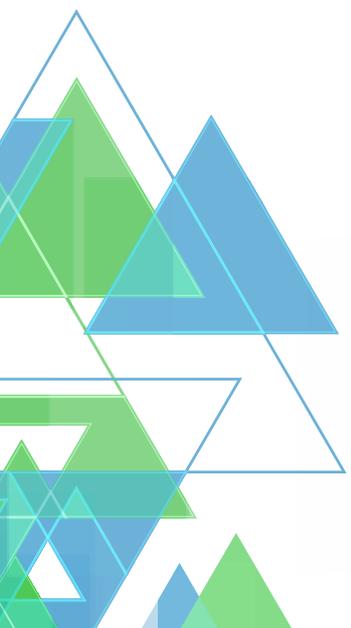




**BREAKING  
LIMITS**



MEMBER OF

**Dow Jones  
Sustainability Indices**

In Collaboration with RobecoSAM 

Banpu Public Company Limited became a member of the Dow Jones Sustainability Indices (DJSI) in Coal & Consumable Fuels sector for 3 consecutive years in 2016 and ranked highest level (Gold Class) from the assessment by Robeco Sustainable Asset Management (RobecoSAM).



Sustainability Report 2016



# BREAKING LIMITS





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# Message from CEO

We can look back at 2016 with some pride. It was a year in which sustainability came strongly to the fore of Banpu's strategy. In all areas, sustainability themes are driving the way we are managing our businesses and adapting our growth plans for the future.

Our power business has been given a new lease of life via its separate floatation on the Stock Exchange of Thailand as Banpu Power Plc (BPP). The international investment community responded very positively to the initial public offering of BPP reflecting confidence in the company's pioneering track record and our plans for growth to over 4,000 megawatts of equity generating capacity by the early 2020s. While conventional technologies will remain core, all new investments will be in high-efficiency, low-emissions (HELE) plants and renewable energy. In 2016, BPP made significant progress in the expansion of its solar business in north Asia with over 200 megawatts at various stages of development in Japan and China. By 2025 we expect at least a fifth of our power portfolio to be renewables-based.

Our upstream resources business has been focused on coal over the past three decades and we continue to see responsibly-mined coal as playing a critical role in ensuring affordable and reliable baseload energy supplies to the Asia-Pacific power sector. In 2016, however, with long term sustainability objectives in mind, we took a step towards diversifying our upstream portfolio with an investment in a shale gas operation in the US.

All of these initiatives are aligning the Banpu group's strategy with key mega-trends which we believe will shape our social and economic environment in the decades ahead: the primacy of ecological conservation, the revolution in digital connectivity and the paradigm shift in supply risk tolerance.

In this way Banpu is 'future-proofing' its strategy, enhancing the sustainability of its businesses - and making important contributions to the sustainability of energy supply in the Asia-Pacific region. Our 5-year Sustainable Development strategy (2016-2020) has been designed with these objectives and trends in mind as well as our usual commitment to stakeholder care and to our corporate social responsibilities.

In 2016, Banpu continues to address its responsibilities in relation to concerns about global warming. After successfully achieving the company's greenhouse gas reduction targets in 2010-2015, in 2016 Banpu announced a new Carbon Policy with further reduction targets for 2016-2020. The new policy sets carbon reductions objectives of 25% per unit of production in our coal business and 15% for the power business. Since the company's involvement in the CDP Project and publication of our greenhouse gas emissions targets in relation to our coal business in Indonesia and power business in China, Banpu has been ranked in 'Band B', above the average of its peers in the same industries.

In addition, the company continued to strengthen its community development activities and worked towards community-related sustainability objectives within the framework of United Nations guidelines and Sustainable Development Goals (SDGs).

It is with profound regret, however, that we had to report that one of our contractors had a fatal accident while working at one of our operations in Indonesia. We offer our heartfelt condolences to his family, friends and colleagues. The causes and circumstances of the accident have been thoroughly investigated. We are making changes now to improve safety precautions with Three Zero Principles; Zero Incidence, Zero Repeat, Zero Compromise.

As CEO I would like to express my sincere appreciation and thanks to all personnel at Banpu for their efforts towards enhancing the sustainability of our company's development in recent years. We can be proud to have been selected for the third consecutive year in 2016 as a member of the Dow Jones Sustainability Indices (DJSI) and to be awarded Gold Class with recognition also as an 'Industry Mover' in the Coal & Consumables Fuels by RobecoSAM. We also appreciate receiving the "SET Sustainability Awards - BEST" for companies who have a market cap of 30,000 - 100,000 million baht in 2016 and being included on the Stock Exchange of Thailand's 'Thailand Sustainability Investment' (THSI) list for the second year running. All of this is welcome - and I believe that our achievements come naturally from the principles and DNA behind the 'Banpu Spirit' with an emphasis of Care, Integrity, Innovation and Synergy. But there can be no room for complacency. We must learn from our mistakes and foster a philosophy of continuous improvement. We must continue to live by the maxim that 'an industry can only be profitable and sustainable in tandem with genuine social and environmental responsibility'.



**Somruedee Chaimongkol**

Chairman of the Sustainable Development Committee  
and Chief Executive Officer





# About Banpu

Vision

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Mission

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Corporate Culture



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

- 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

- Innovation
- Integrity
- Care
- Synergy





## Business Value Chain

Banpu Public Company Limited is a pioneer energy company with over 30 years of operation. Its core business started from coal production and coal sales corresponding to meet energy demand of customers in Asia and Europe. Currently, Banpu has expanded its business value-chain from energy-fuel supplier to integrated energy supplier. It covers up-stream businesses, including coal and alternative energy, mid-stream businesses including logistics, trade and marketing, as well as down-stream businesses, including power business from both conventional and renewable based power plants in order to add varieties of products in response to customers' demand of energy throughout the business value chain.



\* Future Opportunities

## Up-stream Business:

The Company focuses on investment, exploration, development and production to provide energy sources to industrial customers and power plants including coal and other energy resources businesses.



- Coal Resource Development and Mining** is the core business of Banpu Group for over 30 years with production bases in Indonesia, Australia, China and Mongolia. The Company plan to increase production capacity together with the development of capability towards excellence. This is done through optimizing resource utilization to the most efficient and effective to serve both domestic and oversea customers.
- Other Energy Resources** is Banpu's new up-stream business opportunity. In 2016, the Company started to invest in unconventional gas with production based in the U.S. Its natural gas production capacity according to equity investment, is 39 million cubic feet per day. All natural gas produced are transferred via national pipeline network for domestic consumption. Moreover, the Company also interested in the investment in other energy resources opportunities.

## Mid-stream Business:

It is the Company's service operation to deliver energy products to its customers.

- Logistics, Trading and Marketing** is a service business to support marketing and sales of the company through coal transportation networks both by trains and vessels. The Company manages the Indonesian deep seaport, which is geographically suitable for location and capability on handling large ocean vessels with an annual loading capacity of 20 million tons. This is to increase revenue and respond to the needs of diverse customers in delivery goods and international energy products including merchandises consumed in other industries with quality and reliability.



## Down-stream Business:

The Company operates power business to meet the demand of customers in both public and private sectors. This business covers conventional power plants, renewable based power plants, and smart energy solutions.

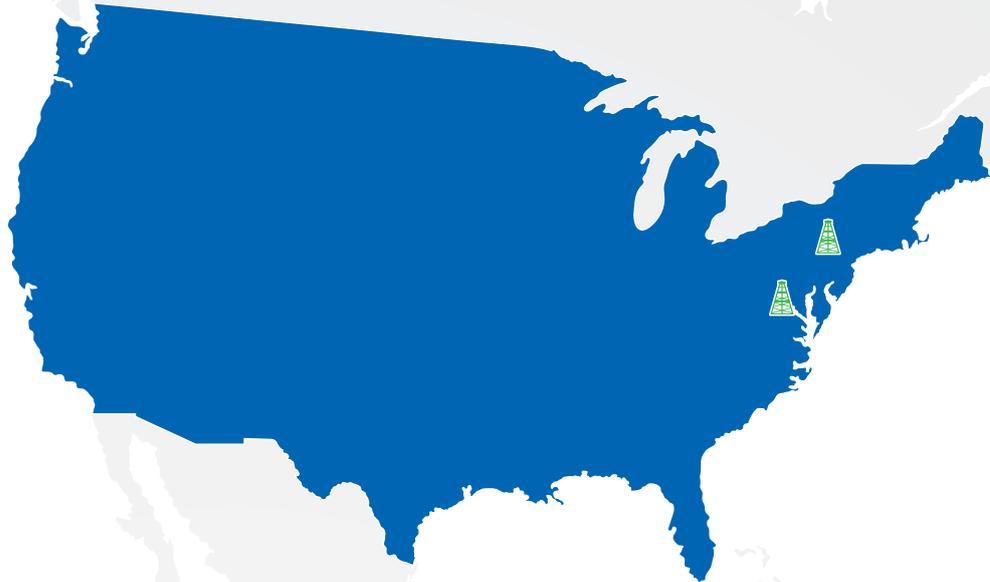
- **Conventional Power Plant** is a business that the Company has experienced for more than 20 years, focusing on applying new technology, especially clean coal technology to promote high quality and secured power generation along with the use of High Efficiency and Low Emission (HELE) technologies. The Company currently invests in five power plants using coal as fuel source for power generation located in Thailand, Lao PDR, and China. In addition to the electricity generated, the combined heat and power plants in China also provided varieties of products, such as steam and cold water, to meet the diverse needs of both industrial and household customers.

- **Renewable Based Power Plant** is the business that contributes to reducing impacts on the environment and responding to low carbon society since electricity is generated from renewable sources such as solar, wind, geothermal and biomass. In 2016, the Company invested in solar power projects in both Japan and China. Some of these renewable energy projects are under construction process. Nevertheless, the Company seeks for additional investment opportunities in other renewable energy sources in responding to our customers' demand on environmental friendly energy. The goal is to have a composition of electricity generated from renewable sources more than 20 percent by 2025.

- **Smart Energy System** is a new energy business of the Company aiming to reach its goal of becoming an integrated energy solution provider. Initially, the Company planned to have solar roof top for customers who need to reduce their expense by cutting of the purchased electricity, such as households, academic institutions and industrial sectors. Currently, the project is under study and development.







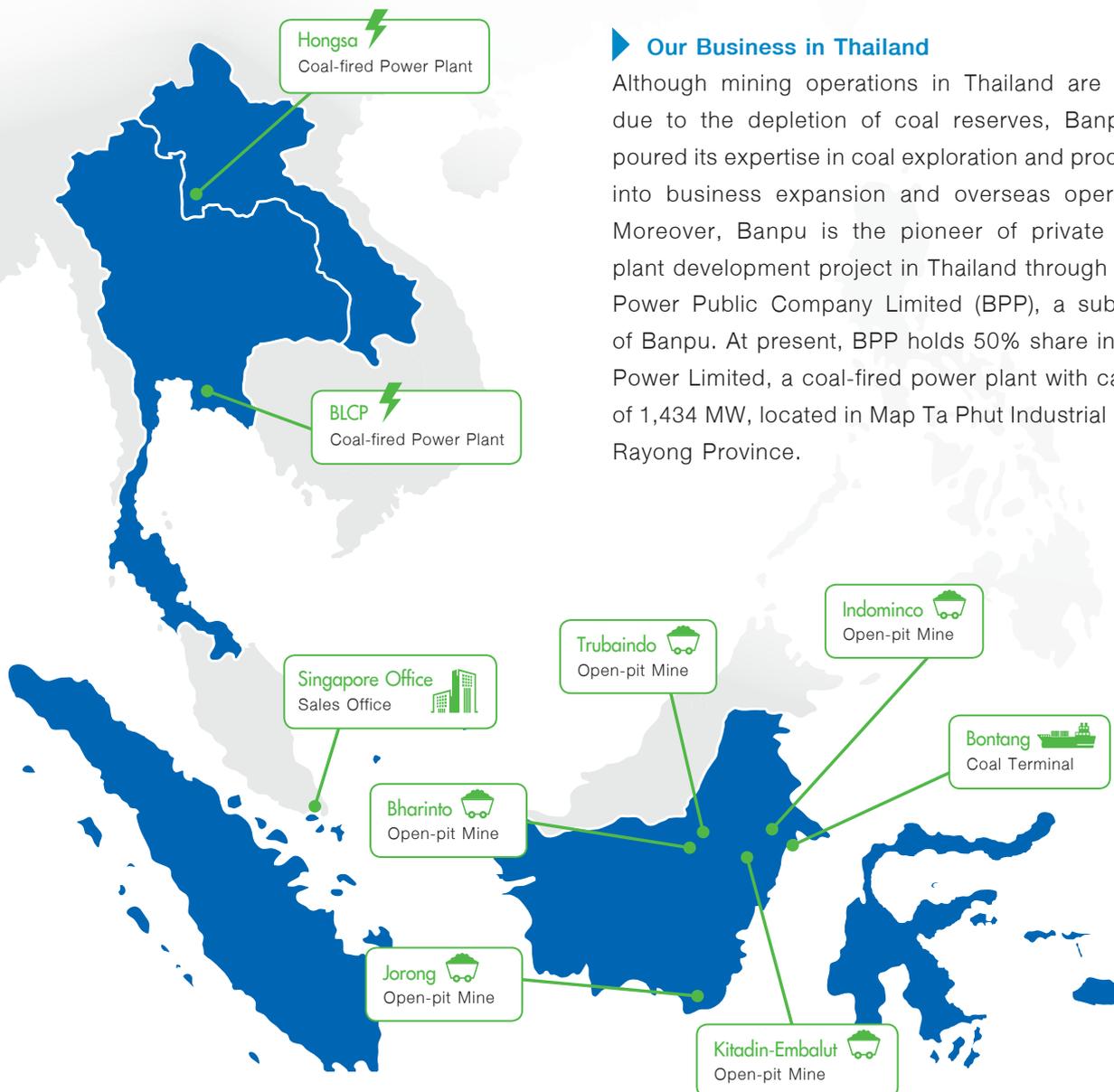
# Map of Operations

-  Coal Business
-  Power Business
-  Gas Business
-  Coal Terminal
-  Sales Office

-  Operating
-  Project or Care & Maintenance

## Our Business

Our business has continual growth and enhanced its businesses with the position as an integrated energy provider covering up-stream, mid-stream and down-stream businesses, both in domestic and overseas markets. We have diversified products and enhanced service quality in order to response customer demands and ensure affordable and reliable energy supply with alignment to the key mega-trends. At present, Banpu has operations based in countries across Asia-Pacific region, including Thailand, Indonesia, China, Australia, Lao PDR, Mongolia, Singapore, Japan and the United State of America. In 2016, we focus on developing capacity towards “Operational Excellence”, as well as enhancing renewable-based energy portfolio to build sustainable values to all stakeholders.



### ► Our Business in Thailand

Although mining operations in Thailand are closed due to the depletion of coal reserves, Banpu has poured its expertise in coal exploration and production into business expansion and overseas operations. Moreover, Banpu is the pioneer of private power plant development project in Thailand through Banpu Power Public Company Limited (BPP), a subsidiary of Banpu. At present, BPP holds 50% share in BCLP Power Limited, a coal-fired power plant with capacity of 1,434 MW, located in Map Ta Phut Industrial Estate, Rayong Province.

### ► Our Business in Indonesia

Banpu has entered into Indonesia's coal industry since 1991 and been continuous growth, becoming one of Banpu's significant production base. PT Indo TambangrayaMegahTbk (ITM) is our subsidiary and listed on the Indonesia Stock Exchange. Currently, ITM has 5 operational coal mines which are located in Kalimantan, including Indominco, Jorong, Kitadin-Embalut, Trubaindo and Bharinto. These mines produce a range of bituminous and sub-bituminous thermal coals, which is suitable for domestic consumption and oversea exportation, with approximate production capacity of 25.7 million tons in 2016. In addition, there is Bontang Terminal with annual port handling capacity of more than 20 million tons. (For more detail, visit <http://www.itmg.co.id>)

### ► Our Business in Lao PDR

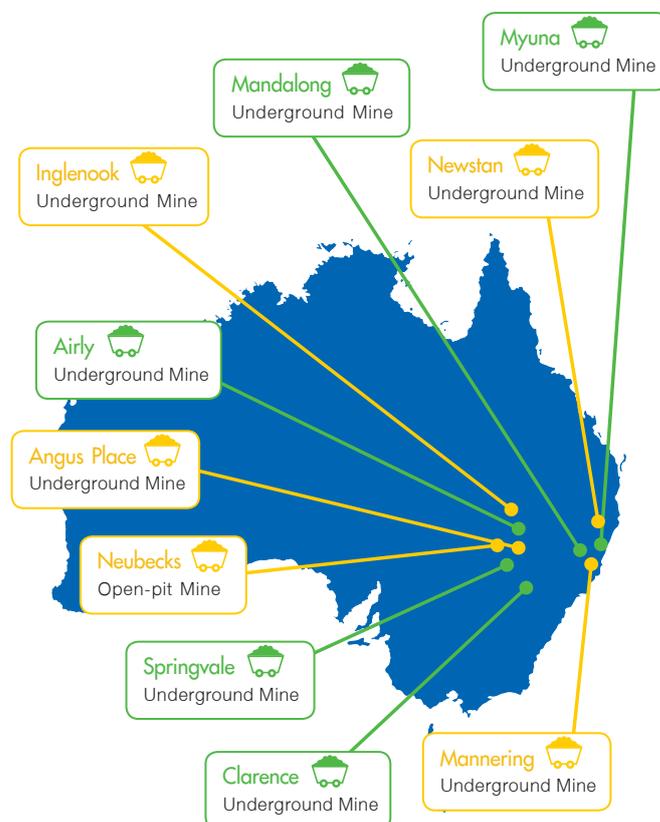
To build power stability for Lao and Thailand, Banpu invested into Hongsa Power Plant through BPP. This is the cooperation between BPP, Ratchaburi Electricity Generating Holding Public Company Limited (RATCH) and Lao Holding State Enterprise (LHSE), a state-owned enterprise of Lao PDR. BPP holds 40% share in Hongsa Power Plant, which is a Mine-Mouth Power Plant and consumes lignite as coal-based fuel, located in Hongsa District, Xayaburi Province in Lao PDR. The power plant has started commercial operation of all 3 units since March 2016, with power capacity of 1,878 MW.

### ► Our Business in Singapore

BMS Coal Sales Pte. Ltd. (BMS Coal Sales), a subsidiary of Banpu, was established in 2013 as a center of sales, marketing and logistics of Banpu's coal business. The sales office is located in Singapore.

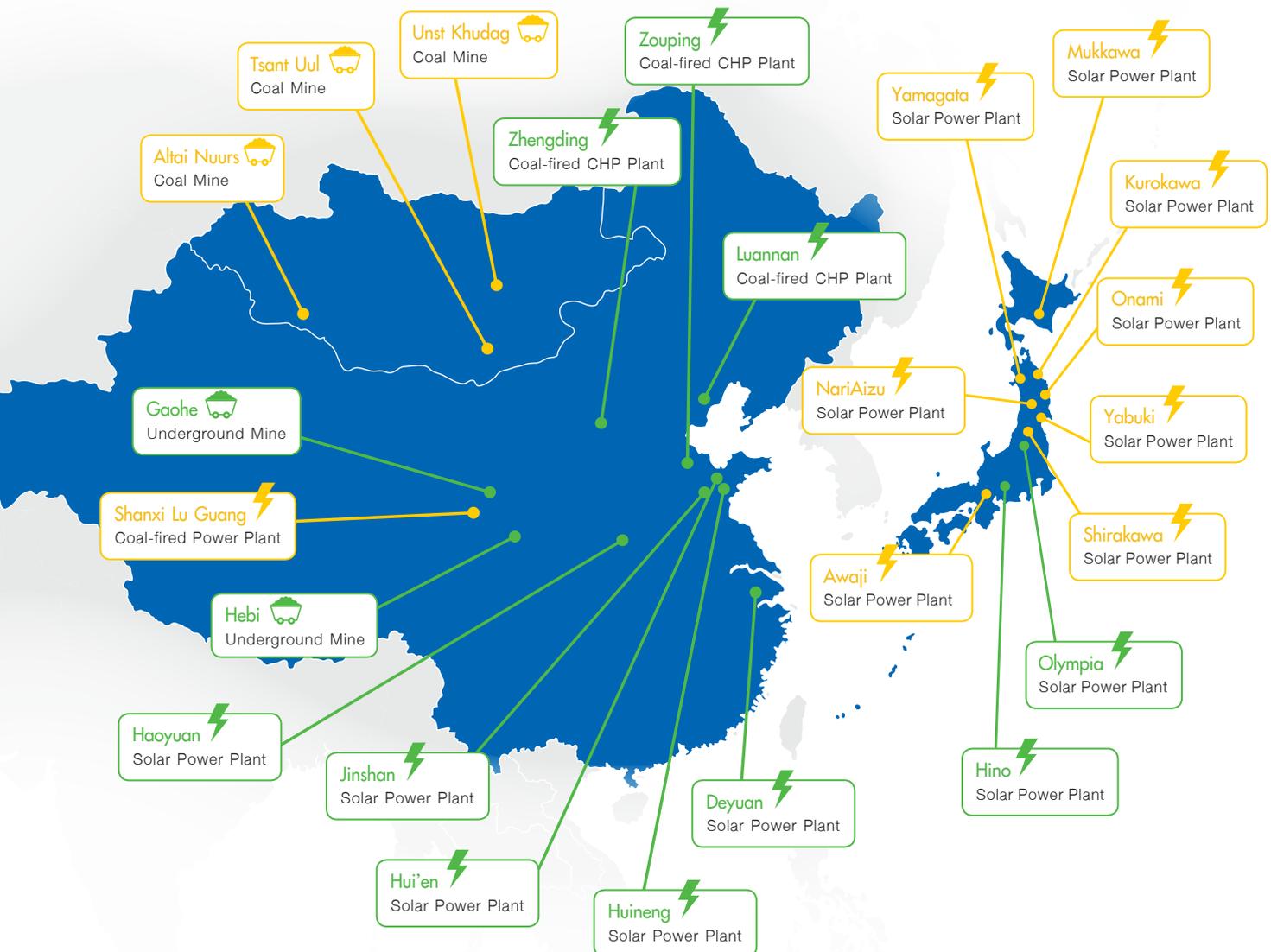
### ► Our Business in Australia

To enhance growth, corporate value and geographical business divestification, Banpu wholly acquired Centennial Coal Company Limited (Centennial) in 2010. Centennial is a coal producer, supplying thermal coal for domestic consumption and oversea market. Presently, Centennial has 5 underground coal mines operated, namely Airly, Clarence, Mandalong, Myuna and Springvale, with approximate production capacity of 12.4 million tons in 2016 and 5 more coal projects, both underground and open-pit under development and care & maintenance phase, located in western and northern of New South Wales. For oversea customers, coal is transported via rail from mines to Port Kembla Coal Terminal (PKCT) or Newcastle Coal Infrastructure Group (NCIG). (For more detail, visit <http://www.centennialcoal.com.au>)



### ► Our Business in Mongolia

In late 2011, Banpu successfully acquired Hunnu Coal Limited (Hunnu), an expert company in coal exploration and mine development in Mongolia. Currently, Hunnu has several main projects under development, including Tsant Uul to conduct feasibility study of Coal to Coal Tar production, Altai Nuurs to conduct drilling test for coal reserves proven and UnstKhudag to develop Geological Models.



### ► Our Business in China

Banpu has expanded coal business into China for more than 10 years. BP Overseas Developments Co. Ltd., our subsidiary, holds 45% share in Shanxi Gaohe Energy Company Limited, which operates an underground mine in Shanxi Province. The mine started commercial production in late 2012, with annual production capacity of 10 million tons from 2013 onwards. In addition, Banpu Minerals Limited, a subsidiary of Banpu, holds 40% share in HebiZhong Tai Mining Co., Ltd. (HZTM), which operates an underground mine in Henan Province, with annual production capacity of 1.2 million tons.

In 2006, Banpu expanded investment into China's power industry through Banpu Investment (China) Co., Ltd. (BIC), a subsidiary of BPP. At present, BIC operates and manages 3 Combined Heat and Power (CHP) plants in northern of China, namely Luannan and Zhengding in Hebei Province and Zouping in Shangdong Province. These CHP plants have a total power capacity of 273 MW, steam capacity of 948 tons per hour and chilled water capacity of 35 MW, using coal-based fuel. In addition, BPP holds 30% share in Shanxi Lu Guang Power Co., Ltd., a coal-fired power plant with power capacity of 1,320 MW, which is now under construction with commercial operation scheduled to start in 2018.

Beside the conventional power plants, Banpu started investment in renewable based power plant in China during mid-2016 through BPP. Currently, there are 5 solar power plants operated, namely Jinshan, Huineng, Haoyuan, Hui'en in Shangdong Province and Deyuanin Zhejiang Province, with a total power capacity of 140 MWac.

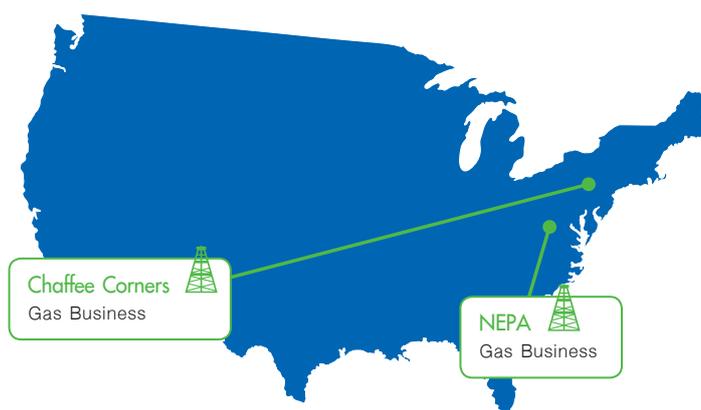
### ► Our Business in Japan

To balance our portfolio, renewable based power plant in Japan has been studied and invested through BPP. At present, BPP operates several solar power plants, located in Hokkaido and Honshu Islands, through its subsidiary. Currently, there are 2 solar power plants operated, including Olympia and Hino. In addition, several projects are under construction and development, including Awaji, Mukkawa, NariAizu, Yabuki, Onami and Yamagata in 2016 and 2 more projects namely Kurikawa and Shirakawa in 2017, with a total power capacity of 103.6 MWac base on BPP's share. The commercial operation scheduled to be proceeded gradually during 2017-2019.

### ► Our Business in the United State of America

In 2016, Banpu invested in Chaffee Corners Joint Exploration Agreement (JEA) with 29.4% share, which is low cost unconventional shale gas production. The operation bases in Marcellus Shale, located in the northeast of Pennsylvania, with approximate production capacity of 21 Mmcf/day base on % ownership. To strengthen business value, Banpu consequently had additional investment in Northeast Pennsylvania Corners (NEPA)

in January 2017 with 10.24% share, its operation is located near the previous gas production area, with approximate production capacity of 18 Mmcf/day base on % ownership. All natural gas produced are transferred via national gas pipeline for domestic consumption.



\*Additional information of each operation is provided in page 162-163.

# Corporate Governance

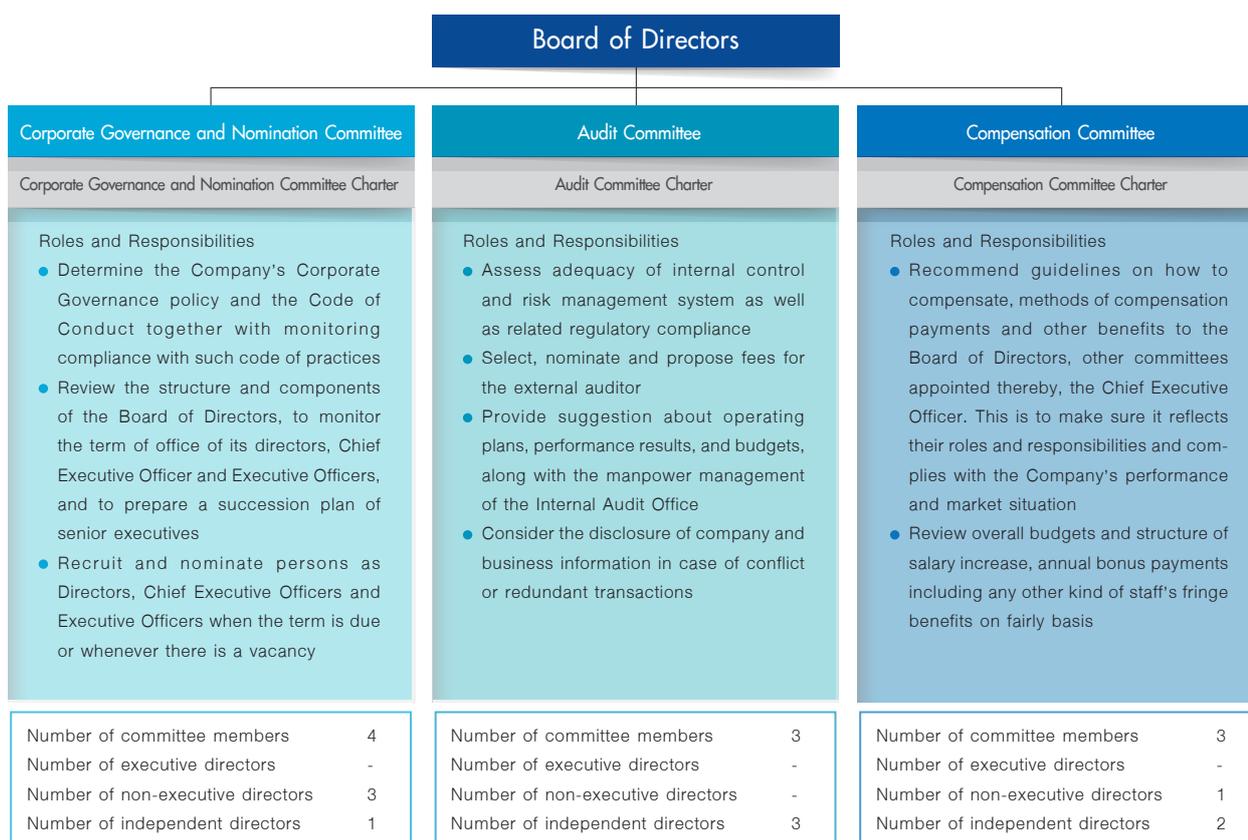
The key mission of Board of Directors is to oversee the management and governance of the company to ensure the company's long-term profitability and competitiveness. We aim to meet the interests of all related stakeholders, taking into account good governance and long-term impact on society and environment from company's operation. In addition, the Board also strives to fulfill expectation from Securities and Exchange Commission Thailand (SEC) and The Stock Exchange of Thailand (SET) toward the company being listed as innovative and valuable enterprise for Thailand's economy and society. This mission, in turn, allows the company to continually respond to sustainable development practice, as well as long-term competitiveness of the industry, the nation, and ultimately the SEA region. The person responsible for Banpu's overall operations, from business management, sustainability and internal development, is

Chief Executive Officer, who values above all the growth of the company, the environment, and society as a whole.

The Board has formulated "The Practices of the Board of Directors of Banpu Public Company Limited" in 2009 as a guideline for the Board practices, which was reviewed and amended in 2011, 2012 and 2014 to reflect changing in its responsibilities and stakeholders' expectation. In 2014, the Board of Directors has improved the Corporate Governance of the Board allowing the service term of an independent director to be no longer than 9 years or no more than 3 consecutive terms. In addition, appointed director shall not hold a director of more than 5 listed companies in the Stock Exchange of Thailand. Also, the resolution of the Board of Directors meetings shall have a quorum of at least 2 out of 3 of Board of Directors.

## ▶ Corporate Governance Structure

The structure of the Board of Directors is one-tier system as indicated below:

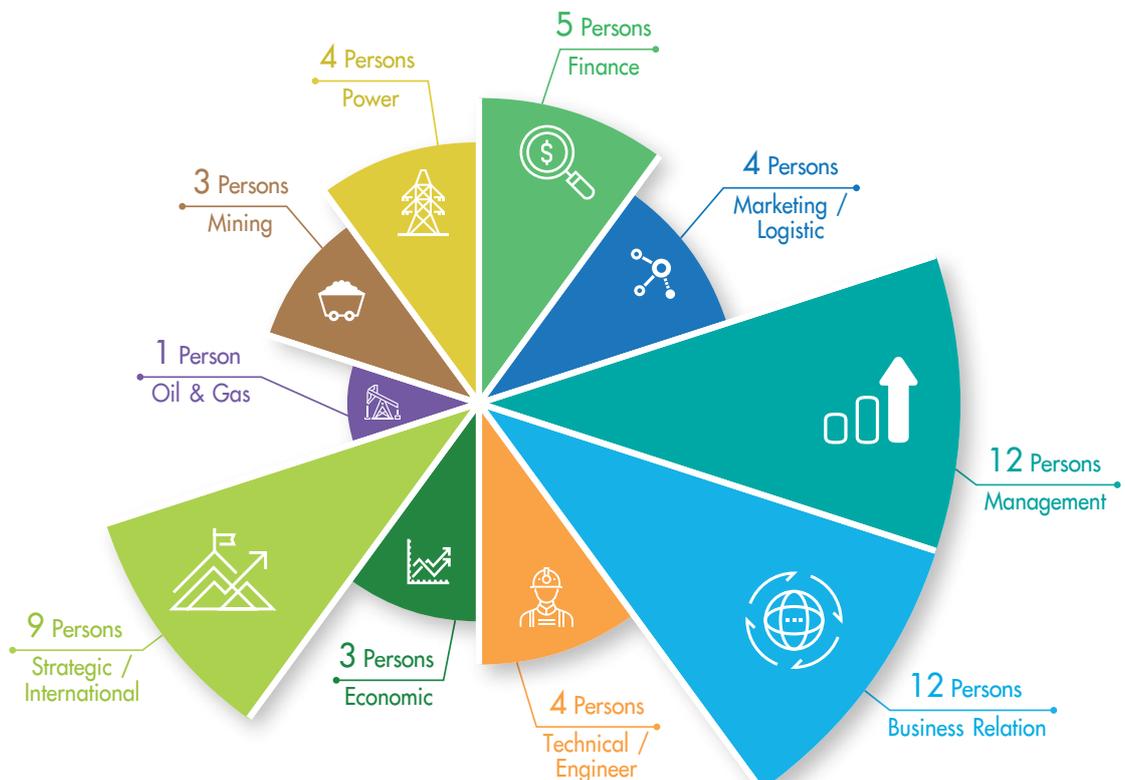


### ► Board of Directors Nomination

Acknowledging the importance of the Board's roles towards the company's sustainable growth, Corporate Governance and Nomination Committee sets the rules of the Board nomination process, taking into account the richness and diversity of experience, knowledge, expertise, skills, gender, nationality, age, as well as freedom of thoughts. To beneficial outcome to both the company and stakeholders, Banpu's Committee uses "Board Skills Matrix" as a tool to evaluate knowledge and skills fit for business operation of current directors and candidates. As a result of such matrix, the board composition of Banpu is as indicated below:

Composition of the Board of Directors				
Gender		Status		
Female	Male	Independent Directors	Non-executive Directors	Executive Directors
1	11	4	6	2

### Board Skills Matrix



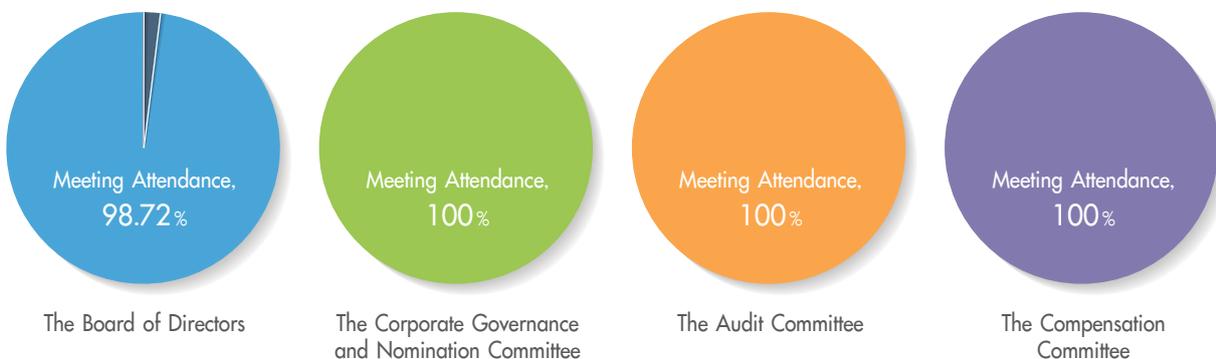
### ► Board of Directors Performance Assessment

For utmost efficiency of the Board and to provide opportunities for each member to review the performance and obstacles during the working period, Corporate Governance and Nomination Committee proposed the Board of Directors performance assessment criteria for deeper evaluation of their yearly performance. The annual performance assessment of the Board of Directors comprises of group evaluation, sub-committee evaluation and individual evaluation. Recommendations and results from the assessment would be used to improve the Board's performance to ensure greater profitability in the future. In 2016, the performance of each kind of assessment deemed to be satisfactory as indicated below:

Board of Directors Performance Assessment	Score	Result
Group evaluation	4.75 out of 5	Very good
Individual evaluation	4.78 out of 5	Very good
Sub-committee evaluation	98.70%	Excellent

### ► Summary of Meeting Attendance

In the previous year, Directors attended Board of Directors and sub-committee meeting as followed:



### ► Directors' Competencies Development

In the previous year, Directors attended a number of courses in order to gain more knowledge and experience as followed:

Course	Training Organizer	Number of Participants
Corporate Governance for Capital Market Intermediaries (CGI) 14/2016	The Thai Institute of Directors Association (IOD)	1
IT Governance (ITG) 2/2016	The Thai Institute of Directors Association (IOD)	1
Audit Committee Forum 2016	Federation of Accounting Professions with The Thai Institute of Directors Association (IOD)	1

## About This Report

Banpu conducts Sustainability Report every year with an aim to disclose our material topics related to economic, social and environmental performances on sustainable development to our stakeholders. This report has been prepared in accordance with the GRI Standards: Core option.

### Boundary

**Period:** From 1<sup>st</sup> January 2016 to 31<sup>st</sup> December 2016

**Business Units:** For this report, the content covers the same scope as previous one with the business that Banpu holds more than 50 percent investment and has right to control the operations. Therefore, the 2016 Sustainability Report encompasses our coal business in Indonesia, Australia and Mongolia as well as our power business in China and Japan. In addition, the offices in Thailand and Singapore are covered under the scope.

However, for other businesses in which we have either direct or indirect investment less than half, and does not directly participate in their management, but only supervise through those companies' Board of Directors; for example, coal business in China, BLCP Power Plant in Thailand and Hongsa Power Plant in Lao PDR, their performances will not be included in this report.

Office		Coal Business				Power Business				Gas Business
Thailand	Singapore	Indonesia	Australia	Mongolia	China	China	Japan	Thailand	Lao PDR	The U.S.
●	●	●	●	●	○	●	●	○	○	○

● The scope of this report covers such businesses.

○ The scope of this report does not cover such businesses as Banpu holds less than 50 percent investment and does not directly participate in their management

### Next Step

We are determined to continually improve the quality of our sustainability report in order to enhance information disclosure. Hence, for our next Sustainability Report, the information about Energy Consumption (Direct and Indirect) as well as GHG (Scope 1, Scope 2 and intensity) in coal business (in Indonesia and Australia) and power business (in China) will be assured by third-party to enhance the credibility. For other indicators, such practices would be conducted in the future.

For those who are particularly interested in studying the sustainability report of each business, some of our subsidiaries have reported their sustainability development progress as well. Interested individuals can learn from their website, such as Centennial Coal at [www.centennialcoal.com.au](http://www.centennialcoal.com.au) for our business in Australia and PT.Indo Tambangraya Megah Tbk at [www.itmg.co.id](http://www.itmg.co.id) for our business in Indonesia.

# Sustainable Development



## Challenges and Opportunities

### Coal Business in Indonesia

#### Challenges and Opportunities

Coal Production in Indonesia started to recover in the latter half of 2016, due to the increase of coal import demand by China, and consequently, led to higher coal price in global market. In 2016, total capacity of coal production in Indonesia was around 460 million tons, 0.6 percent increasing from 2015. Meanwhile, Indonesian coal export was approximately 365 million tons, accountable for 79 percent of the country's total coal production, 1.8 percent lower than the previous year. Although, coal demand in Indonesia was up, coal producers were unable to increase their production significantly in the second half of the year due to heavy rains during that period and a delay of production recovery by a coal producers during the past two years as volatile coal prices. The domestic demand of coal in Indonesian was approximately 95 million tons, rising 11 percent from 2015, according to operational commencement of the Indonesian government's new power plants. Over 80 percent of coal in Indonesia has been used for power generation and 10 percent for cement production, while the rest has been used for other industries.

Last year, the Indonesian government successfully controlled coal production capacity from illegal miners with strict enforcement of various measures. Furthermore, a sharp decline of coal prices in global market also reduced coal production volumes from illegal coal mines. As a result, operations of these illegal coalminers had to be shut down because the market price was reduced to below the production cost.

#### Banpu Strategies

In 2016, PT. Indo Tambangraya Megah Tbk (ITM), Banpu's subsidiary in Indonesia produced a total of 26 million tons of coal from its 5 coalmines. Some coal was shipped directly from each particular mine to customers, while the other coal from several sources got blended to certain quality in accordance with customer requirements. Additionally, high quality coal was purchased from external coal miners to improve the Company's coal quality, enhancing our coal quality to meet the market needs. With these strategies, ITM coal products have more value-added and help reduce environmental impacts during the usage.

Our Indonesian coal was contributed to customers in Indonesia and exported to oversea customers including the coal-fired power plants in Japan, Taiwan, China, India, Malaysia, the Philippines, and several countries in Europe. Most of them are large and reliable public companies with large demand of coal annually, strict and transparent process of coal producer selection to get coal producers with strong reliability and consistency on coal delivery. Last year, the Company managed to sell 86 percent of its total sales to these customers. And the remaining was contributed to customers in other industries such as cements, papers, metals and textiles, etc.



## Coal Business in Australia

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### Challenges and Opportunities

Australia is one of global leading countries with the biggest coal reserves, especially across the eastern seaboard states of New South Wales and Queensland where high sub-bituminous and bituminous quality black coal is prevalent. There are over 100 operating mines and several mines under expansion projects in various stages of development. The country is premium coal exporter for steel industry and also the world leading thermal coal producer. Additionally, the Newcastle Port in New South Wales is the largest coal export center of the country.

### Banpu Strategies

To strengthen our financial status, one of the key factors for business sustainable development, Centennial Coal Company Limited (Centennial), Banpu's subsidiary in Australia, has commitment to maintain balance of sales portfolio between domestics and export markets. Presently, Centennial manages to sell 60 percent of its coal to the domestic market and 40 percent to the export market. Centennial's domestic market sales contracts are negotiated and settled long term in advance. This affected the Company to a high degree of business security for substantial portion of its outputs. In addition, its domestic customers are mine mouth power stations, for which Centennial has extensive delivery infrastructure, including private hauling roads and belt conveyor. This helps reduce the possible impacts on environment and society as well the transportation cost.

Centennial's customers in the export market are mainly in Asia, namely Japan, Taiwan and Korea where higher quality Australian coals are blended with lower quality coal sourced from elsewhere to achieve the blended prices and qualities. Centennial's coals are delivered to the coal terminal via trains before exporting to overseas customers. To maintain its competitive advantages, Centennial has continuously improved its export infrastructure, for example, an upgrade of Lidsdale Siding train loading facility to provide state-of-the-art technology and increase access for its western mines to export markets. Centennial's coal transport infrastructure and its proper geographic locations led the Company to be the coal producer with ability to supply coal qualities that meet customer's needs.

## Power Business in China

### Challenges and Opportunities

The power generation industry in China has grown upon demand from both industrial sector and domestic consumption. Eventhough, the electricity consumption in some certain periods decreased due to a decline in economic growth, the electricity consumption in China has continually increased. Due to air quality problem caused by the industrial sector in China, the Chinese Government has laid several stringent policies on pollution from the industrial factories and power generation stations by announcing new emission standard for power plants in 2011, effective in July 2014. As a result, any power plants that fail to improve their production process to comply with the new emission standard have to shut down their operations.

### Banpu Strategies

To effectively manage our production, the Company has continuously improve the emission control system to remove sulfur dioxide and nitrogendioxide gas as well as dusts. This is to ensure that the air quality emitted from the Company's power plants is better than that of the government's standards and inline with the international ones. As the Company's combined heat and power plants have power generation efficiency higher than other power stations with standardized emission control system, the Chinese Government has given them sole distribution rights for selling steam and heat in permitted areas. The plants have also been given the inclusive privileges in supplying power to local energy authorities with secured prices. The main products from the combined heat and power plants include electricity, heats and cooling water. The electricity is directly transmitted to customers via the national grid operated by the government. The heats are distributed to customers who are industrial factories and households in the form of steam during summer via both underground and surface pipelines. Meanwhile, the cooling water is distributed to customers such as hotels, supermarkets, hospitals and households during summer through the same pipeline as hot water.

To manage the production costs and increase competitive advantages, the Company manages its business to be inline with market opportunities. In winter, when demand of steam is high, we dedicate our full capacity to produce and distribute electricity and steam. During other times when the need for both power and steam is low, we will shift our focus to increase production efficiency to reduce production costs. These strategies help us achieve both production and sales targets.

In 2016, the Company invested in several solar power plants in China with a production capacity of over 140 MW. The aim is to increase investments in renewable energy, which is one of the strategies for power business investment.



