NA <sup>(e)</sup>	NA <sup>(e)</sup>	NA <sup>(e)</sup>
SF <sub>6</sub> emissions (tonnes CO <sub>2</sub> e)	-	-	110	1,086
Solar Rooftop Solution Business				
GHG emissions (tonnes CO <sub>2</sub> e)	-	-	13	17
• Scope 1	-	-	13	17
• Scope 2	-	-	0	0
GHG emissions intensity <sup>(b)</sup> (tonnes CO <sub>2</sub> e/MWh)	-	-	0.073	0.012
• Electricity generation	-	-	0.073	0.012
• Steam & heat generation	-	-	NA <sup>(e)</sup>	NA <sup>(e)</sup>

<sup>(a)</sup> Due to a different reporting year between the Company (a calendar year) and Australian operation (a June fiscal year), data of Australia for July-December are not official and under the audit process by Australian Federal Government.

<sup>(b)</sup> Scope 1 & 2

<sup>(c)</sup> Scope 1

<sup>(d)</sup> Adjusted data from the previous report

<sup>(e)</sup> Not applicable

## Energy

Mining Business	2016	2017	2018	2019
Total energy consumption (TJ)	12,186	13,417	16,623 <sup>(d)</sup>	15,077 <sup>(a)</sup>
Renewable energy consumption (TJ)				
• Renewable fuel <sup>(b)</sup>	0	0	409	2,203 <sup>(a)</sup>
• Electricity purchased	0	0	0	0 <sup>(a)</sup>
• Electricity self-generated	0	0	0	0 <sup>(a)</sup>
Non-renewable energy consumption (TJ)				
• Non-renewable fuel <sup>(c)</sup>	11,171	12,338	15,095 <sup>(d)</sup>	11,792 <sup>(a)</sup>
• Electricity purchased	1,015	1,079	1,119	1,082 <sup>(a)</sup>
• Steam, heat and cooling	0	0	0	0 <sup>(a)</sup>
Energy consumption intensity (GJ/tonne finished coal)	0.30	0.37	0.47	0.45 <sup>(a)</sup>
<b>Power Business</b>				
Total energy consumption (TJ)	10,866	10,545	10,721	11,113
Renewable energy consumption (TJ)				
• Renewable fuel <sup>(b)</sup>	0	0	0	0
• Electricity purchased	0	0	0	0
• Electricity self-generated	197	718	815	1,040
Non-renewable energy consumption (TJ)				
• Non-renewable fuel <sup>(c)</sup>	31,874	32,756	32,354	31,410
• Electricity purchased	3	9	10	30
• Steam, heat and cooling	0	0	0	0
Renewable energy sold (TJ)				
• Electricity	195	701	809	1,033
Non-renewable energy sold (TJ)				
• Electricity	5,320	5,387	5,368	5,384
• Steam	14,464	15,251	14,313	11,983
• Heat	1,229	1,600	1,968	2,967
Energy consumption intensity (GJ/MWh)	1.84	1.65	1.72	1.87
<b>Solar Rooftop Solution Business</b>				
Total energy consumption (TJ)	-	-	0	0.23
Renewable energy consumption (TJ)				
• Renewable fuel <sup>(b)</sup>	-	-	0	0
• Electricity purchased	-	-	0	0
• Electricity self-generated	-	-	0.65	5.18
Non-renewable energy consumption (TJ)				
• Non-renewable fuel <sup>(c)</sup>	-	-	-	0.23
• Electricity purchased	-	-	-	0
Renewable energy sold (TJ)				
• Electricity	-	-	0.65	5.18
Energy consumption intensity (GJ/MWh)	-	-	0	0.16

<sup>(a)</sup> Due to a different reporting year between the Company (a calendar year) and Australian operation (a June fiscal year), data of Australia for July-December are not official and under the audit process by Australian Federal Government.

<sup>(b)</sup> Renewable fuel such as palm oil and ethanol

<sup>(c)</sup> Non-renewable fuel such as coal, diesel, gasoline, petroleum based oil and grease, methane and waste gas

<sup>(d)</sup> Adjusted data from the previous report

## Water

Mining Business	2016	2017	2018	2019	
				Freshwater	Other water
Water withdrawal (ML)					
• from all areas <sup>(a)</sup>	350,354	437,389	1,022,935	154,841	0
• from water stress area	-	-	-	-(b)	0
Water withdrawal (ML)					
• Surface water <sup>(a)</sup>	325,668	417,493	999,982	138,579	0
• Groundwater	23,273	17,652	20,797	14,355	0
• Seawater	779	1,700	1,555	1,324	0
• Produced water	0	0	0	0	0
• Third-party water	634	544	601	582	0
Water withdrawal – from water stress area (ML)					
• Surface water <sup>(a)</sup>	-	-	-	-(b)	-(b)
• Groundwater	-	-	-	-(b)	-(b)
• Seawater	-	-	-	-(b)	-(b)
• Produced water	-	-	-	-(b)	-(b)
• Third-party water	-	-	-	-(b)	-(b)
Third-party water withdrawal – from water stress area (ML)					
• Surface water <sup>(a)</sup>	-	-	-	-(b)	-(b)
• Groundwater	-	-	-	-(b)	-(b)
• Seawater	-	-	-	-(b)	-(b)
• Produced water	-	-	-	-(b)	-(b)
Water discharge (ML)					
• to all areas <sup>(a)</sup>	342,341	432,398	1,018,058	149,689	0
• to water stress area	-	-	-	-(b)	-(b)
Water discharge (ML)					
• Surface water <sup>(a)</sup>	341,660	430,959	1,016,667	148,635	0
• Groundwater	0	0	0	0	0
• Seawater	680	1,439	1,392	1,054	0
• Third-party water	0	0	0	0	0
Water consumption (ML)					
• All areas	8,014	4,991	4,877	5,152	
• Water stress area	-	-	-	-(b)	
Water consumption intensity (m <sup>3</sup> /tonne finished coal)	0.200	0.137	0.138	0.154	
Water recycled/reused (ML)	155	521	3,669	161	
Change in water storage (ML)	-	-	-	-(b)	

<sup>(a)</sup> Includes unused rainwater as amount of rainwater specifically consumed by mining activities cannot be separated.

