

ISO 14001:2015 and ISO 9001:2015 Implementation in Construction Company (Study Case: PT. Adhi Karya (Persero) Tbk, PT. Nusa Konstruksi Enjiniring Tbk, Eiffage, and Acciona, S,A)

Rizka Dwi Apriliani¹, Yemima Marnalita Hasibuan², Filson Maratur Sidjabat³

^{1,2,3}*Environmental Engineering Study Program*

Faculty of Engineering, President University, Jababeka Education Park, Jl. Ki Hajar Dewantara, RT.2/RW.4, Mekarmukti, Kec. Cikarang Utara, Bekasi, Jawa Barat 17550

E-mail: rizkadwi2866@gmail.com

E-mail : mimahsb20@gmail.com

E-mail : fmsidjabat@president.ac.id

Abstract: In this era of globalization, competition between producers is commonplace as well as companies in the construction sector that have developed a lot. This causes the quality of the products and services to be increasingly considered. Thus, construction company needs to get standardized recognition up to international standards stating that the products and systems used are worth buying. The international standard that is often used by various companies is ISO 14001: 2015, which states a commitment to save the environment, and ISO 9001: 2015 which states a commitment to increase customer satisfaction. The aim of this study is to know the implementation and achievement of these standards in construction companies. This study discusses implementation in 4 domestic and foreign companies as representative namely, PT. Adhi Karya (persero) Tbk, PT. Nusa Konstruksi Enjinirin, Tbk, Eiffage, and Acciona, S, A. The method used in this study is a qualitative research method based on the annual report of each company. The results of this study known that each company has its own strategy to achieve ISO 14001: 2015, in PT. Nusa Konstruksi Enjiniring Tbk (NKE) they do direct action in protecting the environment such as managing the waste produced, preventing pollution, also following the existing regulation. In PT. Adhi Karya, they more consider about the health and safety of the work place, prioritizing the use of eco-friendly and energy saving products, pollution prevention and natural resources. Acciona, S,A and Eiffage they more consider about the environmental protection norms it is common to build designated infrastructure to preserve the environment and treat the waste.

Keywords: *Construction Company; Environmental Management; ISO 14001:2015; ISO 9001:2015; Quality Management*

Introduction

Construction companies are one of the activities that play an important role in the economic, social, environmental and cultural fields in order to support the realization of national development. Currently construction companies have developed a lot, not only in Indonesia but throughout the world. This can lead to the emergence of competition between companies so it is very important to improve the quality of the services offered, one form of improving quality is applying the ISO standard to the company.

ISO is not part of the UN (United Nations) nor WTO (World Trade Organization) even though the standards issued are a reference to the two organizations. ISO (International Standardization Organization) is a non-governmental institution whose role is to create and set certain standards that can be used by ISO member countries to become international standards to produce good products and services and enhance cooperation between related institutions.

The standards issued by ISO are carried out using a decentralized system, where technical committees and working groups that represent industry, research institutions, government authorities, consumer institutions, and internationally qualified organizations from around the world gather as equal partners to solve global standardization problems.

ISO 9001 is a standard that contains requirements for quality management systems so that companies or organizations are more efficient in increasing customer satisfaction. Companies that implement ISO 9001 must understand the requirements contained in the ISO and understand how to implement it, and be able to maintain the system implemented so that these requirements can be fulfilled continuously. This standard aims to ensure that a company has overseen and guaranteed all its operations that can affect the quality of the products produced .

In addition to ISO 9001, ISO 14001 is also one of the standards pursued by many companies. This is because almost all companies always intersect with the environmental management system. ISO 14001 is a standard that aims to help company management to recognize and measure their performance to anticipate short-term and long-term impacts on environmental aspects starting from the activities of products and services produced.