## Coal Business in Mongolia

### Challenges and Opportunities

Mongolia has abundant coal resources, both thermal and high quality coal for steel industry. Mongolia also has a rapid development of infrastructure. It has geographic advantage that supports exporting coal to the nearby markets such as China where high energy demand is necessary for the country's development.

### Banpu Strategies

Hunnu Coal Limited (Hunnu), a subsidiary of Banpu in Mongolia, is under a feasibility study of Coal to Liquid (CTL) research and development project at Tsant Uul to test the Coal to Coal Tar production in order to add values to its products and reduce transportation cost. Furthermore, Hunnu also studies the geological structure and environmental impacts possibly caused by its coal operational projects such as the biodiversity impacts in preparation for mine planning and operations in the future.

## Power Business in Japan

### Challenges and Opportunities

After the Fukushima nuclear power plant disaster in March 2011, Japan reviewed its energy policy and set the new energy framework by focusing on renewable energy. The goal of renewable energy was presented in August 2011 with an aim to reduce the import fuels from overseas, strengthen national competitiveness and promote domestic renewable energy industry. The Japanese renewable energy goals included electricity generated from solar, wind, hydroelectric, geothermal and biomass.

On 1 July 2012, the Japan Government introduced a Feed-In-Tariff (FIT) scheme for the first time. Under this scheme, Japanese regional utilities must purchase electricity from renewable energy sources at a fixed rate for a certain period of time depending on types of energy sources. Practically, the procurement FIT price and procurement period are determined and announced annually by Ministry of Economy, Trade and Industry (METI).

Following the announcement of FIT scheme from the government, the renewable energy has been promoted and expanded across Japan. As a result, the solar power has the highest expansion, leading Japan to be the world second fastest growth in solar energy (after China but higher than the U.S.) since 2013. The solar power with the highest growth is mega solar segment (above 1 MW), matched with Banpu's strategies.

### Banpu Strategies

With our strategic direction to increase investment in power business especially renewable energy, the Company has invested in various solar projects (with a production capacity over one MW) after the Japanese government had introduced the FIT scheme. Some of these solar projects are under operations while the others are under study and construction across Japan. The electricity generated will be transmitted directly to national grid operated by the government.



# Sustainability Governance

“An industry will be vigorous only when it is developed in tandem with social and environmental responsibility.”

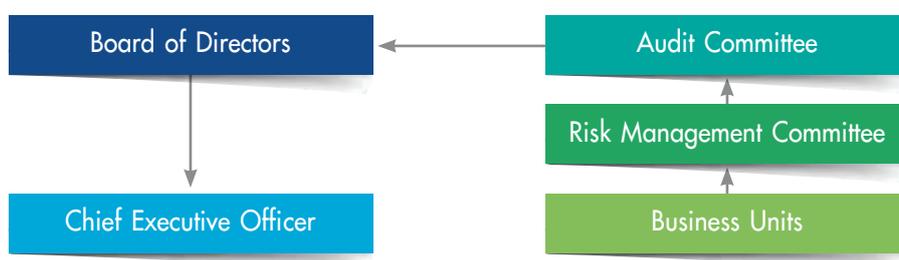
According to its business credo, the Company has laid a foundation of management aiming to balance economy, society, and environment by integrating sustainability governance into strategies and operations of the Company. Cultivating strong corporate culture that supports an implementation of sustainability can enhance business competitiveness and maximize long-term value for all stakeholders. In 2016, the Company has launched its new edition of sustainable development policy and 5 year-plan (2016-2020) of sustainability governance to raise standard, strengthen and secure guidelines of sustainability governance in all the Company's investment areas.

## ► Strategies to drive Sustainability Governance



## Sustainable and Strategic Integration

Banpu drives sustainable development by integrating sustainability governance into its management strategies. Each business unit conduct a risk assessment on economic, social and environment dimensions that affect sustainability performance of the Company and related stakeholders. The assessment results are reported to the Risk Management Committee, the Auditing Committee, and the Board of Directors, respectively. Later, the Board of Directors consider those risks to specify strategies of the organization, as well as recommend appropriate operational guidelines for sustainability governance in various areas to the Chief Executive Officer to execute according to the strategic plan set.

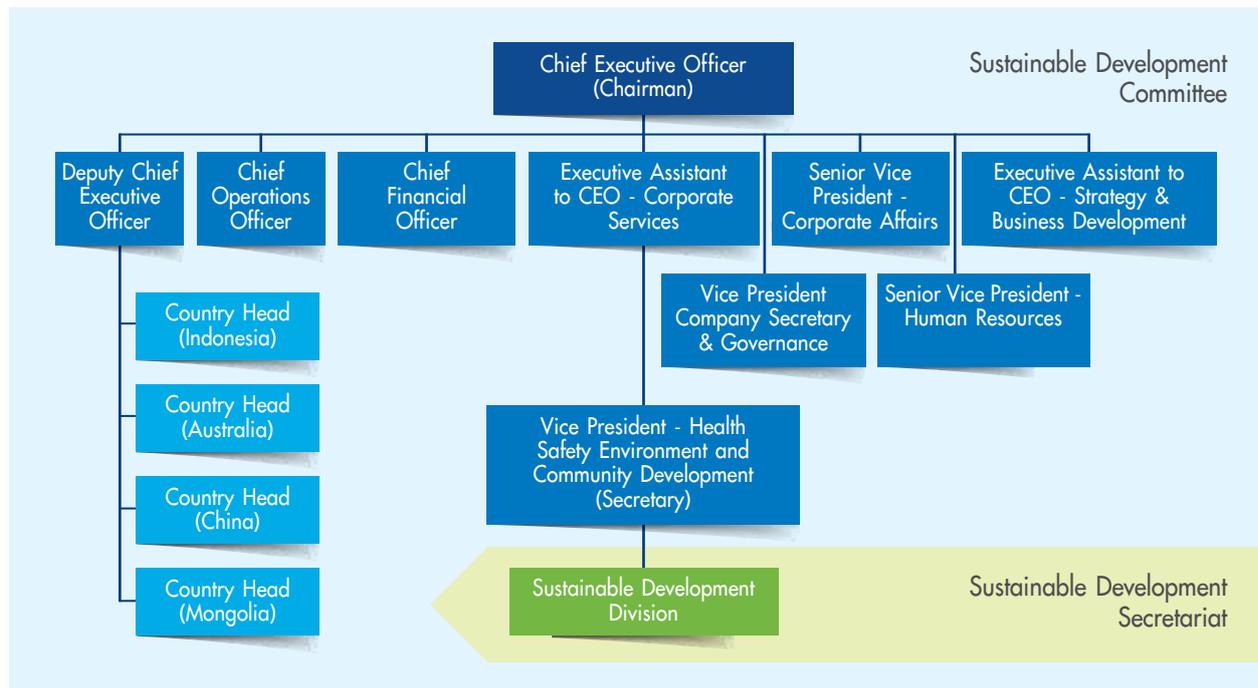


### Sustainable and Operational Integration

The Board of Directors has a policy to form Sustainable Development Committee chaired by the Chief Executive Officer, one of the board members. Respectively, members of the Sustainable Development Committee consist of senior executives and heads of business units in the countries the Company has invested to achieve the highest efficiency in driving sustainability governance in a strategic and practical manner, as well as ensuring the stakeholders that sustainable development is the “heart” of every operation of the Company.

The Sustainable Development Committee meeting is held annually to review and evaluate the sustainability performance of all business units in compliance to the sustainability management strategy, including review of stakeholder analysis and material issues. Consequently, the results are analyzed along with the guidelines and policies recommended by the Board of Directors to set policies, management standards or additional guidelines to support the sustainability and maximum benefit of stakeholders in the following year.

With a vision of being “The Asian Face of Energy” and a global sustainable energy company, the Company applied both national and international principles, for example, UN Global Compact, UN Sustainable Development Goals (SDGs), UN Guiding Principle on Business & Human Rights, to ensure that its sustainable development meets the international standard and is recognized by all stakeholders.



### Sustainable and Cultural Integration

The Board of Directors and management realize the importance of strong corporate culture. The strategic goals as well as operational targets are unlikely to be attained without the corporate culture that supports the growth of sustainable development. For this reason, “Banpu Spirits”, corporate culture which consists of four core values: Innovation, Integrity, Care and Synergy, are key elements to drive the Company.

## Evaluation of Sustainable Development Operations

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To review and evaluate the progress of sustainability governance, as well as to drive the Company's sustainability governance to success, the Company has annually established Key Performance Indicators (KPI) as well as Single Year and Long Term Targets in regards to the sustainability. The Sustainability Performance Indicators and the Targets are used to evaluate compensation for management in every business unit.

### Evaluation and Compensation of the Chief Executive Officer

The Remuneration Committee is responsible for evaluation and compensation of the Chief Executive Officer. The evaluation is based on the operational performance of the Company, work performance of the Chief Executive Officer, and the survey result on executive salary scale adjustment and compensation from other companies in similar business. However, indicators of the Chief Executive Officer's work performance have been specified by joint consideration of the Board of Directors and the Chief Executive Officer, which covers operations to achieve business goals, along with social and environmental objectives. Regardless, the approval of the Remuneration Committee will be submitted to the Board of Directors for further approval.

### Evaluation and Compensation of the Senior Management

In addition to specifying salary based on job value system and market data comparisons to design a payroll structure for employees at the senior management level, the Company has set an adjustment of salary increase for executives based on evaluation of individual KPI and behavioral assessment, including short-term and long-term goals which cover business, society and environment as a common goal of sustainable development. The Chief Executive Officer assigned those goals, therefore, the executives of each line of operation apply company's objectives to their management for sustainability achievement.

## Disclosure of Sustainable Management Results

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For transparency in sustainability governance, the Company reported its performance through Sustainability Report. The current Sustainability Report is in its 6th edition. Moreover, the Company reported operational results on sustainability to the Stock Exchange of Thailand, and also participated in the sustainability assessment conducted by independent organizations such as Robeco Sustainable Asset Management (RobecoSAM) and CDP in order to unveil the company's sustainability strategy and performance to the Stakeholders. Still, the Stakeholders and interested parties can follow-up on the evaluation from the website of the Stock Exchange of Thailand and related organizations.



## Sustainability Recognition

### International Sustainability Recognition

In 2016, the Company was assessed by Dow Jones Sustainability Indices or DJSI, a global index that tracks the performance of leading companies, referred by various investment funds. To be in the indices, DJSI selects top 10 percentile in each industry group out of more than 2,500 listed companies worldwide based on market capitalization and sustainability performance. The sustainability assessment cover economic, environmental and social criterion. DJSI member list is annually reviewed and announced in every September. As a result of the 2016 assessment, the Company made it to be a member of DJSI on the Emerging Market for the third consecutive year and remains the Gold Class and Industry Mover in the Coal & Consumable Fuels sector on the RobecoSAM Sustainability Leader assessment.

### National Sustainability Recognition

In 2016, the Company was awarded the SET Sustainability Award in the group of companies with a market capitalization between THB 30-100 billion and also listed by the Stock Exchange of Thailand for the second consecutive year as one of the companies in Thailand Sustainability Investment List. This refers to a group of companies with outstanding performances based on the balance between economic, social and environment as well as the good corporate governance.

Furthermore, the Company's Sustainability Report has been selected as an outstanding sustainability report by participating in the 2016 Sustainability Report Award Recognition recognized by the Securities and Exchange Commission (SEC), the Thai Listed Companies Association, the CSR Club and Thaipat Institute which aims to promote and enhance high quality of sustainability report.

MEMBER OF

**Dow Jones  
Sustainability Indices**

In Collaboration with RobecoSAM



**ROBECOSAM**  
Sustainability Award  
Industry Mover 2017



**ROBECOSAM**  
Sustainability Award  
Gold Class 2017



# Stakeholder Engagement

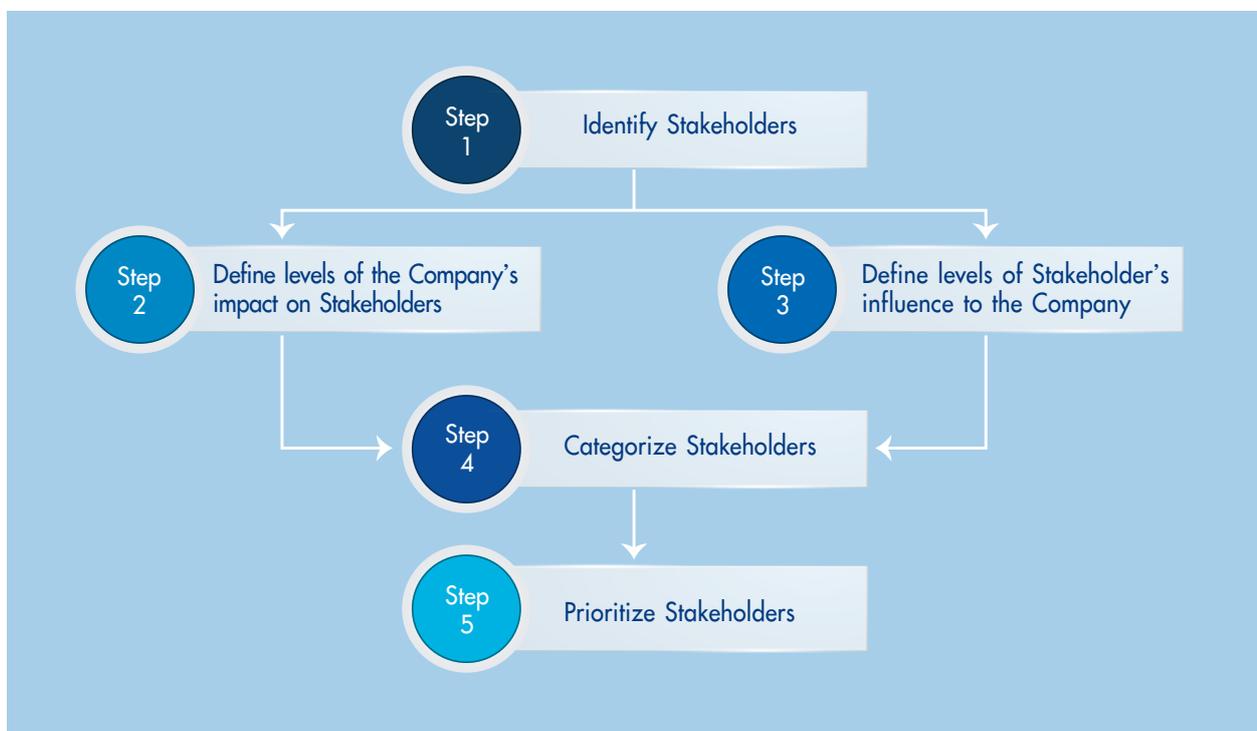
The Company ultimately emphasizes on stakeholder engagement and believes that “respect”, “understand” and “respond” to needs, opinions and concerns of the stakeholders will lead the Company to achieve the goal of being an organization with sustainable growth together with maximizing every stakeholder’s benefits. Therefore, in the past year, the Company has developed a Management Framework: Stakeholder Analysis as a guideline to integrate all stakeholders’ viewpoints into organization’s strategies. The framework was developed based on AA1000 Stakeholder Engagement Standard (AA1000SES) and follows 3 key principles:

**1. Inclusivity** - The Company realizes the significance of stakeholder engagement as a part of driving organizational sustainable development.

**2. Materiality** - The Company values needs, opinions and concerns of the stakeholders, which are significant to operations and impacts on the stakeholders.

**3. Responsiveness** - The Company manages key issues related to the Company and the stakeholders, as well as conveys the results of such operation to the stakeholders.

## Stakeholder Analysis



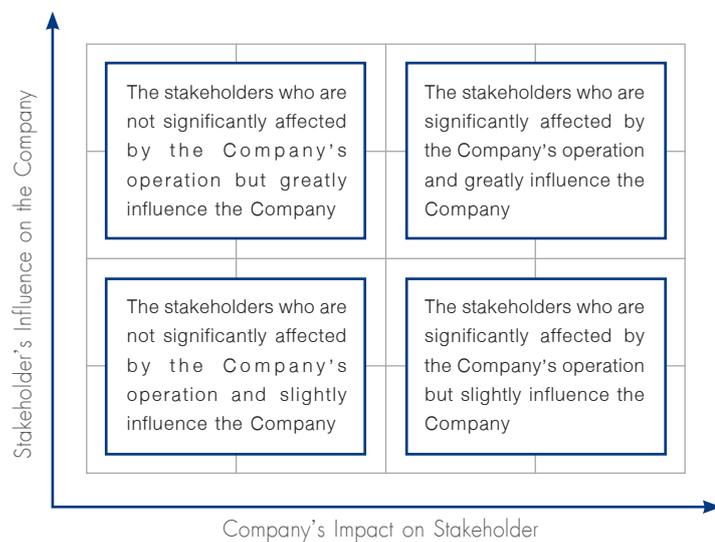
**1. Identify Stakeholders:** At each business unit, the stakeholders what could be affected by or have significant influence to the Company's activities are identified by considering various dimensions, for example, dependency, responsibility, influence. Reviews from each business unit would be gathered and analyzed to specify the organizational stakeholders.

**2. Define levels of the Company's impact on Stakeholders:** The Company evaluates levels of organization's impact on stakeholder, based on economy, society and environment.

**3. Define levels of Stakeholders' influences to the Company:** The Company evaluates levels of stakeholders' influences to the Company, based on finance, business licenses, reputation, benefit and operational strategies.

#### 4. Categorize Stakeholders:

The Company categorized the stakeholders into four groups based on the levels of impact and levels of influence.



**5. Prioritize Stakeholders:** The stakeholders are prioritized based on the Company's standard, as well as the engagement methods for each stakeholder, for example:

- Inform, such as electronic news, website publication and the Company's fact sheets.
- Inquiry and Opinion Acceptance, such as survey, interview and focus group.
- Consultation, such as workshops, co-research on various issues.
- Collaboration, such as stakeholder visioning on various issues.



Stakeholders	Examples of Engagement Methods	Stakeholder's Expectations	Banpu's Material Issues
• Supplier/ Contractor	- Regular meetings between contractors/ suppliers and the Company	- Safe and healthy work environment	- Occupational Health & Safety
	- Annual Executive Mine Contractor Meeting	- Fair and transparent procurement process - Reasonable wages and on-time payment - Job opportunities	- Supply Chain Management
• Community	- Constant communication with community via Community Development Officers (CDO)	- Social and environmental impact management	- Climate Change - Biodiversity and Land Management - Air Emissions - Water Management - Waste Management
	- Constant communication with community via Community Consultative Committees (CCC)	- Safety in life and residence - Respecting human rights	- Community Engagement
	- Community visits on various occasions	- Community wellbeing	- Community Development
	- Coordination with local authorities and related institutions - Community Satisfaction Survey - Complaint channels	- Community development	
• Investor • Shareholder • Creditor • Business Partner	- Annual General Meeting of Shareholders	- Professional Board of Directors and Management	- Corporate Governance
	- Board meetings at subsidiary and associated companies	- Value creation for society and environment	- Sustainability Governance
	- Opportunity Investment Road shows	- Transparency	- Business Ethics
	- Occasional visits to report Company's performance	- Risk Management	- Risk & Continuity Management
	- Publication of annual report and other reports	- Innovation, Operational excellence	- Operational Excellence
	- Complaint channels	- Reputation	- Awards & Recognitions
		- Economic growth and economic performance	- Performance Data
• Employee	- Communication channels between Human Resources and employees, such as e-newsletters and meetings with other departments, etc.	- Strategy and direction of organization	- Challenge and Opportunity
	- Complaint channels	- Business ethics and responsible business practices	- Business Ethics
	- Employee involvement in committees	- Happiness in workplace - Reasonable wages and benefits - Job stability	- Employee Management
	- "Banpu Spirit" behavioral surveys	- Opportunities for career advancement and development	- Human Capital Development
	- Employee Engagement Survey - Town Hall Meeting	- Safe and healthy work environment	- Occupational Health & Safety

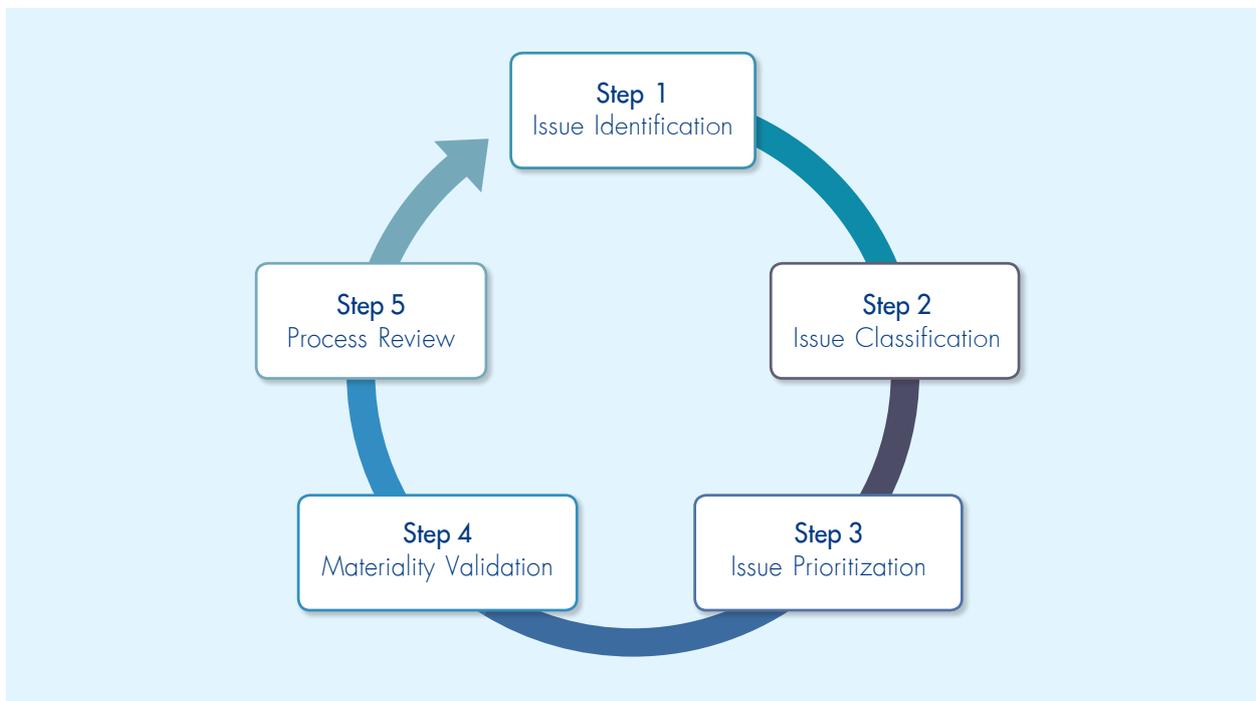
102-40  
102-42  
102-43  
102-44

Stakeholders	Examples of Engagement Methods	Stakeholder's Expectations	Banpu's Material Issues
<ul style="list-style-type: none"> <li>• Government</li> <li>• Regulatory Body</li> </ul>	<ul style="list-style-type: none"> <li>- Occasional visits to government agencies</li> <li>- Support to governmental initiatives/ activities</li> <li>- Response to requests for information disclosure or reports</li> <li>- Publication of annual report and sustainability report</li> <li>- Opportunity Investment Road shows</li> <li>- Analyst Meeting</li> <li>- Presentation on Opportunity Day organized by the Stock Exchange of Thailand</li> </ul>	- Value creation for economy and society	- Sustainability Governance
		- Business ethics	- Business Ethics
		- Transparency and reporting	
		- Compliance with laws, rules and regulations	- Risk & Continuity Management
		- Maximisation of natural resources	- Operational Excellence
		- Supply chain management	- Supply Chain Management
- Social and environmental impact management	- Climate Change - Biodiversity and Land Management - Air Emissions - Water Management - Waste Management - Community Engagement		
<ul style="list-style-type: none"> <li>• Media</li> <li>• Civil Society</li> </ul>	<ul style="list-style-type: none"> <li>- Response to requests for information disclosure or reports</li> <li>- Publication of annual report and sustainability report</li> </ul>	- Value creation for economy and society	- Sustainability Governance
		- Business ethics	- Business Ethics
		- Transparency and reporting	
		- Compliance with laws, rules and regulations	- Risk & Continuity Management
		- Maximisation of natural resources	- Operational Excellence
		- Supply chain management	- Supply Chain Management
- Social and environmental impact management	- Climate Change - Biodiversity and Land Management - Air Emissions - Water Management - Waste Management - Community Engagement		
<ul style="list-style-type: none"> <li>• Customer</li> </ul>	<ul style="list-style-type: none"> <li>- Customer satisfaction surveys</li> <li>- Channels for customer feedback on quality, quantity, and safety of products and services</li> <li>- Customer visits</li> <li>- Response to customers' requests for product information disclosure or reports</li> </ul>	- Quality and price of products	- Supply Chain Management
		- On-time product delivery	
		- Impact of products and productions towards society and environment	- Climate Change

# Materiality Assessment

The Company has identified sustainability issues that are matter to our business and stakeholders (material issues) by using the corporate guideline called Management Framework: Materiality Assessment. The framework was developed based on Global Reporting Initiative (GRI) and AA1000 AccountAbility Principle Standard (AA1000APS). The outcome of this assessment are material issues which could affect to sustainability performance comprising economic, social and environmental dimensions with consideration of Impacts to Organization and Impacts to Stakeholders.

## Process of Materiality Assessment



### 1. Issue Identification:

The topics, expectations or concerns by each stakeholder are gathered by using various techniques based on the Management Framework: Stakeholder Analysis. This includes the sustainability issues that international organizations pay attention to. The issues identified can be both positive and negative impacts on the Company and key stakeholders.

### 2. Issue Classification:

Due to the fact that issues identified from each stakeholder in the first step may be similar, the Company has categorized such issues as a group in compliance with three sustainability dimensions, namely, economic, social and environment. This will lead to the development of management approach for each issues.

### 3. Issue Prioritization:

For each relevant issue, its degree of important is evaluated by related functions based on 2 sides of impacts; Impact to the Company and Impact to Stakeholders. The Company has set criterion to measure the levels of impact covering economic, social and environment dimensions. The issues are categorized into three levels; Material Issue, Concerned Issue, and Immaterial Issue. In addition, the management approach and communication channel for each level of issues are also recommended in this framework. For example, the disclosure of management approach, performance indicators, goals & targets in Sustainability Report and Annual Report are recommended for Material Issue.

### 4. Materiality Validation:

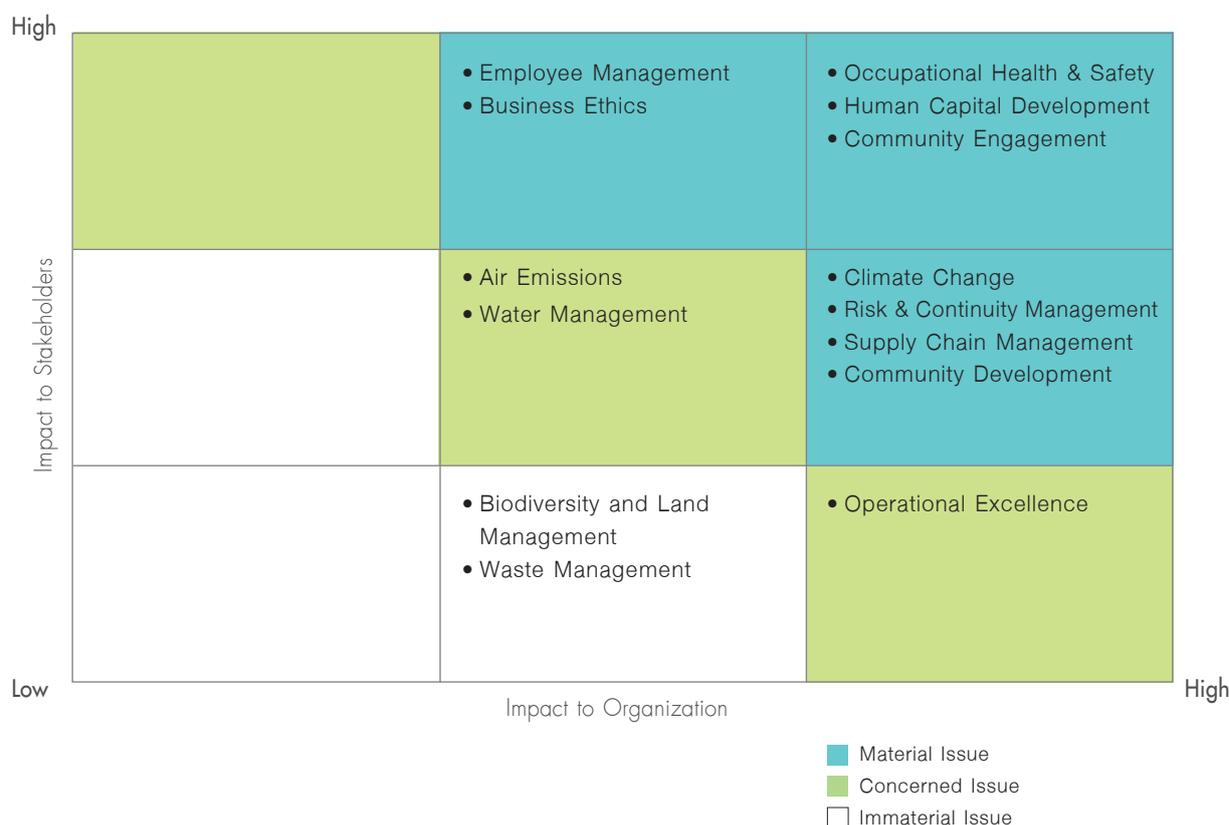
To ensure the quality of the outcomes, result of materiality assessment are reviewed and approved by the Sustainable Development Committee before communicate to all related stakeholders.

### 5. Process Review:

To ensure that the process of materiality assessment of the Company responds to the expectations and concerns of the stakeholders, the Company offers all stakeholders opportunities to express their opinions through its various communication channels. The related functions are assigned regularly to collect any suggestions from the stakeholders, and present to the Sustainable Development Committee for improvement.

## Materiality Assessment Results

The sustainability issues are categorized into three levels of importance according to diagram below:



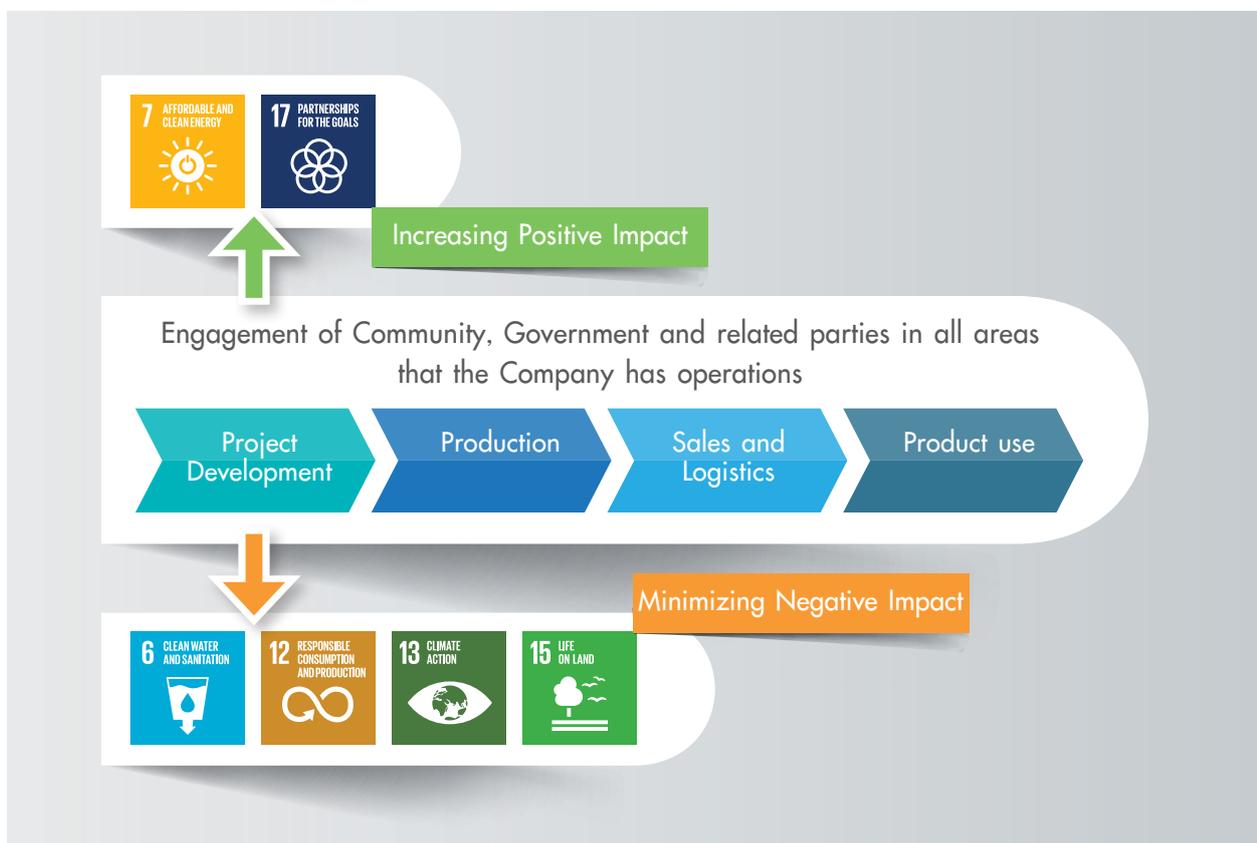
# Banpu and Sustainable Development Goals

The aim of United Nations announcement of 17 Sustainable Development Goals (SDGs) is to respond to problems and challenges resulted from global change trends. This includes developing a balanced sustainable growth among economics, environment and society. As one of the leading energy companies, which has its business base in various countries, Banpu has realized the importance of the private sector in driving the global sustainability to achieve its goals. As a result, in 2016, the Company studied the UN SDGs and has integrated them into its short-and long-term corporate strategies.

## Prioritizing Sustainable Development Goals

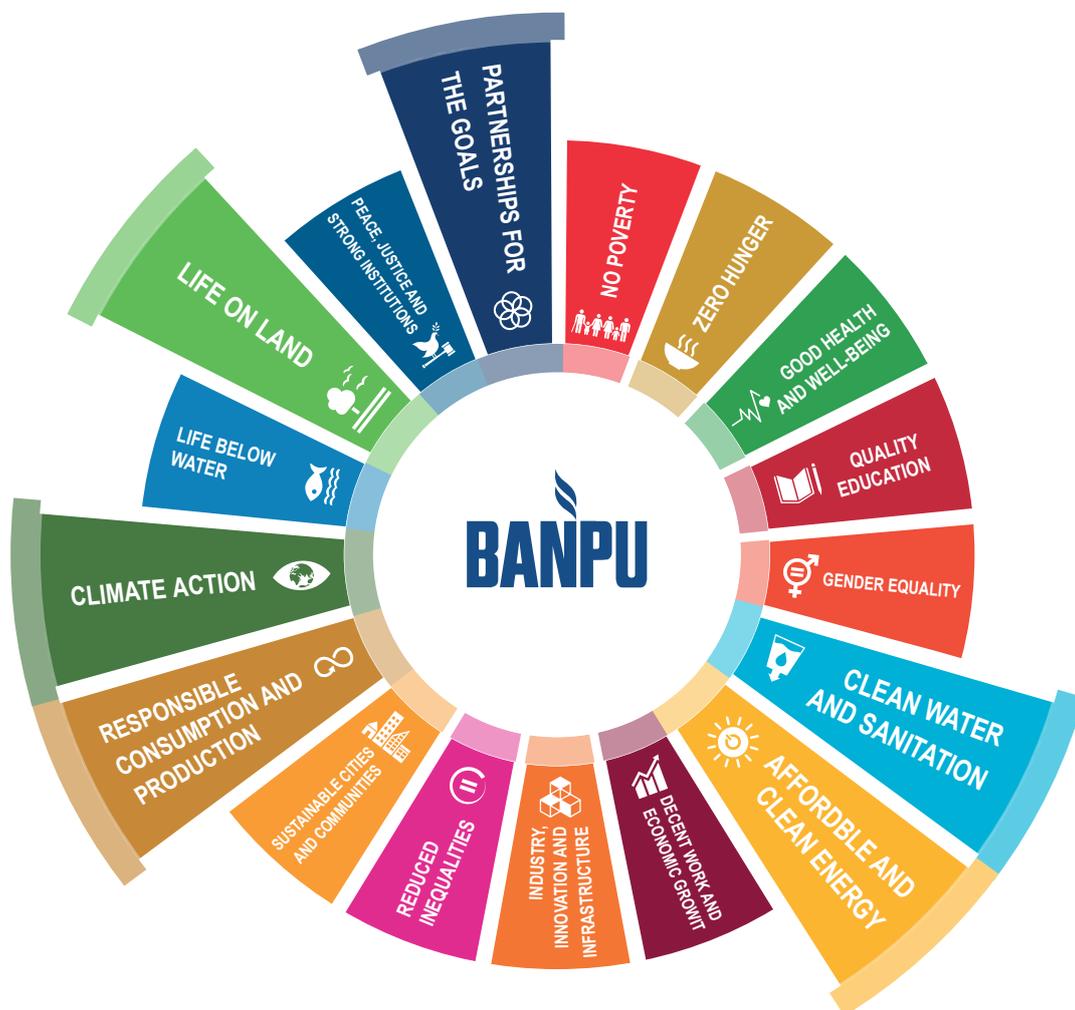
The Company has paid great attention to achieve the 17 goals of UN sustainable development by 2030. For the utmost efficiency in driving these SDGs, the Company initially prioritized them so as to select the ones that can be integrated into the Company's business strategies. The integration will be made through assessment of the company's value chain

covering two aspects. The first aspect consists of SDGs that help increase positive impacts from the Company's business while another aspect includes the ones that help reducing negative impacts from the Company's operations. In addition, the Company has also taken into account the main objectives related to economics and society throughout the value chain.



## Setting Goals and Integrating SDGs into Company's Businesses

For the maximum efficiency in driving sustainable goals, the Company has set its business goals to be inline with the SDGs. The short-term goal will range from one year to five years (from 2016-2020) while the long-term goal will be the same period as that of the UN framework. The goals set by the Company will be integrated into our business plan through key performance indicators (KPI) of various relevant parties ranging from management level to department level as well as persons involved. This is to ensure that all Banpu's involved parties are ready to achieve the international sustainable development goals in parallel with Bapu's business growth and stakeholders' utmost benefit.



United Nations		Banpu		
Goals	Targets	Sustainable Issues	Goals	Driving Tools
<b>Goal 7</b> 	7.2 Increase substantially the share of renewable energy in the global energy mix  7.a Enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in clean energy	Operational Excellence Development	<b>By 2025</b> - Increase power generation capacity to 4,000 MW by 2025 by using the High Efficiency, Low Emissions (HELE) technology with more than 20 percent of renewable energy	- The operational excellence policy - The 5-year strategic plan
<b>Goal 6</b> 	6.3 Improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials as well as substantially increasing recycling and safe reuse of water  6.4 Substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	Water Management	<b>By 2019</b> - Develop a baseline for water utilization and water quality at all current operations - Develop corporate and site-specific water targets - Review water related risks at all business units - Engage with local community, academics and relevant stakeholders to study and improve the Company's water management efficiency  <b>By 2030</b> - Decrease the pollution load of wastewater - Improve our water intensity performance - Reduce water footprints throughout the supply chain - Contribute to conserve and manage water resources in operational areas	- Water policy - Mine water management standard - Tailing management standard - Acid Mine Drainage (AMD) procedure
<b>Goal 12</b> 	12.2 Achieve the sustainable management and efficient use of natural resources			
<b>Goal 13</b> 	13.2 Integrate climate change measures into national policies, strategies and planning	Climate Change	<b>By 2020</b> - Reduce greenhouse gas emissions by 25% for coal business and 15% for power business	- Carbon policy - Greenhouse gas reduction targets for coal and power businesses

United Nations		Banpu		
Goals	Targets	Sustainable Issues	Goals	Driving Tools
<b>Goal 15</b> 	15.1 Ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater 15.2 Promote the implementation of sustainable management of all types of forests 15.5 Halt the loss of biodiversity and protect and prevent the extinction of threatened species	Biodiversity	<b>By 2020</b> <ul style="list-style-type: none"> <li>- Biodiversity risk assessment at all operational sites</li> <li>- Integrate biodiversity issues into all coal mining stages (pre-mining, mining and mine closure)</li> <li>- Support and collaborate in biodiversity studies</li> </ul> <b>By 2030</b> <ul style="list-style-type: none"> <li>- Achieve a net positive impact on biodiversity</li> </ul>	<ul style="list-style-type: none"> <li>- Biodiversity policy</li> <li>- Biodiversity risk management standards</li> </ul>
<b>Goal 17</b> 	Emphasize collaborations for sustainable development in areas where companies operate businesses	Community Development	<b>By 2020</b> <ul style="list-style-type: none"> <li>- Build awareness and understanding of the SDGs for employees and communities</li> <li>- Integrate the SDGs into community development projects in six areas including:               <ol style="list-style-type: none"> <li>1. Economic development and revenue generation</li> <li>2. Education development</li> <li>3. Infrastructure development</li> <li>4. Primary health care and hygiene development</li> <li>5. Environmental conservation</li> <li>6. Social, culture and community relations promotion</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>- Community development policy</li> <li>- Community development standard</li> <li>- Mine closure management standard</li> </ul>



# Economic

Revenues  
**2,259**  
USD million

**Zero**  
Significant CG  
Complaints



**20%**

Renewable Energy in Power  
Portfolio by 2025

**1**

Contractor Fatality  
in Indonesia

Value Creation

**76,233,504 USD**

From Innovation Program



# Business Ethics



Business ethics is an important and interesting issue at international level. Business operation without “ethics” and only focusing on maximum benefit would have direct and widespread impacts on sustainable development including key stakeholders in terms of economy, society and environment, for example, any actions against human rights, tax evasion or natural resources destruction that affects well-being of people in society. In this connection, domestic and international laws, nowadays, would put more emphasise on strengthening business ethics, legal compliance and transparency of business operation.

With a determination of sustainable development of economy, society, and environment, Banpu as an international energy company, realizes the importance of “ethics” in conducting business, and strictly follows all rules and regulations to maintain its ethics standards. As a matter of fact, strong corporate ethics can reduce risks of business damages, and extend the business opportunities from cultivation of trust among investors, as well as maximize benefit for the stakeholders. However, to prevent risks and to support performance of the Board of Directors, executives, and employees and all of its subsidiaries to work according to good corporate ethics standards, the Company has developed “Code of Conduct” with details as follows:

## Business Ethics

	<b>Indicator</b>	<ul style="list-style-type: none"> <li>• The proportion of significant CG complaints being considered.</li> <li>• The proportion of CG complaints considered as significance to be resolved</li> </ul>
	<b>Target</b>	<ul style="list-style-type: none"> <li>• All of significant CG complaints being considered</li> <li>• All of CG complaints considered as significance to be resolved</li> </ul>
	<b>Management Approach</b>	<ul style="list-style-type: none"> <li>• Managing in accordance with Banpu's sustainable framework regarding Banpu's Code of Conduct</li> </ul>
	<b>Performance</b>	<ul style="list-style-type: none"> <li>• None of CG complaint was filed in 2016</li> </ul>



### ► Commitment

Banpu has operated and will operate its domestic and international business with ethics and loyalty. The Company commits to conducting business in a professional, fair and integrity manner. This practice includes all types of anti-corruptions to ensure and secure our stakeholders a fair treat by the Company in all aspects including economy, society and environment.

### ► International Standards and Internal Policies

To operate business with a fair manner, the Company as an international organization has followed to the international criteria and referred to business conduct practices in different countries to apply to ethics management of the organization. Criterion and standards that the Company takes as a guideline for business ethics management include:

- CG ASEAN Scored Card of ASEAN Capital Market Forum

- The principles of corporate governance by the Organization for Economic Co-operation and Development (OECD)
- The Securities and Exchange Act
- Policy Statement on Code of Best Practices of Directors of Listed Companies
- The principles of good corporate governance by the Stock Exchange of Thailand (SET) and the Securities and Exchange Commission (SEC)

As a result of awareness in the significance of corporate ethics standards setup within the organization, the Board of Directors has issued the Corporate Governance Policy and the Code of Conduct in Thai, English, Indonesian and Chinese, to ensure that each employee in all areas understands and adheres to the same ethics standard. Furthermore, to maintain maximum benefit for the stakeholders and to build confidence in the Company's adherence on "business ethics" in running all the company's activities, policies and more corporate guidelines have been initiated including:

- Corporate Compliance Policy
- Human Resources Policy
- Corporate Social Responsibility Policy
- Environmental Policy
- Sustainable Development Policy
- Human Rights Policy
- Whistleblower Policy
- Tax Management Approach

#### ► Action

For maximum efficiency of risks prevention and a stability of corporate ethics within the organization, the Board of Directors has designated the Audit Committee to review and audit the adequacy and appropriateness of the internal control system related to Banpu's risk management. The Company has reviewed the internal audit system in accordance with the Committee of Sponsoring Organizations of the Treadway Commission (COSO) standard since 2013. Such system emphasizes on adherence of honesty, ethical values, responsibilities of the Board of Director, organizational structure and management authorities, employee's commitment to self-development and responsibilities, risk assessment of anti-corruption from business operation, communications and control systems as well as monitoring and reporting.

