



Analysis of Changes In Risk Management Implementation At PT. ABC Based On ISO 31000:2018

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ABSTRACT

The implementation of a company's risk management is important because it can provide input for management to act preventively to prevent risk events that are often detrimental (downside risk). PT ABC as a subsidiary of the nickel mining company as Parent Company has transformed its risk management from partial to integrated based on ISO 31000: 2018. This change must be well prepared to avoid delays in the integration process because PT ABC has a project to develop the Industrial Estate and the RKEF (Rotary Kiln Electric Furnace) Smelter Development with a significant value so that preventing losses by carrying out risk mitigation efforts is important to implement. The purpose of this study is to comprehensively analyze changes in the application of risk management at PT ABC, evaluate the application of risk management adopted by the company, identify challenges faced by the company, and analyze the application of risk management to current business activities. The research method uses primary data through direct observation of existing change preparation practices and uses secondary data from related company data. The basis of the risk method used is the ISO 31000: 2018 guidelines. The results showed a significant impact in the integration of risk management adopted to be more comprehensive than the previous implementation. The risk management integration factor of the Parent Company and its subsidiaries has consequences for the sustainability of the program and budgeting in the RKAP, especially for improving the quality of risk management analysis through risk awareness programs. The implementation of PT ABC risk management in the RKEF smelter construction project identified 8 aspects of risk which include investment taxonomy (5 aspects), regulatory changes (1 aspect), and environment (1 aspect). Risk mitigation efforts have been carried out in the risk map from 1 aspect of high risk; 5 aspects of medium risk and to reduce the impact and probability that exists, namely: 3 risk aspects (from medium to high) and 5 risk aspects (from low to medium). This shows that there is a fairly good readiness to anticipate risks that have a negative impacts.

INTRODUCTION

The number of challenges creates uncertainty for the company's business. Risk management is a crucial function for companies amid this uncertainty. Various parts of the company need to be integrated to implement risk management including parts related to accounting. Research conducted by Rasid, et al. (2014); Aisyah & Dahlia (2022) found that Enterprise Risk Management (ERM) and Management Accounting System (MAS) complement each other for decision-making, planning, and control in the company. This shows that accounting plays an important role in enterprise risk management. Under these circumstances, risk management becomes one of the most important aspects of maintaining business continuity including PT ABC (hereinafter referred to as ABC). ABC is a company engaged in the production of Ferronickel (FeNi). Ferronickel is a nickel derivative product commonly used as an ingredient in steelmaking. ABC is also a subsidiary of one of the state-owned nickel-mining companies (hereinafter referred to as Parent Company) which is one of the largest nickel ore and ferronickel-producing companies in Indonesia. ABC is engaged in four main fields, namely the management of the Industrial Estate, port and jetty management, heavy equipment rental, and infrastructure development.

The changes that occurred in the Parent Company affected ABC as a subsidiary. In carrying out its functions, the holding makes changes to various aspects of its member companies. One aspect that has changed is risk management. The Parent Company received direction from the holding regarding updated risk management practices. ABC as a subsidiary of Parent Company must also make changes to risk management practices both in terms of the form and process of risk management reporting. The updated risk management practices provide more detailed information related to the company's risks to perform better control over inherent risks. Parent Company needs to make changes to risk practices within the company, business units, and subsidiaries. Risk is one of the aspects considered important for the continuity of the company's business by the holding. In 2019, the holding provided direction for more detailed risk reporting to all members including the Parent Company. ABC then followed the Parent Company's direction by reporting risks by the monthly template prepared by the holding.

Darmawi (2006); Awalianti & Isgiyarta (2014) stated risk management is an effort to find out, analyze, and control risks in every activity in the company to obtain higher effectiveness and efficiency. Meanwhile, according to Vaughan and Seifert, the risk is a loss, the possibility of loss, uncertainty, deviation of reality from expected results, and the possibility that a result will be different from expected (Vaughan and Seifert, 1992). From these two definitions, it can be concluded that Risk Management can be used to reduce uncertainty, deviation, and losses that may be experienced by the company. Guidelines for Risk Management practices are contained in ISO 31000 which provides recommendations in the form of a framework and principles for managing risks in the company. ABC needs to pay attention to ISO 31000 guidelines in implementing Risk Management in the company and follow the parent company's guidance in reporting. ABC must be able to identify risks appropriately to effectively mitigate risks and challenges to the achievement of its objectives.

