



Contemporary Accounting Case Studies

Vol. 2, No. 1, March 2023

Article 10

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ABSTRACT

This paper explores the challenges faced by ABC Consulting (the “Firm”), a service organization and consulting firm, in managing its carbon emission to achieve the target of reducing greenhouse gas emissions and calculate its emission. Furthermore, this paper also examines how the Firm communicates these activities to its stakeholders. ABC Consulting fully supports ABC Consulting Global’s ambitions to reduce environmental impacts and contribute to the SDGs climate action which has set a target of net zero carbon by 2025. The method of this research is a qualitative method conducted with a case study approach. The data collection was done by conducting interviews with the key persons responsible for setting the corporate strategy and executing the programs as part of the Firm’s commitment and responsibility to achieve the carbon reduction targets; focus group discussions were also held with various levels of employees to gain in-depth understanding. The results of this paper offer inputs for the management to be able to implement a sustainability management concept by applying corporate carbon strategy which will benefit the company in the long-term and provide a recommendation for the policy and practice actions to achieve the net zero carbon target. Furthermore, the findings may provide a benchmarking opportunity which can be used by other service organizations to measure and improve their ESG performance.

Keywords: Carbon Strategy, Carbon Management, Sustainability.

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1. Introduction

Global climate change has become one of the most significant and complex environmental challenges of the 21st century (Qian *et al.*, 2018). One of the mitigation aspects of substantial climate change is the carbon emission diet. According to the Sixth Assessment Report issued by the Intergovernmental Panel on Climate Change (IPCC), global surface temperature has increased by 1.09 °C during the period from 1850-1900 to 2011–2020. Many changes have occurred due to greenhouse gas (GHG) emissions, especially the changes in global sea levels and ice sheets. The IPCC has proposed to achieve the global target of 1.5 °C net-zero carbon dioxide (CO₂) emissions by 2050, a goal that is commonly known as “achieving carbon neutrality” (Wei *et al.*, 2022).

The total carbon emissions produced globally from greenhouse gases currently have reached 51 billion tons and if not mitigated from now, so the world will face a natural disaster due to climate change in 2050. Global carbon dioxide emissions must be reduced by 85 percent below 2000 levels in 2050 to limit the increase in global average temperature of 2 degrees Celsius above pre-industrial levels (WCSBD and WRI, 2011). To avoid this disaster, awareness is needed to change the pattern of energy consumption, not only by each individual but also by significant changes on a massive scale, specifically by industries as the main source of carbon emissions.

In realizing these changes, a high commitment is needed with measurable and accountable steps. A company's commitment to reporting the environmental impact of every business process performed by the company is an important part of corporate social responsibility (Dixon-Fowler *et al.*, 2013). With the rapid development of the current situation and market information, more organizations are gaining a forward-looking vision and provide more detailed information on their sustainability initiatives (Ernst & Young, 2014). This is also shown by the fact that currently 80% of companies worldwide report their sustainability aspects of their business.

The majority of companies worldwide today have targets to reduce their carbon emissions. In addition, there is also a growing trend to link corporate carbon targets to the global climate goals. Moreover, most companies today link their business activities to the SDGs in their corporate report so that around 40% of companies recognize the financial risks of climate change in their report (KPMG, 2020). The results of earlier studies show that there was a positive impact for the companies that continue to show efforts to improve environmental quality. Furthermore, identification of the accumulated costs and

risks associated with carbon emissions can also increase their financial relevance (Johnston *et al.*, 2008).

Determining whether an organization's processes are low-carbon or even zero-carbon is a critical management issue. This research is triggered by the needs for the company's management to implement carbon management. There are many literature resources on climate change mitigation, but the gaps remain in the knowledge regarding corporate actions related to ecological sustainability, particularly regarding the corrective actions in company policies and plans which are receiving less attention (Glienke & Guenther, 2016). Besides that, various studies have emerged regarding the investigation of corporate actions (Böttcher & Müller, 2016; Cadez & Czerny, 2016), but there are still gaps in providing sufficient discussions on stakeholder perspectives (Penz & Polsa, 2018).