<sup>(b)</sup> Data collection system under standardization

Power Business	2016	2017	2018	2019	
				Freshwater	Other water
Water withdrawal (ML)					
• from all areas	8,121	8,563	7,838	6,761	0
• from water stress area	-	-	7,838	6,761	0
Water withdrawal (ML)					
• Surface water	5,330	6,056	5,076	0	0
• Groundwater	2,790	2,508	2,761	2,497	0
• Seawater	0	0	0	0	0
• Produced water	0	0	0	0	0
• Third-party water	0	0.5	1	4,265	0
Water withdrawal – from water stress area (ML)					
• Surface water	-	-	5,076	0	0
• Groundwater	-	-	2,761	2,497	0
• Seawater	-	-	0	0	0
• Produced water	-	-	0	0	0
• Third-party water	-	-	1	4,265	0
Third-party water withdrawal – from water stress area (ML)					
• Surface water	-	-	1	3,897	0
• Groundwater	-	-	0	0	0
• Seawater	-	-	0	0	0
• Produced water	-	-	0	0	0
• Reclaimed water <sup>(a)</sup>	-	-	-	367	0
Water discharge (ML)					
• to all areas	744	712	960	1,855	0
• to water stress area	-	-	960	1,855	0
Water discharge (ML)					
• Surface water	0	0	0	0	0
• Groundwater	0	0	0	0	0
• Seawater	0	0	0	0	0
• Third-party water	744	712	960	1,855	0
Water consumption (ML)					
• All areas	7,377	7,851	6,878	4,906	
• Water stress area	-	-	6,878	4,906	
Water consumption intensity (m <sup>3</sup> /MWh)	1.252	1.232	1.103	0.827	
Water recycled/reused (ML)	602	602	494	42,760	
Change in water storage (ML)	-	-	-	- <sup>(b)</sup>	

<sup>(a)</sup> From wastewater treatment plant

<sup>(b)</sup> Data collection system under standardization

## Air Emissions

Mining Business	2016	2017	2018	2019
Air emissions load (tonnes)				
• SO <sub>2</sub>	47	128	228	186
• NO <sub>x</sub>	562	934	672	2,106
• PM <sub>10</sub>	409	413	383	441
Air Emissions Intensity (g/tonne finished coal)				
• SO <sub>2</sub>	1.2	3.5	6.5	5.6
• NO <sub>x</sub>	14.0	25.7	19.0	63.0
• PM <sub>10</sub>	10.2	11.4	10.8	13.2
Ozone-depleting substances (Kg CFC-11e)				
• ODS consumption	85	87	132	68
<b>Power Business</b>				
Air emissions load (tonnes)				
• SO <sub>2</sub>	633	174	149	153
• NO <sub>x</sub>	639	455	323	246
• TSP	91	35	24	18
• Mercury (Hg)	-	-	-	0.0034
Air emissions intensity - for all generation capacity (g/MWh)				
• SO <sub>2</sub>	107.5	27.3	23.9	25.8
• NO <sub>x</sub>	108.5	71.4	51.7	41.4
• TSP	15.4	5.5	3.8	3.0
• Mercury (Hg)	-	-	-	0.0006
Air emissions intensity - for fossil generation capacity (g/MWh)				
• SO <sub>2</sub>	108.4	28.2	24.8	27.1
• NO <sub>x</sub>	109.5	73.7	53.6	43.6
• TSP	15.6	5.7	3.9	3.1
• Mercury (Hg)	-	-	-	0.0006
Ozone-depleting substances (Kg CFC-11e)				
• ODS consumption	0	0	0	1
• ODS imported	0	0	0	0
• ODS exported	0	0	0	0

## Waste

Mining Business <sup>(a)</sup>	2016	2017	2018	2019
Hazardous waste (tonnes)				
• Hazardous waste transported	-	-	3,033	8,220
• Hazardous waste imported	-	-	0	0
• Hazardous waste exported	-	-	0	0
• Hazardous waste treated	-	-	3,626	9,108
Hazardous waste treated (tonnes)	1,634	1,670	3,626	9,108
• Reuse	1,618	1,645	1,076	1,838
• Recycling	0	0	1,962	7,147
• Incineration	0	0	435	72
• Landfill	0	0	0	0
• Others	16	25	154	52
Non-hazardous waste treated (tonnes)	3,591	3,522	4,879	4,686
• Reuse	1,197	1,328	0	17
• Recycling	0	0	2,137	1,406
• Composting	-	-	-	64
• Incineration	0	0	1	0
• Landfill	2,394	2,194	2,678	3,124
• Others	0	0	62	76
Percentage of waste shipped internationally	-	-	0%	0%
Proportion of hazardous waste reused & recycled	99%	99%	83%	99%
Proportion of non-hazardous waste reused & recycled	33%	38%	44%	30%
<b>Power Business<sup>(b)</sup></b>				
Hazardous waste (tonnes)				
• Hazardous waste transported	-	-	113	22
• Hazardous waste imported	-	-	0	0
• Hazardous waste exported	-	-	0	0
• Hazardous waste treated	-	-	113	22
Hazardous waste treated (tonnes)	2	60	113	22
• Reuse	-	-	0	0
• Recycling	2 <sup>(c)</sup>	5 <sup>(c)</sup>	10	13
• Recovery	0	0	101	3
• Incineration	0	0	3	6
• Landfill	0	0	0	0
• Others	0	55	0	0
Non-hazardous waste treated (tonnes)	383	130	2,589	928
• Reuse	0	0	0	0
• Recycling	383	130	808	0
• Composting	-	-	1	0
• Recovery	-	-	236	0
• Landfill	-	0	1,517	844
• Others	-	0	27	84
Percentage of waste shipped internationally	-	-	0%	0%
Proportion of hazardous waste reused & recycled	100%	8%	9%	60%
Proportion of non-hazardous waste reused & recycled	100%	100%	31%	0%

<sup>(a)</sup> Excludes overburden and tailings

<sup>(b)</sup> Excludes ash and gypsum

<sup>(c)</sup> Includes reuse of hazardous waste

## Mineral Waste

Mining Business	2016	2017	2018	2019
Overburden <sup>(a)</sup> (million BCM)	201	236	265	253
Percentage of in-pit backfilled <sup>(a)</sup>	-	40%	88%	93%
Tailings (dry tonnes)	322,843	333,596	295,066	410,697
Progress of in-pit backfilling against plan <sup>(a)</sup>	-	-	-	93%
Proportion of mines with acid mine drainage management plan <sup>(b)</sup>	100%	100%	100%	100%
Number of tailings facilities				
• Active	-	-	-	3
• Closed	-	-	-	2
Number of significant tailings spills	0	0	0	0

<sup>(a)</sup> For open-pit mine only

<sup>(b)</sup> For business unit(s) identified as potential acid mine drainage issue