#### Conflict of Interests

The Company has a clear business policy, based on integrity, transparency, fairness, value maximization for involved and not involved parties, in any activities that may cause conflict of interest. The Company, therefore, take it as a very important policy allowing committee, executives and employees not to exploit information or opportunities obtained from being in such positions for their personal interest, conduct business as a competitor of the Company or disclose inside information for their own or others' personal interest in buy/sell the Company's stocks.

In case that executives or employees of the Company participate in any special project related to strictly confidential information and under negotiation process, especially internal information not yet disclosed to the public or any data or information that may affect the business of the Company or its share price, they must sign the Confidentially Agreement until such information is released to the Stock Exchange of Thailand and the Securities and Exchange.

#### Declaration of Anti-Corruption Policy

To conduct concrete anti-corruption actions in accordance with the Company's intention as a certified ally of the Private Sector Collective Action against Corruption (CAC), Banpu strictly complies with legal practices and good corporate governance policy. Additionally, the Company has also developed the preventive measures of possible risks on corruptions occurred either intentionally or unintentionally or even by lack of understandings about such practices. Other than the anti-corruption contents in the Good Corporate Governance policy and the Code of Conduct, Banpu issued the Anti-corruption policy in 2015 approved by the Audit Committee and its Board of Directors. After the Anti-corruption policy was announced, it has been implemented in all areas of business where the Company has more than 50 percent investment and have right to control.

### Giving and Receiving Bribes

According to the Company's Code of Conduct on giving and receiving bribes, executives and staff are strictly prohibited from offering and receiving any benefit from business partners, contractors, product handlers, consultants and any parties doing business with the Company. Moreover, executives and staff are also strictly prohibited from offering any interest to government officers, customers, labor unions or any other external parties in any attempt of persuasions to commit fraudulent actions. In relation to issues on donating fund to support political activities, the Company counts such donation to support political activities that are complied with laws and ethical principles as well as regulations, as charity donation, similarly.

### Transparency of Tax Payment

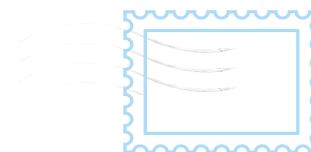
In the previous year, the Company announced the Tax Management Approach with an aim to reinforce its commitment to be a "good corporate citizen" in every country where it has business operation. The Company has adhered to work transparently and in compliance with the laws, with due regard to right taxation and continuous disclosure of tax information. However, to maximize the efficiency of tax administration according to laws and regulations, the Company regularly conducts tax risk assessment.

### Complaint Handling Process

In 2015, the Company announced and implemented the "Whistleblower Policy" in order to make it as a platform for the stakeholders to file complaints related to any wrongdoing of the company against the laws, rules and regulations, corporate governance policy and code of conduct. The company will treat all such disclosures in a confidential and sensitive manner as well as protect the whistleblowers.

### Complaint Channels

1. Letter to Corporate Governance and Compliance Division  
Banpu Public Company Limited  
27<sup>th</sup> Floor, Thanapoom Tower,  
1550 New Petchburi Road,  
Makkasan, Ratchathewi, Bangkok 10400
2. Company website: <http://www.banpu.co.th/complaint/>
3. Company web portal: <http://portal.banpu.co.th> Corporate Governance Receiving Complaint
4. E-mail to Corporate Governance and Compliance Division: [GNC\\_Secretariat@banpu.co.th](mailto:GNC_Secretariat@banpu.co.th)



The complaints will be brought into the corporate fraud management process by the Investigative Committee. Complaints received are investigated in accordance with the guidelines of the Corporate Fraud Management Handbook. The investigation result with recommendations will be presented to the Chief Executive Officer for making decision and guiding appropriate actions. Such complaints will be also reported to the Corporate Governance and Nomination committee every quarter and will later be summarized to the Board of Directors.

## Evaluation

The Company has plans to follow up and evaluate efficiency of good corporate practices in the organization as Key Performance Indicator (KPI), the part of Behavioral Factor on Integrity, which is one of Banpu's spirit (Corporate culture). In addition, the 2016 CG evaluation results classified based on employee's levels and an operation locations were on a level of satisfactory.

## Sustainability Building

Every employee of Banpu has a mission to perform their duties according to the corporate governance policy and code of conduct with the Board of Directors and senior management as role models. To implement sustainability on good corporate governance throughout the organization, the Company continuously cultivates its corporate culture of high emphasis on ethics and morals through various activities to ensure that every Banpu employee is well aware of business ethics and anti-corruptions, for example:

- Good Governance (CG) training for new staff.
- Corporate Governance and Code of Conduct Refreshment Session for employees
- The Annual CG Day to promote the understanding of business ethics among employees
- Articles on trends and directions of Corporate Governance in Thailand and other ASEAN countries in the column "CG of the Month" in Banpu Insight, the quarterly internal newsletter distributed in countries where Banpu has investments.
- Quarterly dissemination of knowledge and interesting issues via emails to the Board of Directors, senior executives and employees.

## ► External Certification

The Company has been certified by external parties as a corporation with business conduct adhering to ethics and anti-corruption.

### Thailand

- Banpu was certified as a member of Thailand's Private Sector Collective Action Against Corruption (CAC) by Thai Institute of Directors (IOD) on 10<sup>th</sup> July 2015
- Banpu was rated "Very Good" by the Corporate Governance Report of Thai Listed Companies (CGR) in 2016

### Other countries

- Banpu Tangshan Heat & Power Co., Ltd. received the honorary title of "Major Taxpayer of 2015" and "Role Model in Ethical & Cultural Progress" from the Party Committee and People's Government of Luannan County

## ▶ Performance

In 2016, the Company received no complaints related to Good Corporate Governance from any stakeholders. The summary of complaints received was reported to the Good Corporate Governance and Nomination Committee quarterly and to the Board of Directors annually.

### CG Day Activity

CG Day is the activity organized to strengthen and cultivate business ethics and integrity, one of Banpu's corporate shared values, among Banpu employees at all levels. The CG Day was held on 9 November 2016 and participated by Banpu's executives and employees at Bangkok Office. The event was officially opened by Ms. Somruedee Chaimongkol, Chief Executive Officer.



The CG Day 2016 was organized under the theme of "CG Play your part" aiming to encourage employees to work ethically. The CG Day 2016 focused on creating understanding and engagement of Banpu's employees in fighting against corruptions according to the Company's anti-corruption policy. As part of this event, King Bhumibol Adulyadej's royal speech on honesty was quoted as a guideline for Banpu's employees to work by following the royal footsteps.



In this connection, CEO, senior executives as well as employee representatives from each business unit have made commitment to follow the same standard of anti-corruption practice.



# Risk & Continuity Management



Banpu and its group of companies emphasize the importance of risk management by reducing the likelihood of risks and/or mitigating their associated consequences in order to achieve business goals and gain business opportunities toward the creation of sustainable value for the Company together with stakeholders. In addition, since the nature of energy business relates directly to society and environment, the Company emphasizes on operating in compliance with related laws and regulations. With coal mines and power plants as our major assets in various countries, there are complexity and degree of differences in terms of laws and regulatory requirements among those countries. It is our mission to fully understand and comply with laws and regulations in each country. We are determined not to violate any laws or regulations which may bring negative impact to our organization.

Furthermore, the Company set up Business Continuing Management (BCM) as part of a contingent plan to promptly respond to crisis with the aim of ensuring that major business activities can continue smoothly with the least negative impact during and after a time of crisis, whether it is a natural disaster or a man-made one.

## Risk Management



### Indicator

- Knowledge and involvement of employees in Banpu's risk management
- Early Warning System to assess and monitor risks



### Target

- Every project, business and supportive unit conduct risk assessment and have plans for managing long-term and short-term risks
- Leverage Banpu's risk management in order to reduce the likelihood of risks, mitigate their associated consequences and gain business opportunities



### Management Approach

- Banpu's Risk Management Policy & Manual
- Integrating risk management into Banpu's 5-year strategic plan
- Integrating risk management with CEO's and senior management's key performance indicator (KPI)



For the 30-year period, risk management has always been one of the major factors that drives Banpu to success. We believe excellent and efficient risk management will make the company not vulnerable either to inner or outer threats. We also believe that excellent risk management will provide the company with possibilities to maximize profit to benefit both the Company and stakeholders. From these strong beliefs, Banpu has continually developed its risk management system. In 2012, the Company created corporate risk management guideline, known as "Banpu's Risk Management Policy & Manual".

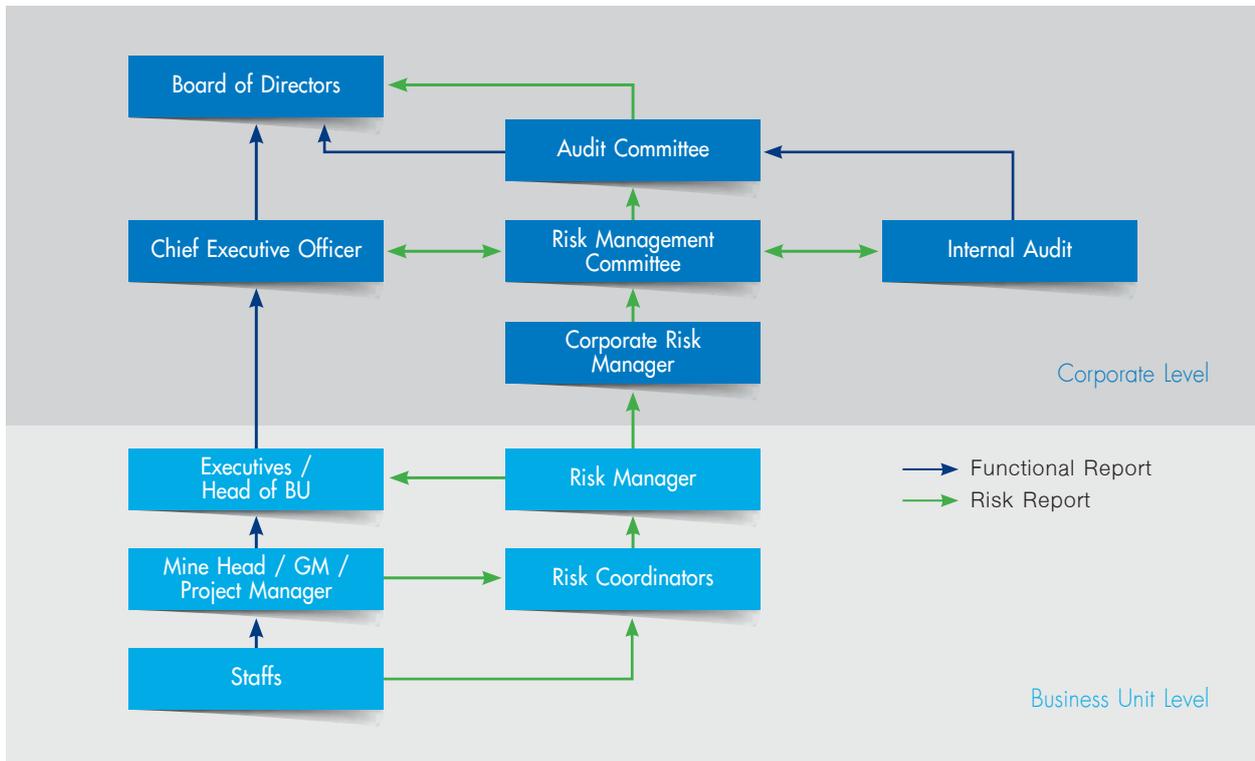
For the utmost efficient risk management, the Company has set Risk Management Committee and develops Risk Management Committee Charter, which specifies the 3 main duties of such committee;

1. Monitor all risks to which Banpu is exposed and ensure that the appropriate mitigation plans are implemented;
2. Ensure the successful of the implementation of risk management throughout Banpu; and
3. Ensure that implemented risk management framework and process are sustainable and continuously improved to ensure relevance to Banpu



### ► Risk Management Structure

The company has set risk management structure to increase company's risk management efficiency and to mitigate impacts from any risks happened from late response.



Company's business risk management is under the supervision of the Board of Directors and all executive levels such as the Risk Management Committee (RMC) which convenes on a quarterly basis to monitor and implement a risk management plan. The meeting of the Financial Management Committee (FMC) is aimed at managing financial risk every month, and the meeting of the Commodity Risk Management Committee, convenes every two weeks to discuss coal and oil price fluctuation, which is one of the key factors affecting the Company's profitability. In addition, the review of corporate risk management is reported to the Audit Committee and the Board of Directors on a quarterly basis.



## ► Risk Management Process



Banpu's risk management process starts with integrating risk management into business operations. In addition, business objectives and strategic targets have been set to be used while analyzing the Company's risk.

1. **Identify Risks** - Since risks could be identified at various points in the business cycle, every employee should report internal and external events that might affect achievement of the Company's objectives to Risk Coordinator in each business unit. In addition, such Coordinator will then report to risk management function via online risk monitoring system
2. **Assess Risks** - The Company analyzes and prioritizes risks by assessing two elements, which are likelihood and the level of impact for the possible consequences.
3. **Mitigate Risks** - For each of the risks identified, a specific response is determined based upon the overall risk exposure, considered as a function of likelihood and impact of the occurrence.
4. **Monitor and Report** - Monitoring activities are established to ensure that the risk response is followed consistently throughout the organization. The Company conducts a follow-up such monitoring by Risk Management Committee (RMC) which convenes on a quarterly basis to monitor and implement a risk management plan, and in a monthly meeting of corporate risk management function.
5. **Awareness and Communication** - To ensure Company's risk culture, information and communication channels are put in place to make all employees aware of risks. Some methods are also implemented as indicated below;
  - Formal and informal training is constantly conducted for employees
  - For new employees, the Company provides risk management training during orientation period. In addition, they have to learn more about risk management via Company's e-learning system to understand about Banpu's risk management process and have ability to identify risks that fall into their area of responsibility.
  - To exchange knowledge, risk management function always conducts a meeting with related functions in the Company
  - The Company always communicates risk management knowledge to employees via email and through posters.

In order to create exquisite value for the Company and all stakeholders, Banpu gives importance to risk management by integrating risk correlation as part of its business plan. The relation between the risks of each issue is analysed, since they can either positively or negatively correlate with one another. Risk correlation makes risk analysis more inclusive and enhances the ability of the company to generate value.

### ► Risk Categories

Risk Categories	Example of Risks
1. Strategic Risk	<ul style="list-style-type: none"> <li>• Risk in strategic planning and implementation</li> <li>• Risk in Human Resource (HR) management and development to facilitate future growth</li> <li>• Corporate reputation risk</li> <li>• Risk from the inability to increase coal reserve for commercial purpose</li> <li>• Risk from investing in new business</li> </ul>
2. Financial Risk	<ul style="list-style-type: none"> <li>• Risk from failure to secure sources of fuel as planned</li> <li>• Exchange rate risk</li> <li>• Interest rate risk</li> <li>• Taxation risk</li> <li>• Risk from volatility in coal and gas prices</li> </ul>
3. Operational Risk	<ul style="list-style-type: none"> <li>• Risks in coal business</li> <li>• Risk in power business</li> <li>• Risk in shale gas business</li> <li>• Occupational, health and environmental risks</li> <li>• Risk from social and community impact</li> </ul>
4. Compliance Risk	<ul style="list-style-type: none"> <li>• Risks from regulatory and policy change in the countries where the Company has invested</li> <li>• Risk from the Hongsa Power Project court case</li> </ul>
5. Emerging Risk	<ul style="list-style-type: none"> <li>• Risks from disruptive technology</li> <li>• Risks from climate change</li> </ul>
6. Other Risks	<ul style="list-style-type: none"> <li>• Human Rights Risk</li> </ul>

## ► Emerging Risks

Emergence of new risks closely intertwines with Banpu's sustainability. This is due to the fact that new risks are direct results of staggering and forceful changes of the Earth occurrence. Such risks are highly impactful towards the value chain of the Company. Results gathered from the Company's risk diagnosis identified two new types of emerging risks as, firstly, risk from disruptive technology, and secondly, risks from climate change.

### Risk from Disruptive Technology

Meteoric development and transformation of energy technology of today's global framework may cause sudden shift in energy consumption patterns. Laws, regulations, products of the company as well as our business opportunities are quickly altered to match most recent occurrences in the energy industry. As the region's leading energy company, Banpu closely keeps track of current goings-on and simultaneously adapts those findings to how we invest and manage risks. Additionally, the Company also relentlessly researches and develops new innovation and technology to maintain its position as one of the most advanced energy giants. Banpu's capability is profoundly accredited as our eyes and proficient risk management scheme are highly praised among its investors.

### Risk from Climate Change

- **Greenhouse Gas (GHG):** According to the impact of climate change on natural disasters and concern about such issue in global arena as well as Thai society, people expect alternative uses of energy with lower GHG emissions to lessen the negative impact on the climate change. Banpu, as an energy company, give importance to such situations as all of the Company's production activities, which include coal mining, electricity and heat generation, rely on energy as a major resource of production; the release of greenhouse gas into the atmosphere is thus inevitable. Hence, the Company emphasize on climate change risk management by implementing 3 methods as indicated:
  1. Lower GHG emissions - Banpu has already announced new Carbon Policy and set new carbon reduction targets for both our coal and power businesses.
  2. Adaptation - In terms of the investment strategy, the Company has been looking into renewable and alternative energy in response to the forthcoming low-carbon society, especially China, which has a clear policy to reduce GHG emissions and increase the proportion of renewable energy by 15% of total energy use within the next five years.
  3. Research and development - The Company conducts research and development in the energy technologies to serve low-carbon societies of the future.
- **Water:** Apart from the greenhouse gas, climate change also stirs up grave concerns about water management. Climate change may cause rises in sea level and atypical increase in rainfall. On the other hand, drought and shortage of water may be present in some geographical regions. This leads to soaring need of the liquid essence of life in the time when global water volume decreases. Such a phenomenon is one of Banpu's greatest concerns. Due to the fact that water is the very core of Banpu's production procedure, the Company is continuously assessing the risks resulting from water shortages in its production sectors in countries where operations are held. Even though the preliminary diagnosis revealed no evidence of scarcity in water supply, Banpu has initiated and maintained efficient water management programs, for instance, the reduction of water consumption through the water reuse & recycle to prevent and prepare for future water supply scarcity.

## ► Other Risks

### Human Rights Risk

Banpu values above all humanities, freedom from, freedom to, equalities in all dimensions, including the rights of claim of natural resources in all individuals. In 2016, the Company regulates our own Human Rights Policy, shadowing the universal human rights law e.g. Universal Declaration of Human Rights: UDHR and United Nations Guiding Principles on Business and Human Rights: UNGPs. Under strict enforcement, the Company shall not perform or augment any acts that violate the basic human rights concept. To maximize the prosecution proficiency within the organization itself and to mitigate risks of violation throughout the whole supply chain system, Banpu substantially investigates every factor under

the Human Rights Due Diligence framework. This is to analyze and predict what may happen and identify the victims of such violation throughout the supply chain system from start to finish. Thorough Examination and development of risk elimination scheme conducted through the imposition of internal policy and standard of related chains is the key factor that upholds and preserves the human rights concept in every element of Banpu's operations. The Company is under the process of consequence enumeration under the Human Rights Impact Assessment configuration. The structural outline enables the Company to further evaluate levels of risks regarding the human rights issue and its effects on the Company's well-being in a long run.

## Compliance



### Indicator

- Number of non-compliance with HSE laws and regulations at every business unit



### Target

- Zero non-compliance with HSE laws and regulations at every business unit



### Management Approach

- Establishment of the foundation of business operations system
- Operational audit by the internal unit
- Operational audit by a third party



### Performance

- In 2016, there are four cases in which the Company's operations did not comply with HSE laws and regulations



Banpu is committed to compliance with laws and regulations relevant to its operations both in Thailand and every country where we operate. The Company believes that such commitment is part of social and environmental responsibility. This would lead the Company to sustainable growth in coal and power business. In addition, the commitment to compliance with laws and regulation reduces risks that may cause severe impact to the Company. As a result, we actively identify measures to manage our business operation in alignment with each country's regulatory requirements. These measures can be classified into 2 steps as follows:

1. To establish the foundation of business operations system - The Company carefully study applicable laws concerning a particular operational procedure for conducting management standard and work procedures for every business unit. Nevertheless, in different countries may not be necessary to have the same setting, due to the difference in laws and regulations of those particular countries.
2. To conduct an operational audit - To ensure that our business operations comply with laws and regulations, management foundation as well as routine operational audits are put in place. The Company have established operational audit procedures for every single business unit which consists of audits by both internal and external auditor.

### ▶ Operational Audit by the Internal Unit

The company gives importance to operational audit by our internal unit since it helps reveal whether our current performance and efficiency align with existing missions and policies. Recognizing the importance of this matter, we have established 3 processes to evaluate our operations as follows:

#### Corporate Compliance

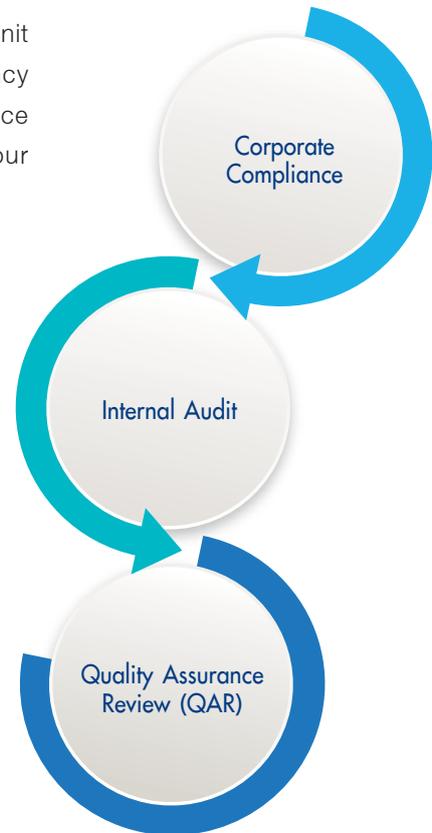
Ensure the governance of risk, operational transparency by observing both company specific and statutory regulations

#### Internal Audit

Ensure the adequacy of effective internal control which cover the establishment, maintain and implementation

#### Quality Assurance Review (QAR)

A Process oriented to guarantee that the quality of the outputs meets predetermined quality standards



### Corporate Compliance

To ensure that our business operations comply with laws and regulations, we have established Corporate Compliance function at Bangkok office. The main duties of such function at Bangkok is to develop checklist and standardize the compliance management system such as monitoring and reporting systems. The scope of such systems covers all business unit through Compliance function in each country and Compliance Coordinator in every business unit.



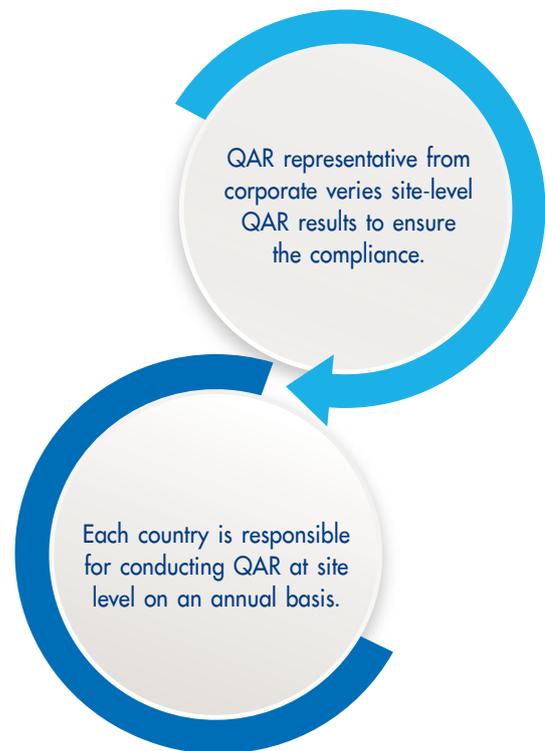
### Internal Audit

The Company emphasizes continually on the importance of internal control by focusing on the sufficient and appropriateness of internal control system to ensure the efficiency and effectiveness of business operations. The Company has adopted COSO (Committee of Sponsoring Organizations of the Treadway Commission) standard as internal control framework which is divided into 5 areas: Internal control, Risk assessment, Operating control, Information and communication technology system, and Monitoring systems. In addition, the Company has set up an independent Internal Audit Function in the organization by target to evaluate the adequacy and effectiveness of internal control systems and activities implemented in the organization.

### Quality Assurance Review (QAR)

It is our policy that every unit under the division of Corporate Services comprising Health, Safety, Environment and Community Development Department, Information Technology Department, Legal and Compliance Department, Procurement and General Administration Department and Business Process Management Department must conduct self-assessment in terms of its performance efficiency and whether it is aligned with management standards and work procedures. The results from this self-assessment will be used for further improvement and development of each unit.

At present, all Banpu's subsidiaries in Thailand, Indonesia and China have adopted QAR policy from the corporate. Whereas, business units in Mongolia and Australia will address and implement QAR concept in the near future.



### ► Operational Audit by a Third Party

Apart from the operational audit internally, third parties such as government agencies or certified body also perform operational audit for our businesses. The benefit of using the third party is a higher degree of credibility of our operation compliance with laws and regulations. Details of the third party audit are as follows:

#### Operational Audit by Government Agencies

It is essential that our business operations in every country must be regularly inspected by government agencies. The main purpose of the audit is to ensure that our operations comply with applicable laws, regulations and other requirements of that particular country. Any violations will be subjected to punishment; for example, penalty fee or license revocation.

Country	Rule and Regulation
Indonesia	The law in Indonesia designates government agencies to inspect the operations in every location on a monthly basis. Key audit areas which government agencies focus on include occupational health, safety, and environment. The audit results in 2016 shown that all of our five mines have operated in compliance with Indonesia's laws and regulations.
China	Besides random audit of our power plants in China, Chinese government has issued the legal framework which enforces every coal-fired power plant to install Continuous Emission Monitoring System (CEM) to monitor air quality and to report the real-time monitoring results to government agencies. At present, our coal-fired power plants have successfully installed the equipment and already reported the results to relevant government agencies. In 2016, every power plant in China met the air quality standards under the regulation

#### Operational Audit by the International Certified Body

Most of our business units have already been certified with international standards, consisting of Quality Management System (ISO 9001), Environmental Management System (ISO 14001), Occupational Health and Safety Management System (OHSAS 18001) and Business Continuity Management System (ISO 22301) from a certified body situated in that country. The following table shows our business units that are already certified.

Country	Site	International Standard			
		ISO 9001	ISO 14001	OHSAS 18001	ISO 22301
Indonesia	Indominco Mine	✓	✓	✓	
	Jorong Mine	✓			
	Trubaindo Mine	✓	✓	✓	
	Bharinto Mine	✓	✓	✓	
China	Zouping Power Plant	✓	✓	✓	
	Zhengding Power Plant	✓	✓	✓	
	Luannan Power Plant	✓	✓	✓	
Thailand	Bangkok Office				✓

#### ► Performance

In 2016, there are four cases in which the Company's operations did not comply with HSE laws and regulations.

## Business Continuity Management



### Indicator

- Percentage of business unit that is certified for ISO 22301



### Short-Term Target

- To certify for ISO 22301 at corporate offices in Thailand, Indonesia and China in 5 years (2015-2019)



### Long-Term Target

- To certify for ISO 22301 at every business unit



### Management Approach

- Business Continuity Management Principles
- Business Continuity Plan
- ISO 22301



### Performance

- Bangkok office, Thailand was certified for ISO 22301



Nowadays, businesses have to face with many risks and challenges that could lead to crisis, whether it is a natural disaster (such as a storm, a flood, or an earthquake) or a man-made one (such as a fire, a chemical leak, a protest, or a riot). If a crisis were to strike an organization and cripple its usual operations, the organization would face several negative consequences, such as the loss of ability to respond to customer needs and damage to its financial status, reputation, and credibility towards stakeholders. Therefore, Banpu puts importance on its capability to continue its business in a time of disaster. As a result, the concept of business continuity management has been adopted by Banpu since 2005 with 3 main objectives;

1. To increase an organization's capability against business disruption

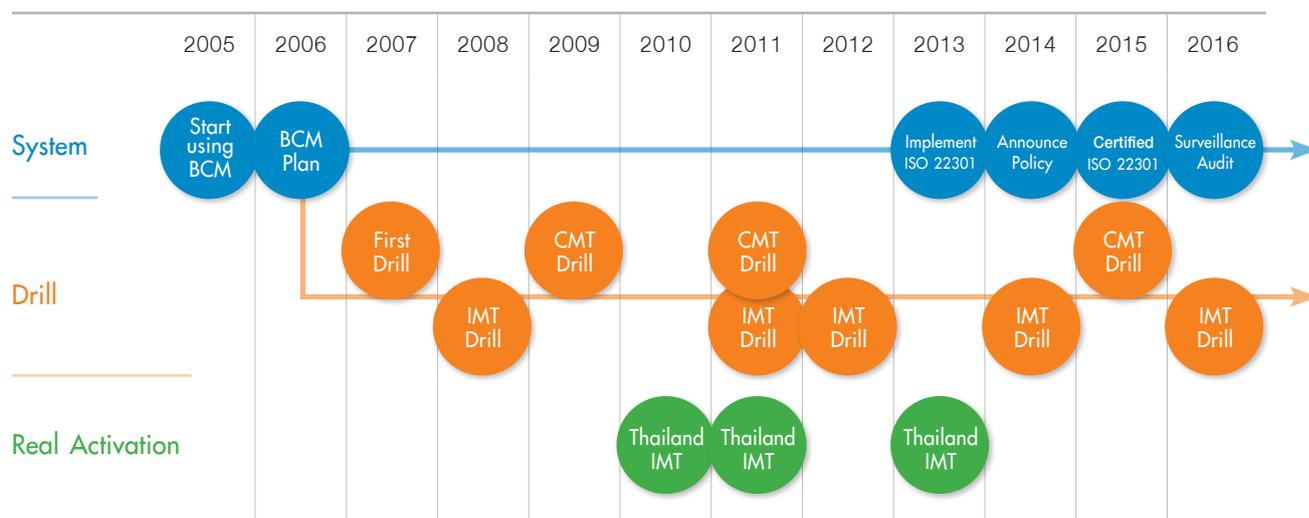
2. To minimize the impacts of such disruption

3. To shorten the recovery period to meet Recovery Time Objective (RTO) of the Company

To ensure the efficiency of Banpu's business continuity management system (BCMS), the Company constantly conducts risk assessment and analyzes the impact of such risk. In addition, the Company annually conducts drills, which could be divided into 3 levels;

- EMT Drill - Exercise for emergency situation, which has an impact on site level
- IMT Drill - Exercise for incident situation, which has an impact on country level
- CMT Drill - Exercise for crisis situation, which has an impact on corporate level



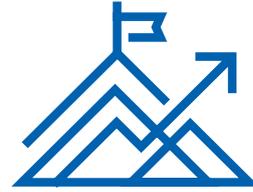


- 2005** • The concept of business continuity management adopted by Banpu with the aim of ensuring that major business activities can continue smoothly during a time of crisis, whether it is a natural disaster or a man-made one.
- 2006** • The Company began developing its business continuity, emergency response, and recovery plans as well as other necessary programs, including the establishment of operational and executive emergency teams together with their roles and responsibilities in a crisis.
- 2007** • First business continuity drill was conducted in conjunction with other related plans at the Bangkok office, Thailand.
- 2010** • The Company activated business continuity plan (Red-Shirt Demonstration, Thailand).
- 2011** • The Company activated business continuity plan (Flood, Thailand).
- 2013** • The Company activated business continuity plan (Bangkok Shutdown, Thailand).  
• The Company began to apply the ISO 22301 Business Continuity Management System from International Organization for Standardization (ISO), to Bangkok office operations.
- 2014** • The Company announced Business Continuity Policy
- 2015** • Bangkok office was certified for ISO 22301:2012 by Bureau Veritas (Thailand), in December 2015
- 2016** • 1<sup>st</sup> Surveillance Audit was conducted at Bangkok office

### ► Performance

In December 2015, Bangkok office was certified for ISO 22301:2012. In the near future, we would introduce such standard to all business units in other countries.

# Operational Excellence



Banpu has woven sustainable development into its path for future business growth. As it is our priority to create balance between the business growth and the development of community, society and environment, the Company's strategies, therefore, stressed upon value creation to all stakeholder which does not just increase production capacity, but also develop capability towards excellence. This is done through optimizing resource utilization to the most efficient and effective with goal to increase our competitiveness with engagement from all people on site.

In practice, the Company aware that business value adding from the existing assets is very important. We aim to achieve it by means of increasing capacity through new technology or production process such as a better accuracy of exploration drilling data and managing costs efficiently by an excellence process management and "Innovation" as we believe that Innovation would create our sustainable and stable growth.

## Operational Management and Technology Development



### Short-term Target

- Reduce production cost with continuous improvement programs



### Long-term Target

- Apply state-of-the-art technology to leapfrog towards Operational Excellence



### Management Approach

- Process improvement system with engagement from all people on site



Concerning our risk matrix, one of the key risks was the increase of operating cost from both external factors which is beyond our control and internal factors such as operational management. Optimizing operational processes to their greatest efficiency and thereby increasing productivity performance is a critical factor in managing our operations. In addition, Banpu has also emphasized on applying state-of-the-art technology in our supply chain management to leapfrog towards Operational Excellence. Since our operations are located in various locations with different mining technique, approaches we used are different from one to another.

### Operational Management in Indonesia

In Indonesia, the company has deployed the Total Productive Maintenance (TPM<sup>3</sup>) which is the system emphasizing on continuous improvement to reduce production cost and production inefficiency as well as the loss from machinery.

The TPM<sup>3</sup> approach is an enhanced version of Lean developed by CTPM, a continuous improvement specialists based in Australia, which integrated the original Lean concept and TPM methodology. This approach involves the engagement from all people on site to find problems at the earliest time and follow the structured process to identify the root causes. There are 5 levels of TPM<sup>3</sup> Excellence Award with 3 key success factors:

- **Sustainability:** Continuous improvement is an ongoing effort to improve products, services, and processes.
- **Consistency:** Everyone is striving for the same goals using a standardized approach.
- **People Development Driven:** Everyone is involved in a cross-functional and area based team.

The Company commenced TPM<sup>3</sup> implementation at LP2 mine in Thailand and achieved the 5<sup>th</sup> Level of TPM<sup>3</sup> Excellence Award in 2007. With an outstanding outcome, we extended the implementation to cover operations in Indonesia since 2008. The implementation in Indonesia started at Kitadin-Tandung Mayang and Indominco

Mines, then, at Trubaindo mine in 2014. In 2014, Kitadin-Tandung Mayang and Indominco mines achieved 5<sup>th</sup> and 4<sup>th</sup> Level of TPM<sup>3</sup> Excellence Award respectively.

With a great success in improving operation efficiency, we extended the scope of TPM implementation to cover all operations in Indonesia. In practice, the programs started with the training courses so that everyone is able to identify the potential problems in the process under own responsibilities with the support teams from Country and Corporate offices. Moreover, the annual operational excellence conference conducted to recognize each process improvement programs.

### Technology Development in Indonesia

ITM, our subsidiary in Indonesia success in adopting the use of mathematical model to optimize the process across the entire supply chain, from coal stock yard until delivery to customers. This project called Shipment Demand Pull project (SDP). With the deployment of integrated production plan in every mine, the quality control and mine planning were more precise.

In 2014, ITM succeeded in concreting the Shipment Demand Pull project. The implementation was done through the optimization system to ensure that the production was effectively planned in accordance with the customer's requirements. With such approach, ITM can meet customer's requirement in both quality and quantity. The benefits also include the reduction in demurrage charge and other penalty.

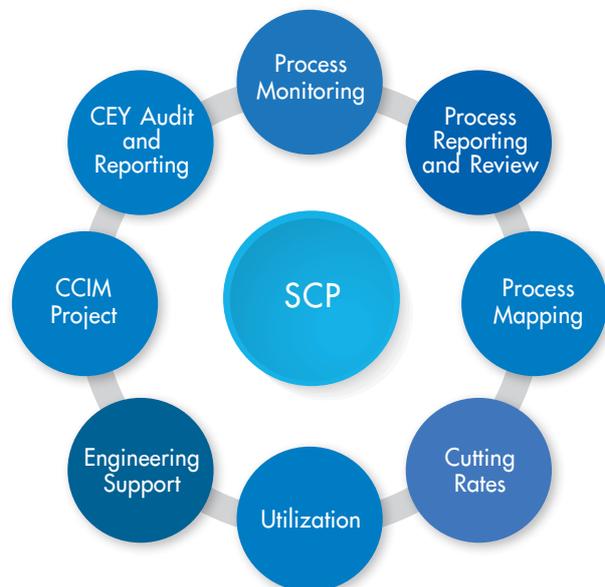
In addition, the SDP also provides the monitoring system of coal production and coal transportation to ensure the effectiveness of internal communication. In the recent years, SDP plays a key role in building the cooperation among production and sales departments to cope with any problems raised, such as fluctuation of the coal price.

### Operational Management in Australia

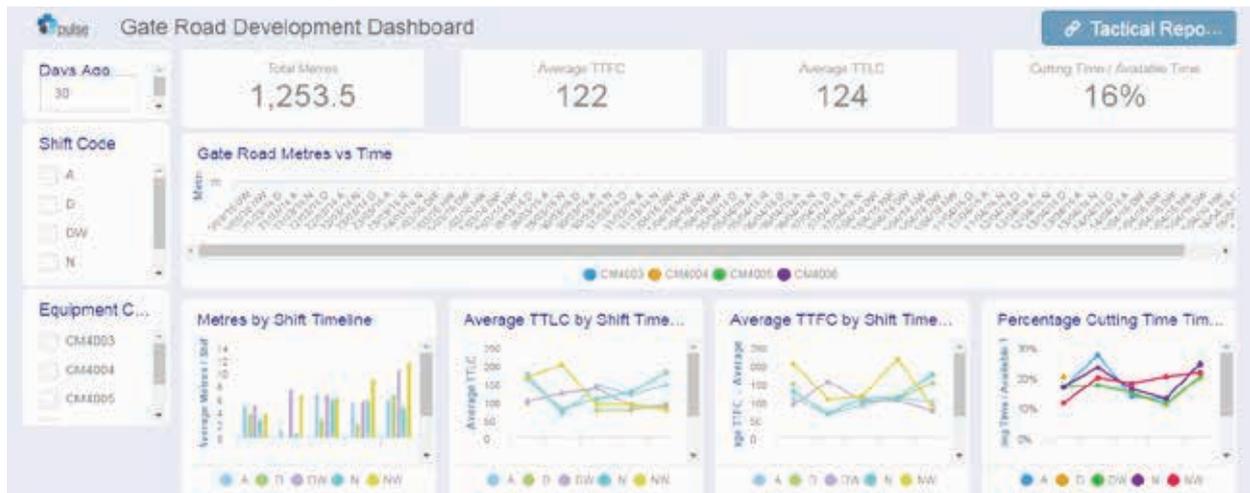
Building on the success of the "Step Change", a safety culture program, Centennial, our subsidiary in Australia has initiated the productivity program named "Step Change Productivity (SCP)" in 2014.

SCP program focuses on continual improvement with objective to fully understand and utilise all mining production processes to their greatest efficiency by the engagement from all of staffs on site towards operational excellence. The key components to the success of the SCP initiatives are;

- Productivity gains through workforce engagement
- Productivity improved through innovation
- Use of new technology or technique to improve existing standard operating procedure
- Maximize the utilization of major assets
- Development and use of Process Mapping
- Operational reliability improvement by engineering control



In 2016, progress of the SCP project are, for example, tactical dashboards for real time monitoring, incorporating targets and KPIs. The implementation of SCP, together with the participation of all employees, resulted in significantly improvement in productivity from 185 to 191 Tons per hour. In 2017, the SCP will continue as part of our journey towards operational excellence.

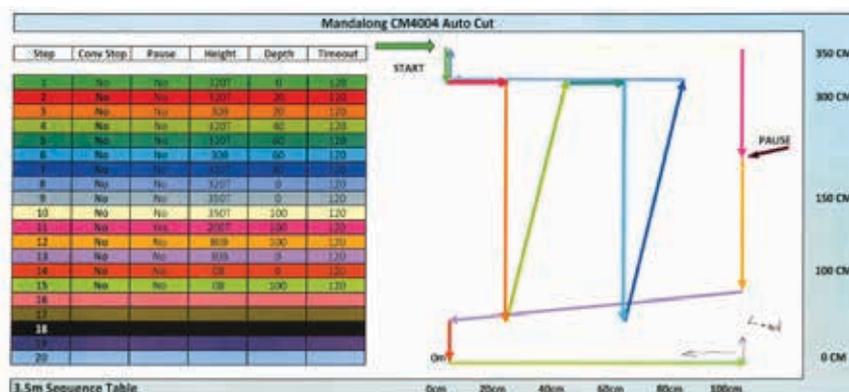


### Technology Development in Australia

In Australia, due to the different of the supply chain from Indonesia, coal produced from the underground mine will be transported from the mine by the conveyor before being transferred to the train, then to the port to export to oversea customers. Some of those are delivered directly to domestic customers. The rail and coal loading facility has been used since the mid-seventies with limitation in the operation.

Centennial, our subsidiary in Australia, has a project to improve the coal loading facilities. In 2013, the Lidsdale Siding upgrade project was approved. Lidsdale Siding is the facility where coal is transported, via a dedicated overland conveyor, for processing and loading onto trains for transport to Port Kembla for export. As a result, the capacity was improved from 2 to 6.3 million tons per annum (mtpa), together with the better environmental performance and increasing of Centennial's future market flexibility.

In 2016, the significant process improvement projects included the Centennial Continuous Improvement Model (CCIM) project which is cutting and bolting optimization project at Mandalong mine with objective to improve production performance.



## Change Management

It cannot be denied that, there are times that the organization pursues transformations and changes such as moving from good to great performance, cutting costs or meeting up with changing technology. The common factor to achieve the intended outcomes of the change is 'people'. The 'Change' impacts how individual people do their work, their processes, job roles, workflows, reporting structures, behaviors and even their identity



within the organization. Change management is the approach to drive adoption and usage so initiatives or changes deliver expected results and outcomes.

In Banpu, the Change management guideline has been put into practice since 2013. It provides framework, tools and techniques to ensure the smooth transition to new business process and sustain the change. The framework talks generally about 4 key factors as follows:

1. Stakeholder analysis
2. Sponsorship
3. Communication
4. Change readiness

With the use of change management for the ongoing project, such as Shipment Demand Pull and IPCC, the project resulted in a success which lead to the effective operational management.

## Operational Excellence Workshop in Indonesia

In September 2016, ITM, our subsidiary in Indonesia arranged an Operational Excellence (OE) workshop. The workshop was held in three different series:

- **The first** was intended for OE Site Coordinators and all potential members in ITM's coal supply.
- **The second** was for senior management from Jakarta and mine sites.
- **The last** workshop was about streamlining maintenance process and standardization as part of operational excellence.

The objective was to create a common perception about operational excellence and get commitment from all senior managements and all ITM stakeholders. During the workshop, the background and framework of operational excellence were shared, and so were the management system processes and people capabilities required to implement a successful operational excellence initiative. Another issue crucial to the workshop was how the principles of operational excellence in the supply chain can be addressed so that it will contribute significantly to ITM's sustainable growth.



## Innovation Program



### Short-term Target

- Increasing of value creation to the Company from the Innovation projects



### Long-term Target

- Increasing of engagement in Innovation Program from all business units



### Management Approach

- Encourage employees to apply Innovation into process under own responsibilities



### Performance

- 12 Innovation projects with value creation to the Company in total of USD 76,233,504



The Innovation concept of Banpu is that we “Think” to adapt change in work process for higher effectiveness, and “Drive” towards “Change”. Innovation is a pillar of our business operation with a strong belief that would create our sustainable and stable growth under industry changes. As it can be seen that Innovation is established as one of our corporate culture, “Banpu Spirit”.

We place the importance of innovation through all activity levels, ranged from operational to executive level in order to enhance the significance and necessity of integrating innovation into both their working and day-to-day life. Since 2008, Banpu has formally implemented the innovation activities with different approach in each country where we operate. For example, Thailand Innovation Award in Thailand, KOMPAK in Indonesia, Innovation Sharing Day in China, etc.

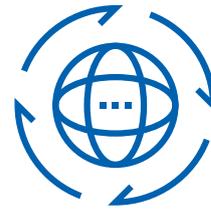
At Bangkok, innovation activities consist of 2 main programs which are Wow Ideas and Thailand Innovation Award. The objective of these activities are to promote employees to initiate and think creatively by coming up with concepts for improving the efficiency of operation process. Employees have

to submit these new ideas to judgment committee who award the prizes. In 2016, employees presented 121 ideas with 67 of this numbers, the executives considered to be Wow Ideas and 12 projects to be Innovation Programs.

Innovation has been promoted as corporate agenda across the group in 2012. The Banpu Innovation Convention is organized to recognize all innovation award winning teams from each country and also a sharing session of their success in creating improved organizational outcomes through innovative idea. The honorary judges are CEO and Senior Executives. Banpu Innovation Convention is taken place annually. In 2016, there were 12 teams from Thailand, Indonesia, China, Australia, Mongolia and Lao PDR who contribute value creation to the Company in total of USD 76,233,504.

	2014	2015	2016
Number of Innovation Award Projects	9	10	12
Total Value Creation (USD)	129,199,298	239,819,500	76,233,504

# Supply Chain Management



Banpu realizes that enhancing competency of competitiveness and creating value to stakeholders are key strategies in regard to our Sustainable Development policy. To build sustainability in supply chain, the Company has emphasized the importance of supplier, contractor and customer by establishing management approaches and strategies for sustainable development, including economic, social and environmental aspects, bring about the product delivery with quality, fairness and transparency throughout our business value chain.