Almost every company in the world strives to fulfil and achieve the standard certification issued by ISO in order to improve the quality of the company, such as achieving ISO 9001: 2015 standards related to the latest quality management and ISO 14001: 2015 related to environmental management. the latest. The following is an explanation of ISO 9001: 2015 and ISO 14001: 2015:

1.1. ISO 9001: 2015

There are 10 differences between ISO 9001: 2015 and ISO 9001 before, namely:

- Increased calluses, consisting of; scope, normative references, terms and definitions, context of the organization, leadership, planning, support, operation, performance evaluation, and improvement
- The ISO 9001 principle is reduced, only has seven principles, namely; customer focus, leadership, engagement and competence of people, process approach, improvement, informed decision making, relationship management
- Documents and records data referred as documented information
- Not too concerned with documents, but the process
- The existence of a quality manual at ISO 9001: 2015 is not required but it does not mean that quality manual must be deleted
- Management representative does not have to be
- Must fulfil the existing clause
- Change the term preventive action with risk management
- Distinguishing terms of products and services

- Change some terms like; supplier becomes external provider, purchased product becomes externally provided product and service, work environment becomes environment for the operation of the process

1.2. ISO 14001:2015

There are several changes to ISO 14001: 2015 with the previous standard, namely:

- Has two new clauses related to the organizational context
- The leadership role is made to always promote and support the implementation of environmental management systems
- Organizational expectations have been expanded to commit to proactive initiatives in protecting the environment from risk condition
- Life-cycle thinking
- There is a separate clause between internal communication and external communication
- Combining the term "documented information", not "document and record"

One type of company that applies ISO 9001: 2015 and ISO 14001: 2015 is a construction company both national and international such as PT. PP Urban, PT. Hutama Karya (Persero), PT. Adi Karya (Persero) Tbk, PT. Nusa Konstruksi Engineering Tbk, Eiffage, ACCIONA, S, A., etc. In achieving ISO 9001: 2015 and ISO 14001: 2015 standards, each company has its own strategy. This can be demonstrated by this study by using four examples of companies because they are one of the biggest construction companies in their country, namely; PT. Adhi Karya (Persero) Tbk, PT. Nusa Konstruksi Engineering Tbk, Eiffage, and, ACCIONA, S, A. already certified. The purpose of this study is to find out more about the strategies for implementing ISO 14001: 2015 and ISO 9001: 2015 in each company with an approach to the construction field.

Method

The research method is the procedure for how a study is carried out. Another understanding of the research method is the method used by researchers in collecting research data, such as interviews, observation, tests and documentation.

The method used in this study is a qualitative research method. Qualitative research is a research procedure that produces descriptive data in the form of written or oral words from people and observed behavior, while the purpose of qualitative research is to obtain a full picture of a matter in terms of the human perspective under study. Qualitative research relates to the ideas, perceptions, opinions, or beliefs of the person being studied whose overall cannot be measured by numbers. The data collected is not intended to support or reject the hypotheses that have been compiled before the research began, but abstractions are arranged as specificities that have been collected and grouped together through a process of carefully collected data collection. In this study, researchers developed concepts and collected facts, but did not test hypotheses through calculating the numbers.

Qualitative research methods in this study are used to describe how to implement and how to apply ISO 14001: 2015 and ISO 9001: 2015 to companies in the construction sector.

Data collection is an important activity for research activities because the collection of data will determine the success or failure of a study. So that in the selection of data collection techniques must be careful. Data collection techniques used in this study are:

1. Literature Review

Literature studies are conducted to enrich the knowledge of various concepts that will be used as a basis or guideline in the research process. Researchers also use literature in data collection techniques. Literature studies in this data collection technique are secondary data types that are used to assist the research process, namely by gathering information contained in book articles, as well as scientific works in previous studies. The purpose of this literature study is to find facts and references to solve the problem in this paper.

2. Identification Problem

With the literature study, researchers re-identify every problem that exists in the literature study. So that with the identification of problems, researchers can take something that can support the discussion in this study.



Fig 1: Research Method Diagram

1. Result and Discussion

1.1. PT. Nusa Konstruksi Enjiniring, Tbk



Fig 2: The Logo of Nusa Konstruksi Enjiniring, Tbk

PT Nusa Konstruksi Enjiniring Tbk (NKE) is a leading construction company operating since 11 January 1982 using the name PT Duta Graha Indah. NKE has grown into a company capable of building structural projects and infrastructure throughout Indonesia and the world. In its journey, the Company expanded and worked on various types of infrastructure projects in various regions of the archipelago. NKE contributes in Indonesian development by making dams, irrigation canals, ports, flood mitigation, coastal protection and river normalization projects. The Company received recognition for large projects such as the Antokkan irrigation project (Padang, West Sumatra), Runway Project at Hasanuddin Airport (Makassar, South Sulawesi), Indonesia Stock Exchange Building (Jakarta), Komplek Grand Indonesia (Jakarta), Hotel Dharmawangsa (Jakarta), and Amartapura Apartments (Karawaci, Tangerang).