Before joining the holding, Parent Company provided a form of subsidiary risk reporting by outlining information on risk identification, risk level, and risk mitigation. Parent Company performed its control function as the holding company by reviewing and consolidating the risks reported by ABC on a monthly and annual basis. This form of reporting is then updated with a new form of reporting that describes risks in more detail so that company risks can be better managed. Changes to risk management practices are also very important considering that ABC will be running a new line of business that is expected to provide significant added value to the parent company.

LITERATURE REVIEW

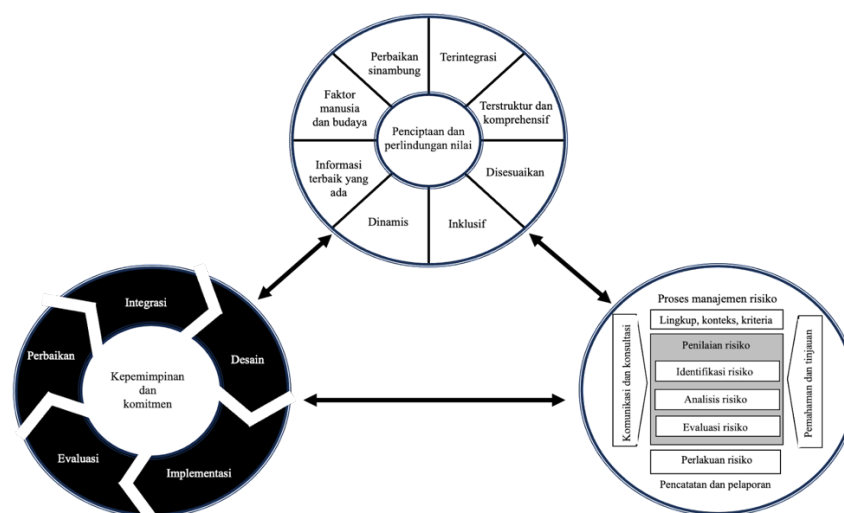
Risk is a measure of the probability of events and their consequences affecting project objectives. According to (Beck, 2002), there are three main components in risk: event, probability of occurrence, and impact. Some definitions of risk management according to the standards used are as follows.

1. AS/NZS 4360: Risk management is a structured process carried out to realize the potential opportunities that exist in the organization and manage the impact of adverse events (AS/NZS, 1999).
2. COSO ERM-Integrating with Strategy and Performance: Risk management is defined as a process related to the board of directors, management, and other stakeholders designed as a method of identifying potential negative events and managing risks following the company's risk conditions in achieving organizational goals. The process is applied in strategic settings throughout the company's activities (COSO, 2017).
3. ISO 31000:2018: Risk management is a coordinated effort to control the company's activities against possible risks. The implementation of risk management is inseparable from organizational governance and must consider the conditions of application and cultural factors that exist in the organization or company (International Organization for Standardization (ISO), 2018).

ISO 31000:2018

ISO 31000 is an international standard published by The International Organization for Standardization. ISO 31000 can be used by all types of organizations in dealing with the risks involved in organizational activities. One thing that distinguishes ISO 31000 from other risk management standards is that the perspective held by ISO 31000 is broader and more conceptual than the others (Wahyudien & Kusri, 2020). ISO 31000 can provide a framework, principles, and risk management processes that can be used as risk management guidelines and ensure the implementation of effective risk management in corporate organizations. According to Mahardika (2019) ISO 31000 is a guide in implementing risk which consists of three elements, namely: framework, principle, and process. According to Pratama & Pratika (2019); Manuputty et al. (2022). the principles of risk management in ISO 31000: 2018 provide an effective and efficient level of risk management characteristics. The principles of risk management will be the basis for an organization in managing the impact of uncertainty on the goals to be achieved.