To build sustainable supply chain, the Company has conducted risk assessment in supply chain for economic, social and environment, which covers business partner, contractor and customer. With awareness of responsibility, derived from those stakeholders' activities such as conflict of interest, occupational health and safety, environmental and social impacts that caused from their production or service. The result from risk assessment is regularly used to develop management approach and improve strategies in supply chain such as addition of regulations including environment, social and governance in supplier and contractor selection, contract clauses and contractor's performance review on OHS and environment.



## Procurement Practice



### Short-term Target

- Green Procurement at Bangkok office



### Long-term Target

- Green Procurement for business operation in all countries



### Management Approach

- Engaging with business partners to build green supply chain through Procurement Policy



### Performance

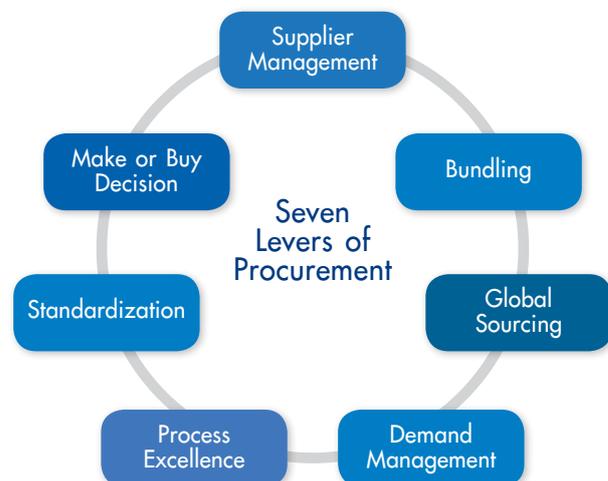
- Banpu is developing green procurement standard, which will be officially announced in 2017



Banpu has various business partners for both product and service, and also geographical procurement. With this cause, the Company has an intention to manage the procurement system that are accurately, fairly, transparently, efficiently and in compliance with the good corporate governance, code of conduct and business ethics policy. The Company have announced Corporate Procurement policy and Key Category Procurement policy since 2015 as a procurement framework for Banpu and its subsidiaries. Both policies are applied with principles of worth, transparent, efficient & effective and accountable.

In practice, the Company annually conduct spending analysis to identify key categories of products or services and also major suppliers. We has applied Key Category Procurement Management Procedure to develop strategies with aim to improve and monitor transaction with effectiveness according to the Corporate Procurement policy. In this procedure, there are seven elements, known as seven levers of

procurement, that will be applied for key category procurement, including supplier management, bundling, global sourcing, demand management, process excellence, standardization and make or buy decision.



The Company usually supports and educates procurement staffs, both training and workshops across the business units in all countries, to exchange procurement knowledge and build sustainable supply chain. Our long-term target is to apply green procurement for business operation in all countries, initially begins at Bangkok office.

Banpu starts conducting green procurement with scope defined as products and service in Bangkok

office. At present, we are in process of preparation on green procurement standard, which is expected to be officially announced in 2017. The standard will include criteria of green products and service, and also indicators to monitor and report performance. These aim to response sustainable business goals and partially promote our business credo that “An industry will be strong only when it is developed in tandem with social and environmental responsibility”



## Contractor Management



### Short-term Target

- Zero work-related fatality at all activities managed by contractors and subcontractors



### Long-term Target

- Zero Injury at all activities managed by contractors and subcontractors



### Management Approach

- Managing in compliance with Contractor Management System (CMS)



### Performance

- In 2016, there was 1 fatality in Indonesia



Banpu recognizes the responsible for the occupational health and safety management of contractors, as some parts of activities in our business operated by contractors who work at the site and may expose potential occupational health and safety risks during their operation. Beside the occupational health and safety, we also place an importance on the environmental and social impacts in surrounding area that caused by our contractors' operation. To enhance the effectiveness of contractor competence and meet our goals, both production and occupational health and safety and environment (HSE), we established the Contractor Management System (CMS) under the same framework stipulated by the Company.

The framework of CMS includes 2 phases as follows:

- **Contractor Engagement**

Banpu established the processes of hazard identification and risk assessment on HSE issues that might be occurred in all contractors activities. The HSE risk mitigation plans are incorporated as part of contractor selection process and also as part of clauses in our contract.

- **Contractor Management**

Contractors have to establish their HSE management plan to mitigate HSE risks before starting their work. The plan must include clear targets and indicators, and also the emergency response plans. Banpu also place an importance on review process to evaluate the effectiveness of their HSE performance every year until the end of contract.

When the occupational health and safety and environmental risks from contractors' activities are identified, the HSE risks must be managed by the appropriate action plans with CMS Assurance, a mechanism to guarantee the CMS for effective and sustainable operation. In addition, the boundary of the CMS is also extended to subcontractors.

With the implementation of CMS, the Company always educate contractors in safety at work and emergency response plan preparation. We also organize "Safety Day" which aims to increase potential risk awareness of employees and contractors during their work and share their best practices to mitigate those risks.

## Product Stewardship and Customer Service

### Coal Business

The Company assigns sales representatives to take care each customer group closely, focusing on direct interaction such as co-meeting that bring us understanding their problems and concerns together with giving information in order to build mutual trust and be their partner in the long run. We have database system, the analyzed data will be used to develop improvement plan of product and service to response their long term needs. Moreover, the Company also focuses on building a good relationship with customers through several activities such as we always send our operational performance and action plans to customer, invite them to visit our operation, provide technical service and organize top management to visit our customers. These activities bring us closer with our customers, leading to build customer base as business partner in the long run.

Communication channel and cooperation with customers normally contact via e-mails, telephone calls and faxes, including several applications to response the multichannel communication requirement. In addition, our sales representatives frequently visit customers to maintain good relationship and update them with our updated information which aims to enhance the cooperation with smoothness. Besides the visiting of sales representatives, we also assign staffs from production line and quality control to visit our customers. This bring us to understand customers' problems and concerns for further improvement of our product and service.

Products delivered has specific characters which is used by customers who have coal expertise especially specific characteristic of coal products. Normally, coal trading is unnecessary to have product packaging and labelling. However, Material Safety Data Sheet (MSDS) is prepared by the Company, in case our customers request to comply with global standard and regulations.

The Company realizes the importance on safety of our products and service. The adoption of computer system, called Shipment Demand Pull, is implemented through entire coal production processes to ensure that our product meet the customers' needs and also to enhance our tractability system in case of receiving any complaints. Moreover, the auditing system has been done to ensure no any impacts on customers' health and safety as well as no any effects to environment and community from the use of our product. Since our customers are mostly large scale manufacturers who have good environmental management system, in compliance with government regulations in each country where they are and under strict control from local government. These can be assured that their use of our product will not be caused any impacts on environment as well as local communities.

In 2016, there were neither report from harm caused by using our products nor complaints from community or warning from government in regards to the environmental issues or any impacts on community.



### Power Business

The Company manages customer service by placing an importance on quality and service. We supply products including electricity, steam and cooling with readiness and stability, to response customers promptly as their needs. The Company also maintains good relationship with customers through honestly and mutual benefits that enables us to gain trust and confidence from customers.

As electricity is sold to government sectors, we recognizes the relationship creation with local authorities based on partnership with mutual benefits, building trust with local communities. The Company also supports on community activities which bring us acceptance from the government and local communities.

#### Grievance Mechanism and Tracking System

Customers can complain issues directly through their sales representatives via telephone or electronic mail. In case of any inconvenience occurred, customers can send complaints through our website on which name, email address and telephone number of customer service department are also provided. Upon receiveing complaints from our customers, all complaints will be recorded in our system. After that the responsible team will check and prepare investigation report with the solutions. The reports must be replied to the customers within the time specified to ensure that all complaints have been resolved.

#### Customer Satisfaction Survey

The Company has conducted customer satisfaction survey through questionnaires, and also assigns our staff from customer service department to conduct one-on-one interview with customers. This aims to understand their specific problems and needs, and also to strengthen relationship with customers. In addition, the customer's feedbacks and concerns are usually used to improve our products and service, as well as our work processes. As our business is characterized as business-to-business, not business-to-customer, the customer satisfaction survey is not officially conducted every year. The recent survey was conducted in 2015.

#### Customer Privacy

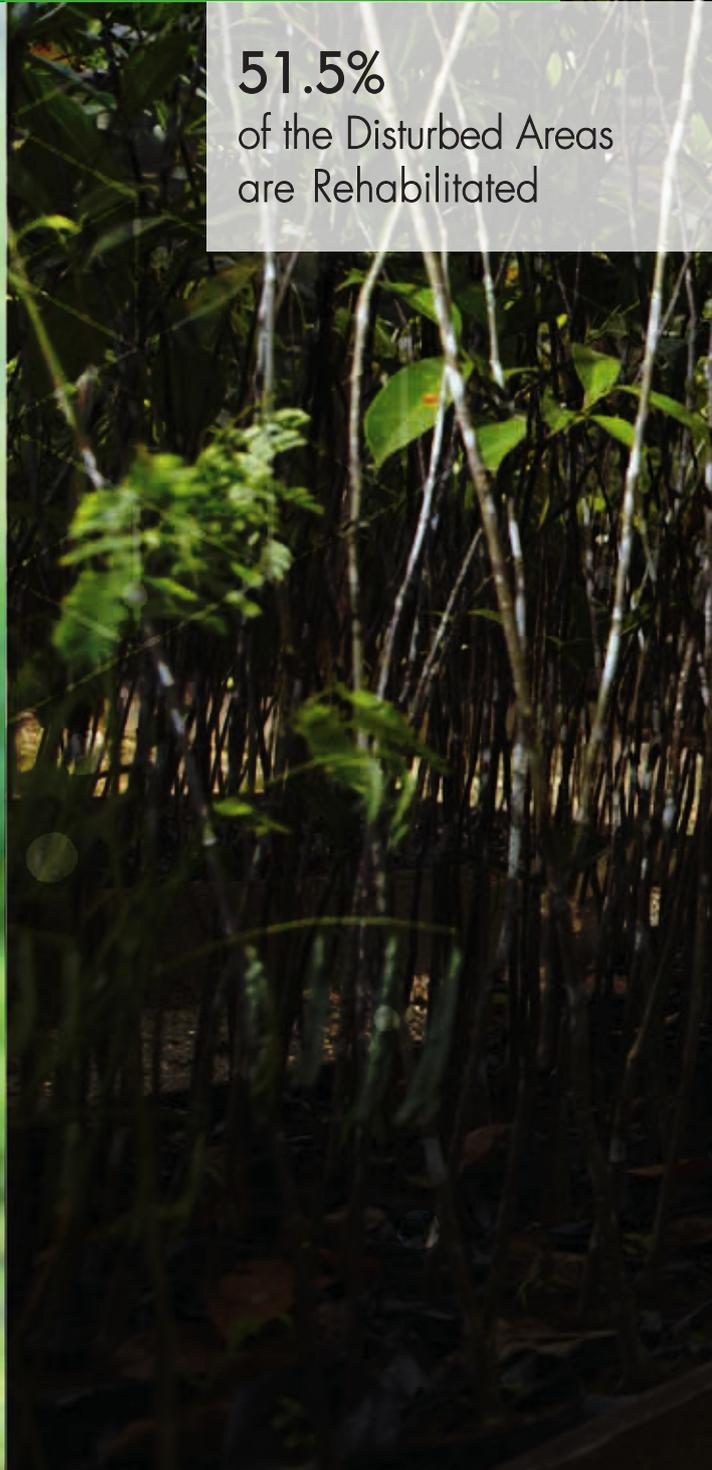
We realize that the privacy of our customers' information is the most important. Therefore, the Company launched policy and management practices in order to respect, secure, protect and maintain the information privacy of customers. To build trust and confidence, information related to the customers shall be only used for business purpose according to the law, such as providing the best services, developing better products, and providing better business offers, which meet the needs of the customers. The customer information will not be used, collected, or retained if the Company has no intention as mentioned above. We strictly insist on protection of customers' confidential information from loss, theft, misuse and unauthorized disclosure, modification, and unauthorized destruction. In 2016, we have no any complaints on customer privacy issue.



# Environment

**38.94%**  
Reduction of  
Water Withdrawal  
from 2015

**51.5%**  
of the Disturbed Areas  
are Rehabilitated



1  
Case of  
Significant Spill

100%  
Compliance  
with Air Quality  
Standards

6.53% Reduction of  
GHG Emissions Intensity  
in Coal Business  
from the 2012 baseline



# Climate Change



Climate Change is defined by the United Nations Framework Convention on Climate Change (UNFCCC) as a change of climate which is attributed directly or indirectly to human activities that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods. The 21<sup>st</sup> Conference of Parties (COP 21) in Paris, France, had agreed to keep the rise of average global temperature between 1.5-2 °C above pre-industrial levels, known as Paris Agreement. The objective of the agreement is to stabilize the concentrations of greenhouse gas (GHG) at a safe level, thus allowing the natural ecosystems to adapt without causing adverse effects on the ecosystems, economy and human health.

The impacts of climate change have been increasingly widespread and severe over the years and become an emerging risk for all global regions. This poses both risks and opportunities for the Company as an energy provider and power producer for the Asian region. According to the Sustainable Development Goals (SDGs) announced by the UN in 2015, the Company's business operations are directly related to Goal 13, "Take urgent action to combat climate change and its impacts." Details of the Goal related to the Company's business are as follows:

- Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
- Integrate climate change measures into national policies, strategies and planning





In addition to responding to the goal to combat the climate change, the Company also recognizes the need to effectively manage energy use as well as reduce GHG emissions to the environment. Upholding integrity, fairness, professionalism and social and environmental responsibilities, the Company has committed to providing quality products and services as well as responding to Goal 7, “Ensure access to affordable, reliable, sustainable and modern energy for all”. This goal is set as an important target for increasing investments in clean energy sources that have less negative impacts on the environment. Details of the Goal related to the Company’s future investment plan in power business are as follows:

- By 2030, increase substantially the share of renewable energy in the global energy mix.
- By 2030, enhance international cooperation to facilitate access to clean energy research and

technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology

However, this sustainability development report focuses on the operating results of the assets which the Company has operational control and are still in operations. Those assets include open-pit coal mines in Indonesia, underground coal mines in Australia, combined heat and power plants in China, solar power plants in China and Japan. Only three combined heat and power plants in China, namely Zouping, Luannan and Zhengding that use coal as the fuel for production, thus contributing to GHG emissions. The production activities related to energy use and GHG emissions in coal and power businesses are as follows:

Coal Business	Power Business
<ul style="list-style-type: none"> <li>• Use of diesel in heavy machinery</li> <li>• Use of diesel in truck transportation</li> <li>• Use of diesel in freight transport</li> <li>• Use of diesel and coal for power generation in remote areas for coal production, coal crushing, coal washing and other mining activities</li> <li>• Purchase of power from external sources for coal production</li> <li>• Methane emissions from coal beds and coal stockpiles</li> <li>• Use of explosives for overburden removal</li> <li>• Use of gasoline for transportation</li> </ul>	<ul style="list-style-type: none"> <li>• Use of coal as the fuel for power and steam generation</li> <li>• Use of waste gas as the fuel for power and steam generation</li> <li>• Use of diesel in heavy machinery</li> <li>• Use of diesel for transportation</li> <li>• Use of gasoline for transportation</li> <li>• Purchase of power from external sources</li> <li>• Use of SF<sub>6</sub> and HFC</li> </ul>

The Company’s management approach in response to climate change, we place an importance on GHG reduction measures and effective utilization of energy by selecting appropriate environmental friendly technology and creating energy balance for other industrial sectors. Additionally, the Company has assessed risks and impacts of climate change to its business in various aspects including economy, marketing, laws, and catastrophe risks. Risk assessment reports are reviewed by the Risk Management Committee on a quarterly basis. The Company has also established a business continuity management system to ensure the ability to effectively respond to risks and impacts from our operations and climate change.

## GHG Emissions



### Indicator

- GHG emissions intensity



### Target

- 25% GHG reduction in coal business by 2020 from the 2012 baseline
- 15% GHG reduction in power business by 2020 from the 2012 baseline



### Management Approach

- Managing in line with Banpu's Environmental Policy and Carbon Policy to achieve the targets



### Performance

- Reduction of GHG emissions intensity by 6.53% in coal business in 2016 from the 2012 baseline.
- Increasing of GHG emissions intensity by 13.59% in power business in 2016 from the 2012 baseline.



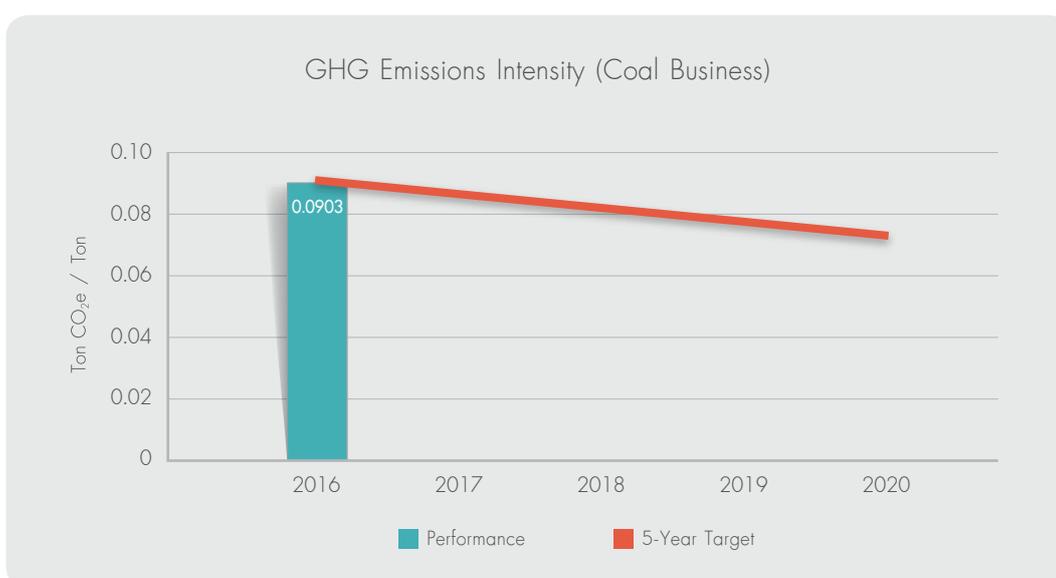
As in both coal and power businesses, energy is the core of all production processes; therefore, the Company is fully aware of the importance of its role in reducing GHG emissions and determined to control GHG emissions to the environment to help solve the problem and mitigate the impacts of the climate change occurring across the world. The Company has closely observed the updates and amendments of national and international laws on climate change, such as Paris Agreement, derived from the 21<sup>st</sup> conference of the parties on climate change (COP 21), and other agreements following COP 22, energy policies and GHG emissions control measures in countries where the Company has investments, and UN's Sustainable Development Goals.

Apart from that, in response to climate change, the Company has been preparing for its physical and economic consequences of climate change while including it as one of the Company's sustainability issues. In 2010, Banpu declared its Carbon Policy and has defined the target to reduce GHG emissions intensity during 2010-2015 by 5% within 2015 from the baseline in 2010. Moreover, the Company set the standards for GHG emissions management for Banpu and its subsidiaries. In 2015, which was the last year of the target, the Company successfully managed to lower GHG emissions intensity in the Company's coal business in Indonesia with a 26% reduction from the baseline in 2010.

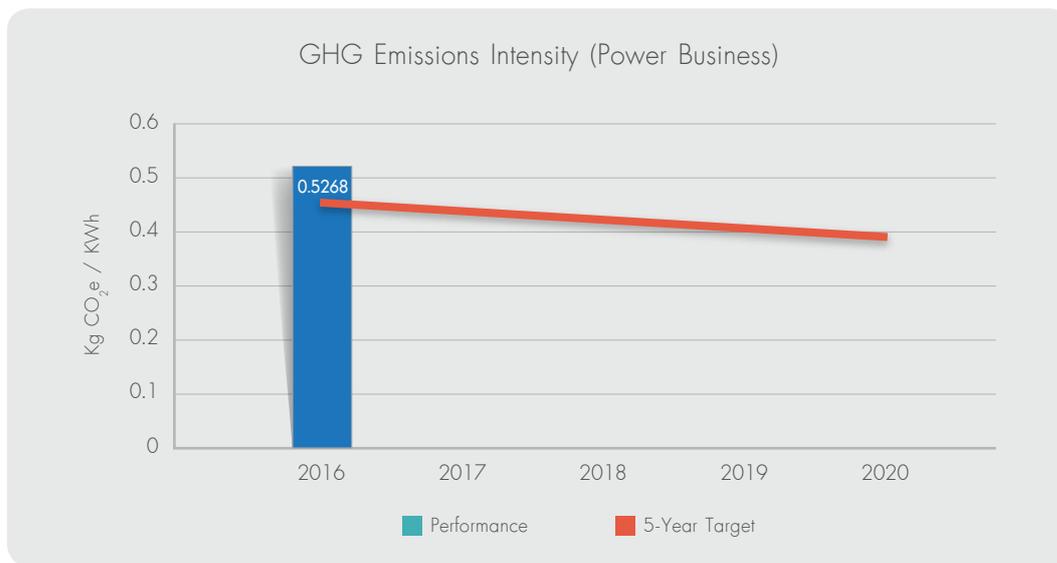
In 2016, the Company reviewed and improved its Carbon Policy by underlining the GHG management based on the three principles of Mitigation, Adaptation and Product Research and Development to move towards a low carbon society. Additionally, the Company has set new GHG emissions targets for Scope 1 and Scope 2 operations during 2016-2020 and extended the scope of GHG emissions reduction to cover both coal and power businesses. The Company set particular targets for coal and power businesses as follows: a 25% reduction in GHG emissions intensity for coal business and a 15% reduction in power business by 2020 from the baseline in 2012, the year when the Company included the operating results of Australian business unit into the Group's performance. The calculation of GHG emissions and Emission Factors, calculated based on A Corporate Accounting and Reporting Standard (Revised Edition) by GHG Protocol, while Global Warming Potential (GWP) referred to IPCC Fifth Assessment Report (AR5). The baseline in 2012, the GHG emission intensity equals to 0.0966 tons carbon dioxide equivalents per tons of coal in our

coal business and 0.4638 kilogram carbon dioxide equivalents per kilowatt-hour in our power business.

Based on the target to reduce GHG emissions intensity in coal business by 25% from the 2012 baseline, in 2016 the total emissions from our coal operations were 3.22 million tons carbon dioxide equivalents from Scope 1 GHG emissions and 236,558 tons carbon dioxide equivalents from Scope 2 GHG emissions. GHG emissions intensity from our coal businesses in Indonesia and Australia accounted for 0.0903 tons carbon dioxide equivalents per tons of coal, a 6.53% reduction from the baseline in 2012, which met the target. However, according 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. The complete set of data related to GHG emissions from coal business in Australia in 2015 had been reviewed and endorsed by the government officials in June 2016, and are illustrated in a table at the end of this report.



Based on the target to reduce GHG emissions intensity in power business by 15% from the 2012 baseline, in 2016 the GHG emissions from Scope 1 and Scope 2 totaled 3.13 million tons carbon dioxide equivalents and 947 tons carbon dioxide equivalents, respectively. In terms of GHG emissions intensity, the Company's power business accounted for 0.5268 kilogram carbon dioxide equivalents per kilowatt-hour in 2016, a 13.59% increased from the 2012 baseline due to the change of fuel from coal to waste gas from nearby factory at one of our CHP plants since 2015. Even though the utilization of the waste gas can reduce the production cost and also enhance the relationship along the supply chain, the use of waste gas leads to emit additional GHG emissions with approximate 17% of the total GHG emissions in 2016.



Although Scope 3 GHG emissions account for a small quantity in comparison to the Company's Scope 1 and Scope 2 GHG emissions, the Company has a plan to calculate other indirect GHG emissions in the near future in order to get a clearer picture of carbon footprint throughout its supply chain. Apart from disclosing GHG emissions data in this Sustainability Report, the Company has joined the CDP since 2006, which requires the Company to disclose information on its GHG emissions and strategies to the stakeholders, particularly the investors. Banpu has set its reporting scope for both Scope 1 and Scope 2 emissions from the businesses that it has operational control. The CDP assessment in 2016 achieved a "B" performance band.

Not only has the Company set a clear policy for reducing GHG emissions, it has also strived to

create energy balance in response to the need for a low carbon society. The Company has sought new investment opportunities in renewable energy and other alternative energy. The Company is also seeking investment opportunities to increase generating capacity to 4,000 MW by incorporating High Efficiency - Low Emissions (HELE) technologies while aiming to achieve over 20% of renewable energy capacity by 2025.



### **Banpu's Mission to Comply with COP 22**

The 22<sup>nd</sup> Conference of the Parties on climate change (COP 22) was held in Marrakesh, Morocco from 7 to 18 November 2016 as the first conference on how to implement the Paris Agreement after it has been effective since 4 November 2016. 113 Parties have ratified the Paris Agreement of 197 Parties to the Convention, and the total amount of GHG emissions from Member States of the Paris Agreement accounts for more than 70% of the global GHG emissions. The COP 22 adopted decisions on various issues and a plan to convene another meeting to complete a set of rules and regulations in the form of "Paris Rulebook" within 2018 to facilitate compliance with the Paris Agreement.

According to the climate change trends and agreements in the above-mentioned Conference, Banpu has explored and sought development opportunities and ways to pursue its business in accordance with the new directions set by the Conference, including management of possible risks. The Company set target to reduce GHG emissions by 25% in coal business and 15% in power business by 2020 compared to 2012 baseline. It aims to increase generating capacity, which includes the increasing power from renewable energy and also using High Efficiency-Low Emission (HELE) technologies for coal-fired power generation.

So far the expansion of the Company's renewable energy business has increased, including solar power plants in Japan and China. Moreover, the Company has a plan to expand the business into other potential areas as set in our operational plan.

### **The Project to Lower GHG Emissions at the Zhengding Power Plant**

The Zhengding Power Plant is a combined heat and power plant in China run by Banpu Power, a subsidiary of Banpu. In 2016, the plant improved on cutting the amount of coal use, thus reducing GHG emissions, by changing water spray tray and feeder of cooling tower no.3 to increase its cooling tower efficiency and decrease steam use in coal production. Such improvement helped the power plant reduce coal consumption by 258 tons annually, accounting for 700 tons carbon dioxide equivalents, or a 0.3% reduction in GHG emissions over 2015.

## Energy Consumption



### Indicator

- Energy Intensity



### Target

- Decrease from the previous year



### Management Approach

- Managing energy consumption in line with Environmental Policy and Energy Conservation and Management Standard



### Performance

- In coal business, energy intensity slightly increased by 3.23% in 2016 from the previous year.
- In power business, energy intensity slightly increased by 0.19% in 2016 from the previous year.



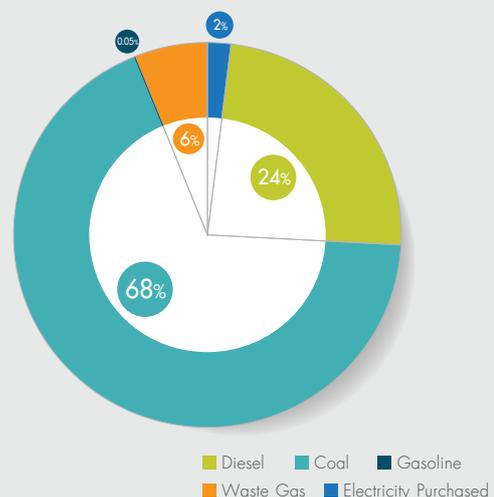
The Company has issued the Energy Conservation and Management Standard for the operations across the organization to mitigate environmental impacts of GHG emissions from the Company's energy consumption in its business. Emphasizing cost-effectiveness, the guideline stresses that all production units concern about environmental impacts and energy cost in their planning, design, choice and use of energy sources.

For open-pit mining, the important factor affecting energy consumption other than the effectiveness of energy planning and management is the life cycle of mines. In the initial phase of a project, the energy consumption is more intensive due to land preparation, road construction and the use of heavy machines to remove overburden from the seam for coal mining. During the production phase, the depth of mining and the distance of coal transportation become greater in correlation to the period of coal operation. Besides, slope gradient and geographic and climate conditions of the mining sites also affect energy consumption. Thus, the Company has placed great importance on mine planning and long-term energy management across the mining life cycle, for instance, a feasibility study on replacement of diesel with alternative fuels.

To reduce fuel consumption in the electricity and steam generation in power business, the Company

has improved the effectiveness of production process and adjusted the proportion of power and steam output to better serve the customers' demand. The Company has utilized High Efficiency-Low Emission (HELE) technologies in future power plants such as the Shanxi Lu Guang Plant, which will commence commercial operation in 2018 with a capacity 1,320 MW. Apart from that, the Company carried out a feasibility study on the use of other fuels than coal to produce power and steam. A successful case is found in the Zouping Combined Heat and Power Plant where a boiler was modified to be able to use blast furnace gas (BFG), a waste from customers' steel blast furnaces, as alternative to coal in steam production since 2015.

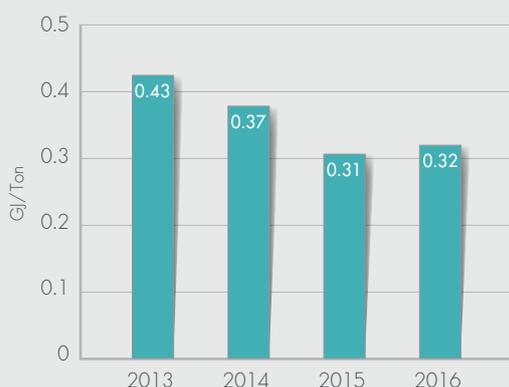
Energy Use Classified by Source in 2016



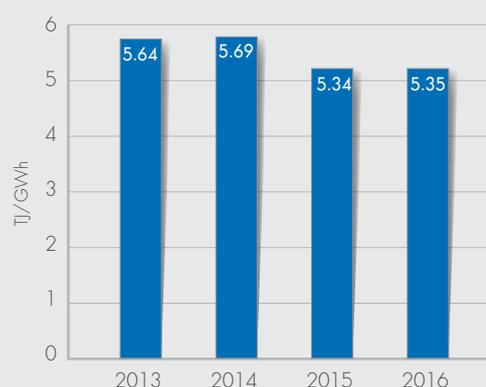
In 2016, the Company's energy consumption totaled 44,118 terajoules including; direct energy sources such as diesel, coal, gasoline and waste gas accounted to 43,099 terajoules; and indirect energy source from electricity purchased of 1,018 terajoules.

In terms of energy-effectiveness, the Company's energy intensity in coal business were 0.32 gigajoules per ton of coal and 5.35 terajoules per GWh in power business. In terms of energy intensity, a 3.23% increased in coal business and a 0.19% increased in power business from the previous year. During 2013-2016, the trends of energy intensity are decreasing in coal business and rather stable in power business.

Energy Intensity (Coal Business)



Energy Intensity (Power Business)



#### Increasing Effectiveness in Energy Consumption Using a Frequency Converter to Control Forced Draft Fans at the Zouping Power Plant

To reduce power consumption and increase effectiveness in energy consumption, the Zouping Combined Heat and Power Plant, owned by Banpu Power, a subsidiary of Banpu in China, has changed to control the forced draft fans of boiler no.5 by a frequency converter, which helps reduce power consumption when steam production activity is low since the back pressure used in controlling each unit of steam production consumes high power. In fact, higher back pressure in the boiler is needed to reduce steam when the steam production is lowered during periods of low steam demand. The use of a frequency converter reduced the boiler's energy consumption by 356,000 KWh, which accounted for 19.56% of total energy consumption.

# Biodiversity and Land Management



Forests are sources of food and home to all living things on earth. More importantly, they act as natural carbon sinks absorbing and trapping excess carbon dioxides, thus mitigating negative impacts of the climate change. The UN's 2015 Sustainable Development Goals Report indicates that there are more 23,000 endangered plant and animal species threatened by human activities. Apart from that, the global rate of forest loss has been around 3.3 million hectares per year between 2010 and 2015, demonstrating that forest resources and biodiversity are experiencing continuous critical loss.

Mining is one of the activities affecting biodiversity due to the removal of overburden for coal extraction. Improper management of land use in the planning stage not only causes short-term and long-term adverse effects on biodiversity but also leads to ineffective use or loss of natural resources. Biodiversity is thus primarily related to mining business and one of the stakeholders' greatest concerns on sustainability development.

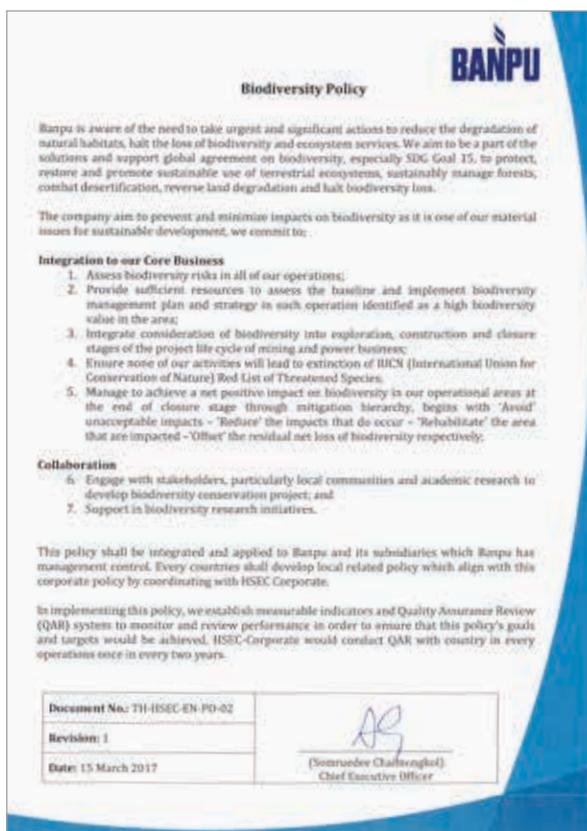


To drive all sectors along a path towards sustainable development, the United Nations has set 17 Sustainable Development Goals. Goal 15 aims to “Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss”. The targets of the Goal related to the Company’s business operations are:

- Ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems, and
- Promote the implementation of sustainable management of all types of forests.

To engage with the global goal, the Company has aligned our management approach to land use in the area where there is a concern over biodiversity with Biodiversity Policy. The Company is committed to careful use of its land for mining so as to minimize impacts on the ecosystems which is a crucial challenge for mining business. Prior to the launch of any mining project, a survey on land and the ecosystems is conducted to collect data on physical geography and biodiversity which used as a baseline in preparing mining operation plan and land rehabilitation plan to restore the biodiversity to the original levels. The Company also promotes community engagement while avoiding disturbing the habitats of endangered species, which are vulnerable and have high ecological value.

Apart from the impacts on biodiversity, there are several issues leading to sustainability related to our management initially interested by our stakeholders including mine subsidence, mine rehabilitation, and mine closure plans as these issues may have long-term impacts on the environment and society. The Company is fully aware of such concerns and has set several management approach to protect and mitigate the potential impacts in the future.



## Biodiversity



### Short-term Target

- Conduct a biodiversity risk assessment in all business sites



### Long-term Target

- Achieve net positive impact on biodiversity after mine closure, comparing to the biodiversity value before operating



### Management Approach

- Integrating biodiversity issues into all mining stages
- Aligning operations with Biodiversity Policy



The Company places top priority on preserving biodiversity, particularly in our coal business, for the benefits of local communities. Owing to the fact that the mining sites may be situated in a forest with a complex ecosystem and high biological diversity, there can be risks related to biodiversity caused by the Company's mining activities which possibly have harmful impacts on the ecosystem. The Company is fully aware of the risks and engaged in effective land use while minimizing the adverse impacts to the ecosystem. The Company has conducted the environmental feasibility study and carefully prepared mining operational plan and mine rehabilitation plan in all operational units. In addition, The Company announced Biodiversity Policy in early 2017 for management and prevention of short-term and long-term environmental impacts. Apart from enhancement of biodiversity in the project area, the Company places great importance on the sustainable conservation of ecosystems. We also has organized biodiversity offsets in other areas and promoted understanding of biodiversity management through the Power Green Camp for 11<sup>th</sup> consecutive year in 2016 as a means to educate youth with knowledge and understanding of the relationship between biodiversity and sustainable development.

The Company has set a clear practice in risk assessment in all production units, and biodiversity is one of the

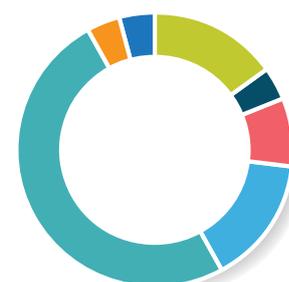
risks the Company prioritizes. From the biodiversity risk assessment of all Banpu's coal mines, it was found that two mines operated by PT. Indo Tambangraya Megah Tbk (ITM), namely Bharinto and Indominco mines, are located in the area of high biodiversity risk. To prevent loss of biodiversity in those areas, ITM in collaboration with Purwodadi Botanical Garden has carried out biodiversity surveys and a preservation program at the Bharinto Mines since 2010, and in 2012 the program was extended to the Indominco Mine. Currently, the program is making good progress and the survey covers wider areas. The results were used in creating a model for future mine site rehabilitation and biodiversity restoration.



Additionally, the Company has constantly conducted surveys to monitor the number of vulnerable animal and plant species in the mining areas and preserve the unique native species as the Company's coal business in Indonesia is located on the Kalimantan Island with plentiful forest and richness of biodiversity. In 2016, 22 species found in our mining areas, which are on the IUCN Red List, are as follows:

No.	Species Name	Family Name	IUCN Category
1	<i>Shorea smithiana</i>	Dipterocarpaceae	Critically Endangered
2	<i>Shorea lamellata</i>	Dipterocarpaceae	Critically Endangered
3	<i>Shorea peltata</i>	Dipterocarpaceae	Critically Endangered
4	<i>Shorea agami</i>	Dipterocarpaceae	Endangered
5	<i>Hopea pachycarpa</i>	Dipterocarpaceae	Vulnerable
6	<i>Psydrax dicoccos</i>	Rubiaceae	Vulnerable
7	<i>Aglaiia crassinervia</i>	Meliaceae	Lower Risk/ Near Threatened
8	<i>Aglaiia forbesii</i>	Meliaceae	Lower Risk/ Near Threatened
9	<i>Aglaiia palembanica</i>	Meliaceae	Lower Risk/ Near Threatened
10	<i>Alangium javanicum</i>	Cornaceae	Lower Risk/ Least Concern
11	<i>Dacryodes costata</i>	Burseraceae	Lower Risk/ Least Concern
12	<i>Knema conferta</i>	Myristicaceae	Lower Risk/ Least Concern
13	<i>Aglaiia elliptica</i>	Meliaceae	Lower Risk/ Least Concern
14	<i>Myristica maxima</i>	Myristicaceae	Lower Risk/ Least Concern
15	<i>Nephelium lappaceum</i>	Sapindaceae	Lower Risk/ Least Concern
16	<i>Santiria tomentosa</i>	Burseraceae	Lower Risk/ Least Concern
17	<i>Santiria apiculata</i>	Burseraceae	Lower Risk/ Least Concern
18	<i>Shorea laevis</i>	Dipterocarpaceae	Lower Risk/ Least Concern
19	<i>Myristica gutteriifolia</i>	Myristicaceae	Lower Risk/ Least Concern
20	<i>Calophyllum soulattri</i>	Guttiferae	Lower Risk/ Least Concern
21	<i>Koompassia malaccensis</i>	Leguminosae	Lower Risk/ Conservation Dependent
22	<i>Magnolia acuminata</i>	Magnoliaceae	Least Concern

IUCN Red List



As the Company's coal mines in Australia are underground mines, they cause less land disturbances than open-pit mines. Moreover, they are not located in the area with high biodiversity value. However, Group-wide Biodiversity Management Strategy is implemented by Centennial, a subsidiary of Banpu

in Australia, to integrate the biodiversity management plan into its operations. In Mongolia, the Company in collaboration with Green Initiative, a nonprofit organization (NGO), has developed a biodiversity management plan for the Company's mining areas and their vicinity.

## Mine Subsidence

Although underground mining causes less risk of air pollution than open-pit mining, it experiences other environmental risks such as mine subsidence caused by the movement of ground to underground mine voids. Mine subsidence can alter the environment and cause hazardous risks to local communities and living things inhabiting in the areas.

Centennial, our subsidiary in Australia, incorporates the management of mine subsidence as part of its risk management. Centennial realizes its responsibility to minimize impacts from mine subsidence and the environmental impacts on biodiversity from its mining business. Accordingly, the Company has

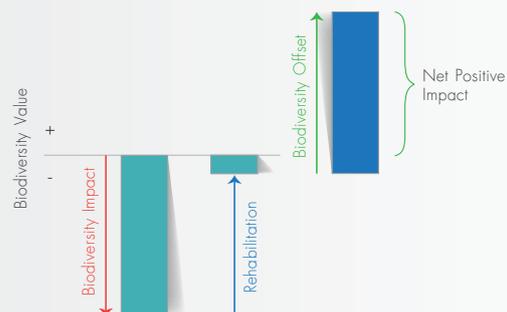
implemented a Subsidence Management Plan to monitor and mitigate the potential impacts of subsidence on surface land during mining operations. The Subsidence Management Plan also includes monitoring of the environmental impacts from mining activities with strict regulations on mining plan regarding mine subsidence, careful underground mine design, underground pillar stability and close monitoring of the activities. In case there is a mine subsidence causing adverse impacts on aquatic and terrestrial habitats, the impacts will be strictly managed in accordance with the Subsidence Management Plan.

### A Study of Net Positive Impact on Biodiversity

The Company has conducted biodiversity assessments at the local level in Indonesia, Mongolia and Australia under the biodiversity preservation concept at all areas where the Company has production units. Biodiversity surveys were undertaken prior to operating to collect baseline data for the preparation of a mining plan to avoid vulnerable areas and mine rehabilitation plan.

In 2016, the Company has adopted the concept of net positive impact on biodiversity to quantify the potential impacts on biodiversity from mining activities at the operational units. Such quantitative impact assessment considers the disturbed area where there are mining activities and richness of biodiversity in such particular areas to estimate the biodiversity impact from operational activities, biodiversity compensation from rehabilitation activities and biodiversity offset from the areas outside the concession area. This is comparing to the biodiversity value before operating.

As results of the preliminary study, the Company has selected 3 indicators by considering the representative and possibility to collect the data. Those 3 indicators are number of species, number of trees and soil organic matter. Other appropriate indicators may be selected later for each particular area. To assess biodiversity impact of open-pit mine, there was a negative biodiversity impact in the beginning stage of mining. Then, such negative impact was continually decreased when the mine has been entered into rehabilitation stage. However, the biodiversity was not as much as the original level due to some pit are intentionally kept as resevoirs based in the proportion of land use as mentioned earlier in the environmental impact assessment (EIA). In addition, the Company can create the net positive impact on biodiversity at the end of mine by increasing biodiversity offsetting in other areas.



## Mine Rehabilitation



### Indicator

- The proportion of the disturbed areas being rehabilitated



### Target

- More than 50% of the disturbed areas being rehabilitated for all operating mine sites



### Management Approach

- Mine rehabilitation according to mine closure plan



### Performance

- At the end 2016, 51.5% of the disturbed areas are rehabilitated



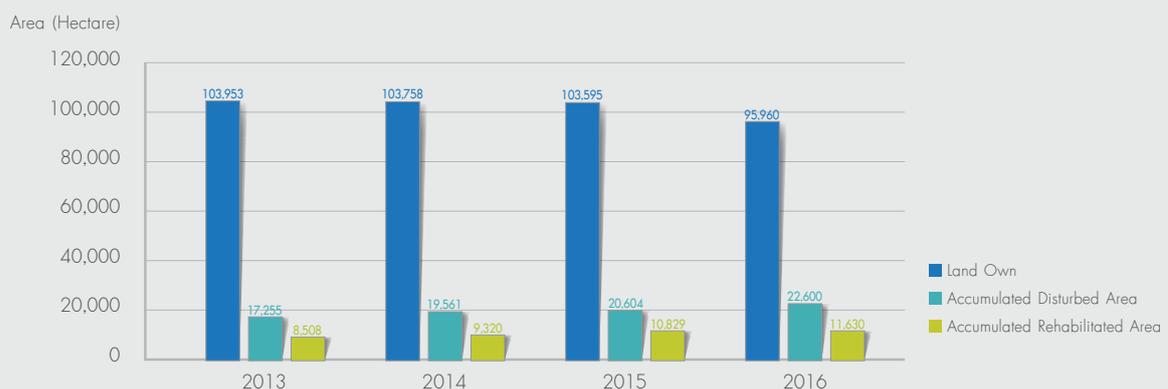
Mining rehabilitation is a post-mining process to restore the biodiversity in the area to the original state leading to environmental and social sustainability. Realizing its responsibility to the stakeholders for post-mining rehabilitation, the Company has set a group-wide guidelines for mine rehabilitation and preservation of biodiversity. Prior to mining, a master plan for mine rehabilitation for the life cycle of a mine is developed. The rehabilitation consists of 3 major processes, namely planning and design, Operations and monitoring and maintenance.

The Company follows the rehabilitation plan by backfilling overburden and waste rocks into the

mine pits as much and as soon as possible after mining is complete to minimize voids. The left of the wastes will be disposed off site as a last resort. The mining site is restored by planting ground covers and local perennials to create a stable landscape. However, concurrent mine rehabilitation during operation can be conducted to reduce costs and duration of the rehabilitation as the mine is approaching the closure. In addition, the Company promotes community engagement in rehabilitating the impacted area in order to align its operations with the needs of local communities throughout the life cycle of a mine, thus leading to sustainability even after mine closure.