## Specific Waste from Power Plants

Mining Business	2016	2017	2018	2019
Ash (tonnes)	4,048	6,581	1,134	4,577
• Reuse	4,048	6,581	1,134	4,577
• Recycling	0	0	0	0
• Landfill	0	0	0	0
• On-site storage	0	0	0	0
• Others	0	0	0	0
Proportion of ash reused & recycled	100%	100%	100%	100%
<b>Power Business</b>				
Ash (tonnes)	617,405	627,167	619,138	664,199
• Reuse	617,405	571,402	619,138	664,199
• Recycling	0	0	0	0
• Landfill	0	0	0	0
• On-site storage	0	0	0	0
• Others	0	55,765	0	0
Proportion of ash reused & recycled	100%	91%	100%	100%
Synthetic gypsum (tonnes)	-	53,306	90,346	85,097
• Reuse	-	53,306	90,346	85,097
• Recycling	-	0	0	0
• Landfill	-	0	0	0
• On-site storage	-	0	0	0
• Others	-	0	0	0
Proportion of synthetic gypsum reused & recycled	-	100%	100%	100%

## Biodiversity

Mining Business	2016	2017	2018	2019	
				Operating <sup>(a)</sup>	Project <sup>(b)</sup>
Business unit(s) in relation to protected area	6	6	6	4	2
• In the area	0	0	0	0	0
• Adjacent to	0	0	0	1	1
• Containing portions	6	6	6	3	1
Business unit(s) in relation to high biodiversity wilderness area	1	1	1	3	1
• In the area	1	1	1	3	1
• Adjacent to	0	0	0	0	0
• Containing portions	0	0	0	0	0
Number of business units					
• Assessed for potential biodiversity impact	10	10	10	10	3
• Identified as high potential of impact	7	7	7	7	3
• Assessed for biodiversity value <sup>(c)</sup>	7	7	7	7	3
• Required biodiversity management plan <sup>(c)</sup>	7	7	7	7	3
• Implemented biodiversity management plan <sup>(c)</sup>	7	7	7	7	NA <sup>(d)</sup>
Area (hectares)					
• Assessed for potential biodiversity impact	-	-	45,997	67,279	434
• Assessed for biodiversity value	-	-	45,997	67,279	434
• With biodiversity management plan	-	-	45,997	67,279	NA <sup>(d)</sup>
• Biodiversity offset area	-	-	4,947	8,751	NA <sup>(d)</sup>
Proportion of business units					
• Assessed for potential biodiversity impact	-	-	-	100%	50%
• Assessed for biodiversity value <sup>(c)</sup>	-	-	-	100%	100%
• With biodiversity management plan <sup>(c)</sup>	-	-	-	100%	NA <sup>(d)</sup>
<b>Power Business</b>				<b>Operating<sup>(a)</sup></b>	<b>Project<sup>(b)</sup></b>
Business unit(s) in relation to protected area	-	-	-	0	0
• In the area	-	-	-	0	0
• Adjacent to	-	-	-	0	0
• Containing portions	-	-	-	0	0
Business unit(s) in relation to high biodiversity wilderness area	-	-	-	0	1
• In the area	-	-	-	0	0
• Adjacent to	-	-	-	0	0
• Containing portions	-	-	-	0	1
Number of business units					
• Assessed for potential biodiversity impact	-	-	-	15	7
• Identified as high potential of impact	-	-	-	0	1
• Assessed for biodiversity value <sup>(c)</sup>	-	-	-	0	0
• Required biodiversity management plan <sup>(c)</sup>	-	-	-	0	0
• Implemented biodiversity management plan <sup>(c)</sup>	-	-	-	0	NA <sup>(d)</sup>
Area (hectares)					
• Assessed for potential biodiversity impact	-	-	-	-	-
• Assessed for biodiversity value	-	-	-	-	-
• With biodiversity management plan	-	-	-	-	NA <sup>(d)</sup>
• Biodiversity offset area	-	-	-	0	NA <sup>(d)</sup>
Proportion of business units					
• Assessed for potential biodiversity impact	-	-	-	100%	100%
• Assessed for biodiversity value <sup>(c)</sup>	-	-	-	NA <sup>(e)</sup>	0%
• With biodiversity management plan <sup>(c)</sup>	-	-	-	NA <sup>(e)</sup>	NA <sup>(d)</sup>

<sup>(a)</sup> Business unit(s) currently operates

<sup>(b)</sup> Under project development and construction, including mine(s) with care & maintenance status

<sup>(c)</sup> For business unit(s) identified as high potential of biodiversity impact only

<sup>(d)</sup> Not applicable

<sup>(e)</sup> No business units identified as high potential of biodiversity impact

## Mine Closure

Mining Business	2016	2017	2018	2019
Number of mines				
• Mining stage	-	-	10	10
• Mine closure stage	-	-	5	1
• Closed <sup>(a)</sup>	-	-	4	8
Number of mines with mine closure plan <sup>(b)</sup>	-	-	10	10
• Indonesia	-	-	5	5
• Australia	-	-	5	5
Proportion of mines with mine closure plan	-	-	100%	100%
Progress of revegetation against plan <sup>(c)</sup>	-	-	99%	94%
Progress of mine closure activity against plan <sup>(d)</sup>	-	-	-	100%
Disturbed area <sup>(e)</sup> (hectare)				
• Total land own at year end	96,657	96,034	93,074	93,036
• Total disturbed area at year end	23,221	24,048	24,728	25,580
• Newly disturbed area during the year	949	910	836	859
Rehabilitated area <sup>(e)</sup> (hectare)				
• Total rehabilitated area at year end	10,739	11,233	12,157	12,997
• Newly rehabilitated area during the year	811	596	636	840
• Total area disturbed and not yet rehabilitated	12,482	12,815	12,571	12,583
Progress of land management <sup>(e)</sup>				
• Total disturbed area to total land own	24%	25%	27%	27%
• Total rehabilitated area to total disturbed area	46%	47%	49%	51%

<sup>(a)</sup> In the last 5 years

<sup>(b)</sup> For mine(s) at mining and mine closure stages only

<sup>(c)</sup> For open-pit mine only

<sup>(d)</sup> For underground mine only

<sup>(e)</sup> Adjusted data from the previous report

## Mine Subsidence<sup>(a)</sup>

Mining Business	2016	2017	2018	2019
Number of mines				
• Required subsidence management plan	-	-	5	5
• Implemented subsidence management plan	-	-	5	5
Number of reports related to mine subsidence	-	0	0	0
Proportion of mines with subsidence management plan	-	100%	100%	100%
Progress of subsidence management activities against plan	-	-	-	100%

<sup>(a)</sup> For underground mine only

## Environmental Compliance

Mining Business	2016	2017	2018	2019
Number of significant environmental incidents <sup>(a)</sup>				
• Effluent discharge limits	0	0	0	0
• Air emissions standards	0	0	0	0
• Others	0	0	0	0
Fines from environmental non-compliance <sup>(b)</sup>				
• Number of significant fines	2	3	0	0
• Total amount of significant fines (USD)	23,385	38,142	0	0
Non-monetary sanctions	0	0	0	0
Cases brought through dispute mechanisms	0	0	0	0
Spills <sup>(a)</sup>				
• Number of significant spills	1	1	0	0
• Total amount of significant spills (liter)	NA <sup>(c)</sup>	100	0	0
<b>Power Business</b>				
Number of significant environmental incidents <sup>(a)</sup>				
• Effluent discharge limits	0	0	0	0
• Air emissions standards	0	0	0	0
• Others	0	0	0	0
Fines from environmental non-compliance <sup>(b)</sup>				
• Number of significant fines	0	1	0	0
• Total amount of significant fines (USD)	0	14,757	0	0
Non-monetary sanctions	0	0	0	0
Cases brought through dispute mechanisms	0	0	0	0
Spills <sup>(a)</sup>				
• Number of significant spills	0	0	0	0
• Total amount of significant spills (liter)	0	0	0	0

<sup>(a)</sup> Significant environmental incident refers to internal definition with minimum criteria such as any damage to widespread area or potential fines that is greater than USD 10,000.