Fig 3: Road Construction

As a construction and engineering company, NKE has a track record in dealing with problems in the construction business. The Company's expertise in estimating, scheduling and executing construction projects has been recognized. NKE also has a lot of experience in civil works and buildings, and has collaborated with other construction companies both locally and internationally. In addition, the Company has high standards in terms of quality, timely completion, flexibility and security at competitive prices. One proof of this high standard is that the union has obtained ISO 9001: 2015 certificate for Quality Management System on November 18, 2107 and ISO 14001: 2015 for Environmental Management System on November 18, 2017.

Health, Safety and the environment are always a priority in the construction industry. The form of NKE's commitment to the environment is in the form of:

- NKE has successfully implemented all operational standards and ISO 14001 procedures and international standards for Environmental Management Systems (EMS). These standards include:
 - Prevention of pollution.
 - Follow existing regulations.
 - Always improve performance in protecting the environment.

NKE will take every action needed to protect water, soil and air quality both inside and outside the project and minimize noise caused by our project activities.

One example of the Company's successful activities is the Chevron and Martabe projects where the company can clean diesel fuel waste from the surrounding land so that the soil condition remains healthy and can be reused.

Furthermore, the high level of the state budget creates huge potential for the national construction industry. the potential of the construction market in the future will continue to grow along with the increase in government spending each year. The government also targets the realization and long-term development goals that have been established covering social development and equality between all people and regions and becoming an economic and diplomatic force that has an influence on a global scale.

In 2017 the prospects for the construction business, especially for infrastructure projects, were still bright enough to make NKE dare to increase the contract target of infrastructure projects. In 2017, NKE focused on increasing the portion of infrastructure work compared to last year. To reach the target of 30% or around Rp750 billion in contract work on infrastructure projects, NKE will be open to projects developed by the government and by the private sector. Despite starting to increase their target from infrastructure projects, NKE will still be more focused on targeting building projects this year, which is 70% of the target.

To achieve these targets, NKE has prepared various strategies, including a review of the performance of the previous year and is making some changes that are quite crucial as a strategy in developing the business going forward. In addition, NKE changed its marketing strategy by rearranging the

portion of work both in the building sector and in infrastructure work. As for the several strategies announced in the field of management to face 2018 are as follows:

- Repositioning and reorganizing
- Implementing the concept of "Operation Excellent" in all lines of project departments and centers
- Improve management systems with a human capital approach
- Upgrading the system to ISO 9001: 2015

Certificate		Sertifikat	
No	Name of Certificate / Nama Sertifikat	Appreciator / Pemberi Penghargaan	Time of Awarding / Waktu Pemberian
1.	Membership Certificate of Green Building Council of Indonesia / Sertifikat Keanggotaan Green Building Council of Indonesia	Green Building Council of Indonesia	May 17, 2017 / 17 Mei 2017
2.	Certificate ISO 9001:2015 for Quality Management System / Sertifikat ISO 9001 : 2015 untuk Quality Management System	DQS GmbH Deutsche Gesellschaft zur Zertifizierung von Managementsystemen	November 18, 2017 / 18 November 2017
3.	Certificate ISO 14001:2015 for Environmental Management System / Sertifikat ISO 14001 : 2015 untuk Environmental Management System	DQS GmbH Deutsche Gesellschaft zur Zertifizierung von Managementsystemen	November 18, 2017 / 18 November 2017
4.	Certificate OHSAS 18001:2007 for Occupational Health & Safety Management System / Sertifikat OHSAS 18001 : 2007 untuk Occupational Health & Safety Management System	DQS GmbH Deutsche Gesellschaft zur Zertifizierung von Managementsystemen	November 18, 2017 / 18 November 2017

Fig 4: ISO Certification of NKE

1.2. PT. Adhi Karya



Fig 5: The Logo of PT. Adhi Karya

Annemersbedrijf Associatie Selle en de Bruyn, Reyerse en de Vries N.V. (Assosiate N.V) It was a Dutch-owned company that became the origin of ADHI's founding until it was finally nationalized and established as PN Adhi Karya on March 11, 1960. This nationalization became a beginning of infrastructure development in Indonesia. Based on the decision of the Minister of Justice of the Republic of Indonesia on June 1, 1974, ADHI changed its status to a Limited Liability Company. In 2004 ADHI became the first construction company to be listed on the Indonesia Stock Exchange.