For coal business, the Company has total land own of 95,960 hectare, of which only 22,600 hectare or 23.6% of total areas are used for operational activities. The rest is preserved intact, which is a way to help preserve forest and biodiversity in the areas. At the end of 2016, we has rehabilitated 11,630 hectare, or 51.5% of total disturbed areas.

Land Use (Coal Business)



### A Study to Improve Efficiency of Lamphun Mine Rehabilitation

During 1987-1995 and 2003-2004, the Company had operated the Ban Hong Mine in Li Subdistrict, Li District, Lamphun Province. The coal produced amounted to 4.45 million tons while the overburden removed amounted to 22.45 million cubic meters. The Company undertook the mine concurrent rehabilitation and returned the forestland to the government in 2004.

However, there is an area legally owned by the Company and thus is not required to return it to the government. Still the Company intended to reclaim the land and make it richer so that the local people can sustainably benefit from the land. In the previous year, the Company in collaboration with the Faculty of Engineering, Chiang Mai University has developed an additional rehabilitation plan which covers three major areas:

- 1) Biodiversity assessment of rehabilitated areas undergoing rehabilitation at different periods including the study of types of plants grown in the area to determine the right proportion of each type of plants. The suitable plants should grow well in the area and at the same rate with other plants while helps to nourish the soil with their neutral or alkaline organic residues of and prevent erosion.
- 2) Tests of substances from the sources near the study area in terms of quality, quantity, appropriate proportion and chemical reaction rate. The appropriate substances will be used in improving soil and water quality while taking into account sustainability and economic value.
- 3) Development of an operation plans for land rehabilitation to sustainably prevent acid mine drainage and to ensure that every process is undertaken in a timely manner and in the right season as the operation in open space can be affected by external factors such as rainfall

The results from these studies will enable the Company to better rehabilitate its completed mine areas and the methods can also be applied in mine rehabilitation in other areas.



## Mine Closure



### Indicator

- Number of mines implementing according to mine closure plan



### Target

- All mines could be returned to the government as planned with the acceptance from related stakeholders



### Management Approach

- Operation according to mine closure plan



### Performance

- 1 mine in Indonesia is at mine closure stage, the process of mine rehabilitation is in accordance with its closure plan



Due to the global economic slowdown coupled with growing concerns for conservation of natural resources and the ecosystems from all sectors, mine closure plan implementation is of great concern to our stakeholders. An inappropriate mine closure plan not only causes environmental and safety risks but also affects the local income and may impede the sustainability of community development.

The Company prioritizes its responsibility for the society and environment after mine closure. It places great importance on the preparation of a mine closure plan at the pre-mining, mining and post-mining stages in order to maintain long-term sustainability of ecosystems and communities. The mine closure plan is periodically reviewed by the Company and its stakeholders when there are changes in coal mining business such as expansion of mining area and extension of concession period.

Apart from that, the Company has set group-wide mine closure standard to be implemented in

Banpu and our subsidiaries with emphasis on the management of environmental impacts, namely improvement of landscape stability, management of overburden removal, water management and treatment, waste disposal and mine rehabilitation. Several environmental impact indicators are used in assessing achievement and reliability of mine closure plan before returning the mined areas to the government. In addition, there is environmental performance monitoring according to the environmental impact indicators set for in each particular area such as stability, quality of surface and underground water and biodiversity in order to ensure that there is no long-term environmental impact on the area.

With such standard, our mines will have mine closure plans suitable for the localities' environmental and social conditions. Currently, 1 mine in Indonesia is at mine closure stage which is in the process of rehabilitation as planned and closely assessed by both internal and external assessors.

# Air Emissions



Banpu's major business which may have an air pollution impact on communities and the environment is power business, particularly its combined heat and power plants since they use coal as fuel in the power generation process. Major air pollutants emitted from the plants include sulfur dioxides, nitrogen oxides and particulate matter, respectively. The major air pollutant in coal business is particulate matter emitted during the production process, stockpiling, coal quality improvement and transportation.

Air quality is the primary issue of concern of stakeholders, especially in China where the government set stricter emissions standards to curb air pollution in big cities suffering years of poor air quality. The Company has been fully aware of the risk from air pollution caused by the Company's production and determined the management approach to the risk by efficiently reducing air pollutants at their sources and controlling air pollution to meet the standards. The Company has also set air quality indicators, namely sulfur oxides, nitrogen oxides and particulate matter to monitor air quality in the affected areas. In addition, the Company has set a five year plan 2013-2018 to improve air quality at the combined heat and power plants with the investment of approximately USD 4.3 million in clean coal technologies.

## SO<sub>x</sub> Emission



**Indicator**

- The concentration of sulfur dioxide from power plants



**Target**

- Not exceeding 35 mg/m<sup>3</sup> at the Luannan Power Plant\*
- Not exceeding 35 mg/m<sup>3</sup> at the Zhengding Power Plant\*
- Not exceeding 200 mg/m<sup>3</sup> at the Zouping Power Plant\*



**Management Approach**

- Investment in the improvement of power plants' air quality control system



**Performance**

- The concentration of sulfur dioxide amounted to 19.98 mg/m<sup>3</sup> at the Luannan Power Plant.
- The concentration of sulfur dioxide amounted to 12.75 mg/m<sup>3</sup> at the Zhengding Power Plant.
- The concentration of sulfur dioxide amounted to 104.90 mg/m<sup>3</sup> at the Zouping Power Plant.

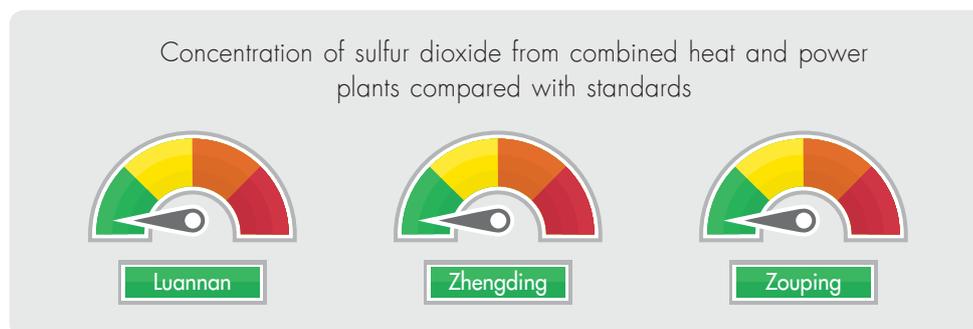


In nature, sulfur dioxide can be emitted to the atmosphere from volcanic eruptions. Additionally, combustion of fuels composed of sulfur such as coal, petroleum and biomass also emits sulfur dioxide. As sulfur dioxide is water-soluble, colorless, pungent-smelling gas, inappropriate emissions management can pose hazardous effects on human health and the environment.

The Company's sulfur dioxide emissions are mainly from the generation of combined heat and power. Therefore, we focus on controlling emissions at the sources by improving the efficiency of the plants using the Circulating Fluidized Bed (CFB) to reduce sulfur dioxides and

nitrogen oxides during coal combustion; using low sulfur coal; and improving the air quality using Flue Gas Desulphurization (FGD) systems, in both semi-dry and wet, to remove sulfur dioxide from the exhaust flue gases. Besides, the Company has installed the Continuous Emission Monitoring System (CEMS) at the chimneys and in the surrounding communities to ensure that the air quality indicators meet the standards required by law.

In 2016, the concentration of sulfur dioxide from all three combined heat and power plants in China met the standards required by law.



\*Local government emissions standards

## NO<sub>x</sub> Emission



### Indicator

- The concentration of nitrogen oxide from power plants



### Target

- Not exceeding 50 mg/m<sup>3</sup> at the Luannan Power Plant\*
- Not exceeding 50-100 mg/m<sup>3</sup> at the Zhengding Power Plant\*
- Not exceeding 100 mg/m<sup>3</sup> at the Zouping Power Plant\*



### Management Approach

- Investment in the improvement of power plants' air quality control system



### Performance

- The concentration of nitrogen oxide amounted to 34.06 mg/m<sup>3</sup> at the Luannan Power Plant.
- The concentration of nitrogen oxide amounted to 36.92-82.01 mg/m<sup>3</sup> at the Zhengding Power Plant.
- The concentration of nitrogen oxide amounted to 58.20 mg/m<sup>3</sup> at the Zouping Power Plant.

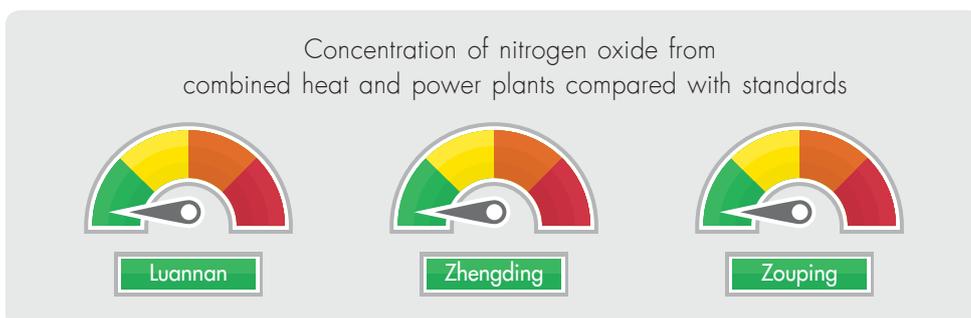


Apart from sulfur dioxide emissions, there are also emissions of nitrogen oxides from power generation and transportation activities where there is combustion of fuels such as oil, coal and biofuels. Nitrogen oxide is colorless and odorless; however, they can be seen in reddish-brown when they are with other particulate matters in the air. This reddish-brown gas is slightly water-soluble and can undergo chemical transformations in the atmosphere to form major air pollutants, namely, nitrogen monoxide (NO) and nitrogen dioxide (NO<sub>2</sub>).

In managing NO<sub>x</sub> emissions, the Company has installed various technologies to reduce nitrogen oxides effectively at its source, including the low NO<sub>x</sub> burners and the Circulating Fluidized Bed

(CFB) reducing sulfur dioxides and nitrogen oxides during combustion. The Company has also utilized the Selective Non-Catalytic Reduction (SNCR) and Selective Catalytic Reduction (SCR) by injecting ammonia solution into the combustion chamber to convert nitrogen oxides to harmless nitrogen and water. Furthermore, the Continuous Emission Monitoring System (CEMS) was installed at the chimneys and in the surrounding communities to ensure that the air quality indicators meet the standards required by law and have no impact on the communities.

In 2016, the concentration of nitrogen dioxide from all three combined heat and power plants in China met the standards required by law.



\*Local government emissions standards

## Dust



**Indicator**

- The concentration of dust from power plants

**Target**

- Not exceeding 10 mg/m<sup>3</sup> at the Luannan Power Plant\*
- Not exceeding 10 mg/m<sup>3</sup> at the Zhengding Power Plant\*
- Not exceeding 30 mg/m<sup>3</sup> at the Zouping Power Plant\*

**Management Approach**

- Investment in the improvement of power plants' air quality control system

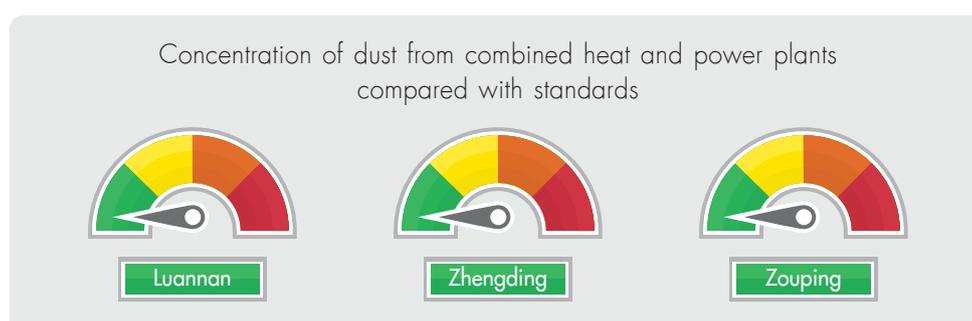
**Performance**

- The emissions intensity of dust amounted to 2.10 mg/m<sup>3</sup> at the Luannan Power Plant.
- The emissions intensity of dust amounted to 2.5 mg/m<sup>3</sup> at the Zhengding Power Plant.
- The emissions intensity of dust amounted to 13.55 mg/m<sup>3</sup> at the Zouping Power Plant.

One of the major pollutants from coal mining is dust, which can be emitted from coal production, stockpiling, coal quality improvement and transportation. Larger quantities of dust will be dispersed in the area where there is low humidity. The Company's management approach to dust control is prevention and reduction of dust at its source, while employing various measures appropriate to each operating site. Such measures include planting trees as a wind-blocking barrier in high risk areas of dust, installing a windbreak wall, reducing the vehicle speed in mining areas to reduce dust and enhance work safety, spraying roads and coal stockpiles with water, replacing trucks with conveyors in coal transportation, setting up a tires washing area, and covering coal storage and haul trucks with tarpaulin to minimize dust dispersion. Additionally, the Company has regularly monitored the amount of dust at mine site, coal storage and in the surrounding communities to ensure the effective control of dust from coal mining.

To remove fly ash caused by the generation of combined heat and power plants, the Company uses an effective and advanced technology called Electrostatic Precipitator (ESP). With this apparatus, dust is passed through the electric field to be charged with negative electrode and later induced to the collecting chamber having the opposite charges in which the fly ash will be collected by collecting plates. Apart from that, there is the installation of a Continuous Emission Monitoring System (CEMS) at the chimneys and in the surrounding communities to ensure that the air quality indicators meet the standards required by law.

In 2016, the concentration of dust from all three combined heat and power plants in China met the standards required by law.



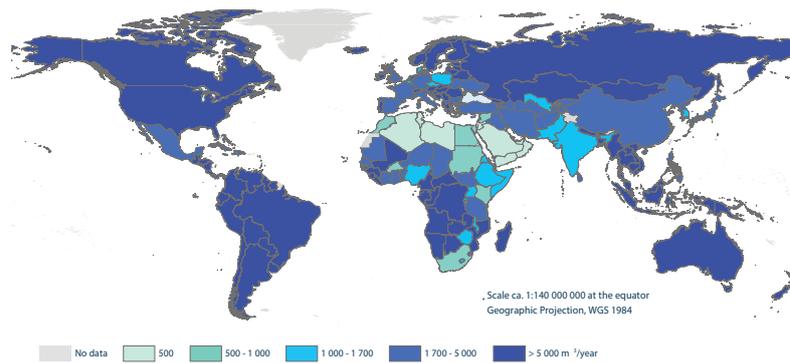
\*Local government emissions standards

# Water Management



Water is a basic necessity of life and a crucial component of the ecosystem that all living organisms subsist on. It is also a major factor influencing economic development as it contributes to half of the global employment in various sectors, for instance, industry, agriculture, fishery, forestry, transportation and tourism. Research indicates that the energy business sector consumes 15% of total water consumption while the industrial sector accounts for 4% of total water consumption. Freshwater consumption has grown 1% each year over the past 30 years. Although water is a renewable resource, it has become scarcer due to rapid world's population growth, increasing water demand in the industrial and agricultural sectors, and climate change, which affects the fresh water resources either in the form of droughts or floods in several areas.

The United Nations World Water Development Report 2016 provided a definition and measurement of national water scarcity using annual per capita water as a global index. Water stress areas are divided into three levels according to the threshold values, namely, regular water stress, chronic water scarcity, and absolute scarcity. A regular water stress area is the area whose annual water supplies drop below 1,700 m<sup>3</sup> per person. When annual water supplies drop below 1,000 m<sup>3</sup> per person, the area is experiencing chronic water scarcity and below 500 m<sup>3</sup> per person defined as absolute water scarcity.



2014 Total Renewable Water Resources (m<sup>3</sup> per capita per year)  
Source: WWAP (2016)



Although none of our operations in Indonesia, Australia, China, Japan and USA is located in water-stress areas, the Company still recognizes water-related risks. All concerned sectors also prioritize water management with the aim to achieve sustainable management of water resources, conservation and rehabilitation of natural ecosystems as well as infrastructure development for the wider community. This is shown in their attempts to drive the private sector to achieve the 17 Sustainable Development Goals (SDGs) of the United Nations. The goal that is directly related to water resource is Goal 6 “Ensure availability and sustainable management of water and sanitation for all”, which aims at mitigating quality water scarcity that may lead to fights for water in the future.

In coal business, water is used mostly for washing coal off dirt and other contaminants. In power business, it is used for cooling the equipment and generating steam. To achieve the global goals, the Company announced Water Policy in early 2017 emphasizing effective resource utilization and environmental compliance and water management for the issues prioritized by stakeholders, namely efficient water reduction in production processes, water management planning to solve the acid mine drainage problem, waste water treatment by appropriate technology and continuous effluent quality monitoring. All these measures are in place to ensure that water utilization and water drainage will neither have short-term nor long-term negative impacts on both environment and surrounding communities.

### Water Policy

Banpu is aware of the need to take urgent and significant actions to conserve water as precious shared resources for all lives and ecosystem. This aims to protect and minimize impacts on water resources as well as reduce the water footprint by following actions:

1. Optimize our water consumption by seeking opportunities to reduce, reuse or recycle;
2. Improve our quality of discharged water by seeking opportunities to prevent;
3. Manage our water holistically to ensure fairness and effectiveness of water availability to all stakeholders in our operational area;
4. Identify risk and establish emergency response and recovery procedure in our operations;
5. Establish monitoring system for both quality and quantity to ensure our compliance;
6. Engage with stakeholders, particularly local communities and academic research for water conservation, quality improvement and management; and
7. Support local communities to build up capacity in water resource and sanitation surrounding our operational area or wherever appropriate.

## Water Use



### Short-term Target

- Establishing baseline for water utilization and water quality in all current operations by 2019



### Long-term Target

- Reduction of water intensity



### Management Approach

- Managing water use in compliance with Water Policy and Mine Water Management Standards for coal business



### Performance

- Reduction of total water withdrawal by 38.94% over the previous year



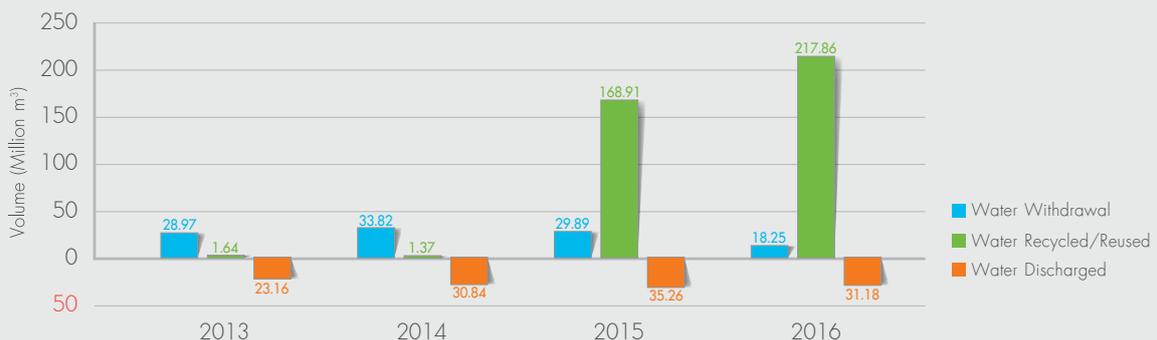
Water is the major raw material for the Company's coal production. Freshwater reserve utilized in the production process is mostly collected from rainfall stored in reservoirs inside the project areas; the rest is surface water from natural water sources. Most of the water is used for coal washing. In power business, water, most of which is underground water, is used mainly in the production of power and steam, including the cooling system.

The Company realizes the significance of water conservation and is thus engaged in the conservation by reducing water withdrawal from natural resources and increasing reuse and recycle of water. To maximize resource utilization and effectiveness, the Company has projects to reduce the water use in all production processes of all production units. All production processes have been analyzed to establish baseline water use and find production process improvements in order to reduce water withdrawal. Such improvements include:

- Enhancing the effectiveness of water treatment system, such as Reverse Osmosis, Ultrafiltration and Ion Exchange systems throughout the production process
- Analyzing the production process to improve the effectiveness of water use
- Regularly monitoring the production process to detect and repair potential leaks
- Increasing water reuse in the same production process or in other processes, such as spraying water on stockpiles to control dust, washing truck wheels, and watering plants in the mining area

In 2016, the Company's water withdrawal amounted to 18.25 million cubic meters (m<sup>3</sup>), a 38.94% reduction from the previous year. The water recycled and reused amounted to 217.86 million m<sup>3</sup> which was 28.98% increased from the previous year, excluding data from coal business in Indonesia since its data reporting system is under standardization. The water discharged, there was 31.18 million m<sup>3</sup>, a 11.57% reduction from the previous year.

Water Management Profile



## Acid Mine Drainage



### Short-term Target

- Reviewing the risk from acid mine drainage at all mines



### Management Approach

- Managing in compliance with Acid Mine Drainage Management to prevent acid mine drainage



One of the stakeholders' great concerns of coal mining business is acid mine drainage. Naturally, water slowly gains acidity from corrosion of soil and rock layers, but this process can be quickened when potential acid forming material are exposed to water and air and undergo chemical reactions. Acid water not only contains high level of acidity but is also able to wash heavy metal compounds out of soil layers to be a water-soluble one. Therefore, inappropriate management of acid mine drainage can have long-term impacts on the environment.

Our management approach, to prevent acid mine drainage (AMD), is carried out as follows:

- Assessing acid mine drainage risk based on geological survey and soil property study in the pre-mining phase to create a model for future estimation and soil classification at the mine.
- Developing mine operation planning is completed during the feasibility study phase.
- Preparing an environmental impact assessment and management plan while conducting economic feasibility study in order to maintain the stability of the site and mining operations throughout the mine's life cycle until end of mine.
- Developing measures to prevent soil erosion and acid drainage such as removal of the overburden as possible to reduce sediment leakage to natural water bodies, which will acidify the water. In the post-mining phrase, mining pits will be backfilled with soil and rocks as much and as soon as possible in order to avoid uneven surface and minimize the risk of acid mine drainage.

Protective and mitigation measures against acid mine drainage have been determined and implemented in all Banpu's production units. If the soil in any area contains potential acid forming material, it will be sorted. After that it will be placed onto the prepared area lining with the soil with non-acid forming material and then topped with the soil with non-acid material. Then the layers of soil are compressed and filled on the top surface with topsoil, and ground cover plants and trees will be grown upon to prevent potential acid forming material from undergoing chemical reaction with water and air, which will cause acid mine drainage.

To control quality of the water whose acidity exceeds the standard level, the Company has a range of mitigation measures for different production activities, for example, precipitation with quicklime and treatment to meet the standard before discharging into public water bodies outside of the site. Alternatively, a biological treatment method called Successive Alkalinity-Producing System (SAPS) is used as a partial replacement of quicklime, which can save up to about 50% of total quicklime usage.

Currently, there are 4 mines in Indonesia determined having acid mine drainage. All of those are in the treatment process as per the mine water management plans.

## Effluent



### Long-term Target

- Reduction of pollutants in effluent from production process



### Management Approach

- Managing in compliance with mine Water Management Standard and Tailing Management Standard in coal business



As the Company's mines in Indonesia are open-pit mines, during site preparation, water needs to be pumped out of the pit. The water is accumulated from rainwater and underground water in the pit at the lower level from the ground. Drainage of such a large quantity of water needs an appropriate water segregation system to separate rainwater in the mining areas from effluent.

A serious issue of water quality in coal business operations is acid drainage. The Company hence focuses on prevention acid drainage at its source by developing work management procedure and protective measures against acid mine drainage, which not only mitigates acid mine drainage, but also reduces the cost for water treatment in high volume.

The Company manages effluent disposal by designing drainage system to segregate surface water drainage from being contaminated with wastewater from production processes. The drainage system is constantly maintained and effluent is properly treated before it is discharged into public water bodies. Besides, treatment methods are carefully selected based on geographical and economic factors to comply with wastewater treatment standards in each country where the Company operates. Such methods include the use of settling pond for water treatment, which is a standard practice in Indonesia,

or the construction of wastewater treatment plant in Australia due to the limited area.

The Company has set indicators of effluent quality, namely pH, turbidity and concentration of heavy metals. Quality of effluent must be constantly monitored by internal and external parties to ensure that its quality meets legal requirements of the local government and will not have any negative impacts on aquatic ecosystems and the communities outside of site areas.

For our combined heat and power plants in China, the majority of water use is for controlling the temperature of machines or lowering the temperature of water in the production process to meet legal standards before discharging. Heat from the machines will be transferred to low-temperature of cooling water. The Company has used the semi-closed cooling water system to reduce the amount of water discharged and also designed a drainage system with longer distance so that water is exposed to air as long as possible. This will control the temperature of water within the standard prior to discharge outside the plants.

In 2016, the effluent quality of all projects both in coal and power businesses met water quality standards required by law.

### Improvement of Production Process to Reduce Water and Energy Consumption at Zhengding Power Plant

Zhengding Power Plant is engaged in continuous improvement of production processes in order to maximize resource utilization. In 2016, the plant redesigned and improved its production processes, including conversion of the desulfurization process of steam boilers no. 3-5 by replacing the use of underground water in the production processes with treated water from chemical treatment plant; change of root blower for steam boiler no. 5 to reduce the number of operating equipments, resulting in less electricity consumption. In addition, the Company also renovated coal feeder no. 5 to reduce the negative pressure of boiler furnace, which lowered electricity consumption of forced drafted fans.

From these improvements in the production system, in 2016 the Zhengding Power Plant was able to reduce water use by 250,000 m<sup>3</sup>. The power consumption was also reduced by 276,000 KWh from replacement of blower, and 1,804,000 KWh from improvement of coal feeder (estimated total amount of 7,488 gigajoules), or a 27% reduction of total energy consumption over 2015.



# Waste Management



In accordance with its Environmental Policy, Banpu is determined to strictly comply with laws, regulations and environmental standards and comprehensively manages the environmental impacts by adopting the Environmental Management System (EMS). Environmental risk assessment and environmental impact assessment are conducted in all operational processes, including when there are changes to ensure that the Company's business operations do not cause any environmental impacts.

The Company realizes the importance of waste management from the Company's operations as it is the Company's responsibility to stakeholders and to the environment since inappropriate waste management can negatively impact the environment. The Company adheres to the 3R's of waste management: Reduce, Reuse, and Recycle, which helps decrease the amount of waste, impacts on the environment and also treatment costs.



## Hazardous and Non-Hazardous Waste

**Indicator**

- The proportion of recycled waste per total waste

**Target**

- 50%

**Management Approach**

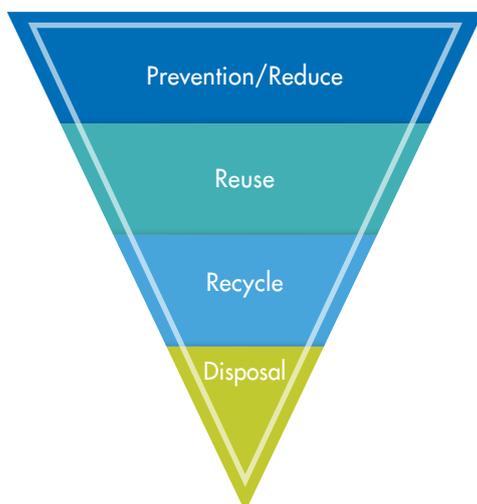
- Managing in compliance with Environmental Policy by reducing waste disposal through incinerations or landfills

**Performance**

- The proportion of recycled waste accounted for 50.8% of total waste



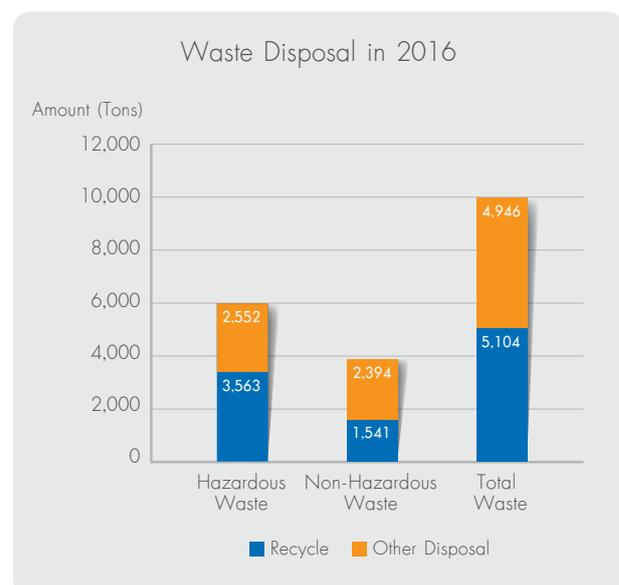
The Company realizes that there are environmental impacts caused by the waste from the Company's operations so it has continuously improved production processes to minimize waste and put in place proper measures for waste segregation and disposal to ensure that none of the waste will have negative impacts on the environment. Wastes from the Company's business operations can be categorized into two groups: non-hazardous and hazardous waste.



To minimize waste and potential waste impacts, the Company issued group-wide standards for waste management and standards for waste transportation and disposal to be adopted by all Banpu's production units. The Company also take into consideration the key principles of waste management, namely waste prevention and reduction and optimizing resource utilization. Waste from different production processes

is segregated, reused or recycled in other processes when possible before being disposed by inceneration or landfill. Hazardous waste such as used batteries or chemicals must be segregated and stored in the storage area for hazardous waste before it is transported to be disposed with appropriate disposal methods in accordance with applicable local laws and regulations. In some cases, the Company may sell such waste as used motor oil and car batteries to government-authorized buyers for recycling.

In 2016, the Company's total waste amounted to 10,050 tons, catagorized as 3,935 tons of non-hazardous waste and 6,115 tons of hazardous waste. The amount of waste recycled was 5,104 tons, or 50.8% of total waste.



## Ash from Power Plants



### Indicator

- The proportion of recycled ash from all power plants in other industries



### Target

- 100%



### Management Approach

- Emphasis on ash recycling



### Performance

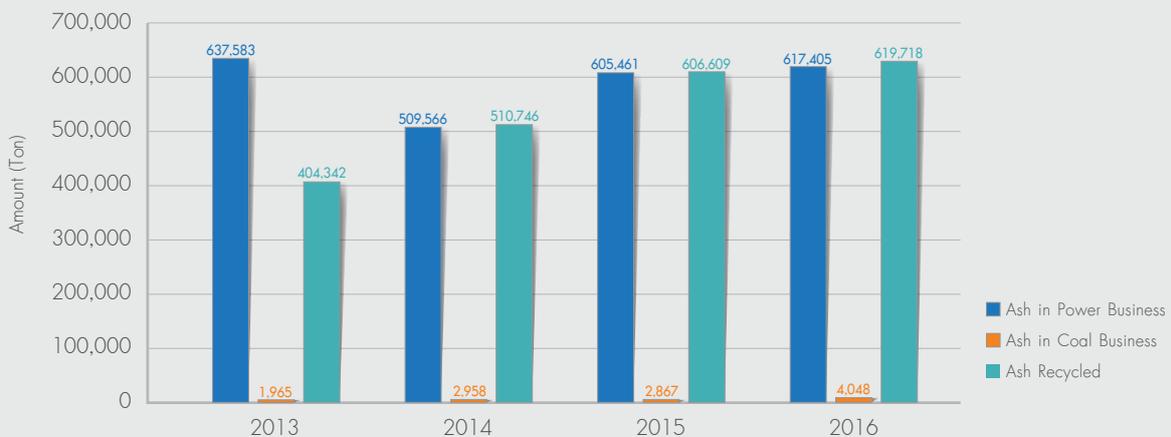
- 100% recycled ash from power plants in China
- 51.1% recycled ash from a power plant of coal business in Indonesia



In power business, the by-products of power and steam production from coal-fired power plants are bottom ash and fly ash, which is aggregate material, can be sold to buyers and recycled in other industries. Fly ash can be used as a cement substitution to produce stronger concrete for construction, while bottom ash can be used as a raw alternative material to produce bricks or as aggregate in road construction. Ash is separated into different sizes to cater to different market needs and to increase sales prices.

In 2016, there were 617,405 tons of ash from our power and steam generation at three coal-fired combined heat and power plants in China. All was recycled in other industries. Bongtang power plant, an internal coal-fired power plant at Indominco mine in Indonesia, generated total ash amounted to 4,048 tons. 2,313 tons of fly ash was used as cement-substitute material in pavingblocks production and used at the operational area. The rest was kept on-site in the appropriate storage area for further recycling.

Ash from Power Plants



## Mineral Waste

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Generally, coal business operations produce a large amount of mineral waste, which is one of the environmental risks that will negatively impact both the environment and stakeholders in the surrounding areas unless it is efficiently managed. Mineral waste includes overburden and sediments & tailings from coal washing process.

The Company has preventive measures and management of mineral waste as follows:

- In the overburden removal process before coal extraction, the Company will conduct a geological survey and a study of soil properties prior to mining. The results from those studies will be used for creating a geological model to estimate and classify soil types in the mining area in order to assess risks and conduct effective mine planning, prevent acid mine drainage and assess the economic value.
- The Company has a plan to remove overburden as necessary and emphasizes in-pit backfilling in order to reduce the void areas and save energy used to transport overburden to other areas.
- According to the corporate acid mine drainage management standard, if soil in any areas is found to contain potential acid forming materials, it will be segregated and filled onto the prepared area grounded with soil that contains non-acid forming material then topped with the soil with non-acid material. The layers of soil are then compressed before being treated by filling the top surface with topsoil and growing ground cover plants and trees on it to prevent potential acid forming materials from undergoing chemical reaction with water and air, which will cause acid drainage.
- The Company has set group-wide measures for the management of sediments and tailings based on risk management concept ranging from the appropriate design of sediment storage area to land use after mining is completed. Even though the analysis of these sediments and tailings confirmed that they are non-hazardous waste, the storage area must be regularly monitored for potential leakage to prevent impacts on the environment. Sediments and tailings are finally disposed by landfilling.

In 2016, the Company removed 200.82 Million BCM\* of overburden. In addition, dry sediments and tailings from coal washing process amounted to 322,843 tons dry weight.

\*A volumetric term commonly used in coal mining business (Bank Cubic Meter: BCM)

## Spillage



### Indicator

- Number of significant spills



### Target

- Zero spill



### Management Approach

- Establishing preventive measures against spillage and regular preparation to respond to spillage event



### Performance

- 1 case of spill



In the production processes of coal and power businesses, the Company uses a lot of oil and chemicals as raw materials which have potential for spills from storage areas, and possibly have a wide range of short-term and long-term impacts on the environment and stakeholders. To prevent such events, the Company stresses on strict preventive measures against spills and regular preparation to respond to potential spills. Furthermore, there are waste management monitoring systems by internal and external units to ensure that the Company's

operations do not have adverse impacts on the environment and the communities in the mining area.

In 2016, there was a spill of turbid water from Charbon mine in Australia due to heavy rainfall. Although the event did not cause any negative impact on the environment, the Company promptly cooperated with government authorities to improve the monitoring standards and reviewed an emergency response plan to ensure prompt and efficient response in case of a spill occurred.

### Leakage at Charbon

In the middle of 2016, there was an incident at Charbon that turbid water discharged to a dam of neighboring property. Charbon is an open-pit mine which has ceased all operations under Centennial, subsidiary of Banpu in Australia. The investigation found that this incident caused by the licensed discharge area was highly silted up, the flow path of water discharged was changed and diverted from the normal contour line and also heavy rainfall. However, the tailing spill had no element that caused of any impacts on environment.

In this case, the emergency response team conducted the environmental investigation immediately, to identify and recover this incident by returning the water into the licensed area. In addition, the monitoring measures and management plans were reviewed and improved by responsible team. Moreover, Centennial also cooperated with government sectors to review the emergency response plan and emergency preparedness for effective management, in case of any leakages occurred in the future. There were 2 non-compliance issues and the related penalty fees summarized by Department of Planning and Environment (DPE) and Environmental Protection Agency (EPA); non-compliance with Water Management Plan, and Sediment and Erosion Control Plan, with total penalty of AUD 18,000.

### The Progress of Tailing Spillage at Clarence

Clarence is one of the mines under Centennial, subsidiary of Banpu in Australia, there was the spillage of tailing which contained fines and coarse coal to natural water resource on 2 July 2015. Clarence extensive cleaned up works to the satisfaction and approval of the Environment Protection Agency (EPA) as notified in July 2016.

The incident was caused by the pumping of coal fines slurry to a Rejected Emplacement Area (REA) which over its capacity. REA's wall was destroyed by high water pressure. Then, the coal fines slurry migrated down to nearby water, across the border of the premises into the Blue Mountain National Park and then into the Wollangambe River. Learning from this incident, Clarence has established corrective and preventive actions as follows;



#### Corrective Action

- Stop activities in REA that had the incident.
- Re-design the tailing management system, managed by Filter Press system to separate water from coal fines slurry before disposal with appropriate methods.

#### Preventive Action

- Develop new products from fines and coarse coal in different ratio which is in research and development process.



# Social

“Community development in line with the Sustainable Development Goals”



## Zero

Significant Complaints from Communities

**100%**  
Attending Trainings  
Programs

**IFR 0.46**  
Person/ Million man-hour

**74%**  
Banpu Spirit Survey  
(Thailand)



# Employee Management



Banpu strongly believes that human resources are the heart of sustainable development and the key to success of its business over the past three decades. To achieve the operating results in accordance with the Company's vision, mission and strategic plan, effective "human resources management" plays a pivotal role in the mitigation of risk from business operations. The Company has developed a human resources management system in line with "Human Resources Philosophy" to ensure professionalism of its employees, which will steer the Company to success. This also enables the Company to effectively respond to challenges and maximize benefits to all stakeholders and achieve its goal to be "a good corporate citizen" in accordance with Corporate Governance Policy and Code of Conduct in every location of its operations. The philosophy underlines the importance of its employees as a stakeholder; therefore, the Company is committed to ensuring equity and fairness to all employees, which contributes to their satisfaction and career success.



The three principles of Human Resources Philosophy are:

- 1. Equitability** The Company upholds the principle of equitability by providing equal opportunities to all employees in the recruiting process regardless of race, nationality, language, and gender while promoting the collaboration under the corporate culture “Banpu Spirit” and fostering the shared attributes of “Banpu DNA” to overcome the cultural barriers at every location.
- 2. Performance** The Company has a performance management system in which all employees with their supervisors collaboratively take part in determining the key performance indicators, remuneration and bonuses according to their performance.
- 3. Competency** The Company believes that all its employees are competent and thus provides opportunities for the employees to use their full

potential and promotes self-development through on-the-job training, coaching, training and job rotation.

To comply with the HR Philosophy, in 2009 the Company issued Human Resources Policy comprising four sub-policies, namely Recruitment and Selection Policy, Compensation Management Policy, Employee Relations Policy and Training & Development Policy. At present, the Company is reviewing the policies to comply with its current strategy. To embrace transparency and sustainability of HR management in response to business challenges, the Performance Assessment Committee, the Organizational Development Committee, the Compensation Committee, and the Corporate Governance and Nomination Committee were set up and entrusted to oversee the HR management.



## Employee Engagement



### Indicator

- Result of employee engagement survey



### Target

- Result of employee engagement survey is over 60%



### Management approach

- Compliance with laws and international frameworks
- Fair employment, remuneration and performance management system
- Improvement of employees' quality of life



### Performance

- According to the employee engagement surveys, the percentages of employee engagement were 57%, 78% and 97% in Thailand, Indonesia and China, respectively.



The Company places top priority on providing employees with high quality of work life and promoting employee engagement since it believes that the level of employee engagement is significantly related to the work effectiveness, competitive competence and level of happiness in the workplace, which contributes to the sustainable growth of the Company. Accordingly, it has developed Employee Relation Policy as a guideline for strengthening the relationship between the Company and the staff with emphasis on compliance with laws, respect to rights of employees, promotion of employee relation activities under the following three principles:

#### Say

employees saying positively about the Company with people both inside and outside the Company

#### Stay

employees working happily and willing to stay with the organization

#### Strive

employees wholeheartedly striving to improve the performance of the Company

To achieve these principles, the Company has developed three management approaches as follows:

- Compliance with laws and international frameworks
- Fair employment, remuneration and performance management system
- Improvement of employees' quality of life

### ► Compliance with laws and international frameworks

The Company respects for the human rights of all employees at every level and strongly adheres to the compliance with local laws in every country it operates, including international frameworks, for example compliance with human rights principles, prevention of child and forced labor and the establishment of labor unions

#### Compliance with International Human Rights Principles

Banpu underlines the importance of compliance with labor laws and upholds International Human Rights Principles as standard practices across the organization. The Company also promotes and encourages respect for the human rights as stipulated in the Universal Declaration of Human Rights (UDHR), the United Nations Global Compact (UNGC), the UN Guiding Principles on Business and Human Rights and the labor laws of the countries where it operates.

In 2016 The Company has set a clear Human Rights Policy based on the principles of freedom, equality and human dignity regardless of gender, race, religion or color to reiterate the equitability the employees and stakeholders will gain from the Company's operations.

### Prevention of Child and Forced Labor

The Company bans on the use of any child and forced labor and has clearly set the minimum age for employment according to the applicable local laws to prevent child labor risk. It has also established transparent recruitment process and requires that employment contracts be signed to prevent violation of rights, child and forced labor.

### Labor Union and Collective Bargaining Agreement

The Company does not prevent employees from forming a union or similar bodies as stipulated in Employee Relation Policy and emphasizes the regular communication between the Company and employees on benefits, incentives, career advancement and business directions to maintain the strong tie with the employees. At present, 48% & 76% of the employees in Indonesia and Australia are members of labor unions respectively. The company sets unofficial meetings not required by law such as quarterly meetings with union leaders to foster collaboration between the two parties.

### ► Fair Recruitment, Compensation and Performance Management Systems

The Company recognizes the importance of the fair recruitment, remuneration and performance management systems. With a belief that a fair system not only provides its employees - the Company's major stakeholder - with fairness and appropriate remuneration and job satisfaction but the Company also gains the competitive advantage through employee engagement with the organization.

#### Recruitment System

Banpu places top priority on "employee recruitment" with a belief that a good and effective recruitment system has an impact on employee engagement due to two reasons: firstly, as stipulated in Recruitment and Selection Policy, the Company highlights a competency-based recruitment. The Company believes that if employees's work match with their capacity, they are likely to be happy at work, resulting in better employee engagement.

Secondly, the Company has incorporated a behavioral test consistent with "Banpu Spirit" into a recruitment test to ensure that the Company gets the employees who adhere to the same values. This also guarantees that the employees will work happily and can easily adjust themselves to the corporate values. More importantly, they can achieve their full potential and job satisfaction and become engaged with the Company.

#### Performance Management System

To achieve fair performance management for all employees and to maximize the benefits to the Company, Banpu has adopted the principle

of value-based management having the Key Performance Indicators (KPIs) as a mechanism of performance management and remuneration system since 2011. The Company allows employees to take part in determining their working plan and KPIs with their team, but the activities must be consistent with the Company's annual plan and strategic plan. The Management will be responsible for cascading the Corporate KPIs to employees through all levels.

Banpu's Key Performance Indicators (KPIs) can be divided into two categories: Work Related KPIs, accounting for 70% of total indicators and behavior-based KPIs measured from the behaviors related to Banpu Spirit, accounting for 30%. To enhance the managerial skills for the Management, the Company has set Leadership KPI as another Work Related KPIs from the Manager level with respect to team management and creating a motivating work environment with the aim to encourage care for subordinates and employee engagement. The Leadership KPI is evaluated based on a 360 degree feedback survey for vertical and horizontal engagement with the others, which significantly affects the engagement at the corporate level.

### Compensation Management System

The Company believes that fair compensation and rewards according to employees' performances will improve employee engagement. Hence, it has set Compensation Management Policy to ensure fairness and competitive edge, and has adopted international standard for compensation management. Moreover, the Company has set up a Compensation Committee and Performance Evaluation Committee to oversee the compensation management to ensure transparency in all steps of management.

The Company determines employees' compensation according to their responsibilities and competencies through job analysis, predefined scope of responsibility and competence, and job evaluation. The Company's compensation structure is comparable

to those in the labor market since it takes into consideration the competitive edge and has conducted a survey on consumer price index that may affect the employees and compensation in top companies to ensure that the compensation management is fair and appropriate to the situations. The Company also set a clear job value based on three factors, namely know-how, problem solving and accountability, to determine and manage the compensation structure. The structure is reviewed and revised every two years based on the survey results on compensation in related businesses and overall business to maintain competitive advantage while relating the compensation structure to the capacity development system.

### ► Employees' Quality of Life

In addition to respect for the human rights of each and every employee under the basic principle of Respect for Human Rights and fairness in the employment, performance and compensation management, the Company places top priority on improving employees' quality of life so that they have a happy life through and after retirement.

### Promotion of Work-life Balance

The Company prioritizes the employees' work-life balance and convenience and thus allows flexible working hours in five different periods of eight working hours per day so that the employees can manage their work-life balance and maximize the effectiveness. In addition, to help the employees curb their travel expenses, the Company also encourages working from anywhere once a week, three times a month.

### Employees' Healthcare

The Company places great importance on the health of its employees believing that good health is a factor contributing to happiness and capability of the employees. Consequently, it provides the employees' health benefits and life insurance as basic welfare

which the Company needs to offer to its employees in every host country. However, the allocation of welfare can be different in each country, for instance in Thailand, the Company's headquarters, Singapore, and Japan, the Company offers health benefits and life insurance to employees. The Company also encourages them to do exercises and provides them areas to play sports such as running, badminton, fitball, and yoga in sports clubs. To prevent health risk, the Company has assigned the Occupational Health and Safety Committee to conduct a monthly inspection on safety in the workplace. In 2016, the Company conducted a measurement on lighting in the workplace to ensure safety for eye health. For the employees who travel to work overseas, the Company also provides them with additional travel insurance and medical evacuation.