<sup>(b)</sup> Fines or potential fines that is greater than USD 10,000

<sup>(c)</sup> Unknown exact volume of spill

## Employee

	2016	2017	2018	2019
Employee - total	5,675	5,780	5,963	5,359
Employee - by country				
• Thailand	5.5%	6.0%	6.3%	7.9%
• Indonesia	49.8%	48.3%	47.7%	41.0%
• China	16.0%	16.1%	15.8%	17.2%
• Australia	26.0%	27.0%	27.9%	31.3%
• Mongolia	2.2%	2.1%	1.6%	1.8%
• Singapore	0.3%	0.3%	0.3%	0.3%
• Japan	0.1%	0.1%	0.3%	0.4%
• Lao PDR	0.1%	0.1%	0.1%	0%
• Vietnam	-	-	0.03%	0.1%
Employee - by gender				
• Male	86.2%	86.2%	86.0%	85.8%
• Female	13.8%	13.8%	14.0%	14.2%
Employee - by nationality				
• Thai	7.1%	7.5%	7.9%	9.3%
• Indonesian	48.7%	47.3%	46.6%	40.1%
• Chinese	15.9%	16.0%	15.6%	17.0%
• Australian	26.0%	27.0%	28.0%	31.3%
• Mongolian	2.0%	1.9%	1.5%	1.6%
• Singaporean	0.1%	0.1%	0.1%	0.1%
• Japanese	0.1%	0.1%	0.1%	0.2%
• Vietnamese	-	-	-	0.1%
• Others	0.1%	0.1%	0.2%	0.2%
Employee - by age				
• Under 30	17.9%	17.0%	15.1%	10.5%
• 30-39	39.5%	39.3%	38.5%	37.3%
• 40-49	28.1%	30.4%	30.9%	34.1%
• Over 50	14.5%	15.2%	15.5%	18.1%
Employee - by type				
• Permanent	91.7%	90.7%	92.0%	98.9%
• Temporary	8.3%	9.3%	8.0%	1.1%
Employee - by level				
• Senior management	0.8%	1.0%	1.2%	0.9%
• Middle management	5.3%	7.3%	6.7%	8.1%
• Junior management	28.3%	26.0%	27.1%	11.5%
• Staff and supervisor	65.6%	65.7%	65.0%	79.5%
Management <sup>(a)</sup> - by gender				
• Male	-	75.0%	77.3%	89.9%
• Female	-	25.0%	22.7%	10.1%
Local employment <sup>(b)</sup> - by country				
• Thailand	-	-	-	8.0%
• Indonesia	-	-	-	40.8%
• China	-	-	-	17.3%
• Australia	-	-	-	31.8%
• Mongolia	-	-	-	1.7%
• Singapore	-	-	-	0.1%
• Japan	-	-	-	0.2%
• Vietnam	-	-	-	0.1%

<sup>(a)</sup> Includes middle and senior managements

<sup>(b)</sup> In the same region (e.g. state for Australia, province for Indonesia)

## New Employee

	2016	2017	2018	2019
New Employee - total	136	400	459	582
New Employee - by country				
• Thailand	25	25	30	87
• Indonesia	5	138	187	278
• China	51	80	61	56
• Australia	46	146	169	138
• Mongolia	8	8	3	7
• Singapore	1	1	4	3
• Japan	0	2	4	8
• Lao PDR	0	0	0	0
• Vietnam	-	-	1	5
New Employee - by gender				
• Male	103	342	381	472
• Female	33	58	78	110

## Collective Bargaining Agreements

	2016	2017	2018	2019
Percentage of employees covered by collective bargaining agreements <sup>(a)</sup>				
• Thailand	0%	0%	0%	0%
• Indonesia	48%	65%	75%	76%
• China	0%	0%	0%	0%
• Australia	76%	100%	100%	75%
• Mongolia	0%	0%	0%	0%
• Singapore	0%	0%	0%	0%
• Japan	0%	0%	0%	0%
• Lao PDR	0%	0%	0%	0%
• Vietnam	-	-	0%	0%

<sup>(a)</sup> There are labor unions in Indonesia and Australia only.

## Corporate Culture

	2016	2017	2018	2019
Level of alignment between employee behavior and the corporate culture "Banpu Heart"	83%	86%	69%	77%
• Thailand	74%	77%	69% <sup>(a)</sup>	69%
• Indonesia	80%	82%	-	71%
• China	95%	99%	-	95%
• Australia	-	-	-	70%
• Mongolia	-	-	-	83%
• Singapore	-	-	-	74%
• Japan	-	-	-	79%

<sup>(a)</sup> The company has transformed corporate culture from "Banpu Spirit" to "Banpu Heart" in mid-2018. The first survey on the level of alignment between employee behavior and the corporate culture "Banpu Heart" was conducted in Thailand in late 2018.

## Employee Management

	2016	2017	2018	2019
Employee engagement level				
• Thailand	57%	64%	67%	68%
• Indonesia	78%	84%	80%	73%
• China	97%	95%	94%	94%
• Japan	-	-	-	50%
• Mongolia	-	-	-	76%
• Singapore	-	-	-	56%
Total turnover rate	3.8%	5.3%	6.0%	5.3%
Voluntary turnover rate	2.2%	2.8%	3.9%	3.0%
Turnover rate - by country				
• Thailand	6.6%	5.1%	6.6%	6.4%
• Indonesia	2.8%	4.7%	6.9%	17.6%
• China	4.4%	2.8%	4.7%	6.7%
• Australia	3.4%	4.2%	4.7%	6.7%
• Mongolia	17.9%	18.9%	12.4%	9.5%
• Singapore	0%	0%	6.7%	11.8%
• Japan	0%	0%	0%	0%
• Lao PDR	0%	0%	0%	0%
• Vietnam	-	-	0%	0%
Employees that take parental leave				
• Thailand	4	6	2	3
• Indonesia	21	30	-(b)	167
• China	11	42	36	9
• Australia	4	19	20	23
• Mongolia	2	2	3	6
• Singapore	0	0	1	0
• Japan	0	0	0	0
• Lao PDR	0	0	0	0
• Vietnam	-	-	0	0
Return to work after parental leave				
• Thailand	100%	100%	100%	100%
• Indonesia	100%	100%	-(b)	100%
• China	100%	93%	89%	22%
• Australia	100%	95%	100%	91%
• Mongolia	100%	100%	0%	100%
• Singapore	-	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>
• Japan	-	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>
• Lao PDR	-	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>
• Vietnam	-	-	NA <sup>(a)</sup>	NA <sup>(a)</sup>
Major layoff – by country				
• Thailand	-	-	-	0
• Indonesia	-	-	-	0
• China	-	-	-	0
• Australia	-	-	-	0
• Others	-	-	-	0