This study aims to explore the challenges in carbon management by observing the stakeholder-oriented practices in a service organization and consulting firm, namely the ABC Consulting Firm (the Firm). The method used in this study is a qualitative method with a case study approach that allows in-depth investigations to be carried out. The Firm was chosen based on the uniqueness of its business processes, where as a consulting firm, ABC Consulting does not produce a lot of carbon emissions compared to manufacturing companies, and it also does not need to comply with any regulations, but the Firm has a strong ambition to reduce the environmental impacts and contribute to the SDGs climate action by setting a target to reach a net zero carbon status by 2025. Besides that, as a consulting firm, ABC Consulting creates many multiplying effects through various services and solutions provided to their clients in their environmental journey. The implementation of carbon management using the concept of sustainability in organizations engaged in the service sector has not been widely carried out in Indonesia. The data in this study were obtained from the company's internal documentation, oral interviews, and Focus Group Discussions to complement information that could not be derived from the Firm's documents. Various strategies and challenges in carbon management of the Firm are supported by ABC Consulting Global, which is strongly committed to reducing environmental impacts and contributing to the SDGs climate action by setting targets to become a carbon negative company by 2021 and reach a net zero carbon status by 2025. This research on the challenges in managing carbon emissions is expected to contribute to ABC Consulting in the form of recommendations in responding to the challenges of ABC Consulting Global in reducing carbon emissions, in preparing integrated reporting to stakeholders,

and it may serve as a benchmark for similar companies in measuring carbon emissions and improving its ESG performance.

2. LITERATURE REVIEW

2.1. LEGITIMACY THEORY

Suchman (1995, p. 574) states that "Legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions". Legitimacy theory can also be defined as a procedure carried out voluntarily by the organizations to support the implementation and the development of social and environmental disclosure so that they can fulfill social contracts that allow recognition of organizational goals and sustainability (Schiopoiu Burlea Adriana and Popa, 2013).

Organizational voluntary disclosure in this theory describes the sustainable actions that can strengthen public legitimacy. In legitimacy theory, social perceptions of organizational activities will be reported to ensure that the organizational actions are in line with community expectations. If the organization's activities do not respect moral values, then a penalty from the society can result in organizational failure. Organizations are required to justify their existence through legal economic and social actions that do not harm the existence of the society or the environment in which the organization works.

In the context of legitimacy, companies incorporate environmental sustainability practices into the corporate strategies as a consequence of the increasing demand for environmental responsiveness. To keep the social contract intact and to maintain its legitimacy, companies need to reassure their stakeholders, including the way they respond to their concerns about carbon emissions (Yunus *et al.*, 2016). One of the ways to do that is to do a responsible carbon management through carbon management strategy.

2.2. STAKEHOLDER THEORY

Corporate ecological sustainability discusses the company's "direct and indirect needs" to the stakeholders (such as shareholders, employees, clients, communities, etc.) without sacrificing its ability to meet future stakeholder needs (Penz & Polska, 2018). In stakeholder theory, corporate stakeholders in the form of groups or individuals can be benefited or harmed from the actions and activities carried out by the company. The company's goal is generally to maintain or increase shareholder value while also considering the impact of company activities on other stakeholders when deciding the strategy to be developed to achieve the company goals.

The stakeholder theory is also a strategic management concept, which aims for companies to develop their competitive advantages by strengthening their relationships

with external groups. This theory states that companies are expected to be able to identify stakeholder interests that can have an impact in the future on achieving the company's goals (Ginting, 2012).

Every person and group with a legitimate interest in the company has a mutual benefit from the relationship that is carried out so that the arrow between the company and its stakeholders goes in both directions shown in Figure 1. The theory is used to explain and describe the characteristics of company behavior specifically. The stakeholder theory has been used to describe the nature of companies, the way managers think about how to manage, how directors think about the interests of the company's constituents, and how companies are managed properly (Donaldson and Preston, 1995).