### Family Relationships and Maternal and Child Health Care

The Company prioritizes the importance of family relationships and maternal and child health care believing that the employees' families are the members of Banpu family. The Company provides parental leave in every country of its operation but the length and compensation may be different from country to country according to the applicable laws and regulations in each country, for example, Thailand provides maternity leave of up to 90 days whereas in Mongolia, female employee is entitled to have maternity leave of up to one year.

In addition, in 2016 the Company's welfare committee, recognizing the importance of hygiene and nutrition in breast milk for newborns, prepared a refrigerator for storing breast milk at its headquarters in Thailand, which is currently in use.

### Financial and Retirement Preparation

The Company recognizes the importance of employees' long-term financial plan and retirement

plan and therefore established a provident fund as a welfare for the employees and invited financial advisors to give financial advice and provide financial services for the employees to ensure a secure retirement. Moreover, the Company is fully aware of the nature of a mining business where coal reserves will be decreasing over time, which affects the employees. The Company has thus developed a mine closure plan in which two management approaches are adopted:

1. The Company will relocate the employees who are willing to work in other mining sites of the Company so that they can continue working and earning income from the Company's mining business.
2. The Company provides entrepreneurship trainings for the employees working for the mines approaching closure, for instance, financial management, business planning and household industry to ensure that the employees can take care of themselves and their families after mine closure.



### ► Performance

The Company has conducted an employee engagement survey via a third party since 2012 in Thailand, Indonesia and China. The results in 2016 are as follows:



According to the survey, although the employee engagement level in Thailand did not meet the set target of 60%, the results remain satisfying. When compared to other companies in the same business in Thailand, the level of engagement has no significant difference. In addition, the results also indicated that the employees have higher levels of satisfaction with career opportunities

and rewards and recognition with an increase by 6% and 4% respectively. Occupational safety was ranked the highest level of satisfaction at 82%. The result of the survey is communicated to employees in “Town Hall Meeting” on 20 December 2016. The survey results were reported to the Board of Directors and the executives to be used in further improvement of the employee engagement plan.



## Corporate Culture



### Indicator

- Result of the Banpu Spirit Survey



### Target

- Result of the Banpu Spirit Survey is over 75%



### Management approach

- Fostering shared attributes of Banpu people – Banpu DNA
- Strengthening the corporate culture – Banpu Spirit



### Performance

- Results of the Banpu Spirit Survey were 74%, 80% and 95% in Thailand, Indonesia and China, respectively.



With its rapid growth and business expansion in many countries, Banpu currently has 6,000 employees working in 8 countries, about half of which are in Indonesia, one third is in Australia, and the rest are in Thailand, China, Mongolia, Singapore, Japan and Lao PDR.

Due to the fact that the Company's operations are situated in different countries, its employees are different with respect to gender, age, language, religion and culture. This poses a great challenge for the Company in managing the employees to work harmoniously to achieve the shared corporate goals, which contributes to its competitive edge and sustainable growth. Accordingly, strengthening the corporate culture - Banpu Spirit is a key to successful management under the circumstance where there is diversity in the organization so as to create sustainability in the workplace. Not only does "Banpu Spirit" contribute to the cooperation in the workplace, but it is also a compass navigating standard thinking process and practice the employees strongly adhere to in response to changes in business. Aligning its operations with the corporate

culture while emphasizing working in such a way that maximize value and benefits to business allies and stakeholders, the Company can move forward to the global market as "The Asian Face of Energy".

The Company recognizes that the unique attributes inherent in Banpu people or "Banpu DNA" will help mitigate risks and ensure that its people will be able to work in line with the organizational strategy and lead the Company to success despite the change in the Company's strategy and business direction amidst the volatile global economy.

With the inherent "Banpu DNA" and strong "Banpu Spirit" coupled with the management navigated by "Banpu Spirit Compass", the Company strongly believes that Banpu people are capable to respond to the Company's business expansion and harmoniously run a smooth operation regardless of differences to drive the achievement of the Company's goals. Currently, the Company has implemented the project to strengthen "Banpu Spirit" in Thailand, China, Indonesia and Mongolia, and planned to run the project in Australia in 2017.

### ► Fostering Banpu DNA – the shared attributes of human resources

The Company has established the right "DNAs", which are the unique attributes of Banpu people for career advancement of the employees and the sustainable growth of the Company in response to business challenges. Banpu DNA consists of five attributes:

1. Professionalism : professionalism with respect to skills, competency and behaviors
2. Adaptability : ability to adapt to new working conditions
3. Positive Creativity : confidence to express accurate and creative opinions
4. Flexibility : agility and willingness to embrace change
5. Mobility : ready to work in any areas and under any circumstances



## ► Strengthening the Corporate Culture - Banpu Spirit



**Innovation**



**Integrity**



**Care**



**Synergy**

To materialize Banpu Spirit, the Company has systematically developed and implemented the “Strengthening the Corporate Culture - Banpu Spirit” plan and also regularly monitors and improves the implementation process.

Step	Details
<b>Planning</b>	The Board of Directors, the CEO and human resources officers annually work together on the development of the plan to strengthen the corporate culture.
<b>Implementation</b>	<p>The Company divided the implementation of the plan into three processes:</p> <p><b>Recruitment process</b> In the recruitment process, the Company has designed an “Inner View Test” to check if the applicant’s personalities and behaviors match the core values of “Banpu Spirit” and the test results will be checked against in the Behavioral-Based interview to ensure that the prospective employee possesses the expected values.</p> <p><b>Initial implementation process</b> New employees are required to participate in the orientation on the corporate culture “Banpu Spirit”, Banpu Spirit Refreshment and Banpu Spirit in Action so that they understand the rationale behind “Banpu Spirit” and can apply the values in everyday work life.</p> <p><b>Long-term implementation process</b> The Company has developed the “Banpu Spirit Change Leader (BCL)” project for a group of employees who highly value “Banpu Spirit” to drive the corporate culture to become strong and tangible through various activities. The activities are reviewed annually and improved based on the evaluation results of the four core values “Banpu Spirit”.</p>
<b>Planning Review</b>	<p><b>Individual assessment</b> The Company has integrated “Banpu Spirit” as part of the employees’ performance assessment with the expectation that their behaviors related to the core values of “Banpu Spirit” will continuously be applied in their working.</p> <p><b>Holistic survey</b> The Company annually conducts a Banpu Spirit survey in Thailand, China and Indonesia to evaluate the strength of “Banpu Spirit” and the achievement of the activities to strengthen “Banpu Spirit” in the organization.</p>
<b>Appropriate Improvement</b>	The results of the individual assessment and holistic survey are reported to the Board of Directors and the CEO to be used in the further improvement of the implementation plan in order to strengthen the corporate culture in the following year.

**► Performance**  
**Activities to Strengthen Corporate Culture**

Number of BCL in 2016	Activities in 2016
28	20 Projects such as <ul style="list-style-type: none"> <li>- Believe and Behave</li> <li>- Lunch Sharing Friendship</li> <li>- BCL Development Plan: Visit Google Thailand</li> <li>- BCL Development Program: Igniting Banpu Spirit Workshop</li> <li>- Banpu Spirit Festival</li> </ul>

**Banpu Spirit Survey**

To enhance the reliability of the results, the Company have the third party conduct a survey on corporate culture in 2016 in three countries: Thailand, Indonesia and China. The results are presented below:



The results are satisfying when compared to the set target of 75%, and it was found that the sustainability level of the shared value “synergy” increased at the highest rate among the four values. This suggests that the Company was successful in organizing activities to preserve the corporate culture as the increased rate is in accordance with the activity plan in 2016, which was improved based on the 2015 results, to emphasize strengthening more synergy in the organization. This year’s results will be used in the improvement of the Company’s sustainability plan in the next year.



**Dr. Kirana presented “Banpu Spirit” – Banpu’s Corporate Culture to the frontline CEOs in Indonesia**

On 20 October 2016, Dr. Kirana Limpaphayom, the President Director of ITM attended the First Manager - Leader Summit held at Djakarta Theatre Ballroom. The summit was organized by Andrew Tani Research in collaboration with SWA Magazine and the speakers were currently the CEOs and the former CEOs of leading companies.



In this activity, Dr. Kirana gave a lecture on the definition and significance of “Banpu Spirit”, which reflects the corporate culture and shared values leading to a smooth operation, and the annual survey on “Banpu Spirit” to evaluate the achievement of the implementation of “Banpu Spirit”. The lecture received considerable attention from the participants.

**“Banpu Spirit: More Power Get Better”**

On 22 July 2016, the Banpu Spirit Change Leader (BCL) team arranged the activity “More Power Get Better” to enhance “synergy” - one of the core values of “Banpu Spirit” - among Banpu people. The opening ceremony was presided over by Ms. Somruedee Chaimongkhol, the Chief Executive Officer. About 200 employees at the headquarters in Bangkok attended the activity and participated in various games fostering “synergy”, collaboration and teamwork, which will sustainably benefit their career.





### “A Success Story of BPP IPO”

On 3 November 2016, Banpu Power PCL. or BPP led by Mr. Voravudhi Linananda, the CEO and the organizing team arranged the activity to share knowledge with Banpu employees on “A Success Story of BPP IPO” at the headquarters in Bangkok.

This activity was aimed at creating understanding and sharing experiences on the path to a successful initial public offering (IPO) of Banpu Power. The success was made possible by all related parties upholding the corporate culture “Banpu Spirit”, including innovation, integrity, care and synergy, which is a key driver for success. On this occasion, Ms. Somruedee Chaimongkhon, Banpu’s Chief Executive Officer shared the secret to success and stressed the value of Banpu Spirit, which not only contributes to a smooth and effective operation but also drives sustainable organizational growth.

### “Banpu Moving Forward Together”

On 14 May 2016, Banpu organized “Banpu Moving Forward Together” and Mr. Chanin Vongkusolkrit, Chairman graciously presided over the opening ceremony. In this activity, Mr. Chanin and Ms. Somruedee Chaimongkhon, the Chief Executive Officer, shared their working experiences and the Company’s directions to more than 250 employees and executives.



This activity was aimed to emphasize the strong relationship among Banpu people, which is a major force strengthening the Company and driving success. The employees were given an opportunity to share their experiences and knowledge on various topics, for instance Banpu Spirit, Banpu Brand, People and Organization and Information Technology to inspire Banpu people to move forward together.

# Human Capital Development



In order to maintain its competitive edge and achieve the organizational goals related to the business expansion in a wider areas, the Company prioritizes the development of human capital so that its stakeholders become confident in the expertise and competency of the employees in response to future competitions and business challenges. Human capital development not only helps minimize the risk occurring when the employees are unable to embrace change in business expansion but also increases the opportunities for the Company to become the leading Asian Energy Provider creating a sustainable energy future for the region. In addition to its aim to achieve sustainable growth, the Company strongly believes that human capital development provides capacity development opportunities for its employees, who are the Company's major stakeholder, to help prepare them for future career advancement.



Human capital development has been the top priority of the Company. Hence, the Company has set a policy on employees' training and development with a mission to support self-development and self-learning of employees at all levels. The Company allocates a minimum of 5% of total compensation budget for employee development in all countries. In addition, it has developed "Banpu Learning and Development Framework" as a standard guideline for employee development at all levels in accordance with competency-based management to provide appropriate development which responds to the Company's business expansion. Other than on-the-job training, employee capacity building is carried out through such activities as training workshops inside and outside the Company, e-learning and experience-sharing sessions with the executives.



The four pillars of human resource development at Banpu are as follows:

1. Banpu Spirit & Banpu DNA
2. Functional Competency
3. Leadership Competency
4. New Required Skill Set

The above pillars are used as variables of human resources development in four major management areas:

1. Talent Management
2. Career Development
3. Succession Planning
4. Leadership Development

## Talent Management



### Indicator

- Percentage of the employees attending trainings according to HR development plan



### Target

- More than 80% of employees attending trainings according to HR development plan



### Management approach

- Capacity assessment for all job positions in the organization
- Training Roadmap



### Performance

- 100% of employees attending trainings according to HR development plan in 2016



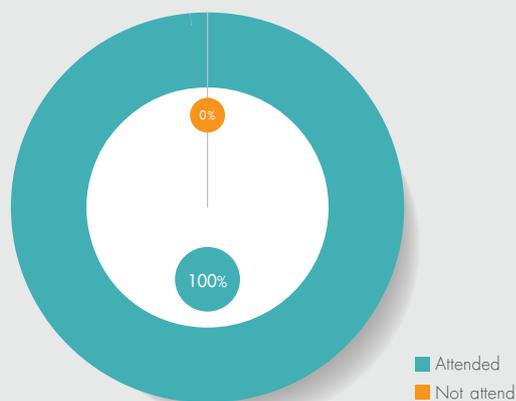
Effective management of competencies, essential skills or behavioral traits of the employees plays a pivotal role in securing Company's competitive advantage, progress and success as it enables the employees to harness their full potential for optimal effectiveness and efficiency. The Company periodically assesses the employees' required competencies in all positions with respect to functional competency and leadership competency.

To maximize the effectiveness of human capital development, the Company annually develops a human capital development plan in advance to

build desirable skills in the employees, which will help drive the Company's success. The human resources department, together with each particular department, annually assesses the employees' functional and leadership competencies, and the results are then compared to the Company's policies and directions in order to develop appropriate human capital development plans for employees in each level while taking into consideration essential knowledge about work system, people system and managerial skills, including budget allocation for external trainings of each unit.

### ► Performance

Percentage of the employees attending training according to HR development plan in 2016



## Career Development



### Indicator

- Percentage of Bangkok Office's employees having an individual development plan (IDP)



### Target

- Over 70% of Bangkok Office's employees have an IDP



### Management approach

- Banpu's Career Development System Playbook



### Performance

- 25% of Bangkok Office's employees have an IDP at the end of 2016



Committed to providing opportunities for career advancement and ensuring business continuity, the Company has developed a career development planning system to enhance opportunities for career growth and employee engagement as well as to mitigate the risk from business disruptions when employees resign. Furthermore, the system facilitates the classification of jobs and responsibilities and allows the employees to work in the position matching their abilities and aptitudes, which directly affects their job satisfaction and enables the Company to put the right people in the right jobs.

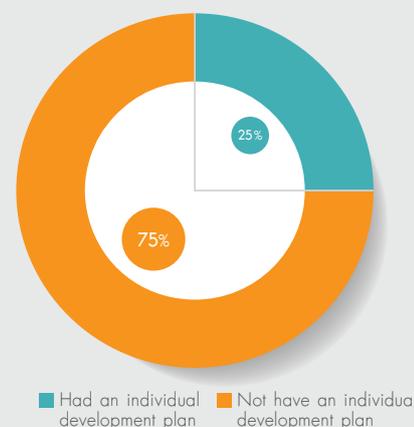
In 2016, the Company has compiled a Banpu Career Development System Playbook to determine details, processes and tools for career development of each position. The Company has also established, in the same year, an IT system to help all employees develop their own career development plans either for their current position or new position in a different career path. Through this system, employees can specify their future position based on the current competency profile and required competencies for the position they aspire to. The system even provides the competency gap that the employees can use to create an individual development plan (IDP), which helps the employees to develop the capacity needed for the job. In addition, HR personnel will use the data

collected in the system to substantiate promotion proposal and succession planning for different job positions in the organization.

In response to the Company's strategy to enhance international mobility, the Company is currently in the process of aligning Banpu's standards for career planning and development system in all countries it operates, which is expected to be completed as planned.

### ► Performance

Percentage of Bangkok Office's employees having an individual development plan (IDP) in 2016



## Succession Planning



### Indicator

- Percentage of critical positions which have a succession plan



### Target

- 100% of critical positions have a succession plan



### Management approach

- Succession plan



### Performance

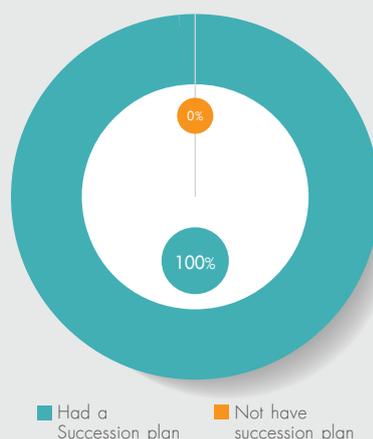
- 100% of critical positions have a succession plan at the end of 2016



Succession planning is an important HR issue of great concern to the Company and stakeholders. Vacancies in key positions will directly affect the Company's competitiveness advantage due to a halt or business disruptions. The Company, therefore, has prepared a succession plan to mitigate such risk. In the face of a more challenging business competition, the Company not only prepares succession planning for top executives but also other key positions. The Company strongly believes that organizational sustainability does not solely depend on an individual executive but lies in the 'Synergy' - a core value under the corporate culture, Banpu Spirit. The Board of Directors entrusted the Succession Planning Committee to manage succession planning.

### ► Performance

Percentage of critical positions which had a succession plan in 2016



## Leadership Development



### Indicator

- Percentage of employees trained in the Leadership Programs



### Target

- More than 80% of employees are trained in the Leadership Programs



### Management approaches

- Leadership competency
- Leadership Development Program



### Performance

- 34% of employees attended the Leadership Development Programs in 2016



Leadership and leadership competency are important factors leading the Company to achieve its goal to be a leading Asian energy provider. Since business operations nowadays are complicated and rapidly changing, the Company needs to have capable leaders and employees with strong leadership competencies in order to mitigate competitive risk and enhance the Company's opportunities for success. Therefore, the Company determines that leadership competency is one of the pillars of Banpu's capital development.

### ► Leadership Competency

The Company has been continuously developing leadership competencies, and on 1 January 2016, it announced the New Banpu Leadership Competency as a plan to develop leadership competencies and skills in response to the business strategies for the years 2016-2020. The New Banpu Leadership Competency highlights seven competencies of an effective leader, namely result and value management skills, problem solving and decision making skills, stakeholder relationship and partnering skills, people management skills, global mindset skills, commercial mindset skills, and change leadership skills. In addition, the Company has prepared training programs to constantly develop these leadership competencies in Banpu's employees to ensure that the employees have 'leadership' traits consistent with the Company's directions.

### ► Leadership Programs

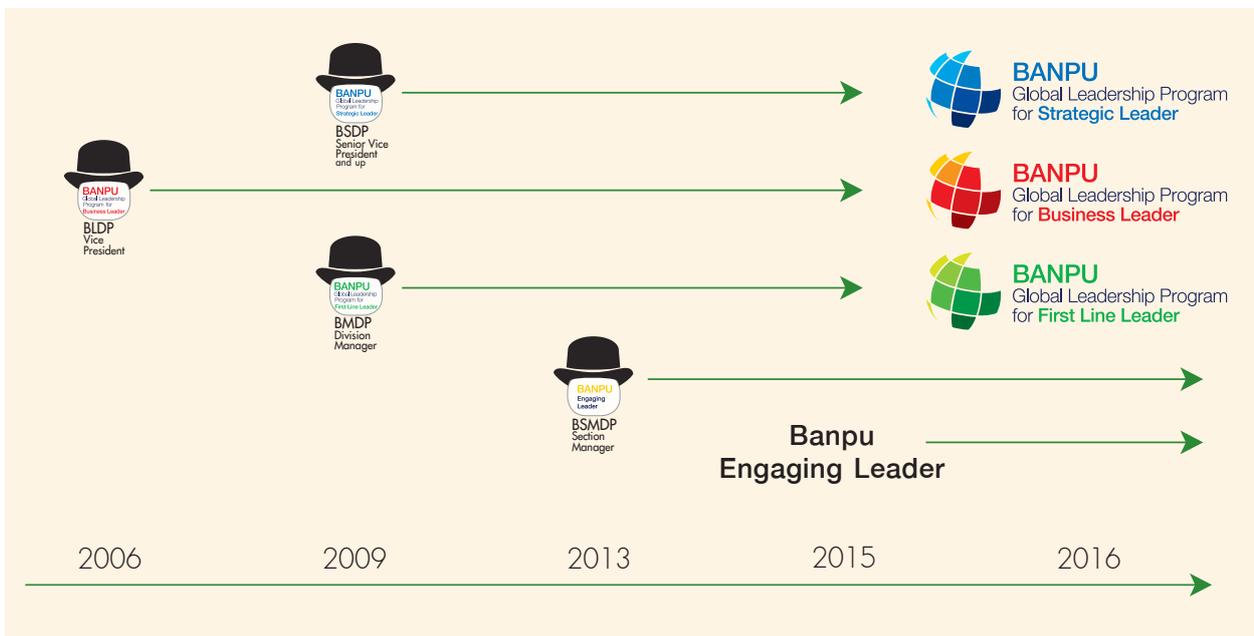
The Company has launched a series of leadership development programs to prepare employees for the managerial and executive positions, and enable them to become the effective leaders in the future. Since 2006, the Company has organized the following leadership programs.

- In 2006, the Company started BANPU Leadership Development Program (BLDP) for vice presidents.
- In 2009, the Company started BANPU Senior Leadership Development Program (BSDP) for senior vice presidents and upper management and BANPU Manager Development Program (BMDP) for division managers.
- In 2013, the Company started BANPU Section Manager Development Program (BSMDP) for section managers.

In 2016, the Company improved leadership development programs to be consistent with the New Banpu Leadership Competency and the new strategy to expand business in more countries. Thus, the Company is putting a high priority on building leaders who are capable of thinking internationally, devising strategies and policies, managing change and developing innovations. The Company has also arranged the improved leadership development programs for executive officers in China, Indonesia and Singapore so that leadership development in all countries is carried out in the same direction.

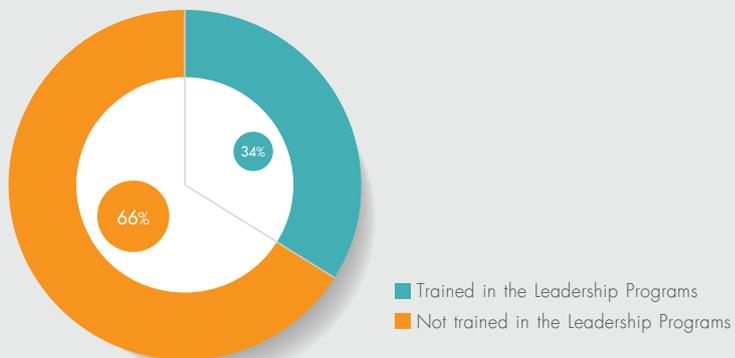
However, the Company strongly believes that beyond the managing competencies to achieve the organizational goals, effective leaders must be able to act as a 'role model', capable of being a 'coach' and create 'employee engagement'. Since 2015, the Company has organized BANPU Engaging Leader Program for section managers and upper levels with the aim of strengthening relationship between the executive officers and employees and creating mutual understanding and harmony in the organization for effective business operations.

► Leadership Programs Roadmap



► Performance

Percentage of employees trained in the Leadership Programs in 2016

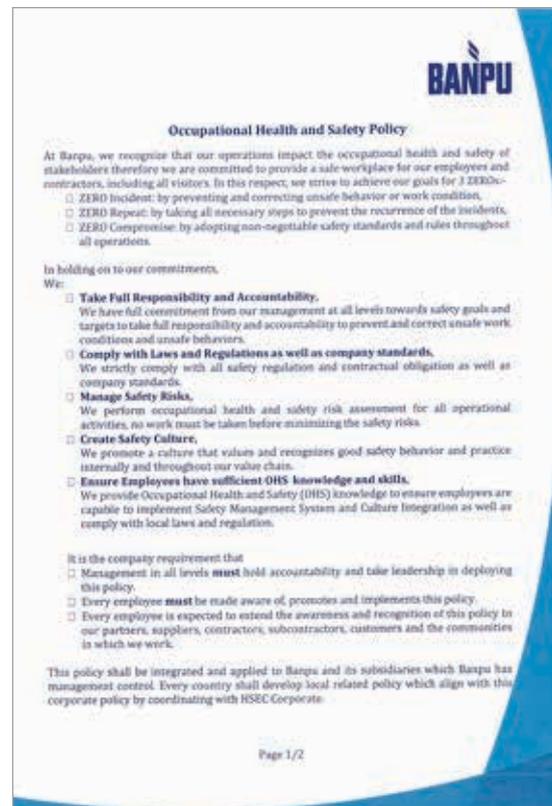




# Occupational Health and Safety



Employees are the most valuable asset the Company takes good care of by prioritizing their occupational health and safety. Occupational health and safety risks are managed to prevent occupational fatalities, injuries or illnesses of employees and contractors, which will sustain safety according to Occupational Health and Safety Policy. The policy is linked to Goal 8 (item 8.8), one of the 17 UN's SDGs, aiming to protect labor rights and promote safe and secure working environments for all workers



### ► Management Approach

The Health, Safety and Environment (HSE) functions has been set up at three levels: corporate, business unit and operating unit, to support all business operations to achieve the predefined occupational health and safety (OHS) goals. The management is carried out in accordance with the OHS management standard and practice and there are performance evaluation and analysis of effectiveness of the OHS operation.

The OHS performance is periodically reported to and reviewed by the Management in the meetings at all three levels, for instance, the monthly corporate meeting, which is a key communicate channel to share lessons learned or causes of accidents to the Management. This is one of measures to prevent recurrences. In addition, the employee representatives are allowed to be members in the OHS Committee working with the representative from the Management in determining management direction and overseeing occupational health and safety.

The OHS management system, including policy, strategies and management approaches, is annually reviewed in the meeting of the Sustainable Development Committee chaired by the CEO. The CEO oversees the OHS management and set targets for the OHS management. The OHS performance is one of KPIs of the CEO and other executive officers in all countries where the head of each business unit is entrusted to run the operations to achieve the OHS goals set by the Company.

#### Occupational Health and Safety Policy

Banpu recognizes that our operations impact on occupational health and safety. We are committed to build sustainable development for our employees and contractors. The Company has announced the Occupational Health and Safety Policy binding to “accidents are preventable principle” that consists of three principles as follows:

- 1) **Zero Incident:** by preventing and correcting unsafe behavior or work condition;
- 2) **Zero Repeat:** by taking all necessary steps to prevent the recurrence of the incidents; and
- 3) **Zero Compromise:** by adopting non-negotiable safety standards and rules throughout all operations.

To achieve “3 ZEROs”, the Company is committed to:

- Take full responsibility and accountability
- Comply with laws and regulations as well as company standards
- Manage safety risks
- Create safety culture
- Ensure employees have sufficient OHS knowledge and skills

## Safety



- 
**Indicator**
  - The number of work-related fatalities of employees, contractors and subcontractors
  - Injury Frequency Rate (IFR) of employees, contractors and subcontractors
- 
**Short-term Target**
  - Zero Fatalities
  - Reduce IFR from previous year
- 
**Long-term Target**
  - Zero Injuries
- 
**Management Approach**
  - Management in accordance with the Occupational Health and Safety Policy
- 
**Performance**
  - 1 contractor fatality in Indonesia
  - Injury Frequency Rate (IFR) is 0.51 person per million working hours

In line with Occupational Health and Safety Policy, to achieve "3 ZEROs" principle, the Company is committed to

- Take full responsibility and accountability**  
 We have full commitment from our management at all levels towards safety goals and targets to take full responsibility and accountability to prevent and correct unsafe work conditions and behaviors.
- Comply with laws and regulations as well as company standards**  
 We strictly comply with all safety regulations and contractual obligation as well as company standards.
- Manage safety risks**  
 We perform occupational health and safety risk assessment for all operational activities, no work must be taken before minimizing the safety risks.
- Create safety culture**  
 We promote a culture that values and recognizes good safety behavior and practice internally and throughout our value chain.
- Ensure employees have sufficient OHS knowledge and skills**  
 We provide OHS knowledge to ensure employees are capable to implement Safety Management System and Culture Integration as well as comply with local laws and regulation.

### Take full responsibility and accountability

To attain sustainability according to the 17 UN's Sustainable Development Goals, the Company has put a lot of effort to mitigate all risks that may cause fatalities, injuries or illnesses among employees and contractors by maintaining safe work conditions stipulated in the OHS Policy. The OHS performance is set as one of KPIs for the CEO and high-ranking executive officers in each country. The business unit heads of the Company's subsidiaries in all countries are responsible for the operations to achieve the OHS goals set by the Company.

The Company strongly believes that learning and sharing of experiences from inside and outside the organization can increase the cooperation and enables the Company to effectively set OHS goals and management approaches to get all units moving in the same direction. The Company annually holds a Health, Safety, Environment and Community Development (HSEC) Summit, where all heads of business units, both operating and supporting units, have opportunities to present and discuss OHS practices, challenges and opportunities for better improvement. Moreover, in the summit, the Company's OHS and community development performances in the past year are evaluated, and short-term and long-term goals are reviewed to ensure the utmost effectiveness and efficiency of the Company's operations. The latest HSEC Summit was held in Thailand in September 2016 to seek collaboration, determine strategies to improve operational standard, and present best practices, for instance, the OHS performance presented by the executive officers in Indonesia on "Paradigm Shift" towards sustainable development.



### **Comply with laws and regulations as well as company standards**

The Company places great emphasis on compliance with OHS laws and regulations to achieve effective and efficient OHS operations. The Company has always strictly followed all applicable legal frameworks. For instance, at its Bangkok Office, the Company has set up an OHS committee consisting of representatives of employees and the Management. The committee has meeting on a monthly basis to share safety information to all employees, receive recommendations to improve safety issues, monitor safety performance, and develop a response plan, including an annual fire and evacuation drill, to ensure prompt and safe evacuation in case of fire.

In addition, the Company has organized training on occupational health and safety for employees at every level, ranging from operational to executive levels. The Company regularly conducts a survey on employee's attitudes toward occupational health and safety as a minimum safety practices offered to all employees in order to create understanding of occupational health and safety knowledge as well as work safety.

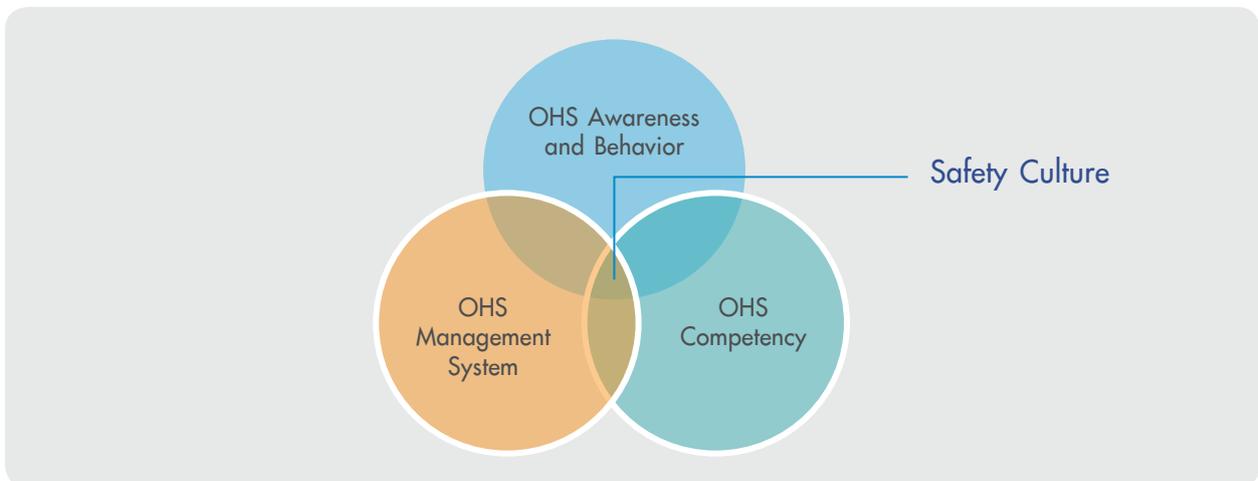
### Manage safety risks

For the past years, Banpu's coal subsidiary in Indonesia has organized safety trainings for the employees working in the mine aiming to create confidence and raise awareness of occupational safety among employees both at operational and executive levels. The training topics include the analysis and investigation of accidents to help the employees to understand the principles and methods for root cause analysis and prevention of recurrences of accidents, and the management of occupational health to improve the employees' health.

To raise awareness of operational risks among employees and contractors and promote sharing opinions on methods for mitigating such risks, the Company has regularly organized trainings on occupational safety and prepared emergency response plans for the contractors. Apart from that, the Bangkok Office organized "Unsafe Killer" to provide employees opportunities to participate in safety risk assessment and to raise awareness of work safety.

### Create safety culture

To achieve the "3ZEROs" principle, the Company is committed to creating a safety culture for the entire organization both in the offices and in the production lines. Believing that human behaviors are prompted by their thoughts, the Company has endeavored to instill the safety concept in the employees so that they behave consistently to the safety concepts, and their regular practices will shape a corporate culture. The three factors contributing to safety culture are as follows.



#### 1. OHS Management System

The Company emphasizes the engagement of the CEO and heads of all business units in overseeing the development and promotion of safety policies, strategies and measures in compliance with laws and regulations; the assessment of safety risk in all processes; and the establishment of OHS goals to prevent unsafe work conditions and behaviors.

#### 2. OHS Awareness and Behavior

The Company promotes safe behaviors and places importance on good safety practice while closely monitoring the improvement of employee's behaviors throughout the value chain.

#### 3. OHS Competency

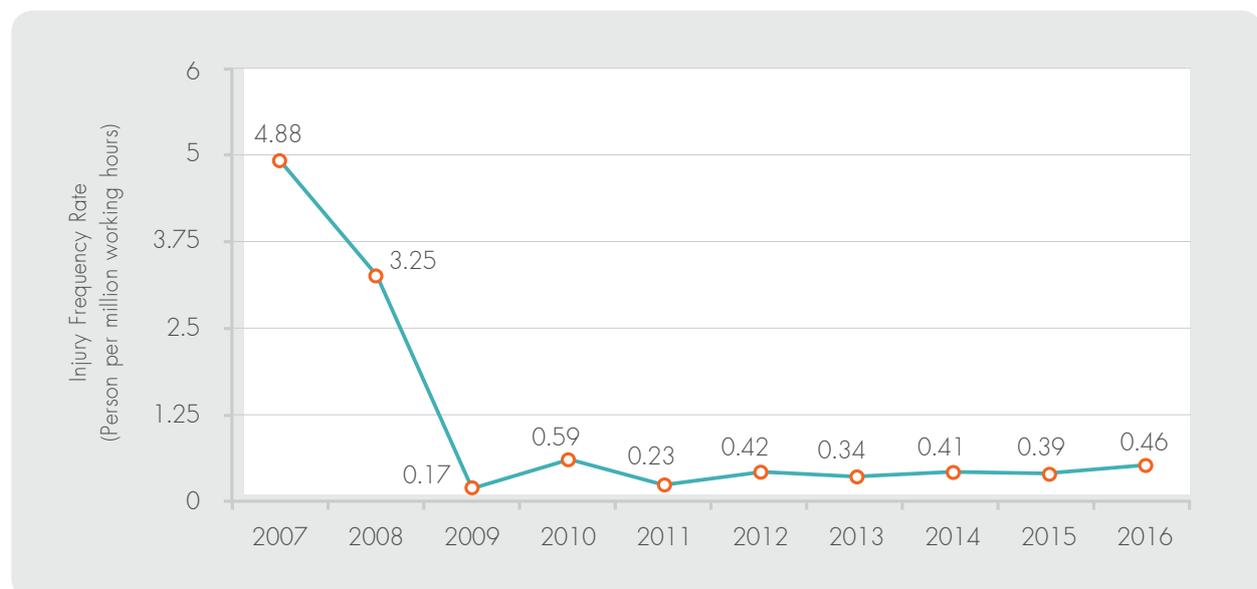
The Company prioritizes safety education and OHS skills development in order to equip all employees with OHS competency needed for their operations to promote a safety culture.

In 2016, the Company has also promoted the principle of safety culture among Banpu's subsidiaries in China and Indonesia, which was well-received by all employees. Moreover, the Company has a plan to complete surveys on safety culture in the two countries through informal talks, interviews, questionnaires, observations and documentary reviews within 2017. However, business activities differ from country to country, the management to create a safety culture in each country thus differs in details.

### ► Performance

To monitor the effectiveness of OHS performance of all business units and to create an effective reporting system, the Company has developed an incident reporting system to facilitate reporting from the operational sites to the country and corporate offices. The incident reporting system covers reports of all kinds of incidents ranging from a near-miss incident to fatality, and the results of accident investigation in order to prevent repeat of work-related fatalities or injuries.

In 2016, an unfortunate incident occurred to a contractor who suffered a fatal accident while performing a coal transportation. Together with some lost time injuries, the Injury Frequency Rate (IFR) slightly increased to 0.46 person per million working hours at year-end. To prevent future recurrences of similar accidents, the Company commissioned a meticulous investigation of the root cause of the accidents and carefully reviewed preventive measures. The Company also revised Occupation Health and Safety Policy and improved the safety management system in order to achieve its predefined OHS goals.



### OHS Management System in Coal Mining in Indonesia

The Indonesian government has launched the coal mine safety management system, or Sistem Manajemen Keselamatan Pertambangan (SMKP). SMKP has been derived from the mining regulations in Indonesia with emphasis on the safety management system similar to OHSAS 18001. For the existing mines, the use of SMKP helped the Company reduced the duplication cost from the safety management system certification. On 30 December 2014, the government required that SMKP be used in all mines in Indonesia. For those mines who do not follow SMKP, the government will suspend their licenses and terminate the license within one year after SMKP becomes effective.



The SMKP system consists of two main parts: (1) occupational health and safety related to workers and (2) occupational safety related to the infrastructure assessment, installation and utilization of equipment to improve the efficiency of mining activities, productivity and safety.

ITM, a subsidiary of Banpu in Indonesia, has officially adopted SMKP into its operations since January 2015. The system installation includes gap analysis, work assignments, meetings, trainings and documentation of the system. The internal audit is carried out at least once a year, and the report is subsequently submitted for certification.



### Promotion of the OHS Culture at the Zouping Power Plant

On 1 February 2016, Zouping Peak CHP Co., Ltd., a subsidiary of Banpu in China operating the Zouping Combined Heat and Power Plant, hosted a signing ceremony to pledge on a safety mission. At the ceremony, the general manager and the senior executive officers led the employees in giving the pledge on creating awareness of occupational safety, which is the most important thing in the operations.

After giving the pledge, all employees signed their names on a banner written on it with the message “Work Healthily, Work Happily, Work Safely” to reiterate their commitment to safety.

The activity demonstrated the Zouping Power Plant’s commitment to management excellence and safety. Similar activities are to be held at all Banpu’s power plants in China to lay a solid foundation for a strong safety culture across Banpu.



I am glorious Banpu people.  
Production safety is my highest obligation,  
For my own safety and that of my colleagues’ safety.

I swear:

- 1) To observe the safety regulations
- 2) To perform safety duties
- 3) To improve safety skills
- 4) To safeguard against the “three violations” - commands in violation of regulations, operations in violation of regulations, and violations of labor discipline
- 5) To ensure “four not to hurt” - not to hurt yourself, not to hurt others, to protect yourself from being hurt, and to protect others from being hurt
- 6) To be healthy and happy Banpu people



### Coal Business in Australia Organizing the Emergency Rescue Competition

Coal Services is an organization providing service and expertise to coal mining industry in New South Wales, Australia. It annually organizes “Newcastle Mines Rescue Competition” for trained rescue workers from all underground mines in the area to work with rescue workers from other mines, which helps get them prepared for possible real-life challenges.

The activity is a teamwork competition designed to test emergency response skills of rescue workers in a simulated emergency situation possibly occurs at underground or open-pit mines. Such skills include a search and rescue mission, first aid and firefighting. New trainees who want to join the annual rescue competition must attend a short training course to become eligible for the competition. The activity provide an opportunity for new trainees to work and learn from experienced rescuers and to apply their skills in real-life situations.

In 2016, Centennial, a subsidiary of Banpu in Australia, sent 26 rescuers from Mandalong and Myuna mines to compete in a mines rescue competition where all competitors were given brief instructions about the emergency situation and scheduled arrival time. After that they were grouped into teams, and the teams were to choose their leaders and deputies before they went out for their rescue operations.



## Occupational Health



### Indicator

- Occupational Illness Frequency Rate (OIFR)



### Short-term Target

- Improvement of standard and development of a database system to keep records of occupational illness



### Long-term Target

- Zero occupational illnesses



### Management Approach

- Compliance with laws and regulations on occupational health in all locations where the Company has operations



The Company is fully aware that employees' good health contributes to safety and happiness in the workplace. Therefore, the Company continuously monitors the health information of all employees and provides annual medical checkup, healthcare information via e-mails and regular instructions about physical exercises to mitigate the risk of fatigue at work.

Apart from that, the Company underlines the importance of monitoring seasonal epidemics such as malaria and dengue fever, or communicable diseases which are global concerns, such as avian influenza and Zika virus infection. The Company promotes healthy habits in the workplace by distributing information how to prevent oneself from infectious diseases. Although there was no occupational health and safety incident in the past year, the Company has strictly followed the measures to ensure that any related risks are minimized.

The Company has regularly conducted measurement and evaluation of workplace conditions, including evaluation of air quality, heat, sound and light intensity in the office space. In case of any unsafe working environment, the Company provides personal protective equipment appropriate to particular areas to create a safe and healthy working environment for all employees and contractors.

To continuously monitor employee's occupational health information and occupational illness, the Company is currently developing a system to collect employees' medical records causing from occupational diseases, which will be used for the evaluation of the Company's management with an aim to reduce occupational illness frequency rate to zero.

# Community Engagement



Over the past three decades, Banpu has strictly adhered to the business credo: “an industry would be vigorous when it is developed in tandem with social and environmental responsibility”, and has thus placed great importance on creating the maximum mutual benefit for the local people in the communities and society, who are its key stakeholders. The Company firmly believes that its relationship with the communities which is built upon mutual engagement and acceptance will lead to greater business opportunities of the Company and the sustainable growth of the communities. Nevertheless, this goal will never be achieved unless both parties have mutual “understanding” and “cooperation”. Hence, Banpu has placed a top priority on community engagement in every location of its operation.

To achieve the highest efficiency of community engagement, Banpu’s Community Development Officers (CDO) are responsible for engaging with local communities and Indigenous people. The main aim of such engagement is to create “understanding” by listening to the opinions and needs of different groups in the local communities and to create economic value to the communities during the time when the Company operates in those areas.

## Community Engagement



### Indicator

- Percentage of the complaints from local communities classified as significant are handled



### Target

- 100% of the complaints from local communities classified as significant are handled



### Management Approach

- Observing the Human Rights Policy, the Management Framework: Stakeholder Analysis, and the Management Standard: Stakeholder Engagement



### Performance

- In 2016, no complaints were classified as significant.



Banpu's business operation is based on the consideration of the global mega trends, namely digital connectivity, the environmental preservation, new risks such as risks from climate change or risk in water management since the Company is well aware of its duties and responsibilities toward the expectations of the society at the local, national and international levels on the role of the private sector in managing global challenges. Accordingly, Banpu - a leading Asian energy provider - places great importance on community engagement in order to develop an "understanding" of the Company's management with respect to such issues relating to the economy, society, and local environment and to minimize the risks in business operation caused by a "misunderstanding". The Company believes that its efficient management of community engagement will enhance "opportunity" in fostering good relationship, acceptance and mutual growth of both parties.

In order to achieve the aim of building an "understanding" and long-term relationship between the Company and the communities as well as creating value for the society where it operates,

not only did the Company announce Human Rights Policy, which covers broader area of the operation on community engagement but also developed the Management Framework: Stakeholder Analysis to set the clear direction and standard for the operation in every country. The Company clearly stipulated in the Human Rights Policy on the compliance with laws and respect for human rights of every single person in the communities where the Company has operations. In addition, all employees are supposed to place importance on the community engagement without discrimination and respect the differences on languages, nationalities, religions, or cultures. Therefore, Banpu's operation on community engagement includes Indigenous people, children, and the vulnerable group.

Apart from this, the Company has adopted the Management Framework: Stakeholder Analysis, which consists of three stages: 1. understanding the community's characteristics, 2. operation, and 3. risk assessment and prevention, both in its new projects and the expansion of current projects.

Understanding the community's characteristics	<ul style="list-style-type: none"> <li>• Creating the community's baseline data</li> <li>• Creating stakeholder profile and social mapping, for instance names, major contact persons, aims, needs, the stakeholders' expectations toward the organization</li> <li>• Conducting a stakeholder analysis according to the Management Framework for Stakeholder Analysis on expectations, significance, and impacts on the stakeholders</li> <li>• Selecting the appropriate communication method with the stakeholders in each particular community based on the approach specified in the Management Framework for Stakeholder Analysis</li> <li>• Assessing the possible impacts on the environment and society resulted from the Company's operations and developing prevention strategies</li> </ul>
Operation	<ul style="list-style-type: none"> <li>• Setting up the Community Consultative Committee (CCC) comprising representatives of the local community, government, and the Company and strictly following the practices stipulated in the CCC Handbook in line with those principles in the government's CCC Handbook</li> <li>• Communicating the information on the Company's operations, results from the assessment of impacts and future management plan for stakeholders in the community</li> <li>• Analyzing the community members' opinions in order to improve the Company's working procedures with the aim of enhancing mutual understanding and strengthening relationship with the community</li> </ul>
Risk Assessment and Prevention	<ul style="list-style-type: none"> <li>• Establishing a whistleblowing channel to receive complaints from the communities in order to understand their opinions and needs</li> <li>• Analyzing and considering the significance of the complaints received and find resolution and preventive method to avoid reoccurrence</li> <li>• Communicating and creating understanding with the community members after reviewing the complaints via the channels of CCC, newsletters, or other appropriate communication channels with the stakeholders</li> </ul>

### ► Performance

Banpu's mining business in Australia has adopted the practice based on the Management Standard of the Stakeholder Engagement in working with the communities surrounding the Company's five mines. The progress has been made as follows.