<sup>(a)</sup> No parental leaves

<sup>(b)</sup> Reporting system under standardization

## Human Capital Development

	2016	2017	2018	2019
Average cost of training (USD/employee)				
• Thailand <sup>(a)</sup>	1,614	1,128	1,488	1,554
• Indonesia	108	161	172	239
• China	283	211	244	276
• Australia	-	-	-	1,668
• Mongolia	-	-	-	120
Average cost of training (USD/employee)				
• Senior management	1,681	929	1,253	2,226
• Middle management	1,114	907	1,141	948
• Junior management	251	396	352	724
• Staff and supervisor	130	156	133	840
Average hours of training (hour/employee)				
• Thailand <sup>(a)</sup>	-	37.0	26.2	19.2
• Indonesia	-	17.5	15.1	18.3
• China	-	20.6	26.9	29.0
• Australia	-	-	-	24.5
• Mongolia	-	-	-	42.0
Average hours of training (hour/employee)				
• Senior management	-	14.3	15.6	25.2
• Middle management	-	25.1	22.5	22.2
• Junior management	-	24.1	20.7	27.2
• Staff and supervisor	-	18.8	17.6	22.0
Proportion of critical positions with succession plan	100%	100%	100%	100%
• Senior management	-	100%	100%	100%
• Middle management	-	100%	100%	100%
Proportion of employee having individual development plan	25%	97%	74%	62%
Employee attending leadership development programs (cumulative)	-	442	554	693
Employee attending leadership development programs (annual)				
• Strategic leader	-	23	0	20
• Business leader	-	17	19	27
• First line leader	-	24	26	25
• Future leader <sup>(c)</sup>	-	0	29	27
• Engaging leader <sup>(c)</sup>	-	39	38	40
Success of leadership development programs <sup>(b)</sup>				
• Strategic leader	-	81%	NA <sup>(d)</sup>	78%
• Business leader	-	80%	91%	87%
• First line leader	-	81%	91%	88%
• Future leader <sup>(c)</sup>	-	NA <sup>(d)</sup>	90%	92%
• Engaging leader <sup>(c)</sup>	-	94%	93%	90%

<sup>(a)</sup> Include Singapore, Japan and Lao PDR

<sup>(b)</sup> % Applied learning according to the program evaluation

<sup>(c)</sup> Data covers only employee in Thailand

<sup>(d)</sup> No program conducted

## Occupational Health and Safety

	2016	2017	2018 <sup>(a)</sup>	2019
Number of occupational fatalities	1	1 <sup>(c)</sup>	1	0
• Employee	0	0	0	0
• Contractor	1	1 <sup>(c)</sup>	1	0
• Third-party <sup>(b)</sup>	0	1	0	0
Fatality rate (person/million man-hour) <sup>(e)</sup>	-	-	0.02	0
• Employee	-	-	0	0
• Contractor	-	-	0.02	0
Number of recordable injury <sup>(d) (e)</sup>	-	-	204	214
• Employee	-	-	178	170
• Contractor	-	-	26	44
Total recordable injury frequency rate (TRIFR) <sup>(d) (e)</sup> (person/million man-hour)	0.46	0.19	3.37	3.29
• Employee	1.90	0.30	18.37	16.59
• Contractor	0.25	0.18	0.51	0.80
Lost time injury frequency rate (LTIFR) <sup>(e) (f)</sup> (person/million man-hour)	0.28	0.10	0.56	0.65
• Employee	1.31	0.15	2.48	2.73
• Contractor	0.13	0.10	0.20	0.26
Injury severity rate (ISR) <sup>(e) (g)</sup> (day/million man-hour)	117.12	107.66	142.77	29.28
• Employee	47.44	1.33	267.33	145.60
• Contractor	127.23	121.67	119.05	7.49
Number of high-consequence work-related injuries <sup>(e) (i)</sup>	-	-	-	2
• Employee	-	-	-	1
• Contractor	-	-	-	1
High-consequence work-related injuries frequency rate <sup>(e) (i)</sup> (person/million man-hour)	-	-	-	0.03
• Employee	-	-	-	0.10
• Contractor	-	-	-	0.02
Number of hour worked <sup>(e)</sup>	-	-	60,565,712	64,955,662
• Employee	-	-	9,688,400	10,247,052
• Contractor	-	-	50,877,312	54,708,610
Process safety event <sup>(h)</sup>	13	4	5	3
• Thailand	0	0	0	0
• Indonesia	12	4	5	3
• China	1	0	0	0
• Australia	-	-	-	0
• Mongolia	0	0	0	0

<sup>(a)</sup> Adjusted data from the previous report

<sup>(b)</sup> Third-party fatality is not included in the calculation of TRIFR, LTIFR, and ISR.

<sup>(c)</sup> This fatality is classified as non-fatal case according to Indonesian Regulation since the death occurred over 24 hours after accident happened.

<sup>(d)</sup> Includes fatalities, but excludes first aids

<sup>(e)</sup> Excludes the following data due to reporting system under standardization:

- Employees in Beijing office, which is expected to disclose in Sustainability Report 2020.
- Employees in Jakarta office, which is expected to disclose in Sustainability Report 2020.
- Barging contractors in Indonesia, which is expected to disclose in Sustainability Report 2020.
- Barging contractors in Thailand, which is expected to disclose in Sustainability Report 2024.

<sup>(f)</sup> Includes fatalities and lost time injuries

<sup>(g)</sup> Includes actual lost day and calculated lost day. The actual lost day counts from the day after accident date to return-to-work date. Calculated lost day refers to American National Standards Institute (ANSI) standard.