In addition to construction, PT. Adhi Karya has four other types of business lines, namely; investment, energy, industry, and property. But the most prominent field is the field of construction. Projects that have been carried out by PT. Adhi Karya is the MPR RI building, Bung Karno Stadium, Monas, etc.



Fig 6: Construction by PT. Adhi Karya (Bung Karno Stadium, Monas, MPR RI Building)

PT. Adhi Karya also has good quality. Besides quality, PT. Adhi Karya is also committed to protecting the environment. This is further supported by the ISO 14001: 2015 and ISO 9001: 2015 certification that was achieved by PT. Adhi Karya. This company received ISO 14001: 2015 on September 22, 2017. The part of this assessment are provision of construction business activities (including, EPC, Property, and realty, and Investment), covering construction of building and infrastructure, civil, electrical, mechanical, integrated project management, and other related services. The things they implement are adjusting the HSE standard at ISO 14001: 2015 by:

- Implement work and environmental protection norms and create a safe, healthy and risk-free workplace and accident.
- Prioritizing the use of eco-friendly and energy-saving products.
- Pollution prevention and saving natural resources.
- Sign the quality and HSE commitment pact in terms of zero impact on the environment

On the same date, ISO 9001: 2015 was also achieved by PT. Adhi Karya. The part covered in this assessment is the provision of construction business activities (including, EPC, Property, and Realty, and Investment), covering construction of buildings and infrastructure, civil, electrical, mechanical, integrated project management, & other related services. The things they apply are:

- Improve design and construction quality in estate and property development
- Improve the management of precast office and concrete manufacturing installation

3.3. ACCIONA Infrastructure



Fig 7: The Logo of ACCIONA Infrastructure

ACCIONA is a global company with a sustainability-based business model. The aim is to respond to the main needs of the community through the provision of renewable energy, infrastructure, water and services. ACCIONA is one of the leading IBEX 35 Spanish companies, working in more than 40 renewable energy, infrastructure, water and services. In its persistence, it offers solutions to the main needs and benefits of shareholder income.

ACCIONA Infrastructure is one of the companies that cares about the environment, can be seen from ISO 14001: 2015 certified. ACCIONA Infrastructure's main goal is to contribute to globally sustainable infrastructure needs. In this case ACCIONA Infrastructure implements solutions in terms of energy efficiency and reducing CO₂ emissions. Gas that was reduced in 2017 was 66% compared to 2016.

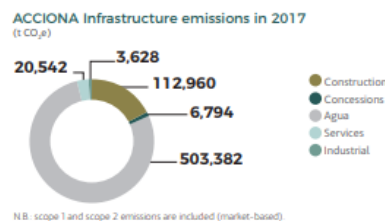


Fig 8: ACCIONA Infrastructure Emissions in 2017

The ACCIONA Infrastructure group won the award of neutralizing carbon. The Infrastructure Business implements a variety of energy efficiency in the areas of desalination, wastewater treatment, construction and other dailies, for example:

- Fujairah desalination plant (UAE)
- Padornelo Tunnel (Spain)
- OptiAnMBR Project
- Olivenza solar thermal plant
- Energy efficiency

In addition, ACCIONA Infrastructure also conducts environmental impact management activities such as protecting and conserving biodiversity, by:

- Environmental management plan for Mohammed bin Rashid Al Maktoum photovoltaic plant (UAE). Which in this field there are 2 stages of environmental plans that have been implemented.
 - Identification and transfer of animal species present in the project area to the Supreme Military Conservation Reserve.
 - Identify and move to the same reserve as Ghaf trees, or tree that can be planted, with the aim of protecting endangered species. This is done in Historic Parks and Gardens in Madrid (Spain).