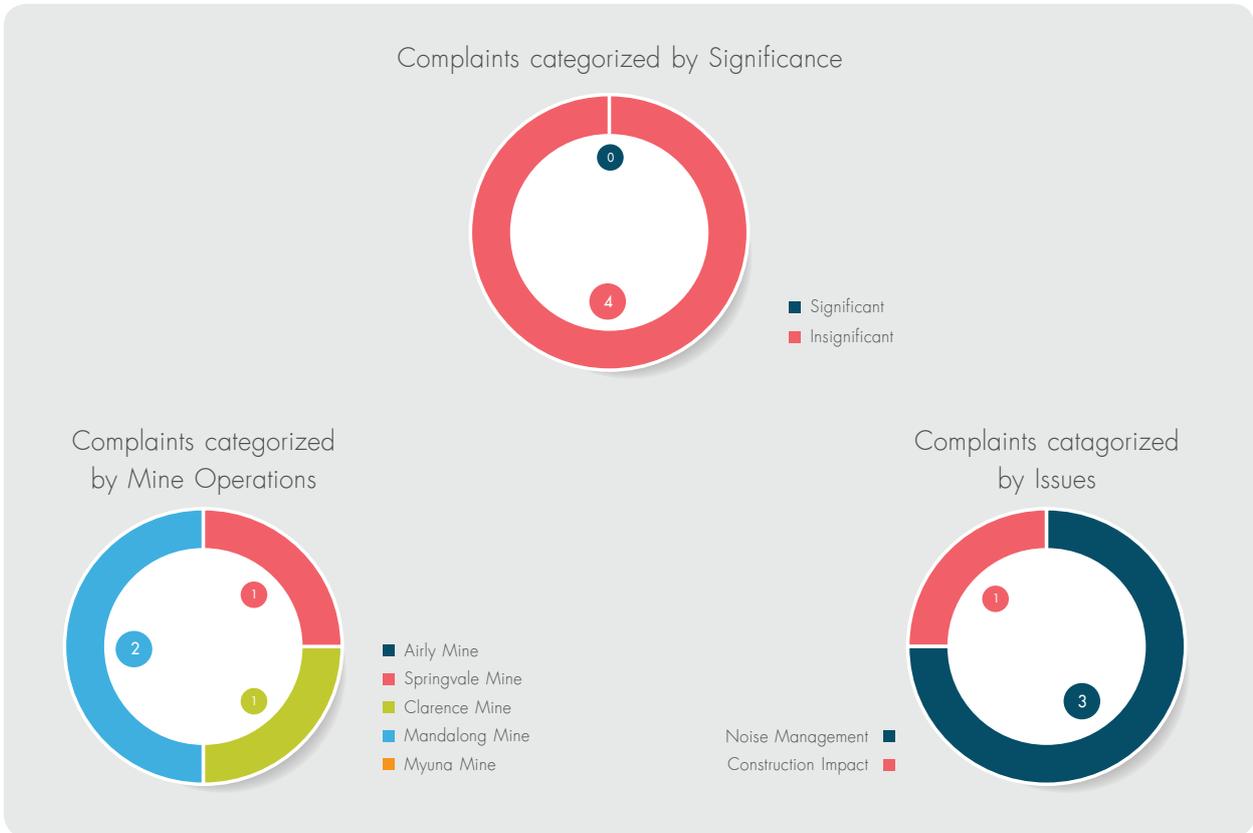
Stages	Practices	Topics	Airly Mine	Springvale Mine	Clarence Mine	Mandalong Mine	Myuna Mine
Understanding the community's characteristics	Gathering General Information	Number of communities that each mine takes responsible for	2 communities	3 communities	3 communities	3 communities	3 communities
		Number of people in communities	660	16,458	16,458	4,916	4,325
	Impact assessment	Conducted environmental impact assessment	✓	✓	✓	✓	✓
		Conducted social impact assessment	✓	✓	✗ *no new project	✓	✗ *no new project
		Follow EIA and SIA recommendations	✓	✓	✓	✓	✓
		Significant impacts toward communities	✗	✓ *noise	✗	✗	✗

Stages	Practices	Topics	Airly Mine	Springvale Mine	Clarence Mine	Mandalong Mine	Myuna Mine
Operation	Community Consultation	Have a community consultation framework/ standard	✓	✓	✓	✓	✓
		Development projects that are in the process of community consultation	2 projects	2 projects	2 projects	2 projects	1 projects
		Engagement methods	CCC Newsletter	CCC Newsletter	CCC Newsletter	CCC Newsletter	CCC Newsletter
		Key topics/ concerns from communities	Environmental impact and social amenity	Water and swamps	Water management	Flood plain and land ownership	Pulbah Island
Risk Assessment and Prevention	Grievance Mechanism (Channels)	Email	✓	✓	✓	✓	✓
		Telephone	✓	✓	✓	✓	✓

In addition to its community engagement aiming to create understanding between the Company and all community members, the Company also determine to optimize the economic value for the communities in the vicinity of the Company's operation. Accordingly, the Company promotes local employment with the belief that mutual cooperation not only encourages community engagement in the management and improves their understanding of the Company's operations but also allows the Company to distribute economic value to the community.

### Complaints from the Communities

In 2016, there was complaint neither from the community in the area of its operations nor the villages located in the Company's operating areas in Indonesia. However, the Company received four complaints from the members of the local communities in Australia at three out of its five operating mines. After considering details of the complaints, none was found significant; yet the complaints will be further handled to find the resolution before communicating with the complainants and the concerned stakeholders.



### Concerns from the Communities

In 2016, the Company received ten significant concerns from an online news agency and non-governmental organization who claimed the information from the villagers living outside the concession area and in the Company's areas of operation at three out of five operating mines. The Company has carefully studied the concerns caused by the Company's operations and communicated with the stakeholders about the facts and resolution to the concerns.



### Some Concerns in 2016 at the Kitadin-Embalut Mine

Issues	Concerns	Facts/ The Company's Operations
Water Management	During the monsoon season, the water released from the Company's canal has flooded the residential and agricultural areas in the village.	<ul style="list-style-type: none"> <li>Geographically, the village is situated on a basin so during the monsoon season, it is flooded with water flowing down from the mountains and plateau up north.</li> <li>The natural canal is too small to quickly drain the overflowing water so there have always been seasonal floods. Parts of the canal is in the Company's concession area.</li> </ul>
	The water discharged from the Company was contaminated with used oil and fuel oil.	<ul style="list-style-type: none"> <li>Lubricant is used in the Company's production process. Used oil is stored on-site before selling to buyers. Leakage has also been regularly monitored.</li> <li>The water quality is monitored by the Company and the third party on a monthly basis before discharging to natural water sources.</li> <li>It was found that the water quality met the required standard.</li> </ul>
Safety	Fatalities of the community members from falling into the Company's mining pits	<ul style="list-style-type: none"> <li>During 2008-2011, there were five fatalities in the vicinity of the Kitadin-Embalut Mine, namely one in 2008; three in 2009, and one in 2010 and 2011, respectively.</li> <li>The Company paid great attention to the incidents and has strictly followed the safety measures at the mines by installing barbed wire fences, digging ditches, constructing embankments, and putting up warning signs. In addition, the Company has asked for cooperation from the villagers to watch their children not to enter the risky areas.</li> <li>After the safety measures have been closely followed, there has been no report of fatality at the Company's mines since 2011.</li> <li>The Company did not fill all the mining pits where the accidents had occurred as the local authority and villagers wanted to keep them as water resources for the community.</li> </ul>



## Indigenous People



### Target

- Australia–Building understanding between the Company and Indigenous people and maintaining the Aboriginal cultural heritage
- Indonesia–Building understanding between the Company and Indigenous people and maintaining the Dayak cultural heritage



### Management Approach

- An Aboriginal Cultural Heritage Management Plan (ACHMP) for both Centennial Coal's Northern and Western regions.
- Operating according to the results of the study on the baseline data on the Dayak culture



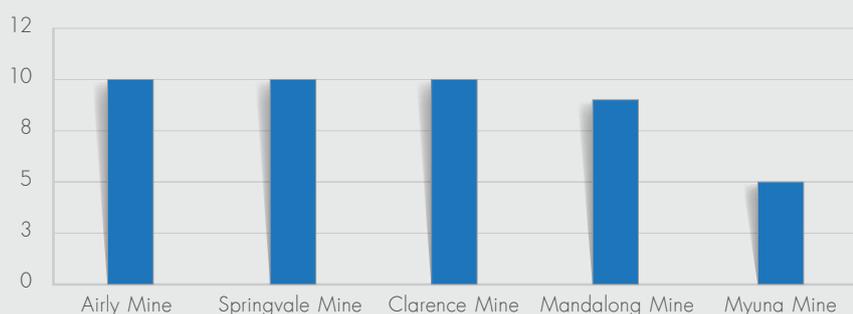
Promotion and protection of the rights of Indigenous Peoples is a vital issue needed to be managed with great care as over the past years the rights and livelihoods of Indigenous Peoples all over the world have been threatened by the authorities both from the government and private sectors, causing them to lose their lands, natural resources, cultures and opportunities to maintain their identity. The UN Declaration on the Rights of Indigenous Peoples was adopted by the General Assembly on 13 September 2007. Thailand is one of the countries who adopted the Declaration, which aims at raising awareness among the member countries and the global community of the problems and concerns facing Indigenous Peoples in different parts of the world in order to mutually handle the problems and promote, confirm and strengthen the rights of Indigenous Peoples at all levels.

### Australia

Banpu recognizes the importance of engagement with Indigenous Peoples due to the fact that its five Australian mines located in or near the areas of the Aborigines –Indigenous people who have lived in Australia for over 40,000 years. The Aboriginal cultural identity is their spiritual connection with their lands, natural resources, and religious sites. The Company's mining might plausibly have an impact on their important sites and feelings. Consequently, the Company officially started developing

the Indigenous engagement process by creating the Aboriginal cultural Heritage Management Plan (ACHMP) for both Centennial Coal's Northern and Western regions with the Aborigines and the Australian government to demonstrate its commitment to engagement, opinions and needs of the Indigenous people at every stage of mining, leading to the achievement of the Company's aim to create mutual understanding and maintaining the Aboriginal cultural heritage.

Number of Registered Aboriginal Parties



In the development of the Aboriginal Cultural Heritage Management Plan: ACHMP for both Centennial Coal's Northern and Western regions., the Company complies with the laws and related management approaches for instance Aboriginal Land Rights Act (1983), Heritage Act (1977), and Environmental Planning & Assessment Act 1979 (EP&A ACT) with the major aim of creating the Aboriginal engagement process in setting operational plans and designing the Company's mines. The Company also aims at setting the standard of assessment of risks and possible adverse impacts on the Aboriginal cultural heritage resulting from the Company's operations.

For the highest efficiency of the management of Indigenous engagement, the Company has set an Aboriginal Heritage Sub-committee (i.e. a committee for the Northern region and a committee for the Western region), comprising the Aboriginal representatives registered with the Company. Meeting will be held twice a year to review the Company's operating results for the past six months and the next six months on the issues related to the Aboriginal cultural heritage. In order to maintain transparency and mutual understanding, the activities the Aboriginal representatives are required to attend include:

Centennial Requirement for Engagement	Types of Engagement
<ul style="list-style-type: none"> <li>Major Project Application</li> </ul>	<ul style="list-style-type: none"> <li>Impact Assessment Baseline Survey</li> <li>Review and provide comment on report</li> </ul>
<ul style="list-style-type: none"> <li>Modification to approved Major Project</li> </ul>	<ul style="list-style-type: none"> <li>Impact Assessment Baseline Survey</li> <li>Review and provide comment on report</li> </ul>
<ul style="list-style-type: none"> <li>Extraction Plan Monitoring Inspection Program (Pre, Initial Post Mining, Second Post Mining)</li> </ul>	<ul style="list-style-type: none"> <li>Attend pre-mining inspection</li> <li>Attend post-mining inspection</li> <li>Review and comment on pre/post mining inspection report</li> </ul>
<ul style="list-style-type: none"> <li>Due diligence surveys</li> </ul>	<ul style="list-style-type: none"> <li>Attend inspection</li> <li>Review and provide comment on report</li> </ul>
<ul style="list-style-type: none"> <li>Consultation - Review of Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>Review Plan for each review and provide comment</li> </ul>
<ul style="list-style-type: none"> <li>Consultation - Attend Aboriginal</li> </ul>	<ul style="list-style-type: none"> <li>Attend meeting and review meeting minutes</li> </ul>
<ul style="list-style-type: none"> <li>Cultural Heritage Management Plan Committee (2/year)</li> </ul>	<ul style="list-style-type: none"> <li>Attend meeting</li> </ul>
<ul style="list-style-type: none"> <li>Consultation - Attend Aboriginal Cultural Heritage Management Plan Committee Site Inspection (1/year)</li> </ul>	<ul style="list-style-type: none"> <li>Observe the actual areas and consider any related issues</li> </ul>

In the case there is any inconclusive conflict between the Company and the Aborigines registered with the Company, an arbiter will be responsible for the reconciliation and seeking fair agreement which best benefits both parties. For the highest transparency of the reconciliation process, the arbiter shall have no conflict of interest with the Company and the Aborigines.

### Indonesia

In Indonesia, Banpu places top priority on the engagement of the Dayak, the Indigenous people of Kalimantan Island since 23 Dayak villages are located in the vicinity of the Trubaindo and Bharinto Mines - the Company's operational areas. The three Dayak groups are Tunjung, Benuaq and Bentain. Since 2015, the Company has been conducting a study of the Dayak's cultures with the main aim

to investigate efficient approaches to Indigenous engagement, through which "mutual understanding" between the Company and the Dayak can be created. The study covers the exploration of the Dayak's cultures, social features, politics, beliefs, and livelihood as well as the evaluation of the opportunity of culture change from the contact with the outsiders. The information gained from this study is as follows:

Topic	Information gained from the study
Beliefs	<ul style="list-style-type: none"> <li>• The Dayak believe in performing rituals to create harmonic relationships between themselves and the nature.</li> <li>• Most Dayaks are either Protestants or Catholics.</li> </ul>
Politics	<ul style="list-style-type: none"> <li>• In their livelihood, the Dayak living in the mining areas respect the customary Adat Law, which covers how to interact with the outsiders who conduct business near their settlements.</li> <li>• Rights to land was defined according to Adat Law.</li> <li>• There is an institution which administers the implementation of Adat Law at village, subdistrict and district levels and oversees the livelihood and administration of the Dayak.</li> </ul>
Work culture	<ul style="list-style-type: none"> <li>• Most Dayaks earn a living by swidden farming, growing rattan and rubber, fishing, hunting and doing other jobs reliant on natural resources.</li> <li>• The Dayak will work in accordance with the weather conditions, thus setting no clear work target.</li> <li>• Collective works are more preferable than individual works.</li> <li>• The Dayak are highly flexible in terms of working time and approaches.</li> </ul>

The information gained from the study was analyzed and compared with the Company's work culture of industrial sector to develop a strategic plan for "engagement" emphasizing mutual collaboration as the Company recognizes the importance and the benefits the Dayak will gain from the Company's job creation.

## ► Performance

### Australia

The operation in the previous year marked a major step forward in the Company's development of Indigenous engagement, this was resulted from the successful establishment of Aboriginal Heritage Sub-committee for the mines in Western Australia in 2015. Later in September 2016, the sub-committee for the mines in Northern Territory convened its first meeting in Fassifern. The conclusions derived from the meeting on driving Indigenous engagement are as follows:

- Development of the project to create an understanding of culture and needs of the Aboriginal people registered with the Mandalong Mine for the ground support contractors on 23 November 2016 with the aim of developing "mutual understanding" between the two parties.
- Approval of the resolution to allow subcommittee members and interested parties to join the site visit on the date set by the Company.

### Indonesia

The Company has been creating employment opportunities for Indigenous people so that they earn income for their families. Moreover, it has been providing capacity development for young people and working-age adults through such skills training programs as truck driving, heavy equipment repair, repairing small engines and motorcycles. The trainees in these programs gained better job opportunities and higher pay and some got job offers from the Company's contractors. After analyzing the baseline data on the Dayak culture in the previous year, the Company has improved the efficiency of Indigenous engagement through the following actions:

- The Company has a plan to include a training course on enhancing the understanding of the industrial sector's operation for the Dayak under the Company's human resources development project.
- The Company organizes a lecture on the differences between the Dayak work culture and working in the industrial sector by the Dayak employees as part of the orientation to foster better understanding of the work culture among the new Dayak employees and to strengthen relationship between the Company and the Indigenous people. In so doing, the Company aims at creating the attitude "Being a part of the organization" for the Dayak.



# Community Development



Conducting its business in accordance with its long held principle: “an industry would be vigorous only when it is developed in tandem with social and environmental responsibility”, Banpu has managed its community development by underlining “collaboration” between the Company, the local communities, and the government sector in organizing the community development project. The main aim of the projects is to lay the foundations for the sustainable and stable growth of communities in various dimensions. The past year represented an important step of growth in the community development work since Banpu has integrated the United Nations’ (UN) Sustainable Development Goals (SDGs) announced in September 2015 to its community development strategy. The Company has a strong belief that it can be part of the major force advancing the Global Goals and empower the local communities to be strong and self-reliant after the Company’s mine closure in each area.

## Community Development



### Indicator

- The proportion of the mines in Indonesia where the Stakeholder Satisfaction Survey on community development was conducted



### Target

- For the mines in Indonesia, the Stakeholder Satisfaction Survey on community development was conducted 100% within five years (2015-2019).



### Management Approach

- Performing the operation in accordance with Community Development Policy and related management standards



### Performance

- For the mines in Indonesia, the Stakeholder Satisfaction Survey on community development was conducted 60%.

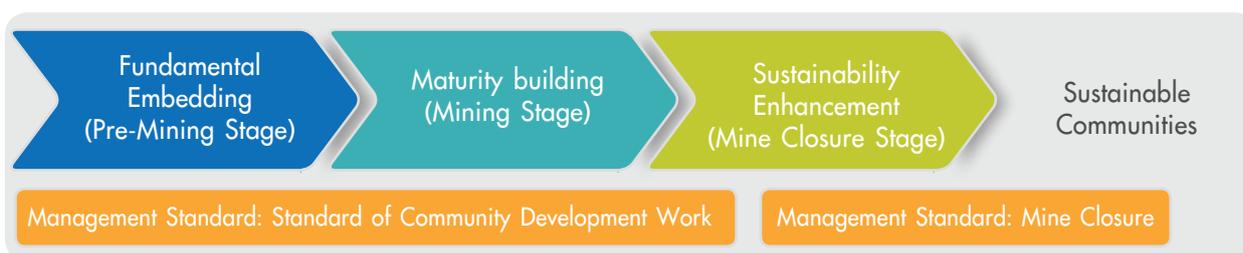


To achieve its goal in performing activities to balance business growth with sustainable development of communities and society, the Company has announced Community Development Policy. The aim of such policy is to perform community development activities at every step with “great care and responsibility” while placing great importance on “collaboration”. The Company believes that sustainable growth of community can only be achieved with the collaboration among all involved parties, especially “the community”, who is the true owner of the area.

To maintain the continuity and maximize the benefit of operation, the Company divided community development operation at each mining site into three stages in line with mining stages, namely pre-mining stage, mining stage and post-mining stage under the two key management standards:

1. Management Standard: Standard of Community Development Work is adopted for the pre-mining and mining stages.

2. Management Standard: Mine Closure is adopted for the post-mining stage.



According to Management Standard: Standard of Community Development Work, the process of carrying out the community development projects consists of six steps: 1. Preparation 2. Planning 3. Implementation 4. Monitoring 5. Evaluation and 6. Reporting. In addition, to ensure that the community development projects at each Indonesian mine are pursued in the same direction, in 2015 the Company developed three other Management Standards for each step of operation, namely Management Standard: Stakeholder Engagement, Management Standard: Planning and Implementation of Community Development Work and Management Standard: Monitoring, Evaluation and Reporting of Community Development Work.

	Practices	Targets and Management Approach		
Pre-Mining Stage	<p><b>1. Preparation</b></p> <ul style="list-style-type: none"> <li>- Conduct stakeholder analysis to be used for engagement guideline setup</li> <li>- Study social mapping as basic information for formulating community development plan</li> <li>- Set up community development master plan covering from pre-mining stage to post mining stage</li> <li>- Give fair compensation in case that mining area is overlapping with community area</li> </ul>	Target	Fundamental Embedding	
		Management Approach	Management Standard: Stakeholder Engagement	
		Related Party	Community Development Officer (CDO)	
Mining Stage	<p><b>2. Planning</b></p> <ul style="list-style-type: none"> <li>- Conduct stakeholder perception survey to identify attitudes of communities and related parties toward the Company and community development projects</li> <li>- Prepare a long-term strategic plan and an annual plan</li> </ul> <p><b>3. Implementation</b></p> <ul style="list-style-type: none"> <li>- Select of members of Community Consultative Committee (CCC), comprising representatives of local people, local authorities and Community Development Officer for project planning and evaluation</li> <li>- Seek cooperation with related stakeholders such as local government and contractors about community project development to bring sustainable value to the communities</li> <li>- Review an annual community development plan through Community Development Officer Forum : CDO Forum</li> </ul>	Target	Maturity building	
		Management Approach	Management Standard: Planning and Implementation of Community Development Work	
		Related Parties	Community Development Officer and Community Consultative Committee	
		<p><b>4. Monitoring</b></p> <ul style="list-style-type: none"> <li>- Monitor community development projects performance to ensure its compliance with work procedures</li> <li>- Always discuss with people in communities to ensure their expectation</li> </ul> <p><b>5. Evaluation</b></p> <ul style="list-style-type: none"> <li>- Conduct Stakeholder Satisfaction Survey annually to gather opinions from communities and related stakeholders toward community development projects</li> <li>- Evaluate performance and build capacity of Community Consultative Committee and related stakeholders in the area of management and specific skills</li> </ul> <p><b>6. Reporting</b></p> <ul style="list-style-type: none"> <li>- Report performance and the result from the evaluation to Corporate level</li> </ul>	Management Approach	Management Standard: Monitoring, Evaluation and Reporting of Community Development Work.
			Related Parties	Community Development Officer and Community Consultative Committee
Mine Closure Stage	<ul style="list-style-type: none"> <li>- Prepare post-mining community development plan with the community, Community Consultative Committee and related authorities prior to mine closure as parts of mine closure plan</li> <li>- Continue community development support for at least 3 years after mine closure to enable smooth and sustainable operation of the community projects</li> <li>- Collaborate with related government agencies and local academic institutes to help maintain supports for the community development projects in an ongoing basis</li> </ul>	Target	Sustainability Enhancement	
		Management Approach	Management Standard: Mine Closure	
		Related Parties	Community Development Officer and Community Consultative Committee	

To achieve transparency, independence and highest efficiency in operation, the Company has adopted Quality Assurance Review (QAR) by the staff who are not the community development officers in monitoring of operation on community development at the national level in Jakarta, Indonesia to ensure the efficiency in compliance with the Company's standards. In 2016, the Company extended the quality assurance review to the mine level and the results were satisfying and there was no corrective action request (CAR).

### ► Community Development in line with the Sustainable Development Goals

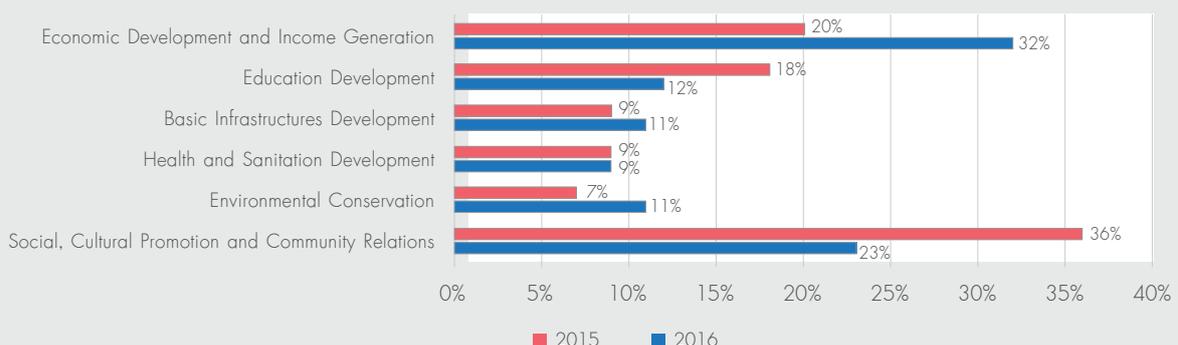
The United Nations announced the Sustainable Development Goals (SDGs) to be achieved over the next 15 years (September 2015-August 2030). Thenceforth, the SDGs have been integrated to the Company's community development work with the firm belief that the improvement of the operation will enhance the efficiency of its community development. To achieve efficiency and maximize the communities' benefits, in 2016 the Company has developed a short-term (5 years) strategic plan on "Community Development in line with the Sustainable Development Goals" with two main aims, namely to raise awareness and understanding of the SDGs for its staff and the communities and integrating the SDGs into the Company's community development projects in six different areas as follows:

1. Economic Development and Income Generation
2. Education Development
3. Basic Infrastructures Development
4. Health and Sanitation Development
5. Environmental Conservation
6. Social, Cultural Promotion and Community Relations

In the previous year, the Company started its operation on community development in accordance with the SDGs by relating the target of each community development project at each mine to the indicators of the SDGs to identify relevance and shared targets between the communities' needs and expectations and the Global Goals. The information will be analyzed to determine direction for the operation and appropriate Sustainable Development Goals in identifying each community's project features. Currently, the Company is in the process of planning its medium-term (10 years) and long-term (15 years) operational plans on community development in line with the Sustainable Development Goals.

With respect to raise wider awareness and understanding of the Sustainable Development Goals for the staff and communities, in 2016 the Company organized a lecture on Sustainable Development Goals for the community development officer at the Community Development Officer Forum in Indonesia. In 2017, the Company has planned to deliver the topic in China to lay foundations for the integration of Sustainable Development Goals to the community development strategy in China in the future.

Percentage of budget allocated for each dimension of community development projects



### Examples of Community Development Projects

1. Economic Development and Income Generation			
Project	Oil Palm Plantation	Poultry Farming	Fish Breeding and Farming
Venue	Indominco Mine	Jorong Mine	Trubaindo Mine
Participants	150 villagers from three groups of farmers in Suka Damai, Santan Tengah and Santan Ilir villages	10 villagers from the Bantalang community	112 villagers from 13 villages including the Dayak, Indigenous people in Indonesia
Objective	To increase income and improve the well-being of people in the community	To enhance the villagers' knowledge and ability of chicken farming, increase family income, and allocate safe and quality chicken to the consumers	To increase income for the villagers and develop their knowledge of the natural resources management in an efficient and sustainable manner
Details	A long-term (3 years) project promoting oil palm plantation an area of 67 hectares	Promote chicken farming in the Bantalang community as it is the major income source of the families in Bantalang	Promote farming of Nila, Patin and Toman
Achievement	The villagers could harvest oil palm yield of six tonnes per hectare.	The number of chicken raised was 70,000, creating IDR 2.3 billion income for the villagers.	Generate increased income of IDR 30 million per year for the community
Target in line with the SDGs	1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day	2.3 By 2030, double the agricultural productivity and the incomes of small-scale food producers, particularly women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets, and opportunities for value addition and non-farm employment	8.4 Improve global resource efficiency in consumption and production and endeavor to decouple economic growth from environmental degradation

2. Education Development			
Project	Non-Formal Education	Computer Training	Capacity Development for the Teachers in the Community
Venue	Indominco Mine	Kitadin - Embalut Mine	Bharinto Mine
Participants	Participants were 1,243 villagers from seven villages, 67% of whom have furthered their education at a more advanced level under the project.	As of December 2016, there were 560 participants including students, teachers, community leaders and the youth.	As of December 2016, 300 teachers from the Besiq, Bermal and Benangin communities participated in the project.
Objective	To provide learning opportunities for the disadvantaged elderly and the youth who lack access to formal education	To develop basic skills of computer, the internet, data management, and basic programming for the community members	To develop capacity of the teachers in the communities to improve the learning outcomes of young learner's
Details	Building three learning centers, providing basic knowledge about daily activities for the villagers as well as knowledge of entrepreneurship and entrepreneurial skills	Starting in 2010, this is an ongoing project.	-
Achievement	After participating in the project, the 62 participants got a job as an operational officer, a mechanic, and a driver while 10 participants have furthered their education at tertiary level. The project was able to reduce illiteracy rate by 42.1%.	(in the process of measuring achievement)	(in the process of measuring achievement)
Target in line with the SDGs	4.4 Increase the number of young people and adults who have essential skills including technical and professional skills required for employment and getting a good job and entrepreneurship by 2030		

3. Basic Infrastructures Development	
Project	Road Construction
Venue	Trubaindo Mine
Participants	Penarong, Dilang Puti, Muara Bunyut and Empakuq villages
Objective	To improve the villagers' wellbeing by developing accessible public services and markets
Details	Working with the local government to achieve the target
Achievement	Seven kilometers of the road were completed.
Target in line with the SDGs	9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

4. Health and Sanitation Development			
Project	Medical Service	Maternal and Infant Sanitation	Clean Water Supply
Venue	Trubaindo Mine	Indominco Mine	Indominco Mine
Objective	To provide medical service and knowledge of healthcare and disease prevention to community members.	To improve the sanitation of pregnant women, infants and children in the community by preventing harmful behaviors to their health, wellbeing and quality of life	To improve sanitation and hygiene for the community members by providing quality water supply system
Achievement	As of December 2016, there were 3,710 participants and service receivers including children, pregnant women, and the elderly	As of December 2016, 420 pregnant women participated in this project.	Successfully developed the water supply system for 630 villagers in over 200 households in Santan Tengah village for and set a committee overseeing the village's water supply system
Targets in line with the SDGs	3.1 Reduce the global maternal mortality ratio 3.2 End preventable deaths of newborns and children under 5 years of age and under-5 mortality 3.7 Ensure universal access to sexual and reproductive health care services, including for family planning, information and education		6.1 Achieve the goal to provide safe, accessible and affordable drinking water for all by 2030

5. Environmental Conservation	
Project	Mangrove Rehabilitation
Venue	Indominco Mine
Participants	The villagers in Bontang Lestari
Objective	To protect the coastal line
Achievement	130,000 mangroves were planted in the area of 77 hectares
Target in line with the SDGs	14.2 Sustainably manage, and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience and take action for their restoration, to achieve healthy and productive oceans

6. Social, Cultural Promotion and Community Relations	
Project	Cultural Conservation
Venue	Trubaindo Mine
Participants	The Puteri Dayak in Lambing village
Objective	To preserve the Dayak cultural heritage which is one of the important cultural identities of Indonesia
Details	Sponsoring musical instruments and teaching of traditional Dayak dancing skills for the new generations of the Dayak as well as the interested public
Achievement	(in the process of measuring achievement)
Target in line with the SDGs	11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage

## ► Performance

Since 2015, the Company has conducted the Stakeholder Satisfaction Survey mainly to learn the communities' attitudes and satisfaction on community development and involved parties, and so far the proportion of mines in Indonesia where the Stakeholder Satisfaction Survey on community development was conducted equals 60% (three out of five mines). In 2015, the Company has conducted the survey at the Trubaindo Mine and in 2016 at the Kitadin - Embalut and Jorong Mines. The Company is determined to conduct the Stakeholder Satisfaction Survey at the Indominco and Bharinto Mines to achieve the predefined target "100% of the mines in Indonesia where the Stakeholder Satisfaction Survey on community development was conducted" within the next five years.

### Stakeholder Satisfaction Survey for Community Development at Kitadin - Embalut

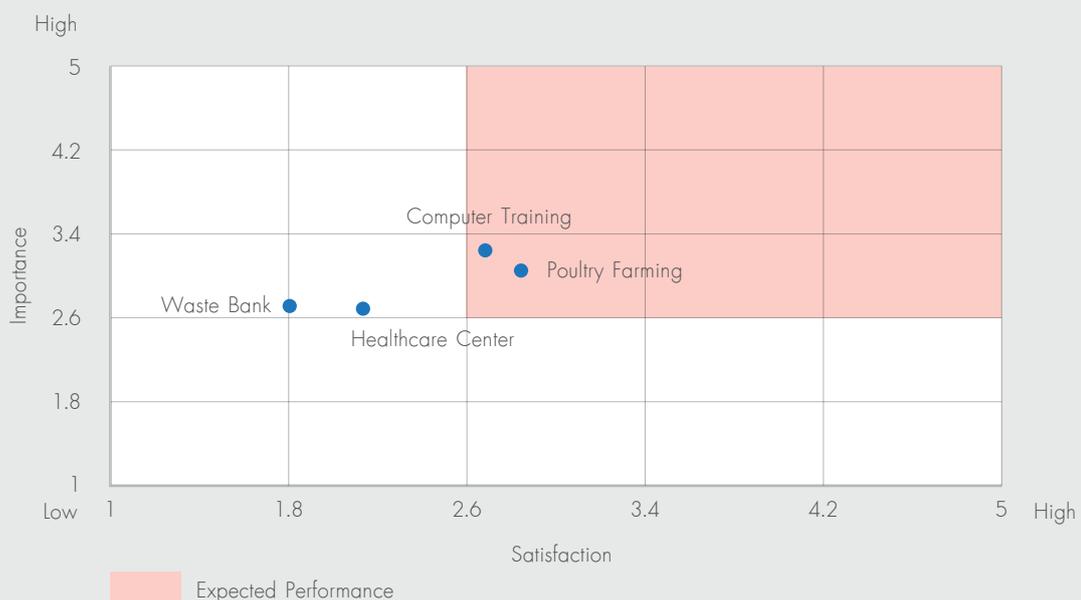
In 2016, the Company has conducted the survey at the Kitadin - Embalut Mine on two different types of projects:

1. Projects which directly generate income for the community include Waste Bank Project and Poultry Farming Project
2. Projects which indirectly generate income for the community include Computer Training and Healthcare Center

Two indicators are adopted in the survey, namely the community's satisfaction toward the project and the importance of the project to the community. The information gained will be analyzed and used in improving the Company's community development work for the utmost benefit of the community.

Range	Rating scale for the community's satisfaction toward the project	Rating scale for the importance of the project to the community
4.21-5	Extremely satisfied	Extremely important
3.41-4.20	Highly satisfied	Highly important
2.61-3.40	Moderately satisfied	Moderately important
1.81-2.60	Slightly satisfied	Slightly important
1-1.80	Least satisfied	Least important

Example of Stakeholder Satisfaction Survey for Community Development at Kitadin - Embalut



# Additional Information



## Awards & Recognitions

### Banpu

Awards & Recognitions	Host Institution
Member of Dow Jones Sustainability Indices (DJSI) in Emerging Market	RobecoSAM
RobecoSAM Sustainability Award Gold Class 2017 in Coal & Consumable Fuels	RobecoSAM
RobecoSAM Sustainability Award Industry Mover 2017 in Coal & Consumable Fuels	RobecoSAM
Best SET Sustainability Awards 2016 under the group of companies with market capitalization between THB 30-100 billion	The Stock Exchange of Thailand
Member of Thailand Sustainability Investment (THSI) 2016	The Stock Exchange of Thailand

### Subsidiaries

Business Unit	Awards & Recognitions	Host Institution
ITM	Best Indonesian Listed Companies Awards (APTI) III-2016	The Economic Review magazine and IPMI International Business School
	The Best CG Performance of Non-Financial Sector based on ASEAN CG Scorecard	The 8 <sup>th</sup> Indonesian Institute for Corporate Directorship (II CD) Corporate Governance Conference & Awards
	Top 10 of Top 50 Indonesian Companies with Best CG Performance	The 8 <sup>th</sup> Indonesian Institute for Corporate Directorship (II CD) Corporate Governance Conference & Awards
	Best CG for Indonesian public companies category with Outstanding (A) predicate	Indonesian Good Corporate Governance Award (IGCGA) organized by Economic Review magazine, IPMI, International Business School, Sinergi Daya Prima and Indonesia Asia Institute
	1 <sup>st</sup> Runner-up for Best Sustainability Reporting of Mining & Metal	The National Center for Sustainability Reporting (NCSR)
	Productive Business Partner Category	HIPMI AWARD 2016
	Award for participation and contribution in health development in West Kutai Regency	West Kutai Regent
Kitadin-Embalut Mine	Blue Level - PROPER	Ministry of Environment and Forestry of the Republic of Indonesia
	Zero Accident Award	East Kalimantan Governor



Business Unit	Awards & Recognitions	Host Institution
Bharinto Mine	Green Certificate - PROPER	East Kalimantan Governor
	Zero Accident Award	Indonesia Ministry of Manpower of the Republic of Indonesia
Trubaindo Mine	Blue Level - PROPER	Indonesia Ministry of Environment and Forestry of the Republic of Indonesia
	Green Certificate - PROPER	East Kalimantan Governor
Indominco Mine	HIV/AIDS Prevention and Control Program in The Workplace Award	Ministry of Manpower of the Republic of Indonesia
	Award for - Health work program partner through CSR - MUSWIL V East Kalimantan Province	National nurse union of Indonesia (Kota Bontang)
	Green Certificate - PROPER	East Kalimantan Governor
Jorong Mine	Blue Level - PROPER	Indonesia Ministry of Environment and Forestry of the Republic of Indonesia
TRUST	Zero Accident Award	East Kalimantan Governor
Mandalong Mine	2016 NSW Training Awards - Excellence in Electrotechnology Award	NSW State Training Awards
	2016 Apprentice of the Year	NSW Group Training Association Awards
Zhengding Power Plant	"3.15" Integrity and Promise-keeping Unit in Publicity of Year 2016	Province Government
	Key Protection Enterprise in Zhengding County	Local Government
	Top 100 Taxpayers to Shijiazhuang City Year 2016	Shijiazhuang National Taxation Bureau
	Excellence Prize of National Sport Games of Zhengding County	Local Government
Luannan Power Plant	Civilization Unit of Year 2015-2016	Luannan County Committee of CPC Luannan County People's Government
	Youth Civilization Organization	Communist Youth League of Luannan County Committee
	Advanced Enterprise on Fire Protection for Year 2015-2016	Luannan County People's Government
Zouping Power Plant	Star Enterprise for Year 2015 (Issued in 2016)	Handian Town Committee of CPC Handian Town People's Government
	Top 100 Energy-saving and Environmental-friendly Enterprises of Electric Power and Heat Industry	China Energy Conservation Association
	Key Enterprise Passed Clean Production Audit	Shandong Province Environmental Protection Bureau

## Participation and Membership

### Banpu

Organization	Status	Role
Thai Listed Companies Association (TLCA)	Chairman of Center for Building Competitive Enterprise	Provide advises for building competitiveness to Thai enterprises
Federation of Thai Capital Market Organizations (FETCO)	Advisor of the Chairman	Provide advises to the Chairman, raise issues of business sector to the government
Thailand Development Research Institute (TDRI)	Advisor	Give advises to develop the entire Thailand's capital market
The Securities and Exchange Commission	Council of Trustees & Board of Directors	Give advises on policy, strategic direction, and management approach
Thailand Development Research Institute (TDRI)	Chairman of the working group for Sustainable Development of Thai Listed Company	Draft sustainable development framework of Thai Listed Company
The Securities and Exchange Commission	Expert Board members of The Securities and Exchange Commission	Set policy, promote the development of Thai capital market and establish rules and regulations according to Securities and Exchange Act B.E.2535 (1992) and Thailand's capital market-related laws

### Subsidiaries

Organization	Status	Country
Australian Coal Association Limited Project (ACARP)	Director	Australia
Australian Coal Association Low Emissions Technology Pty Ltd. (ACALET)	Chairman	Australia
Chinese Thermal & Power Professional Management Association	Member	China
Coal Mining Abatement Technology Support Package (CMATSP) - Project Oversight Committee	Member	Australia
Coal Services - Airborne Contaminants and Diesel Particulate Sub Committee	Committee Member	Australia
Coal Services - NSW Mines Rescue Working Group	Group Member	Australia
Coal Services Pty Limited	Chairman	Australia
Corporate Forum for Community Development (CFCD)	Member	Indonesia
Engineers Australia Organisation	Assessor	Australia

Organization	Status	Country
Hunter TAFE Foundation	Director	Australia
MCA Climate Change Committee	Committee Member	Australia
MCA Coal Forum	Chairman	Australia
MCA OHS Committee	Committee Member	Australia
Mine Managers Association of Australia	Vice-President	Australia
Mining Competence Board	Board Member	Australia
National Rescue Team Association	Member	Indonesia
NCIG Holdings Pty Limited	Director	Australia
Newcastle Coal Infrastructure Group (NCIG)	Director	Australia
Newcastle Institute of Energy and Resources (NIER)	Director – Governance Board	Australia
Newcastle Knights Pty Ltd.	Director	Australia
NSW Freight Advisory Council	Advisory Council Member	Australia
NSW Minerals Council Board	Director	Australia
NSW Minerals Council Environment and Community Committee	Committee Member	Australia
NSW Minerals Council OHS Committee	Committee Member	Australia
NSW Underground Geotechnical Society (NUGS)	Executive Committee Member	Australia
Port Kembla Coal Terminal Limited	Director	Australia
Westpac Rescue Helicopter Service	Director	Australia

## List of Business

Country	Site/ Project Name	Business Type	Production Capacity	Current Status	Banpu's Ownership (% Share)
Thailand	BLOP	Coal-fired Power Plant	1,434 MW	Operating	39.36%
Indonesia	Trubaindo	Coal Mine (Open-pit)	5.8 Million Tons <sup>(a)</sup>	Operating	65.13%
	Indominco	Coal Mine (Open-pit)	15.5 Million Tons <sup>(a)</sup>	Operating	65.13%
	Bharinto	Coal Mine (Open-pit)	2.6 Million Tons <sup>(a)</sup>	Operating	64.49%
	Jorong	Coal Mine (Open-pit)	1.0 Million Tons <sup>(a)</sup>	Operating	65.13%
	Kitadin-Embalut	Coal Mine (Open-pit)	0.8 Million Tons <sup>(a)</sup>	Operating	65.13%
	Bontang	Coal Terminal	-	Operating	65.13%
Australia	Mandalong	Coal Mine (Underground)	5.7 Million Tons <sup>(a)</sup>	Operating	100%
	Myuna	Coal Mine (Underground)	1.4 Million Tons <sup>(a)</sup>	Operating	100%
	Airly	Coal Mine (Underground)	0.8 Million Tons <sup>(a)</sup>	Operating	100%
	Springvale	Coal Mine (Underground)	2.2 Million Tons <sup>(a)</sup>	Operating	50.00%
	Clarence	Coal Mine (Underground)	2.3 Million Tons <sup>(a)</sup>	Operating	85.00%
	Angus Place	Coal Mine (Underground)	-	Care & Maintenance	50.00%
	Newstan	Coal Mine (Underground)	-	Care & Maintenance	100%
	Mannering	Coal Mine (Underground)	-	Care & Maintenance	100%
	Inglenook	Coal Mine (Underground)	-	Project Development	100%
	Neubecks	Coal Mine (Open-pit)	-	Project Development	100%
	Mongolia	Altai Nuurs	Coal Mine	-	Project Development
Unst Khudag		Coal Mine	-	Project Development	100%
Tsant Uul		Coal Mine	-	Project Development	100%
China	Zhengding	Combined Heat & Power Plant	139 MW	Operating	78.71%
	Luannan	Combined Heat & Power Plant	123 MW	Operating	78.71%
	Zouping	Combined Heat & Power Plant	180.4 MW	Operating	55.10%
	Shanxi Lu Guang	Coal-fired Power Plant	1,320 MW	Under Construction	23.61%
	Gaohe	Coal Mine (Underground)	10 Million Tons	Operating	45.00%
	Hebi	Coal Mine (Underground)	1.2 Million Tons	Operating	40.00%
	Jinshan	Solar Power Plant	30 MW <sub>ac</sub>	Operating	78.71%
	Huineng	Solar Power Plant	21.5 MW <sub>ac</sub>	Operating	78.71%
	Haoyuan	Solar Power Plant	20 MW <sub>ac</sub>	Operating	78.71%
	Hui'en	Solar Power Plant	18.5 MW <sub>ac</sub>	Operating	78.71%
	Deyuan	Solar Power Plant	50 MW <sub>ac</sub>	Operating	78.71%
	Lao PDR	Hongsa	Coal-fired Power Plant	1,878 MW	Operating

Country	Site/ Project Name	Business Type	Production Capacity	Current Status	Banpu's Ownership (% Share)
Japan	Olympia	Solar Power Plant	10 MWac	Operating	31.48%
	Mukkawa	Solar Power Plant	17 MWac	Project Development	45.65%
	Nari Aizu	Solar Power Plant	20 MWac	Under Construction	59.03%
	Awaji	Solar Power Plant	8 MWac	Under Construction	59.03%
	Hino	Solar Power Plant	3.5 MWac	Operating	59.03%
	Yabuki	Solar Power Plant	7 MWac	Project Development	59.03%
	Onami	Solar Power Plant	16 MWac	Project Development	59.03%
	Yamagata	Solar Power Plant	20 MWac	Under Construction	78.71%
	Kurokawa <sup>(c)</sup>	Solar Power Plant	18.9 MWac	Project Development	78.71%
	Shirakawa <sup>(c)</sup>	Solar Power Plant	10 MWac	Project Development	78.71%
Singapore	Singapore Office	Sales Office	-	Operating	100%
USA	Chaffee Corners	Gas Business	21 Mmcf/day <sup>(b)</sup>	Operating	29.40%
	NEPA <sup>(c)</sup>	Gas Business	18 Mmcf/day <sup>(b)</sup>	Operating	10.24%

<sup>(a)</sup> Production in 2016

<sup>(b)</sup> Capacity based on % share

<sup>(c)</sup> Project invested in January 2017

## Data Boundary

Data	Coal Business				Power Business				Gas Business	Office	
	Indonesia	Australia	Mongolia	China	China	Japan	Thailand	Lao PDR	The U.S.	Thailand	Singapore
Economic Performance	●	●	●	●	●	●	●	●	●	●	●
Tax Payment	●	●	●	●	●	●	●	●	●	●	●
Economic Distributions	●	●	●	●	●	●	●	●	●	●	●
Total Employee	●	●	●	●	●	●	●	●	○	●	●
New Employee	●	●	●	●	●	●	●	●	○	●	●
Turnover Rate	●	●	●	●	●	●	●	●	○	●	●
Training	●	●	●	●	●	●	●	●	○	●	●
Parental Leave	●	●	●	●	●	●	●	●	○	●	●
Collective Bargaining Agreements	●	●	●	●	●	●	●	●	○	●	●
Fatality	●	●	●	○	●	●	○	○	○	○	○
Injury Frequency Rate	●	●	●	○	●	●	○	○	○	○	○
Product	●	●	○ <sup>1</sup>	○	●	●	○	○	○	○	○
Material	●	●	○ <sup>1</sup>	○	○	○	○	○	○	○	○
Energy	●	●	○ <sup>1</sup>	○	●	●	○	○	○	○	○
GHG Emissions	●	●	○ <sup>1</sup>	○	●	●	○	○	○	○	○
Water Withdrawal	●	●	○ <sup>1</sup>	○	●	●	○	○	○	○	○
Water Recycled	○	●	○ <sup>1</sup>	○	●	○	○	○	○	○	○
Water Discharged	●	●	○ <sup>1</sup>	○	●	●	○	○	○	○	○
Effluent Quality	●	○	○ <sup>1</sup>	○	○	○	○	○	○	○	○
Air Quality	○	○	○ <sup>1</sup>	○	●	○	○	○	○	○	○
Emission Loading	○	●	○ <sup>1</sup>	○	●	○	○	○	○	○	○
Mineral Waste	●	●	○ <sup>1</sup>	○	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Waste	●	●	○ <sup>1</sup>	○	●	○	○	○	○	○	○
Ash from Power Plant	●	n/a	n/a	○	●	n/a	○	○	○	n/a	n/a
Spill	●	●	○ <sup>1</sup>	○	●	●	○	○	○	○	○
Land	●	●	○ <sup>1</sup>	○	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Biodiversity	●	●	●	○	n/a	n/a	○	○	○	○	○
Environmental Compliance	●	●	○ <sup>1</sup>	○	●	●	○	○	○	○	○

● The scope of the performance covers all parts of such business.