<sup>(h)</sup> Includes fatality and/or property damage with cost exceeding USD 100,000

<sup>(i)</sup> Includes injuries with more than 180 lost days, but excludes fatalities

## Community Engagement

	2016	2017	2018	2019
Number of significant community complaints	0	0	1	2
Proportion of significant complaints from communities resolved through a dispute mechanism	NA <sup>(a)</sup>	NA <sup>(a)</sup>	0% <sup>(b)</sup>	50%

<sup>(a)</sup> No significant complaints

<sup>(b)</sup> Complaint resolved in 2019

## Community Development

	2016	2017	2018	2019
Coverage of annual stakeholder satisfaction survey on community development projects <sup>(a)</sup>	-	-	-	20%
Average stakeholder satisfaction level on community development projects <sup>(a)</sup>	44%	67%	68%	71%

<sup>(a)</sup> Data covers mining business in Indonesia only

## Resettlement

	2016	2017	2018	2019
Number of resettlements	-	-	0	0
Number of significant resettlement complaints	-	-	0	0
Proportion of significant resettlement complaints resolved through a dispute mechanism	-	-	NA <sup>(a)</sup>	NA <sup>(a)</sup>

<sup>(a)</sup> No significant complaints

## Indigenous Peoples

	2016	2017	2018	2019
Number of indigenous peoples' rights violations	-	0	0	0
Proportion of indigenous peoples' rights violations resolved through a dispute mechanism	-	NA <sup>(a)</sup>	NA <sup>(a)</sup>	NA <sup>(a)</sup>
Number of native title agreements	-	-	-	6

<sup>(a)</sup> No violations

## Human Rights

	2016	2017	2018	2019
Coverage of business units assessed for human rights risks	-	-	100%	-( <sup>(c)</sup> )
Proportion of business units with risk management plans <sup>(a)</sup>	-	-	100%	-( <sup>(c)</sup> )
Number of significant human rights issues	-	-	0	0
Proportion of significant human rights issues resolved through a dispute mechanism	-	-	NA <sup>(b)</sup>	NA <sup>(b)</sup>

<sup>(a)</sup> For business unit(s) identified as high human rights risks

<sup>(b)</sup> No significant issues

<sup>(c)</sup> Assessment process under standardization

## Corporate Philanthropy

	2016	2017	2018	2019
Coverage of philanthropy activities	-	-	100%	100%

# GRI Content Index

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<b>Stakeholder Engagement</b>				
102-40	List of stakeholder groups	27-28		-
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204-1	Proportion of spending on local suppliers	49, 120		-
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205-1	Operations assessed for risks related to corruption	38		-
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EU11 <sup>E</sup>	Average generation efficiency of thermal plants by energy source and by regulatory regime	120		-

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103-2	The management approach and its components	64		Yes
103-3	Evaluation of the management approach	65		Yes
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<b>GRI 303: Water and Effluents 2018</b>				
103-1	Explanation of the material topic and its Boundary	66		-
103-2	The management approach and its components	67		-
103-3	Evaluation of the management approach	67-69		-
303-1	Interactions with water as a shared resource	67		-
303-2	Management of water discharge-related impacts	67		-
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103-1	Explanation of the material topic and its Boundary	78		-
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103-3	Evaluation of the management approach	79		-
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	129		-
304-2	Significant impacts of activities, products, and services on biodiversity	78		-
304-3	Habitats protected or restored	78-79		-
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	79		-
MM1 <sup>M</sup>	Amount of land (owned or leased, and managed for production activities or extractive use) disturbed or rehabilitated	129		-
MM2 <sup>M</sup>	The number and percentage of total sites identified as requiring biodiversity management plans according to stated criteria, and the number (percentage) of those sites with plans in place	78-79, 129		-
<b>GRI 305: Emissions 2016</b>				
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103-3	Evaluation of the management approach	60-61, 71-72		Yes
305-1	Direct (Scope 1) GHG emissions	122		Yes
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305-4	GHG emissions intensity	60-61, 122		Yes
305-5	Reduction of GHG emissions	-		-
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103-3	Evaluation of the management approach	74		-
306-2	Waste by type and disposal method	127		-
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MM3 <sup>M</sup>	Total amounts of overburden, rock, tailings, and sludges and their associated risks	128		-
<b>GRI 307: Environmental Compliance 2016</b>				
103-1	Explanation of the material topic and its Boundary	82		-
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307-1	Non-compliance with environmental laws and regulations	131		-

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103-3	Evaluation of the management approach	94		Yes
403-1	Occupational health and safety management system	92-93		Yes
403-2	Hazard identification, risk assessment, and incident investigation	92-93		Yes
403-3	Occupational health services	93		Yes
403-4	Worker participation, consultation, and communication on occupational health and safety	93		Yes
403-5	Worker training on occupational health and safety	93		Yes
403-6	Promotion of worker health	93		Yes
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	93		Yes
403-8	Workers covered by an occupational health and safety management system	95		-
403-9	Work-related injuries	94, 136	The main types of work-related injury are unavailable because our data collection system is under standardization. This data will be available in SD Report 2020.	Yes
403-10	Work-related ill health	-	This data will be available in SD Report 2020.	-
<b>GRI 404: Training and Education 2016</b>				
103-1	Explanation of the material topic and its Boundary	90		-
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103-3	Evaluation of the management approach	105		-
411-1	Incidents of violations involving rights of indigenous peoples	105		-
MM5 <sup>M</sup>	Total number of operations taking place in or adjacent to Indigenous Peoples' territories, and number and percentage of operations or sites where there are formal agreements with Indigenous Peoples' communities	105, 137		-
<b>GRI 412: Human Rights Assessment 2016</b>				
103-1	Explanation of the material topic and its Boundary	106		-
103-2	The management approach and its components	106-107		-
103-3	Evaluation of the management approach	107		-
412-1	Operations that have been subject to human rights reviews or impact assessments	-	This data will be available in SD Report 2020	-
412-2	Employee training on human rights policies or procedures	-	This data will be available in SD Report 2020	-
<b>GRI 413: Local Communities 2016</b>				
103-1	Explanation of the material topic and its Boundary	96, 99		-
103-2	The management approach and its components	96-97, 99-100		-
103-3	Evaluation of the management approach	97, 101		-
413-1	Operations with local community engagement, impact assessments, and development programs	96-97		-
413-2	Operations with significant actual and potential negative impacts on local communities	96-97		-
MM6 <sup>M</sup>	Number and description of significant disputes relating to land use, customary rights of local communities and Indigenous People	137		-
MM7 <sup>M</sup>	The extent to which grievance mechanisms were used to resolve disputes relating to land use, customary rights of local communities and Indigenous Peoples, and the outcomes	97, 104-105		-
EU22 <sup>E</sup>	Number of people physically or economically displaced and compensation, broken down by type of project	104, 137		-
<b>GRI 414: Supplier Social Assessment 2016</b>				
103-1	Explanation of the material topic and its Boundary	48		-
103-2	The management approach and its components	48		-
103-3	Evaluation of the management approach	49		-
414-1	New suppliers that were screened using social criteria	120		-
414-2	Negative social impacts in the supply chain and actions taken	50		-

