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Standards ISO 14001:2015 as The Basis for Green Innovation, Sustainable Development and Competitive Advantage: The Case of State Energy Company PT Pertamina (Persero)

Agus Santosa

QSKM (Quality, System & Knowledge Management) – Pengembangan Investasi & Manajemen Resiko
PT Pertamina (Persero), Medan Merdeka Timur Street 1-A, Jakarta

*****_E-mail_ : asantoso@pertamina.com ; agus_sato@yahoo.com

Abstract

The Paris Agreement on climate change (2015) emphasizes among other priorities the importance of environmental innovation, including technical, technological, organizational, which has significant potential to minimize the negative impact of the industry on the environment. In addition, customers, consumers and shareholders increasingly care and demand the same from our activities, our products and the services they consume. They expect companies to comply with environmental standards and demonstrate our commitment to reduce environmental impacts in daily operations. The task of technology modernization and relevant organizations for various sectors of the national economy. Especially important for energy companies (PERTAMINA). The author analyzes new environmental management tools, which were introduced in the ISO 140001: 2015 standard and outlines some recommendations for improvement in the context of PERTAMINA's conditions. The author also analyzes how to align these requirements with the upcoming transition of energy companies to the best available technology, which is basically a form of increasing technical and technological innovation. To ensure the successful implementation of these innovations, it is necessary to use, in addition to environmental management standards, a mix of environmental policy instruments, including what is referred to as green finance. It may be a challenge, but it is also an opportunity for us to show our environmental responsibility, stand out from the competition and show our existing customers and potential evidence of our commitment.

Keywords : *green innovation, ISO 14001:2015, risk management, competitive advantage, sustainable development*

Preliminary

Corporate sustainability is an approach that brings long-term stakeholder value. Such an approach implements a business strategy that integrates multiple dimensions including ethical, social, environmental, cultural, and economic spheres. Such integrated perspective requires firms to adopt an open innovation approach and operate in a network of relationships – they must be open to collaborate with their stakeholders and external partners. As corporate sustainability helps firms foster longevity, it has emerged as a top priority in their strategic thinking and innovation practices.

Sustainability is a social objective which focuses on achieving the triple bottom line performance: planet, people, and profit. Corporate sustainability is defined as a process of companies creating shareholder value while considering all other stakeholders' expectations.

In this study, with an institutional perspective, we use the definition of corporate sustainability as a process of organization strategic responses to apply better solutions amidst external and internal contexts, in order to achieve stakeholder values. The concept of corporate sustainability implies the integration of conservation of nature and more efficient use of resources, which requires firms to conduct green innovation.

Green innovation (also known as eco-innovation) is defined as new products and processes which provide customers and business value but significantly decrease environmental impacts. Kemp and Pearson define green innovation as "the production, assimilation or exploitation of a product, production process, service or management or business method that is novel to the organization and which results, throughout its life cycle, in a reduction of environmental risk, pollution and other negative impacts of resources use compared to relevant alternatives". Suggested by Srivastava, green innovation as corporate sustainability practice is focusing on both ecological and economical domains, and it should "consider full life cycle in production" and "set a new innovation/green standard to the firm".

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According to the reviewed literature, corporate sustainability and green innovation need to be a multi-layered, context-embedded process with a complex configuration. Sustainability and green innovation expect firms to consider not only the economic benefit, but also the social impact of their practices. Therefore, an openness and an innovation ecosystem of corporation is needed to seek ideas from outside partners, and to achieve reciprocal, responsive and respectful innovation outcomes. Thus, we consider the institutional perspective to be an appropriate theoretical lens through which one can view the localization process of corporate sustainability, or the implementation of green innovation in an institutional context. Moreover, institutional theory has often been used by researchers to explain the responses of firms to pressures for sustainability.

ISO 14001 is an internationally agreed standard that sets out the requirements for an environmental management system. It helps organizations improve their environmental performance through more efficient use of resources and reduction of waste, gaining a competitive advantage and the trust of stakeholders. An environmental management system helps organizations identify, manage, monitor and control their environmental issues in a "holistic" manner. It requires that an organization considers all environmental issues relevant to its operations, such as air pollution, water and sewage issues, waste management, soil contamination, climate change mitigation and adaptation, and resource use and efficiency. Like all ISO management system standards, ISO 14001 includes the need for continual improvement of an organization's systems and approach to environmental concerns. This standard covers key issues such as the superiority of environmental management in it the organizational strategic planning process, greater input from leadership and stronger commitment to proactive initiatives that drive environmental performance.

Pertamina's global challenges as an energy company from upstream to downstream that must be faced are very diverse ranging from fluctuating oil prices, limited reserves, continuously developing engine technology, exploration and production technology, refining to demands for environmentally friendly fuel oil that demand a balance economic, environmental and social performance. To answer these challenges, it is necessary to implement an integrated strategy to answer these challenges to get balanced results. Because the oil and gas industry is very closely related to these three criteria, one of the approaches used as a business strategy is ISO 14001, and currently has implemented the latest version of ISO 14001: 2015 risk based thinking has been established in a management policy.