Then, for the field of circular economy, namely the use of sustainable resources and waste management ACCIONA Infrastructure has carried out activities in the form of:

- Energy recoveries from waste at Arroyo Culebro Cuenca Media-Alta WWTP (Spain)
The best work guide for managing excess waste
ACCIONA Industrial has the best series of work guidelines in the concept of economic rotation that is applied in all jobs and projects. The best work guidelines include processing excess waste intended to minimize the generation of waste and reuse as an alternative landfill destination, such as :
 - Material, product or excess items and still suitable for use with the aim of reducing waste.
 - Collect sand and rocks on hard surfaces to avoid waste or contamination of excavated so that they can be reused.
- Padornelo Tunnel (Spain)

For the quality management, ACCIONA Infrastructure sets a measurable improvement target to increase customer satisfaction with the results of a survey in 2017, there are:

- 71% of ACCIONA Infrastructure customers in Spain believe that Persero is better than its competitors and 34 customers recommend cooperating with Persero (from 38 customers received).
- 100% of ACCIONA Infrastructure customers will reward companies again. 76% of Spanish Facility Services and 100% ASUMA will contract the company again.

From the survey results, the company made it as a reference for improvement in the next years.

3.4. Eiffage^[10]



Fig 9: The Logo of Eiffage

Eiffage is a company engaged in construction in France and throughout the world by offering innovative offerings that are designing, building and maintaining buildings, sites and other infrastructure. The projects that have been done by Eiffage are Grand Hotel - Dieu, Eole Line, Millau Viaduct, and so on. The company has also received ISO 9001: 2015 and ISO 14001: 2015 certifications that show their commitment in improving quality and environmental quality.

ISO 14001: 2015 achieved by the Eiffage Company by the way every year, the company establishments invest in measures to limit their activities, environmental impacts, including impact prevention equipment, lower-impact facilities and decontamination equipment. Operational spending on preventive measures such as environmental assessments and equipment purchasing has also been approved. Such investments are made and followed up via ISO 14001:2015 procedures. More specifically, the Group has been investing in its own property and industrial facilities for several years, to reduce energy costs and cut greenhouse gas emissions.



Fig. 10: Construction by Acciona

ISO 9001: 2015 was achieved by Eiffage Company by evaluating customer satisfaction by conducting surveys every year from each department. So with this, they can easily improve the quality of the quality better. This is what makes the Eiffage Company successful in obtaining ISO 9001: 2015 certification.

3.5. Implementation of ISO 14001:2015 and ISO 9001:2015 in Each Industries

From all explanation above, it can summarize it on this table:

	ISO 14001:2015	ISO 9001:2015
PT Nusa Konstruksi Enjiniring Tbk (NKE)	<ul style="list-style-type: none"> ○ Prevention of pollution. ○ Follow existing regulations. ○ Always improve performance in protecting the environment. 	<ul style="list-style-type: none"> ○ Reorganizing and repositioning ○ Implementing the concept of "Operation Excellent" in all lines of project departments and centres ○ Improve management systems with a human capital approach
PT. Adhi Karya	<ul style="list-style-type: none"> - Implement work and environmental protection norms and create a safe, healthy and risk-free workplace and accident. - Prioritizing the use of eco-friendly and energy-saving products. - Pollution prevention and saving natural resources. - Sign the quality and HSE commitment pact in terms of zero impact on the environment 	<ul style="list-style-type: none"> - Improve design and construction quality in estate and property development - Improve the management of precast office and concrete manufacturing installations
ACCIONA	<ul style="list-style-type: none"> - Implements solutions in terms of energy efficiency and reducing CO₂ emissions - Identification and transfer of animal species present in the project area - Collect sand and rocks on hard surfaces to avoid waste or contamination of excavated so that they can be reused 	<ul style="list-style-type: none"> - sets a measurable improvement target to increase customer satisfaction
Eiffage	<ul style="list-style-type: none"> - Reduce energy costs - Cut greenhouse gas emissions 	<ul style="list-style-type: none"> - Evaluating customer satisfaction by conducting surveys every year from each department

Table 1: ISO 14001:2015 and ISO 9001:2015 Strategic Implementation in Four Construction Company

Conclusion

Every company has its own strategies and ways to maintain quality management and their environment even in the same field, that is construction company. There are several ways to maintain environmental management in construction companies, for example direct action in protecting the environment such as managing the waste produced, preventing air pollution, using eco-friendly products and implementing other environmental protection norms or it is common by building designated infrastructure maintain environmental sustainability and treat the waste.

Whereas to maintain quality management, all companies try to improve their quality by approaching consumers and asking consumer opinions about their company's performance from cooperation that has been done by way of questionnaires and direct surveys.

The thing that needs to be considered by all three companies is their consistency in what they have done and maintained onward or even updated and upgraded every year to be better than before. Because it can affect the quality of the company even though indirectly.

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