Figure 1. Framework ISO 31000:2018



Source: ISO (2019)

Risk Management-Related Regulations

From a regulatory aspect, all state-owned enterprises (SOEs) are bound by government regulations that are executed through Ministerial Regulations. This is important because these business entities, in addition to having a commercial mission, also have social responsibilities. Some regulations related to risk management are:

1. Regulation of the Minister of SOEs No. Per-5/MBU/09/2022
Regulation of the Minister of SOEs No. Per-5/MBU/09/2022 on the Implementation of Risk Management in State-Owned Enterprises provides guidelines related to the implementation of risk management practices in SOEs. ABC is a subsidiary of an SOE that needs to carry out risk management following the guidelines in the Ministerial Regulation because it meets the classification as stipulated in Article 9 which explains that ABC is a subsidiary of Parent Company with share ownership above 50% and has control over the company.
2. MIND ID Regulations Related to Mining Risk Management Reporting
The Indonesian Mining Holding provides guidelines for the implementation of Risk Management for the holding company and its subsidiaries. ABC as a consolidated subsidiary of Parent Company (a member of the mining holding) follows the guidelines provided.
3. Minister of Energy and Mineral Resources Regulation Article 16 No 25 of 2018
Article 16 explains about increasing the added value of minerals through metal mineral processing and refining activities. Article 16 point 5 explains that holders of IUP and IUPK production operations can add value by cooperating for processing and/or refining in jointly built facilities. ABC as a subsidiary that will be formed in cooperation between Parent Company and investors conducts value-added activities with the construction and management of Industrial Estates, where smelters as tenants in it will process nickel ore into semi-finished goods and finished battery cell goods.
4. Minister of Energy and Mineral Resources Regulation Article 45 No 25 Year 2018
Article 45 states that holders of production operation IUPs and IPKs, special processing and/or refining IUPs and IUPKs are required to utilize metallic minerals, in this case nickel, with a grade criteria below 1.7% domestically. Parent Company is included in the criteria mentioned so it must utilize nickel mining products in the country. To fulfill this regulation, Parent Company collaborates with foreign investors as a strategic plan and involves ABC as a joint subsidiary that will build and manage the Industrial Estate.
5. Minister of Energy and Mineral Resources Regulation Article 2 No 11 of 2019
Article 2 explains the addition of Article 62 A in Ministerial Regulation of ESDM No. 25/2018 related to the recommendation for the implementation of restrictions on overseas sales of nickel mining products with a grade of less than 1.7%. The acceleration of the deadline from January 11, 2020 to December 31, 2019.
6. SOE Regulation PER-2/MBU/03/2023
This regulation from articles 56-74 is a regulation that integrates risk management, governance and internal audit collaborated in the Integrated Governance function of SOEs and SOE Subsidiaries. The risk management report is expanded to include the following: 1. risk strategy; 2. risk profile; 3. risk map; 4. realization of Inherent Risk and Residual Risk calculations prepared in quarterly and annual formats; 5. realization of risk treatment implementation and costs; 6. overview of risk changes; and 7. loss event database.

METHODS

This research uses a single case study with one research subject, namely ABC. The case study was chosen because it can reflect events that occur daily within the company so that it can provide real examples for readers. This research also uses descriptive research by collecting descriptive data from ABC.

Sampling Method

Data was collected through direct observation of ABC risk management managers/heads as ABC risk owners and risk champions and document analysis related to ABC to obtain relevant data. This approach allows to obtain in-depth information and explore the viewpoints of respondents. The sampling technique in this study is a convenience sampling technique in which further sampling is carried out with purposive sampling technique, which is a sampling technique using

certain considerations based on the ability to provide data and information needed by researchers (Sekaran, 2013). The reason for choosing a sampling technique using purposive sampling is the use of certain criteria used to obtain an appropriate sample.