The purpose of this paper is to convey the extent to which the policy can be implemented, what obstacles have arisen, how to mitigate them, and the extent of their success.

Methodology

1. Pre audit gap analysis – EMS (ISO 14001:2015)
2. Evaluate and formulate the obstacles have arisen as challenges for each operating unit, business unit or subsidiary, from the upstream to downstream directorates, associated with the requirements of ISO 14001 clauses
3. Top tips on making ISO 14001 effective
4. Following up the results of the evaluation with innovation programs (CIP = Continuous Improvement Program) to close the gap on audit findings as mitigation steps.
5. Organizing and participating in various national and international innovation forums and exhibitions as a means of sharing knowledge, competitive advantage and commercializing the results of innovation.

Results and Discussion

1. Pre audit gap analysis – EMS (ISO 14001:2015)
   Gap analysis a way to get information about the readiness of the organization in implementing an environmental management system in accordance with the requirements of ISO 14001 where the clauses are the result of formulation of stakeholder and regulatory requirements.

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Clause 4 - Context of the organization

NEW CLAUSE - underpins the 2015 Standards and establishes the context of the Management System. It gives you the opportunity to identify all internal and external issues that are relevant, and may affect, the strategic direction of the organization and the management system. You will also need to identify interested parties' that are relevant to your management system. These groups can include shareholders, customers, regulatory groups etc.

Clause 4.1 - Understanding the organization and its context

Summary: You will need to be able to demonstrate that you have identified external and internal issues, which you monitor and review. Please provide information:

about the internal and external issues relevant to your organization

the process of monitoring the internal and external issues and how you have considered the impact of any changes to the issues

Type your response here:

Picture 1. Pre audit gap analysis template

2. Evaluate and formulate the obstacles have arisen as challenges for each operating unit, business unit or subsidiary, from the upstream to downstream directorates, associated with the requirements of ISO 14001 clauses

	Challenges	Obstacles	Strategy
Upstream business	Commitment to guarantee the security and supply of national energy despite the changing situation of global needs and challenges. "As an integrated oil and gas company, increasing Pertamina's oil and gas production will certainly contribute significantly to the fulfillment of national energy."	• Fluctuating world oil prices • Oil and gas reserves are declining • The existing mature field is die hard,49.25 percent of the field has been operating for more than 50 years and is still in production today. • The search for new fields is increasingly not easy • investment needs are quite high	• Pertamina will do Stepping Out or step out to find a new field, by non-organic way through M&A (Mergers and Acquisitions) and New Exploration Frontiers. • Managed by Pertamina die-hard personnel as well. enthusiasm, attention to detail, determination, perseverance, and perseverance are the keys to success in operating the field • initiating Energy Transitions, which is transitioning to renewable energy in order to fully support the Government's aspirations to achieve the goals and objectives of national energy policies in 2025 and 2050, as stated in the RUEN (National Energy General Plan). This is where the active role of researchers from various disciplines including chemical engineering is needed
Downstream business	• must be able to increase value creation and value protection of refinery operations • the need for environmentally friendly fuels (Euro level) • a very dynamic change in market behaviour • increasingly complex distribution channels	• Old Pertamina refineries that are designed to only process certain oils and certain product. • limited refinery capacity is not balanced with customer needs • infrastructure limitations	• RDMP (Refinery Development Master Plant), NGRR (New Grass Root Refinery or Blue-sky Project) and Existing Refinery Upgrade. • Answering the Global Challenge, Pertamina Embraces Researchers through the Pertamina Research Idea Forum Answering Global Challenges, Pertamina Embraces Researchers through the Pertamina Research Idea Forum held by Pertamina RTC (Research Technology Center) • Marketing Operation Excellence (MOE), that is : infrastructure development revitalization of distribution channels launch various alternative products that provide choices for consumers, such as Pertalite, Pertamax Turbo and 5.5 Kg Bright Gas products, service improvements, etc.

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3. Top tips on making **ISO 14001** effective

• Top management commitment is key to making this a success. • Keep staff informed of what's going on, create a team or assign a champion, as this will increase motivation. This could include a well communicated plan of activities and timescales. • Think about how different departments work together to avoid silos. Make sure the organization works as a team for the benefit of customers and the organization. • Review systems, policies, procedures and processes you have in place – you may already do much of what's in the standard and make it work for your business. • Speak to your customers and suppliers. They may be able to suggest improvements and give feedback on your service. • Train your staff to carry out internal audits. This can help with their understanding, but it could also provide valuable feedback on potential problems or opportunities for improvement. • And finally, when you gain certification celebrate your achievement and use the Certification body Assurance Mark on your literature, website and promotional material.	"...ensure that your top management team really understands the importance of leadership in the new standard". "When we decided to implement the new standard, we assigned an internal champion of the standard inside the organization". "…all of our employees now understand the key metrics and the success factors". "There's a requirement in the new standard to document your EMS and that really encouraged us to document processes that have been in place for many years. This enabled the whole business to see, kind of, how the EMS fits together and the part they play in it". "…we had a brainstorming session and absolutely went through everything we could think of, pulling everyone's ideas in and then relating them to the business". "This course complemented my current knowledge very well. Emphasis on requirements of ISO 14001 was very useful and will undoubtedly help with implementation".