Disclosure	Description	Page	Detail/Omission	External Assurance
<b>GRI 416: Customer Health and Safety 2016</b>				
103-1	Explanation of the material topic and its Boundary	51		-
103-2	The management approach and its components	51-52		-
103-3	Evaluation of the management approach	52		-
416-1	Assessment of the health and safety impacts of product and service categories	-		-
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	52, 121		-
<b>GRI 418: Customer Privacy 2016</b>				
103-1	Explanation of the material topic and its Boundary	51		-
103-2	The management approach and its components	51-52		-
103-3	Evaluation of the management approach	52		-
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	52, 121		-
<b>GRI 419: Socioeconomic Compliance 2016</b>				
103-1	Explanation of the material topic and its Boundary	55		-
103-2	The management approach and its components	55		-
103-3	Evaluation of the management approach	55		-
419-1	Non-compliance with laws and regulations in the social and economic area	55, 121		-
<b>GRI-G4 Sector Disclosure: Resettlement</b>				
103-1	Explanation of the material topic and its Boundary	104		-
103-2	The management approach and its components	104		-
103-3	Evaluation of the management approach	104		-
MM9 <sup>M</sup>	Sites where resettlements took place, the number of households resettled in each, and how their livelihoods were affected in the process	137		-
<b>GRI-G4 Sector Disclosure: Closure Planning</b>				
103-1	Explanation of the material topic and its Boundary	80		-
103-2	The management approach and its components	80		-
103-3	Evaluation of the management approach	80		-
MM10 <sup>M</sup>	Number and percentage of operations with closure plans	130		-
<b>GRI-G4 Sector Disclosure: Access</b>				
103-1	Explanation of the material topic and its Boundary	44		-
103-2	The management approach and its components	44		-
103-3	Evaluation of the management approach	44-45		-
EU30 <sup>E</sup>	Average plant availability factor by energy source and by regulatory regime	44-45, 120		-

<sup>M</sup> GRI-G4 Mining & Metals Sector Disclosures (2010)

<sup>E</sup> GRI-G4 Electric Utilities Sector Disclosures (2010)

# UN Global Compact COP Index

Criteria	Description	Page	Policy Document
<b>Implementing the Ten Principles into Strategies &amp; Operations</b>			
1	The COP describes mainstreaming into corporate functions and business units	22-25, 34-35	 Supplier Code of Conduct
2	The COP describes value chain implementation	48-50	
<b>Robust Human Rights Management Policies &amp; Procedures</b>			
3	The COP describes robust commitments, strategies or policies in the area of human rights	106-107	 Human Rights Policy
4	The COP describes effective management systems to integrate the human rights principles	106	
5	The COP describes effective monitoring and evaluation mechanisms of human rights integration	107	
<b>Robust Labour Management Policies &amp; Procedures</b>			
6	The COP describes robust commitments, strategies or policies in the area of labour	24, 50, 86-87, 106-107	 HR Philosophy
7	The COP describes effective management systems to integrate the labour principles	38-39, 50, 92-93	
8	The COP describes effective monitoring and evaluation mechanisms of labour principles integration	48-50, 87, 90-95	
<b>Robust Environmental Management Policies &amp; Procedures</b>			
9	The COP describes robust commitments, strategies or policies in the area of environmental stewardship	21, 22-23, 25, 50, 59, 78	 Environment Policy
10	The COP describes effective management systems to integrate the environmental principles	59, 64, 67, 71, 73-83	
11	The COP describes effective monitoring and evaluation mechanisms for environmental stewardship	34, 60-61, 65, 67-69, 71-72, 74, 76, 77, 79-81, 83	
<b>Robust Anti-Corruption Management Policies &amp; Procedures</b>			
12	The COP describes robust commitments, strategies or policies in the area of anti-corruption	25, 38-39, 50	 Anti-corruption Policy
13	The COP describes effective management systems to integrate the anti-corruption principle	38, 39, 50	
14	The COP describes effective monitoring and evaluation mechanisms for the integration of anti-corruption	39	 No Gift Policy
<b>Taking Action in Support of Broader UN Goals and Issues</b>			
15	The COP describes core business contributions to UN goals and issues	21-25, 101-103	
16	The COP describes strategic social investments and philanthropy	101-103, 105-106, 108-111	
17	The COP describes advocacy and public policy engagement	22-23	
18	The COP describes partnerships and collective action	101-103, 110-111	
<b>Corporate Sustainability Governance and Leadership</b>			
19	The COP describes CEO commitment and leadership	2-3, 35	
20	The COP describes Board adoption and oversight	16, 34	
21	The COP describes stakeholder engagement	26-28, 96-97	

# LR Independent Assurance Statement

## Relating to Banpu Public Company Limited's Sustainability Report for the calendar 2019

This Assurance Statement has been prepared for Banpu Public Company Limited in accordance with our contract but is intended for the readers of this Report.

### Terms of engagement

Lloyd's Register Quality Assurance Ltd. (LR) was commissioned by Banpu Public Company Limited (BANPU) to provide independent assurance on its Sustainability Report 2019 (the Report) against the assurance criteria below to a moderate level of assurance and at the materiality of the professional judgement of the verifier using AccountAbility's AA1000AS (2008) Type 2 approach<sup>1</sup>.

Our assurance engagement covered BANPU's operations and activities in Australia, China, Indonesia, Japan and Thailand (as Head Office) and specifically the following requirements:

- Evaluating the nature and extent of BANPU's adherence to all three AA1000 AccountAbility Principles - inclusivity, materiality and responsiveness.
- Confirming that the report is in accordance with:
  - GRI Standard and core option,
  - GRI Mining and Metals Sector Disclosures and
  - GRI Electric Utilities Sector Disclosures
- Evaluating the reliability of data and information for the selected indicators listed below:
  - Environmental:* GRI 302-1 Energy Consumption, GRI 302-3 Energy Intensity, GRI 305-1 GHG Emissions Scope 1, GRI 305-2 GHG Emissions Scope 2 and GRI 305-4 GHG Emissions Intensity
  - Social:* GRI 403-9 (2018) Fatality, Fatality Rate, TRIFR, LTIFR, ISR and Major Incident

Note: LRQA was asked to verify only TRIFR, LTIFR and ISR for the operations in Australia, China, Indonesia, Japan (only employee) and Thailand

Our assurance engagement excluded the data and information of BANPU's suppliers, contractors and any third-parties mentioned in the report.

LR's responsibility is only to BANPU. LR disclaims any liability or responsibility to others as explained in the end footnote. BANPU's responsibility is for collecting, aggregating, analysing and presenting all the data and information within the report and for maintaining effective internal controls over the systems from which the report is derived. Ultimately, the report has been approved by, and remains the responsibility of BANPU.