Research Instruments

This study used the following research instruments:

- Observation guideline: the instrument contains a list of activities observed as follows:
- Observation of the preparation of monthly risk reporting by ABC risk officers;
- Observation of counseling and simulation of filling out the new risk register template; and
- Observation of monthly one-on-one meetings with Parent Company risk officers.
- Document analysis: a list of documents used for analysis by researchers to obtain more detailed information related to the implementation of risk management at ABC. Documents include financial statements, company policies, management policies, risk management guidelines, business plans, risk assessments, project studies, and other relevant documents.
- Observation guide: a checklist used during observation. The guide contains what needs to be done during the observation to collect data concerning the actual practices and processes at ABC.

RESULTS

Implementation of Risk Management in RKEF Project

ABC conducts operational activities in several business fields including the management of Industrial Estates (KI), port and jetty management, heavy equipment rental, and infrastructure management. This causes the business risks inherent in ABC to be caused by many sources. ABC has a significant long-term plan (RJPP), which is to collaborate for the development of downstream industries by building a nickel factory together with a third party. As of the third quarter of 2022, ABC is still in progress in the development of the IP project which is divided into three time periods, namely near-term (2022-2024), medium-term (2023-2026), and long-term (2025-2029). The projects are classified as main projects and supporting facility works. Meanwhile, there is one existing short-term project working on 1 line of Rotary Kiln Electric Furnace (RKEF). The average operational cost of the IP development project is USD 99.67 million and for the construction of the RKEF smelter (main project) is USD 475.81 million. Meanwhile, the total investment cost for 2023-2027 amounted to USD 750.71 million, consisting of USD 600 million for the construction of the RKEF smelter and USD 150 million for the KI construction. ABC has obtained interim feasibility study results for both projects. The total accumulated profit of the KI project during the operational period is estimated at USD 2,401 million while the accumulated profit of the RKEF smelter project is USD 11,868 million. Based on the latest draft feasibility study, both projects are declared feasible with project and equity IRR greater than WACC and COE, and positive NPV.

Financial Indicators of Project Feasibility

In the North Maluku Province, East Halmahera Region is located IUP (Mining Business License) and the location of the prospective Industrial Estate which is used as the object of research. In the area will be built Industrial Estate for various stages of the factory that will make EV (Electric Vehicle) Battery. Furthermore, the exploration of cooperation partners in the formation of a JV (Joint Venture) is carried out because it requires considerable investment and technology that has not been mastered by ABC or Parent Company. From the results of the study by the appointed consultant, several indicators of the feasibility study for both projects (Industrial Estate and Smelter) can be seen in Table 1.

Table 1. Feasibility Study of Industrial Estate Project.

Parameter	Unit	Value	
		Industrial Park	RKEF Smelter FeNi
Project Profit Accumulation	USD Juta	2,401	11,868
Free Cash Flow to the Firm (FCFF)			
Internal Rate of Return	%	12,78	16,96
Net Present Value	USD Juta	16,01	158,18
Payback Period	Year	8,55	7,29
Free Cash Flow to Equity (FCFE)			
Internal Rate of Return	%	22,18	29,91
Net Present Value	USD Juta	16,61	99,13
Payback Period	Year	7,04	6,47

Notes:

- Assumptions for the ABC Industrial Park Project are CBL's WACC of 10.5% and Cost of Equity (COE) of 14.42%.
- Assumptions for the RKEF Smelter ABC Project are WACC CBL of 11.75% and Cost of Equity (COE) of 14.42%.
- WACC (Weighted Average Cost of Capital); CBL (CATL Brunpt Lygend) ABC cooperation partner

Project Risk Identification and Risk Map

As a first step in conducting a risk analysis, the risk owner identifies all events that have the potential to be a disruption in achieving the targets or objectives set in the RKAP and project activities that occur at ABC. This identification process is procedurally carried out by the risk owner because it is seen as the party that best understands the existing problems and acts as the main actor. From the results of risk identification, the value of the impact (severity) and probability (likelihood) of each risk aspect will be obtained. And this will be depicted in a risk map for further mitigation plans to be carried out accordingly.

Table 2. Project Risk Identification Results.