4. Following up the results of the evaluation with innovation programs (CIP = Continuous Improvement Program) to close the gap on audit findings as mitigation steps. Pertamina policy all the innovations that advance in the knowledge sharing presentation forum must have been implemented, and it is hoped that it can be followed up towards commercialization

Cluster name	Organization	Title
PC – Prove Cabe Matah	PHE (Pertamina Hulu Energi)	Utilization of Used Waste Oil from Canteen Operational Results with the BE PURE Method (Explosive Gasoline) on the Engine 2 Steps in Jambi Merang PHE
PC-Prove Vibre	Pertamina EP	EFFICIENCY OF OIL SPILL HANDLING WITH INNOVATION UTILIZATION OF BINTARO FRUIT AS OIL SPILL EQUIPMENT IN PT. PERTAMINA EP ASSET 3 GARDEN FIELD
PC – Prove Pace Senoro	Pertamina EP	Improving the Quality of Fermented Noni Juice Products with the "E-Fourty TP" Method In the Home Industry Fostered Community Development JOB Pertamina - Medco E&P Tomori Sulawesi
FT-Prove Kopral Daul	PHE	Preventing the Potential Deployment of H2S Gas and Increasing the Reliability of Wastewater Treatment Equipment using the Engineering "Genesys" (Gas Driven Eductor System) on low pressure venting pipelines in the PHE OSES Procession Platform.
PC-Prove Kiss Reborn	PHE	MINIMIZING SOLID WASTE VOLUME BY CREATING A GCC (GOBBLE CLEANING CENTER) TOOL IN PERTAMINA PLAT GAS PLANT PERTAMINA HULU ENERGI JAMBI MERANG
FT – Prove Fire Fighter	PHE	improve the fire protection system by creating a portable water pond in Lengowangi Randu gunting Tuban – East Java
PC – Prove Gammara	Marine Region VII	Optimization repair of Fiber Boat Using Pineapple Fiber as Substitute of Fiber Material in Marine Region VII
PC – Prove Setrum Abadi	PHE ONWJ	Increasing the reliability of electricity supply in the context of community development in the PHE ONWJ target area with downstream technology in greenthink, cilamaya village, girang subang
		Etc.

5. Organizing and participating in various national and international innovation forums and exhibitions as a means of sharing knowledge, competitive advantage and commercializing the results of innovation. Innovation clusters that have passed the selection from the previous levels will get appreciation and challenges for international forums in the form of exhibitions and seminar forums as speakers and it is hoped that these forums can establish

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international cooperation while expanding the Pertamina business network, as well as evidence that Indonesia able to take part in the global forum. Examples of international forums: IETEX Singapore, IAAF Korea, SIIF Turkey, IQQCC etc. And Pertamina has proven able to succeed in these forums and get new businesses.

Conclusions and recommendations

1. In facing these global challenges Pertamina has answered it by creating synergic and integrated strategies as outlined in the form of Long-term Work Plans, Short-term Work Plans, action plans which are spelled out in performance measures in key performance indicators at each level both at the corporation, Operation Unis, Business Units and Subsidiaries.
2. Of the various types of innovations carried out in Pertamina refer to the strategies that have been set including green innovation policies, such as some of the examples written in this paper, by creating a balance of business goals, namely profit, environmental insight and social care, namely the triple bottom line: Profit, Planet and People.
3. Pertamina RTC (Research Technology Center) has routinely held a Pertamina Research Idea forum aimed at accelerating research activities by involving universities and research institutions in Indonesia to jointly contribute to the growth and sustainability of Pertamina's business so that it can be felt by the people of Indonesia. The enthusiasm of the researchers was also seen from the increasing number of proposals received. If in 2018 as many as 234 proposals were collected, by 2019 there were 255 proposals successfully collected. As many as 98 proposals or 38% of them discuss new renewable energy. "The biggest challenge for researchers is realizing ideas into business. Pertamina will help answer the research challenges to become commercial. Of the 255 proposals submitted, only 60 or 23% of them passed the criteria to proceed to the presentation stage. This means that there are still opportunities for improvement for academics so that more people qualify for the next stage.

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Lembar Tanya Jawab

Moderator : Adi Ilcham (UPN "Veteran" Yogyakarta)
Notulen : Heni Anggorowati (UPN "Veteran" Yogyakarta)

1. Penanya : Isnaini (BBKB)
   Pertanyaan : Tema riset apa yang dapat diajukan ke Pertamina?
   Jawaban : Semuanya mulai dari lingkungan sampai teknologi dapat diajukan ke Pertamina