● The scope of the performance covers some parts of such business.

○ The scope of the performance does not cover such business.

n/a Not applicable

<sup>1</sup> Under project development

## Performance Data

### Economic Performance

Data	Unit	2013	2014	2015 <sup>§</sup>	2016
Revenues	USD million	3,351	3,145	2,477	2,259
Profit from Operation	USD million	283	296	160	178
Net Profit	USD million	78	83	(43)	47
Gross Profit Margin	%	31	32	32	33
Interest Coverage Ratio	Times	4.53	5.50	5.89	5.33
Net Debt to Equity Ratio	Times	1.10	1.18	1.40	0.99

<sup>§</sup> Adjusted data from previous year

### Tax Payment – by Country

Data	Unit	2013	2014**	2015	2016
Indonesia					
• Net Profit before Tax	USD thousand	321	263	139	192
• Tax expense (from P&L)*	USD thousand	(61)	(62)	(76)	(61)
• Corporate Income Tax Rate	%	25	25	25	25
China					
• Net Profit before Tax	USD thousand	40	43	59	56
• Tax expense (from P&L)*	USD thousand	(13)	(13)	(16)	(15)
• Corporate Income Tax Rate	%	25	25	25	41
Banpu <sup>(a)</sup>					
• Net Profit before Tax	USD thousand	278	250	82	166
• Tax expense (from P&L)*	USD thousand	(90)	(94)	(98)	(69)
• Corporate Income Tax Rate	%	20-25	20-25	20-25	20-25

\* Tax expense (from P&L) consisting of Corporate Income Tax, Withholding Tax and Deferred Tax.

\*\* Extraordinary item: A reversal of deferred income tax asset for the Minerals Resource Rent Tax in Australia of \$24 million. The Minerals Resource Rent Tax Repeal and Other Measures Act ("the repeal of MRRT Act") was enacted on 5 September 2014. Therefore, the deferred tax asset net of income tax consequences for the Minerals Resource Rent Tax in Australia was written off. As a result, the Australian subsidiaries have no tax obligations in the future.

<sup>(a)</sup> Consolidated

### Economic Distributions

Stakeholder	Unit	2013	2014	2015	2016
Suppliers & Contractors <sup>(b)</sup>	USD thousand	1,763,849	1,563,105	1,137,075	1,033,909
Public Sector <sup>(c)</sup>	USD thousand	415,097	372,515	337,305	287,951
Shareholders <sup>(d)</sup>	USD thousand	123,439	96,120	91,810	71,823
Employee <sup>(e)</sup>	USD thousand	311,210	354,196	346,890	295,023
Financial Institutions <sup>(f)</sup>	USD thousand	126,694	131,541	130,197	130,080
Community, Society and Environment <sup>(g)</sup>	USD thousand	21,396	26,101	24,112	22,482

<sup>(b)</sup> Estimated from Cost of Sales less Employee Expense, Depreciation and Amortization

<sup>(c)</sup> Includes Royalty Fee, Corporate Income Tax, Local Maintenance Tax, Property Tax, Specific Business Tax and Other Taxes

<sup>(d)</sup> Dividends Paid

<sup>(e)</sup> Includes Salary, Wage, Welfare, Provident Fund Contribution and Employees Development Expense

<sup>(f)</sup> Includes Interest Expense, Financial Expense

<sup>(g)</sup> Includes Expense for Community Development, Environment and Land Compensation

## People

Data	Unit	2013	2014	2015	2016
Employee - Total	Person	6,268	6,167	5,505	5,675
Employee - by Country					
• Thailand	%	6.7	6.7	5.5	5.5
• Indonesia	%	48.7	51.2	49.7	49.8
• China	%	16.2	14.7	16.1	16.0
• Australia	%	28.4	25.3	25.6	26.0
• Mongolia	%	-	2.2	2.5	2.2
• Singapore	%	-	-	-	0.3
• Japan	%	-	-	-	0.1
• Lao PDR	%	-	-	-	0.1
Employee - by Gender					
• Male	%	87.7	86.6	85.9	86.2
• Female	%	12.3	13.4	14.1	13.8
Employee - by Nationality					
• Thai	%	6.7	6.6	7.2	7.1
• Indonesian	%	48.5	51.1	48.6	48.7
• Chinese	%	16.1	14.7	16.0	15.9
• Australian	%	28.5	25.4	25.7	26.0
• Mongolia	%	-	2.1	2.3	2.0
• Singaporean	%	-	-	-	0.1
• Japanese	%	-	-	-	0.1
• Others	%	-	-	-	0.1
Employee - by Age					
• Under 30	%	-	-	20.0	17.9
• 30-39	%	-	-	38.7	39.5
• 40-49	%	-	-	27.5	28.1
• Over 50	%	-	-	13.8	14.5
Employee - by Type					
• Permanent	%	93.5	95.9	94.9	91.7
• Temporary	%	6.5	4.1	5.1	8.3
Employee - by Level					
• Senior Management	%	0.7	0.8	0.9	0.8
• Middle Management	%	5.0	5.1	5.6	5.3
• Junior Management	%	24.9	27.8	29.1	28.3
• Staff and Supervisor	%	69.4	66.3	64.4	65.6
New Employee - Total <sup>(i)</sup>	Person	-	-	-	136
New Employee - by Gender <sup>(i)</sup>					
• Male	Person	-	-	-	103
• Female	Person	-	-	-	33
New Employee - by Country <sup>(i)</sup>					
• Thailand	Person	-	-	-	25
• Indonesia	Person	-	-	-	5
• China	Person	-	-	-	51
• Australia	Person	-	-	-	46
• Mongolia	Person	-	-	-	8
• Singapore	Person	-	-	-	1
• Japan	Person	-	-	-	0
• Lao PDR	Person	-	-	-	0
Turnover rate - Total	%	-	-	5.5	3.8
Turnover rate - Voluntary	%	-	-	1.7	2.2

Data	Unit	2013	2014	2015	2016
Turnover rate - by Country					
• Thailand	%	11.7	15.3	10.1	6.6
• Indonesia	%	9.6	6.7	1.5	2.8
• China	%	7.6	7.4	5.7	4.4
• Australia	%	6.0	16.7	12.5	3.4
• Mongolia	%	-	12.3	5.3	17.9
• Singapore	%	-	-	-	0
• Japan	%	-	-	-	0
• Lao PDR	%	-	-	-	0
Average Cost per Head of Training per Year - by Country <sup>(i)</sup>					
• Thailand	USD/Employee	-	-	-	1,613.51
• Indonesia	USD/Employee	-	-	-	108.48
• China	USD/Employee	-	-	-	282.99
• Australia	USD/Employee	-	-	-	-
• Mongolia	USD/Employee	-	-	-	-
• Singapore	USD/Employee	-	-	-	-(k)
• Japan	USD/Employee	-	-	-	-(k)
• Lao PDR	USD/Employee	-	-	-	-(k)
Average Cost of Training per Year - by Level <sup>(i)</sup>					
• Senior Management	USD/Employee	-	-	-	1,680.57
• Middle Management	USD/Employee	-	-	-	1,114.07
• Junior Management	USD/Employee	-	-	-	251.32
• Staff and Supervisor	USD/Employee	-	-	-	130.49
Average Hours of Training per Year - by Country					
• Thailand	Hrs/Employee	28.8	62.8	36.8	-(l)
• Indonesia	Hrs/Employee	22.1	33.4	37.9	-(l)
• China	Hrs/Employee	32.0	33.4	24.5	-(l)
• Australia	Hrs/Employee	-	-	-	-(l)
• Mongolia	Hrs/Employee	-	-	-	-(l)
• Singapore	Hrs/Employee	-	-	-	-(l)
• Japan	Hrs/Employee	-	-	-	-(l)
• Lao PDR	Hrs/Employee	-	-	-	-(l)
Average Hours of Training per Year - by Level					
• Senior Management	Hrs/Employee	19.7	54.4	35.6	-(l)
• Middle Management	Hrs/Employee	35.8	41.4	32.1	-(l)
• Junior Management	Hrs/Employee	37.0	53.6	52.1	-(l)
• Staff and Supervisor	Hrs/Employee	22.4	32.2	24.0	-(l)
Employees that take parental leave - by Country <sup>(i)</sup>					
• Thailand	Person	-	-	-	4
• Indonesia	Person	-	-	-	21
• China	Person	-	-	-	11
• Australia	Person	-	-	-	4
• Mongolia	Person	-	-	-	2
• Singapore	Person	-	-	-	0
• Japan	Person	-	-	-	0
• Lao PDR	Person	-	-	-	0

Data	Unit	2013	2014	2015	2016
Return to work after parental leave - by Country					
• Thailand	%	89	75	100	100
• Indonesia	%	-	89	90	100
• China	%	100	92	100	100
• Australia	%	-	100	80	100
• Mongolia	%	-	100	33	100
• Singapore	%	-	-	-	n/a
• Japan	%	-	-	-	n/a
• Lao PDR	%	-	-	-	n/a
Percentage of employees covered by collective bargaining agreements <sup>(h)</sup>					
• Thailand	%	-	-	0	0
• Indonesia	%	-	88	92	48
• China	%	-	-	0	0
• Australia	%	-	-	76	76
• Mongolia	%	-	-	0	0
• Singapore	%	-	-	0	0
• Japan	%	-	-	0	0
• Lao PDR	%	-	-	0	0

<sup>(h)</sup> Start consolidate data since 2014

<sup>(i)</sup> Start consolidate data since 2016

<sup>(k)</sup> The data is already included in Thailand performance

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

## Occupational Health &amp; Safety

Data	Unit	2013	2014	2015	2016
Number of Fatal Injury	Person	3	1 <sup>(a)</sup>	1	1
Number of Fatal Injury - by Type					
• Employee	Person	1	0	0	0
• Contractor	Person	2	1 <sup>(a)</sup>	1	1
Injury Frequency Rate (IFR) - Total <sup>(b)</sup>	Person/million man-hour	0.34	0.41	0.39	0.46
Injury Frequency Rate (IFR) - by Type <sup>(b)</sup>					
• Employee	Person/million man-hour	0.45	0.60	0.75	1.90
• Contractor	Person/million man-hour	0.32	0.38	0.34	0.25
Injury Frequency Rate (IFR) - by Country					
• Thailand	Person/million man-hour	0	0	0	15.26
• Indonesia	Person/million man-hour	0.35	0.39	0.40	0.23
• China	Person/million man-hour	0	1.03	0	3.93
• Australia <sup>(a)</sup>	Person/million man-hour	-	-	-	-
• Mongolia <sup>(n)</sup>	Person/million man-hour	-	-	0.66	1.72
Lost Time Injury Frequency Rate (LTIFR) - Total <sup>\$(p)</sup>	Person/million man-hour	0.29	0.25	0.18	0.28
Lost Time Injury Frequency Rate (LTIFR) - by Type <sup>\$(p)</sup>					
• Employee	Person/million man-hour	0.34	0.60	0.38	1.31
• Contractor	Person/million man-hour	0.28	0.19	0.15	0.11
Lost Time Injury Frequency Rate (LTIFR) - by Country <sup>\$(p)</sup>					
• Thailand	Person/million man-hour	0	0	0	5.72
• Indonesia	Person/million man-hour	0.30	0.22	0.19	0.12
• China	Person/million man-hour	0	1.03	0	3.36
• Australia <sup>(a)</sup>	Person/million man-hour	-	-	-	-
• Mongolia <sup>(n)</sup>	Person/million man-hour	-	-	0	0

<sup>\$</sup> Adjusted data from previous year

<sup>(n)</sup> Starting to consolidate data from Mongolia since 2015

<sup>(a)</sup> Non-operational accident

<sup>(p)</sup> Not include data of Australia due to reporting system under standardization

<sup>(q)</sup> Not applicable due to reporting system under standardization

## Environment

Data	Unit	2013	2014	2015	2016
<b>Product</b>					
Product - by Type					
• Coal	Million Ton	42.99 <sup>\$</sup>	44.18 <sup>\$</sup>	40.80 <sup>\$</sup>	38.32
• Electricity	GWh	1,496	1,371 <sup>\$</sup>	1,486 <sup>\$</sup>	1,567
• Steam (Heating, Cooling, Steam)	GWh	4,253 <sup>\$</sup>	3,544 <sup>\$</sup>	4,008 <sup>\$</sup>	4,375
Product - by Business					
• Coal Business	Million Ton	42.99 <sup>\$</sup>	44.18 <sup>\$</sup>	40.80 <sup>\$</sup>	38.32
• Power Business	GWh	5,749 <sup>\$</sup>	4,915 <sup>\$</sup>	5,494 <sup>\$</sup>	5,942
<b>Material</b>					
Material - by Type					
• Lubricant Oil	Kiloliter	8,804	6,424	6,773	5,446
• Lubricant Grease	Ton	627.17	435.93	465.17	359.05
• Ammonium Nitrate	Ton	62,748	52,057	34,299	31,470
<b>Energy</b>					
Energy Consumption	TJ	50,688 <sup>\$</sup>	44,443 <sup>\$</sup>	42,210 <sup>\$</sup>	44,118 <sup>(z)</sup>
• Direct Energy	TJ	49,532 <sup>\$</sup>	43,282 <sup>\$</sup>	41,134 <sup>\$</sup>	43,099 <sup>(z)</sup>
• Indirect Energy	TJ	1,155 <sup>\$</sup>	1,161 <sup>\$</sup>	1,075 <sup>\$</sup>	1,018 <sup>(z)</sup>
Direct Energy - by Fuel Type					
• Coal	TJ	33,152 <sup>\$</sup>	29,019 <sup>\$</sup>	29,904 <sup>\$</sup>	30,172
• Diesel	TJ	16,365 <sup>\$</sup>	14,245 <sup>\$</sup>	10,534 <sup>\$</sup>	10,330 <sup>(z)</sup>
• Gasoline	TJ	15.32 <sup>\$</sup>	18.27 <sup>\$</sup>	4.97 <sup>\$</sup>	23.49
• Waste Gas <sup>(i)</sup>	TJ	-	-	691.13	2,573.78
Indirect Energy - by Source					
• Electricity Purchased	TJ	1,155 <sup>\$</sup>	1,161 <sup>\$</sup>	1,075 <sup>\$</sup>	1,018 <sup>(z)</sup>
Energy Intensity - by Business					
• Coal Business	GJ/Ton	0.43	0.37	0.31	0.32 <sup>(z)</sup>
• Power Business	TJ/GWh	5.64	5.69	5.34	5.35
<b>GHG Emissions</b>					
GHG Emissions (Scope 1 & Scope 2)	Million Ton CO <sub>2</sub> e	6.70 <sup>\$</sup>	6.12 <sup>\$</sup>	5.72 <sup>\$</sup>	6.59 <sup>(z)</sup>
• Direct GHG Emissions (Scope 1)	Million Ton CO <sub>2</sub> e	6.41 <sup>\$</sup>	5.84 <sup>\$</sup>	5.47 <sup>\$</sup>	6.35 <sup>(z)</sup>
• Indirect GHG Emissions (Scope 2)	Ton CO <sub>2</sub> e	280,374 <sup>\$</sup>	278,617 <sup>\$</sup>	253,844 <sup>\$</sup>	237,505 <sup>(z)</sup>
Direct GHG Emissions (Scope 1) - by Business					
• Coal Business	Million Ton CO <sub>2</sub> e	3.69 <sup>\$</sup>	3.49 <sup>\$</sup>	2.87 <sup>\$</sup>	3.22 <sup>(z)</sup>
• Power Business	Million Ton CO <sub>2</sub> e	2.72 <sup>\$</sup>	2.35 <sup>\$</sup>	2.60 <sup>\$</sup>	3.13
Indirect GHG Emissions (Scope 2) - by Business					
• Coal Business	Ton CO <sub>2</sub> e	280,374 <sup>\$</sup>	278,617 <sup>\$</sup>	253,844 <sup>\$</sup>	236,558 <sup>(z)</sup>
• Power Business	Ton CO <sub>2</sub> e	0	0	0	947

Data	Unit	2013	2014	2015	2016
GHG Emissions Intensity (Scope 1 & Scope 2) - by Business					
• Coal Business	Ton CO <sub>2</sub> e/ Ton	0.0924 <sup>\$</sup>	0.0853 <sup>\$</sup>	0.0766 <sup>\$</sup>	0.0903 <sup>(2)</sup>
• Power Business	Kg CO <sub>2</sub> e/ KWh	0.4734 <sup>\$</sup>	0.4790 <sup>\$</sup>	0.4723 <sup>\$</sup>	0.5268
<b>Water</b>					
Water - by Type					
• Water Withdrawal	Million m <sup>3</sup>	28.97	33.82 <sup>\$</sup>	29.89 <sup>\$</sup>	18.25
• Water Recycled/Reused	Million m <sup>3</sup>	1.64	1.37	168.91	217.86
• Water Discharged	Million m <sup>3</sup>	23.16	30.84	35.26	31.18
Water Withdrawal - by Business					
• Coal Business	Million m <sup>3</sup>	19.72	26.05	22.02	10.13
• Power Business	Million m <sup>3</sup>	9.25	7.78 <sup>\$</sup>	7.87 <sup>\$</sup>	8.12
Water Withdrawal - by Source <sup>(i)</sup>					
• Surface Fresh Water	Million m <sup>3</sup>	-	-	-	12.57
• Sea Water	Million m <sup>3</sup>	-	-	-	0.78
• Groundwater	Million m <sup>3</sup>	-	-	-	2.79
• Rain Water	Million m <sup>3</sup>	-	-	-	0.05
• Municipal Water	Million m <sup>3</sup>	-	-	-	0.63
• Mine Water <sup>(i)</sup>	Million m <sup>3</sup>	-	-	-	1.43
Water Recycled/Reused - by Business					
• Coal Business <sup>(w)</sup>	Million m <sup>3</sup>	0.29	0.33	0.23	0.15
• Power Business	Million m <sup>3</sup>	1.35	1.04	168.68	217.71
Water Discharged - by Business					
• Coal Business	Million m <sup>3</sup>	22.71 <sup>\$</sup>	30.44 <sup>\$</sup>	34.80 <sup>\$</sup>	30.44
• Power Business	Million m <sup>3</sup>	0.45	0.40	0.46	0.74
Water Discharged - by Destination <sup>(i)</sup>					
• Surface Water	Million m <sup>3</sup>	-	-	-	29.76
• Ocean	Million m <sup>3</sup>	-	-	-	0.68
• Sewer	Million m <sup>3</sup>	-	-	-	0.74
Effluents Quality- by Parameter <sup>(v)</sup>					
• pH	% Compliance	100	100	100	100
• TSS	% Compliance	100	100	100	100
• Fe	% Compliance	100	100	100	100
• Mn	% Compliance	100	100	100	100
<b>Air</b>					
Air Quality - by Parameter <sup>(u)</sup>					
• SOx	% Compliance	100	100	100	100
• NOx	% Compliance	100	100	100	100
• Particulate Matter	% Compliance	100	100	100	100
Emissions Loading - by Pollutant					
• SOx	Ton	1,938	1,259	810	633
• NOx	Ton	2,823	2,654	908	869
• Particulate Matter	Ton	276	142	144	431

Data	Unit	2013	2014	2015	2016
<b>SOx Amount - by Business</b>					
• Coal Business <sup>(i)</sup>	Ton	-	-	-	0.15
• Power Business	Ton	1,938	1,259	810	633
<b>NOx Amount - by Business</b>					
• Coal Business <sup>(i)</sup>	Ton	-	-	-	230
• Power Business	Ton	2,823	2,654	908	639
<b>Particulate Matter Amount- by Business</b>					
• Coal Business <sup>(i)</sup>	Ton	-	-	-	340
• Power Business	Ton	276	142	144	91
<b>Waste</b>					
<b>Mineral Waste - by Type<sup>(i)</sup></b>					
• Mining Overburden	Million BCM	348	295	247	201
• Tailing <sup>(i)</sup>	Ton Dry Weight	-	-	-	322,843
<b>Waste - by Type<sup>(s)</sup></b>					
• Hazardous Waste	Ton	6,621 <sup>\$</sup>	7,566 <sup>\$</sup>	5,284 <sup>\$</sup>	6,115
• Non-Hazardous Waste	Ton	5,088 <sup>\$</sup>	5,275 <sup>\$</sup>	6,193 <sup>\$</sup>	3,935
<b>Hazardous Waste - by Business</b>					
• Coal Business	Ton	6,621 <sup>\$</sup>	7,566 <sup>\$</sup>	5,284 <sup>\$</sup>	6,113
• Power Business <sup>(i)</sup>	Ton	-	-	-	2
<b>Hazardous Waste - by Disposal<sup>(i)</sup></b>					
• Recycle	Ton	-	-	-	3,563
• On-site Storage	Ton	-	-	-	2,536
• Others	Ton	-	-	-	16
<b>Non-Hazardous Waste - by Business</b>					
• Coal Business	Ton	5,088 <sup>\$</sup>	4,838 <sup>\$</sup>	5,173 <sup>\$</sup>	3,552
• Power Business	Ton	-	438 <sup>\$</sup>	1,020 <sup>\$</sup>	383
<b>Non-Hazardous Waste - by Disposal<sup>(i)</sup></b>					
• Recycle	Ton	-	-	-	1,541
• Landfill	Ton	-	-	-	2,394
<b>Ash from Power Plant - by Business</b>					
• Coal Business	Ton	1,965	2,958	2,867	4,048
• Power Business	Ton	637,583	509,566	605,461	617,405
<b>Ash from Power Plant - by Disposal</b>					
• Recycle	Ton	404,342 <sup>\$</sup>	510,746 <sup>\$</sup>	606,609	619,718
• Other	Ton	235,206	1,778	1,719	1,735
<b>Significant Spill - by Material</b>					
• Oil Spill	Case	4	1	2	0
	Liter	1,210	158	302	0
• Chemical Spill	Case	0	0	0	0
	Liter	0	0	0	0
• Waste Spill	Case	0	0	0	0
	Liter	0	0	0	0
• Tailing Spill <sup>(i)</sup>	Case	0	0	1	1
	Liter	0	0	180,150	n/a <sup>(v)</sup>

Data	Unit	2013	2014	2015	2016
<b>Land</b>					
Land Own <sup>(t)</sup>	Hectare	103,953	103,758	103,595	95,960
Disturbed Area <sup>(t)</sup>					
• During the Year	Hectare	1,316	2,306	1,043	951
• Accumulate	Hectare	17,255	19,561	20,604	22,600
Rehabilitated Area <sup>(t)</sup>					
• During the Year	Hectare	1,137	812	1,509	812
• Accumulate	Hectare	8,508	9,320	10,829	11,630
Ratio of Disturbed Area to Land Own	%	16.6	18.9	19.9	23.6
Ratio of Rehabilitated Area to Disturbed Area	%	49.3	47.6	52.6	51.5
<b>Biodiversity</b>					
Number of Operations in Relation to Protected Area <sup>(t)</sup>					
• Inside	No. of operation	4	4	4	4
• Adjacent to	No. of operation	3	3	3	2
• Contain Portion	No. of operation	1	1	1	1
Number of Operations in Relation to High Biodiversity Area Outside Protected Area <sup>(t) (i)</sup>	No. of operation	-	-	-	2
Number of Operations Implemented Biodiversity Management Plan (BMP) <sup>(t) (i)</sup>	No. of operation	-	-	-	7 <sup>(k)</sup>
<b>Environmental Compliance</b>					
Significant Non-Compliance in Environmental Aspect					
• Monetary	Case	0	0	0	4
	USD	0	0	0	192,885
• Non-Monetary <sup>(i)</sup>	Case	-	-	-	4

<sup>s</sup> Adjusted data from previous report

<sup>(t)</sup> Starting to consolidate data since 2015

<sup>(i)</sup> Starting to consolidate data since 2016

<sup>(j)</sup> Excludes mining related materials such as tailing and waste rock

<sup>(k)</sup> Data only for coal business

<sup>(l)</sup> Data only for power business

<sup>(m)</sup> Data covered only coal business in Indonesia

<sup>(n)</sup> Data covered only coal business in Australia

<sup>(o)</sup> 2 from 7 operations are under approval

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

<sup>(q)</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

## GRI Content Index

Disclosure	Description	Page		Note		External Assurance
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<b>Organizational Profile</b>						
102-1	Name of the organization	Cover		G4-3		-
102-2	Activities, brands, products, and services	10-19, 24-27		G4-4, G4-PR6		-
102-3	Location of headquarters	Back Cover		G4-5		-
102-4	Location of operations	14-19, 162-163		G4-6		-
102-5	Ownership and legal form	162-163	26-27	G4-7		-
102-6	Markets served	10-19, 24-27		G4-8		-
102-7	Scale of the organization	14-19, 162-163, 165		G4-9		-
102-8	Information on employees and other workers	166-168		G4-10 <sup>E</sup>		-
102-9	Supply chain	10-13, 68-73		G4-12		-
102-10	Significant changes to the organization and its supply chain	-		G4-13	No significant changes during the reporting period	-
102-11	Precautionary Principle or approach	50-56		G4-14		-
102-12	External initiatives	32-37		G4-15		-
102-13	Membership of associations	160-161		G4-16		-
<b>Strategy</b>						
102-14	Statement from senior decision-maker	6-7		G4-1		-
102-15	Key impacts, risks, and opportunities	24-27, 50-56		G4-2		-
<b>Ethics and Integrity</b>						
102-16	Values, principles, standards, and norms of behavior	8-9, 44-49, 117-121		G4-56		-
102-17	Mechanisms for advice and concerns about ethics	47		G4-57, G4-58		-
<b>Governance</b>						
102-18	Governance structure	20-22		G4-34		-
102-19	Delegating authority	20-22, 28-31		G4-35		-
102-20	Executive-level responsibility for economic, environmental, and social topics	28-31		G4-36		-
102-21	Consulting stakeholders on economic, environmental, and social topics	32-35		G4-37		-
102-22	Composition of the highest governance body and its committees	20-21		G4-38		-
102-23	Chair of the highest governance body	20		G4-39		-
102-24	Nominating and selecting the highest governance body	21		G4-40		-
102-25	Conflicts of interest	46		G4-41		-

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102-26	Role of highest governance body in setting purpose, values, and strategy	20, 28-29, 44-48		G4-42		-
102-27	Collective knowledge of highest governance body	21		G4-43		-
102-28	Evaluating the highest governance body's performance	22, 30		G4-44		-
102-29	Identifying and managing economic, environmental, and social impacts	28-29		G4-45		-
102-30	Effectiveness of risk management processes	28-30, 50-52		G4-46		-
102-31	Review of economic, environmental, and social topics	28-29		G4-47		-
102-32	Highest governance body's role in sustainability reporting	30		G4-48		-
102-33	Communicating critical concerns	28-29, 52		G4-49		-
102-34	Nature and total number of critical concerns	32-37		G4-50		-
102-35	Remuneration policies	20, 22, 30		G4-51		-
102-36	Process for determining remuneration	20, 22, 30		G4-52		-
102-37	Stakeholders' involvement in remuneration	20, 22, 30		G4-53		-
102-38	Annual total compensation ratio	-	109-111	G4-54		-
102-39	Percentage increase in annual total compensation ratio	-		G4-55		-
<b>Stakeholder Engagement</b>						
102-40	List of stakeholder groups	34-35		G4-24		-
102-41	Collective bargaining agreements	113, 168		G4-11 <sup>E</sup>		-
102-42	Identifying and selecting stakeholders	32-35		G4-25		-
102-43	Approach to stakeholder engagement	34-35, 140-143		G4-26, G4-PR5		-
102-44	Key topics and concerns raised	34-35		G4-27		-
<b>Reporting Practice</b>						
102-45	Entities included in the consolidated financial statements	162-163	26-27	G4-17		-
102-46	Defining report content and topic Boundaries	23		G4-18		-
102-47	List of material topics	37		G4-19		-
102-48	Restatements of information	-		G4-22	No restatement in 2016	-
102-49	Changes in reporting	23		G4-23	No significant changes from previous reporting periods	-
102-50	Reporting period	23		G4-28		-
102-51	Date of most recent report	23		G4-29	Sustainability Report 2015	-
102-52	Reporting cycle	23		G4-30	Annual	-
102-53	Contact point for questions regarding the report	182		G4-31		-

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102-55	GRI content index	174-182		G4-32-b		-
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<b>GRI 103: Management Approach</b>						
103-1	Explanation of the material topic and its Boundary	23, 36-37		G4-DMA-a, G4-20, G4-21		-
103-2	The management approach and its components	45, 47-49, 51, 56, 60, 63, 67, 69, 71-73, 78, 82, 86, 88, 89, 91, 93-95, 98-100, 103-106, 112, 117, 124-127, 132, 139, 141-146, 151		G4-DMA-b, G4-EN34, G4-LA16, G4-HR12, G4-SO11		-
103-3	Evaluation of the management approach	56-59		G4-DMA-c		-
<b>GRI 201: Economic Performance</b>						
201-1	Direct economic value generated and distributed	165		G4-EC1 <sup>M</sup>		-
201-2	Financial implications and other risks and opportunities due to climate change	55		G4-EC2		-
201-3	Defined benefit plan obligations and other retirement plans	-		G4-EC3	2016 Financial Report, page 56, 133-135	-
201-4	Financial assistance received from government	-		G4-EC4		-
<b>GRI 202: Market Presence</b>						
202-1	Ratios of standard entry level wage by gender compared to local minimum wage	113		G4-EC5	Entry level wage of Banpu is higher than local minimum wage at significant locations of operation with an equal opportunity to employees regardless of gender.	-
202-2	Proportion of senior management hired from the local community	-		G4-EC6		-
<b>GRI 203: Indirect Economic Impacts</b>						
203-1	Infrastructure investments and services supported	150-157		G4-EC7		-
203-2	Significant indirect economic impacts	150-157		G4-EC8		-
<b>GRI 204: Procurement Practices</b>						
204-1	Proportion of spending on local suppliers	-		G4-EC9		-

Disclosure	Description	Page		Note		External Assurance
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<b>GRI 205: Anti-corruption</b>						
205-1	Operations assessed for risks related to corruption	46		G4-SO3		-
205-2	Communication and training about anti-corruption policies and procedures	48		G4-SO4		-
205-3	Confirmed incidents of corruption and actions taken	45, 49		G4-SO5	There is no incidents of corruption.	-
<b>GRI 206: Anti-competitive Behavior</b>						
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	-		G4-SO7	The Company clearly stated about the policies and practices towards competitors in the Code of Conduct.	-
<b>GRI 301: Materials</b>						
301-1	Materials used by weight or volume	170		G4-EN1 <sup>E</sup>		-
301-2	Recycled input materials used	172		G4-EN2 <sup>M</sup>	Recycled input materials are included in waste recycled.	-
301-3	Reclaimed products and their packaging materials	n/a		G4-EN28	Packaging material is not essential for our product.	-
<b>GRI 302: Energy</b>						
302-1	Energy consumption within the organization	82-83, 170		G4-EN3		-
302-2	Energy consumption outside of the organization	-		G4-EN4	Data are collected for logistics but they are not publicly reported.	-
302-3	Energy intensity	83, 170		G4-EN5		-
302-4	Reduction of energy consumption	83		G4-EN6		-
302-5	Reductions in energy requirements of products and services	-		G4-EN7		-
<b>GRI 303: Water</b>						
303-1	Water withdrawal by source	98, 171		G4-EN8 <sup>E</sup>		-
303-2	Water sources significantly affected by withdrawal of water	-		G4-EN9	There is no water sources significantly affected by withdrawal of water.	-
303-3	Water recycled and reused	98, 171		G4-EN10		-
<b>GRI 304: Biodiversity</b>						
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	173		G4-EN11		-
304-2	Significant impacts of activities, products, and services on biodiversity	84-88		G4-EN12 <sup>M,E</sup>		-
304-3	Habitats protected or restored	89-90		G4-EN13 <sup>M</sup>		-
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	87		G4-EN14		-
<b>GRI 305: Emissions</b>						
305-1	Direct (Scope 1) GHG emissions	78-80, 170		G4-EN15 <sup>E</sup>		-
305-2	Energy indirect (Scope 2) GHG emissions	78-80, 170		G4-EN16 <sup>E</sup>		-
305-3	Other indirect (Scope 3) GHG emissions	-		G4-EN17		-

Disclosure	Description	Page		Note		External Assurance
		Sustainability Report	Annual Report	GRI G4	Detail/Omission	
305-4	GHG emissions intensity	78-80, 171		G4-EN18		-
305-5	Reduction of GHG emissions	78-81, 170		G4-EN19		-
305-6	Emissions of ozone-depleting substances (ODS)	-		G4-EN20		-
305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	92-95, 171-172		G4-EN21 <sup>M,E</sup>		-
<b>GRI 306: Effluents and Waste</b>						
306-1	Water discharge by quality and destination	100, 171		G4-EN22 <sup>E</sup>		-
306-2	Waste by type and disposal method	102-105, 172		G4-EN23 <sup>M,E</sup>		-
306-3	Significant spills	106-107, 172		G4-EN24 <sup>M</sup>		-
306-4	Transport of hazardous waste	-		G4-EN25	There is no waste under the terms of the Basel convention <sup>2</sup> annex i, ii, iii, and viii.	-
306-5	Water bodies affected by water discharges and/or runoff	-		G4-EN26	There is no water bodies affected by water discharged and/or runoff.	-
<b>GRI 307: Environmental Compliance</b>						
307-1	Non-compliance with environmental laws and regulations	56, 173		G4-EN29		-
<b>GRI 308: Supplier Environmental Assessment</b>						
308-1	New suppliers that were screened using environmental criteria	-		G4-EN32		-
308-2	Negative environmental impacts in the supply chain and actions taken	-		G4-EN33		-
<b>GRI 401: Employment</b>						
401-1	New employee hires and employee turnover	166-167		G4-LA1 <sup>E</sup>		-
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	-		G4-LA2		-
401-3	Parental leave	167-168		G4-LA3		-
<b>GRI 402: Labor/Management Relations</b>						
402-1	Minimum notice periods regarding operational changes	-		G4-LA4	Comply with local laws and regulations.	-
<b>GRI 403: Occupational Health and Safety</b>						
403-1	Workers representation in formal joint management - worker health and safety committees	-		G4-LA5		-
403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	132-135, 169		G4-LA6 <sup>M,E</sup>		-
403-3	Workers with high incidence or high risk of diseases related to their occupation	-		G4-LA7		-
403-4	Health and safety topics covered in formal agreements with trade unions	-		G4-LA8		-

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		Sustainability Report	Annual Report	GRI G4	Detail/Omission	
<b>GRI 404: Training and Education</b>						
404-1	Average hours of training per year per employee	167		G4-LA9		-
404-2	Programs for upgrading employee skills and transition assistance programs	122-129		G4-LA10		-
404-3	Percentage of employees receiving regular performance and career development reviews	113, 124-125		G4-LA11		-
<b>GRI 405: Diversity and Equal Opportunity</b>						
405-1	Diversity of governance bodies and employees	21, 166		G4-LA12		-
405-2	Ratio of basic salary and remuneration of women to men	-		G4-LA13		-
<b>GRI 406: Non-discrimination</b>						
406-1	Incidents of discrimination and corrective actions taken	45, 49		G4-HR3		-
<b>GRI 407: Freedom of Association and Collective Bargaining</b>						
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	-		G4-HR4	The company will not interfere such activities and strictly handle it in accordance with the relevance law, rules and regulations.	-
<b>GRI 408: Child Labor</b>						
408-1	Operations and suppliers at significant risk for incidents of child labor	-		G4-HR5	The Company has clearly set the minimum age for employment according to the applicable local laws to prevent child labor risk.	-
<b>GRI 409: Forced or Compulsory Labor</b>						
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	-		G4-HR6	The Company established transparent recruitment process and requires that employment contracts be signed to prevent violation of rights, and forced labor.	-
<b>GRI 410: Security Practices</b>						
410-1	Security personnel trained in human rights policies or procedures	-		G4-HR7	All operational employees including security personnel are trained as part of company regulations.	-
<b>GRI 411: Rights of Indigenous Peoples</b>						
411-1	Incidents of violations involving rights of indigenous peoples	146-149		G4-HR8	There is no incidents of violations involving rights of indigenous peoples.	-
<b>GRI 412: Human Rights Assessment</b>						
412-1	Operations that have been subject to human rights reviews or impact assessments	56		G4-HR9		-
412-2	Employee training on human rights policies or procedures	-		G4-HR2	In process	-
412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	-		G4-HR1	All significant contractors are fully complied with the local labor laws and Code of Conduct.	-

Disclosure	Description	Page		Note		External Assurance
		Sustainability Report	Annual Report	GRI G4	Detail/Omission	
<b>GRI 413: Local Communities</b>						
413-1	Operations with local community engagement, impact assessments, and development programs	142-143, 150-152		G4-SO1	100% of operations implemented local community engagement, impact assessments, and development programs.	-
413-2	Operations with significant actual and potential negative impacts on local communities	142-145		G4-SO2	There is no significant actual and potential negative impacts on local communities.	-
<b>GRI 414: Supplier Social Assessment</b>						
414-1	New suppliers that were screened using social criteria	-		G4-LA14, G4-HR10, G4-SO9		-
414-2	Negative social impacts in the supply chain and actions taken	71		G4-LA15, G4-HR11, G4-SO10		-
<b>GRI 415: Public Policy</b>						
415-1	Political contributions	47		G4-SO6		-
<b>GRI 416: Customer Health and Safety</b>						
416-1	Assessment of the health and safety impacts of product and service categories	72-73		G4-PR1		-
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	72-73		G4-PR2		-
<b>GRI 417: Marketing and Labeling</b>						
417-1	Requirements for product and service information and labeling	72-73		G4-PR3		-
417-2	Incidents of non-compliance concerning product and service information and labeling	72-73		G4-PR4		-
417-3	Incidents of non-compliance concerning marketing communications	72-73		G4-PR7		-
<b>GRI 418: Customer Privacy</b>						
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	73		G4-PR8		-
<b>GRI 419: Socioeconomic Compliance</b>						
419-1	Non-compliance with laws and regulations in the social and economic area	59		G4-SO8 <sup>M</sup>		-
<b>GRI-G4 Mining &amp; Metals Sector Disclosures</b>						
n/a	Amount of land (owned or leased, and managed for production activities or extractive use) disturbed or rehabilitated	89, 173		MM1 <sup>M</sup>		-
n/a	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	173		MM2 <sup>M</sup>		-
n/a	Total amounts of overburden, rock, tailings, and sludges and their associated risks	105, 172		MM3 <sup>M</sup>		-

Disclosure	Description	Page		Note		External Assurance
		Sustainability Report	Annual Report	GRI G4	Detail/Omission	
n/a	Number of strikes and lock-outs exceeding one week's duration, by country	-		MM4 <sup>M</sup>	It is our policy that the company sets unofficial meetings not required by law such as quarterly meetings with union leaders to foster collaboration between the two parties.	-
n/a	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	146		MM5 <sup>M</sup>		-
n/a	Number and description of significant disputes relating to land use, customary rights of local communities and Indigenous People	-		MM6 <sup>M</sup>	There is no significant disputes relating to land use, customary rights of local communities and Indigenous People.	-
n/a	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	143-145		MM7 <sup>M</sup>		-
n/a	Number (and percentage) or company operating sites where artisanal and small-scale mining (ASM) takes place on, or adjacent to, the site; the associated risks and the actions taken to manage and mitigate these risks	-		MM8 <sup>M</sup>	There is no sites where artisanal and small-scale mining takes place on, or adjacent to.	-
n/a	Sites where resettlements took place, the number of households resettled in each, and how their livelihoods were affected in the process	-		MM9 <sup>M</sup>	There is no sites where resettlements took place in this reporting period.	-
n/a	Number and percentage of operations with closure plans	91		MM10 <sup>M</sup>	All mine sites have closure plans.	-
<b>GRI-G4 Electric Utilities Sector Disclosures</b>						
n/a	Installed capacity, broken down by primary energy source and by regulatory regime	162-163		EU1 <sup>E</sup>		-
n/a	Net energy output broken down by primary energy source and by regulatory regime	170		EU2 <sup>E</sup>		-
n/a	Number of residential, industrial, institutional and commercial customer accounts	n/a		EU3 <sup>E</sup>	The electricity generated is transmitted to national grid which is operated by the government.	-
n/a	Length of above and underground transmission and distribution lines by regulatory regime	n/a		EU4 <sup>E</sup>	The electricity generated is transmitted to national grid which is operated by the government.	-
n/a	Allocation of CO <sub>2</sub> e emissions allowances or equivalent, broken down by carbon trading framework	-		EU5 <sup>E</sup>		-
n/a	Planned capacity against projected electricity demand over the long term, broken down by energy source and regulatory regime	26-27, 162-163		EU10 <sup>E</sup>		-
n/a	Average generation efficiency of thermal plants by energy source and by regulatory regime	-		EU11 <sup>E</sup>		-

Disclosure	Description	Page		Note		External Assurance
		Sustainability Report	Annual Report	GRI G4	Detail/Omission	
n/a	Transmission and distribution losses as a percentage of total energy	n/a		EU12 <sup>E</sup>	The electricity generated is transmitted to national grid which is operated by the government.	-
n/a	Biodiversity of offset habitats compared to the biodiversity of the affected areas	-		EU13 <sup>E</sup>		-
n/a	Percentage of employees eligible to retire in the next 5 and 10 years broken down by job category and by region	-				-
n/a	Days worked by contractor and subcontractor employees involved in construction, operation & maintenance activities	-		EU17 <sup>E</sup>		-
n/a	Percentage of contractor and subcontractor employees that have undergone relevant health and safety training	-		EU18 <sup>E</sup>		-
n/a	Number of people physically or economically displaced and compensation, broken down by type of project	-				-
n/a	Number of injuries and fatalities to the public involving company assets, including legal judgments, settlements and pending legal cases of diseases	-		EU25 <sup>E</sup>		-
n/a	Percentage of population unserved in licensed distribution or service areas	-		EU26 <sup>E</sup>		-
n/a	Number of residential disconnections for non-payment, broken down by duration of disconnection and by regulatory regime	-		EU27 <sup>E</sup>	The electricity generated is transmitted to national grid which is operated by the government.	-
n/a	Power outage frequency	-		EU28 <sup>E</sup>		-
n/a	Average power outage duration	-		EU29 <sup>E</sup>		-
n/a	Average plant availability factor by energy source and by regulatory regime	-		EU30 <sup>E</sup>		-

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

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



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