No	Risk Taxonomy		Risk Level	L	S	Description of Risk
1	A3	Investment	High	3	4	Potential profitability of Industrial Estates is not optimized
2	A3	Investment	Moderat to High	5	3	Delays in the completion of the ABC project compared to the planned timeline
3	A3	Investment	Moderat to High	4	4	The occurrence of cost overruns from the construction and development of Industrial Estates and Smelters
4	A3	Investment	Moderat to High	5	3	There is no certainty of the sustainability of ABC product absorption
5	A3	Investment	Moderat to High	5	3	Potential performance and technology of the smelter does not meet specifications (underperformed), resulting in not achieving targets based on feasibility studies
6	C2	Investment	Moderat to High	4	4	Incompatibility of Parent Company's land use interests with the Master Plan
7	A4	Regulation Changes	Moderat to High	3	4	Cash flow difficulties due to ABC in the Framework Agreement since April 2022
8	B3a	Environment	Moderat	3	3	Health problems in the surrounding community due to KI development (respiratory disease)

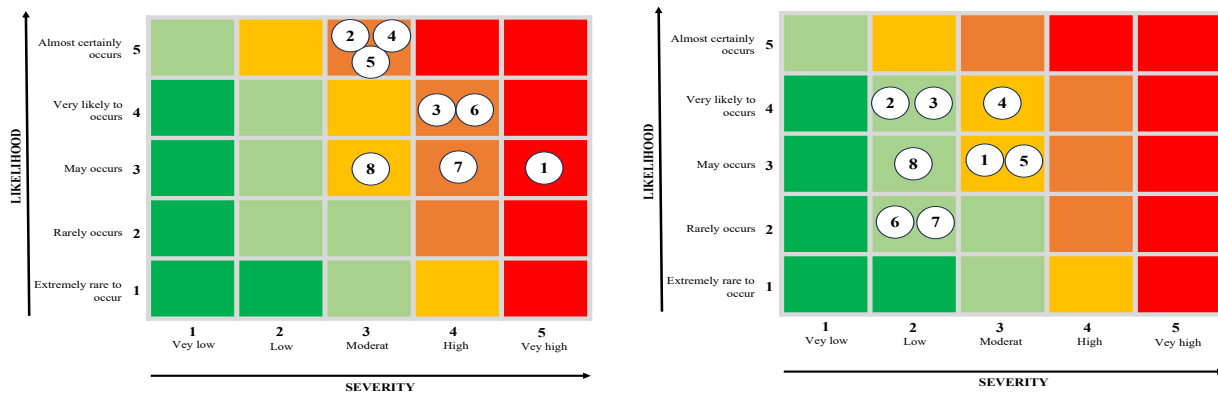
Notes: L = Likelihood; S = Severity.

Project Risk Mitigation

Based on project data, ABC identified six inherent risks at a high level with risk types of investment, financial, and health & safety. With the risks identified, plotting to the risk matrix is continued so that it becomes a complete risk map and provides information related to the nature of

the risks that exist in each identified risk. The risk map is compiled based on the provisions in Ministerial Regulation BUMN PER-2/MBU/03/2023 which have been explained in the previous section and consist of risk levels.

Figure 2. Risk Map Result: Before Mitigation (left) and After Mitigation (right).



Through many efforts to predict the risk, a plan is made for risk mitigation so that from this it will be possible to avoid losses/dangers that can interfere with the objectives set out in the RKAP. Mitigation efforts carried out so that inherent risk can be reduced with good risk management efforts can finally obtain residual risk as in the figure above.

DISCUSSION

Risk Mitigation and Organizational Readiness

From field observations, the initial ABC situation (before the integration of risk management with Parent Company) in the implementation of risk management was carried out by several employees who were still within the scope of the finance department. The results of the study from identification to risk mitigation prepared are not mandatory so the results of the analysis are made but not always used and reported regularly. An important reason to note is the absence of risk awareness in several businesses run by ABC (heavy equipment rental, IUP management, Industrial Estate planning, etc.). For this reason, the organizational readiness of ABC in terms of risk management personnel already exists, but the utilization of the results of the risk analysis made is not optimal and is included in the SOP of the company's activities regularly and must be reported regularly. The next stage is the internal regulation of Parent Company as a holding subsidiary including ABC to update the integrated risk management method for the holding and all its subsidiaries using ISO 31000: 2018. For this reason, in the provision of formal risk management implementation, ABC also developed risk management by forming a risk management unit in which the necessary organs (risk owner, risk officer, risk champion, etc.) are also ensured. This change is also followed by the obligation to report regularly every month.