### LR's Opinion

Based on LR's approach nothing has come to our attention that would cause us to believe that BANPU has not, in all material respects:

- Met the requirements above
- Disclosed reliable performance data and information as no errors or omissions were detected
- Covered all the issues that are important to the stakeholders and readers of this report.

The opinion expressed is formed on the basis of a limited level of assurance and at the materiality of the professional judgement of the verifier.

**Note:** The extent of evidence-gathering for a limited assurance engagement is less than for a reasonable assurance engagement. Limited assurance engagements focus on aggregated data rather than physically checking source data at sites. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

<sup>1</sup> GHG quantification is subject to inherent uncertainty.

### LR's approach

LR's assurance engagements are carried out in accordance with our verification procedure. The following tasks though were undertaken as part of the evidence gathering process for this assurance engagement:

- Assessing BANPU's approach to stakeholder engagement to confirm that issues raised by stakeholders were captured correctly. We did this through reviewing associated records.
- Reviewing BANPU's process for re-validate their material issues to ensure that they remain current and relevant to confirm that the right issues were included in their Report. We did this by benchmarking reports written by BANPU and its peers to ensure that sector specific issues were included for comparability.
- Auditing BANPU's data management systems to confirm that there were no significant errors, omissions or mis-statements in the Report. We did this by reviewing the effectiveness of data handling procedures, instructions and systems. We also spoke with those key peoples responsible for compiling the data and writing the Report.
- Sampling the consolidated data and information at BANPU's head office in Bangkok and visiting BANPU's subsidiaries included Power Plants in China and Coal Mines in Australia and Indonesia.

### Observations

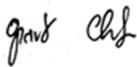
Further observations and findings, made during the assurance engagement, are:

- Stakeholder inclusivity: We are not aware of any key stakeholder groups that have been excluded from BANPU's stakeholder engagement process.
- Materiality: We are not aware of any material issues concerning BANPU's sustainability performance that have been excluded from the Report.
- Responsiveness: BANPU has processes for responding to various stakeholder groups: for example, disclosure of OH&S information and GHG reduction programme. We understand that future Reports discuss how BANPU establishes governance with new business partners.
- Reliability: BANPU uses well designed spreadsheets and management information systems to collect and calculate the data and information associated with the selected indicators. BANPU should consider interim verification to check the quality of data and information disclosure throughout operations.

### LR's standards, competence and independence

LR 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 work undertaken by LR for BANPU and as such does not compromise our independence or impartiality.



Opart Charuratana  
LR Lead Verifier

Dated: 24 March 2020

On behalf of Lloyd's Register Quality Assurance Ltd  
Lloyd's Register International (Thailand) Limited  
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LR reference: BGK00000375A

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# Feedback Survey



Please provide your feedback by scanning this QR Code or send this feedback form to the address specified at the back cover or e-mail to Sustainability@banpu.co.th.

1. Which of the following group of readers best describe you?

<input type="radio"/> Employee	<input type="radio"/> Community	<input type="radio"/> Customer	<input type="radio"/> Government
<input type="radio"/> Supplier	<input type="radio"/> Contractor	<input type="radio"/> Financial institution	<input type="radio"/> Business partner
<input type="radio"/> Shareholder	<input type="radio"/> Investor	<input type="radio"/> NGOs	<input type="radio"/> Other (please specify.....)

2. How did you receive this report?

<input type="radio"/> Annual general meeting	<input type="radio"/> Banpu's website	<input type="radio"/> Banpu's employee	<input type="radio"/> Seminar
<input type="radio"/> Other (please specify.....)			

3. What is your reason for reading this report?

<input type="radio"/> To support investment decision	<input type="radio"/> To understand Banpu's business	<input type="radio"/> For research and education purposes
<input type="radio"/> Other (please specify.....)		

4. Please indicate the Company's topic(s) that you are interested in

Governance	Environment	Social
<input type="radio"/> Sustainability Governance	<input type="radio"/> GHG Emissions	<input type="radio"/> Employee Management
<input type="radio"/> Business Ethics	<input type="radio"/> Energy	<input type="radio"/> Corporate Culture
<input type="radio"/> Risk Management	<input type="radio"/> Water	<input type="radio"/> Human Capital Development
<input type="radio"/> Business Continuity Management	<input type="radio"/> Air Emissions	<input type="radio"/> Occupational Health and Safety
<input type="radio"/> Efficiency and Reliability of Power Plants	<input type="radio"/> Waste	<input type="radio"/> Community Engagement
<input type="radio"/> Process Improvement and Innovation	<input type="radio"/> Mineral Waste	<input type="radio"/> Community Development
<input type="radio"/> Supplier Management	<input type="radio"/> Specific Waste from Power Plants	<input type="radio"/> Resettlement
<input type="radio"/> Customer & Product Stewardship	<input type="radio"/> Biodiversity	<input type="radio"/> Indigenous Peoples
<input type="radio"/> Economic Distribution	<input type="radio"/> Mine Closure	<input type="radio"/> Human Rights
<input type="radio"/> Socioeconomic Compliance	<input type="radio"/> Mine Subsidence	<input type="radio"/> Corporate Philanthropy
	<input type="radio"/> Environmental Compliance	

5. In your opinion, does the report cover all material topics?

<input type="radio"/> Yes	<input type="radio"/> No
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If no, please specify topic(s) that should be included.

.....

6. How did this report help you to gain an insight on the sustainability approach of the Company?

<input type="radio"/> High	<input type="radio"/> Medium	<input type="radio"/> Low
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Please describe your understanding

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7. In your opinion, how does the sustainability approach is consistent with the Company's vision and mission?

<input type="radio"/> High	<input type="radio"/> Medium	<input type="radio"/> Low
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8. Please rate your satisfaction towards the design of this report

The report structure	<input type="radio"/> High	<input type="radio"/> Medium	<input type="radio"/> Low	<input type="radio"/> Dissatisfied
Ease to understand	<input type="radio"/> High	<input type="radio"/> Medium	<input type="radio"/> Low	<input type="radio"/> Dissatisfied

9. Please rate your satisfaction towards the content of this report

Completeness	<input type="radio"/> High	<input type="radio"/> Medium	<input type="radio"/> Low	<input type="radio"/> Dissatisfied
Materiality	<input type="radio"/> High	<input type="radio"/> Medium	<input type="radio"/> Low	<input type="radio"/> Dissatisfied
Reliability	<input type="radio"/> High	<input type="radio"/> Medium	<input type="radio"/> Low	<input type="radio"/> Dissatisfied

10. Please provide your additional comments or suggestions

.....

.....

Thank you for your kind cooperation. Your feedback is very useful for our further improvement.





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