Table 3. Risk Mitigation Strategy

RT	Critical Risk	Mitigation Strategy
A3	<ul style="list-style-type: none"> Seeking/adding strategic investor candidates for industrial estates Delays in the completion of the ABC project compared to the planned timeline 	<ul style="list-style-type: none"> Become a member of the Industrial Estate Association to gain insight into the IP business. Include human resources in seminars or training on Industrial Estates.
A3	The potential profitability of the Industrial Estate is not optimal	Maintain the achievement of each factor in the feasibility calculation does not exceed the existing deviation tolerance.
A3	There is a cost overrun from the construction of KI and smelters	Cooperation with strategic partners must be with careful planning with the principle of prudence by involving experienced consultants
A3	Potential for smelter performance and technology to not meet specifications resulting in non-achievement of targets based on feasibility studies	Adding nickel ore feeds with higher grades (above 0.2 g/t) so as to increase ferronickel productivity

A3	Incompatibility of Parent Company's land use interests with the Master Plan	The division of the stages of development of the ABC and CBL cooperation is adjusted to the land required by the existing factory.
A3	There is no certainty on the sustainability of ABC product absorption	Pursuing long-term contracts and off takers of products from cooperation partners
A4	Cash flow difficulties due to ABC in the Framework Agreement since April 2022	<ul style="list-style-type: none"> ▪ Innovate and adjust tariffs ▪ Request for additional working capital to shareholders
B3a	Health problems in the surrounding community due to KI development (respiratory disease)	PLTU plan must be by the government's zero carbon emission policy 2050 and use environmentally friendly technology

Note: RT = Risk Taxonomy

Comparison of Risk Management Aspects

With significant changes in various aspects of risk management in ABC, the following is a comparison between before and after the integration of risk management which can be seen in Table 20. The comparison of risk management aspects shows that in the integration of risk management, the overall responsibility is at the Director level, namely the Director of Finance and Risk Management at Parent Company. This certainly provides a broader impact, especially from the strong support of the holding in risk management. Furthermore, in its implementation, some changes initially used AS/NZS 4360 to ISO 31000: 2018. Although there are differences, the core of the management has not changed much because the risk management process in AS/NZS 4360 is adopted and included in ISO 31000:2018. Similarly, in the integrated implementation, the budget for the implementation of risk awareness is also raised and becomes the responsibility of the Parent Company Risk Management Division. The risk awareness program that is carried out continuously must provide better capabilities for all risk management actors both in the holding and in the subsidiaries.

Table 4. Comparison of ABC Risk Management

No	Risk Factor	Before Integration (PT ABC)	(PT ABC integrated into PARENT COMPANY)
1	Responsibility	Responsibility at division level in subsidiaries	Responsibility at the director level in the parent company and has a source of risk owner and risk champion data in each subsidiary division
2	Methodology	Using AS/NZS 4360 but not supported by certified risk personnel	Using ISO 31000:2018 and every managing employee gets the opportunity for risk management certification
3	Application utilization	Not yet using software applications for analysis and integration of reporting	Has used ARMS (Parent Company Risk Management System) application that is integrated from the parent company and all subsidiaries.
4	Risk awareness program	Not yet carried out routinely and programmatically	Carried out programmatically by the Risk Management Division of the parent company and supported by the parent company budget (Parent Company)
5	Guidelines	Not yet using official guidelines from KBUMN	Must use official risk management guidelines (most recently using Ministerial Regulation BUMN PER-2/MBU/03/2023)
6	Organization	Not yet formally established and still merged with the audit department	Has been independent and become a separate division and is led by the Director in charge of Risk Management
7	Analysis result	Not mandatory, used as a supplement when needed in considering a decision	Mandatory in implementation and used as a prerequisite for project analysis and company development

Implications of Risk Integration of ABC to PARENT COMPANY

The managerial implication of risk management implementation in ABC has changed a lot with the integration program to the parent company in terms of organization, process, and risk officers involved. With the integration of risk management in Parent Company, all business units within Parent Company will be able to be seen periodically, and quickly assist decision making, especially on decisions that must be made at the upper level due to risk escalation. For example, the implementation of the Industrial Estate project development and the construction of the RKEF (Rotary

Kiln Electric Furnace) smelter requires a large investment and involves strategic partners from abroad because it requires funds, technology, and expertise that are not entirely owned by ABC and Parent Company. The development of integrated risk management applications is also an important thing that is continuously developed by the Parent Company's Risk Management Division, which facilitates risk officers in the field, the LEM (Loss Event Management) module has been developed so that estimates of costs or losses due to a risk can be more accurately made and planned.

The consequence of the integration of all risk management within Parent Company is program and budget continuity. Program continuity requires a standardized SOP and related regulations (e.g. referring to ISO 31000:2018 guidelines and Ministerial Regulation BUMN PER-2/MBU/03/2023) that will facilitate risk management operations and provide unity of understanding related to the references and methodologies used. From the budget aspect, it is very important regarding 2 main things, namely: (1) Budget for risk awareness: this is important not only for risk management operations to subsidiaries but also for improving the quality of risk management analysis including through training, certification and other programs related to risk management, (2) Development of risk-based RKAP: by including risk as part of the budget that is officially budgeted in the RKAP, it is intended to anticipate what factors can hinder the achievement of targets that have been made in the RKAP.

From an institutional and organizational aspect, making changes in the form of integrating risk management into Parent Company based on ISO 31000:2018 is a very positive thing for several reasons:

1. The risk management organization is getting stronger in terms of both the number and capabilities of the actors with routine risk awareness programs supported by planning and budgeting in the holding's RKAP.
2. The person responsible for integrated risk management has increased to the Director of Finance and Risk Management, so this shows the organization's commitment to risk management is important for the company.
3. Continuity and development of risk management applications can be carried out in a planned manner and method updates are continuously developed in a shared software application system.
4. Carrying out regular risk maturity evaluations of risk management practices and using the results of risk management analysis is mandatory for use in planning, analyzing, and monitoring the implementation of risk management.

CONCLUSION

Changes in the implementation of risk management in ABC have a significant impact in terms of the risk guidelines adopted being more comprehensive (ISO 31000: 2018 and Ministerial Regulation BUMN PER-2/MBU/03/2023). The risk management integration factor of Parent Company and its subsidiaries has consequences for the sustainability of programs and budgeting in the RKAP, especially for improving the quality of risk management analysis through risk awareness programs. The implementation of ABC risk management in the RKEF smelter construction project identified 8 aspects of risk which include investment taxonomy (5 aspects), regulatory changes (1 aspect), and environment (1 aspect).

Risk mitigation efforts have been carried out in the risk map from 1 high-risk aspect; 6 medium to high-risk aspects and 1 medium-risk aspect so that the impact and probability can be reduced to 3 risk aspects (from medium to high) and 5 risk aspects (from low to medium). This shows that there is good enough preparedness to anticipate risks that have a detrimental impact (downside risk). The challenges that arise from the integration of risk management are: (1) requiring increased risk management capabilities, especially at the same time as the risk change standards used, and (2) allocating budgets to carry out risk awareness in a planned and continuous manner.

LIMITATION

From the results of the research conducted, several limitations may be improved and developed by further researchers in the future:

1. The research results show that there is still a lack of understanding and ability of implementers, so it is important to increase capability through certification programs and other risk awareness.
2. Risk officers have not yet understood it well, especially from the aspects of LEM (Loss Event Management), RPN (Risk Priority Number), or strict monitoring of all aspects that have the potential to become risks.

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