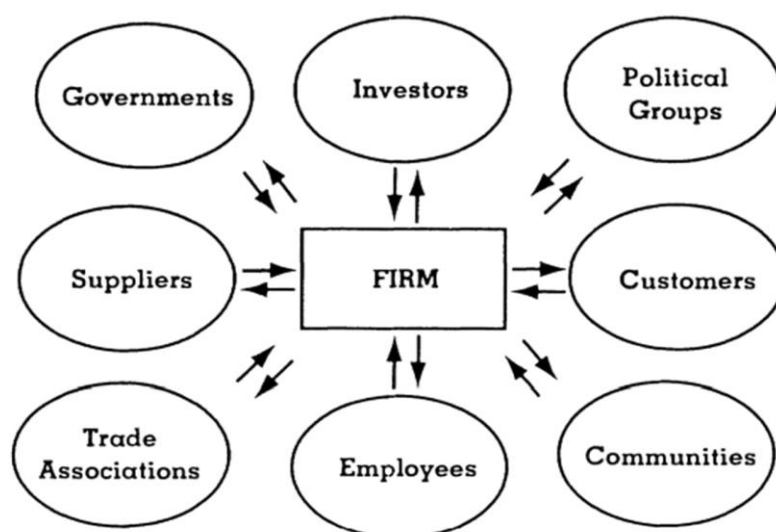


Figure 1

The Stakeholder Model

Source: Adapted from Donaldson and Preston (1995)

Corporate social activities include identifying stakeholders, providing the information that they need, and building a relationship with them. It will have an impact on increasing the social trust of stakeholders, such as the society, community, and clients, which in turn will be able to improve the financial performance, such as achieving maximum company profitability. The stakeholder theory claims that the company's social performance will affect the image, brand, trust, reputation and cost reduction so that it can increase the competitive advantage and financial performance of the company (Miles & Covin, 2000), reduce costs, thereby increasing revenues, profits, equity, and assets of the company, support long-term business sustainability, and encourage sustainable company growth (Lako, 2015). Several studies have also found that socially responsible companies showed better financial performance (Albuquerque *et al.*, 2019).

2.3 CORPORATE CARBON STRATEGY

Carbon management has received attention in such a way that the information and the information management about the release of carbon dioxide (CO₂) have become an economically relevant topic for corporate management and have a high relevance to the sustainable development. Thus, many companies have paid significant attention to measure and report the carbon performance (Zvezdov & Hack, 2016).

Most of the activities within the organization are directly or indirectly related to carbon emissions. It makes the calculation of corporate carbon not just a topic for sustainability departments but also involves many corporate functions including strategic planning, production, procurement, and marketing in various ways in the calculation of carbon management (Schaltegger & Csutora, 2012). This is caused by the emerging awareness that reducing carbon emissions and various environmental improvement efforts carried out by the organization will have an impact on various aspects in the future.

The results of previous studies showed that there was a positive impact for companies that continued to show efforts to improve environmental quality. The influence of environmental performance on the company's financial performance has a significant impact. Research (Nishitani *et al.*, 2011) found that if companies reduce their environmental pollution, there will be an increase in demand and productivity that will improve the financial performance of the company. This is also supported by the achievement of innovations that lead to cost reduction by avoiding waste of raw materials, reducing environmental costs, and increasing productivity (Dai & Zhang, 2017).

The “corporate carbon strategy” is defined as “a complex set of actions to reduce the impact of a company's various business activities on climate change and to increase competitive advantage over time”. This definition explains three important aspects of a corporate carbon strategy, namely: (1) its strategic objectives, (2) its temporal dynamics, and (3) the centrality of carbon emissions in the debate on climate change mitigation. (Damert, Paul and Baumgartner, 2017). The corporate carbon strategy includes carbon measurement, reporting, reduction, trading, and other actions to reduce climate change-related risks, take advantage of opportunities, and increase the corporate competitiveness (Yunus *et al.*, 2016).

As a business response to climate change, it has been identified that companies are taking steps that can be grouped along three main strategic objectives: (1) carbon governance; (2) carbon reduction; and (3) carbon competitiveness shown in Figure 2 (Damert *et al.*, 2017)

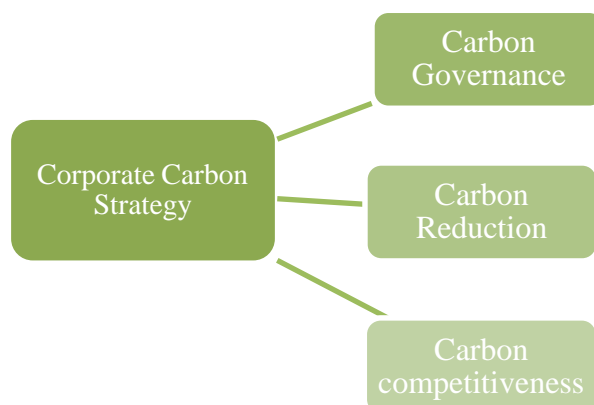


Figure 2:
Corporate Carbon Strategy
Adopted from Damert *et al.*, (2017)

Carbon governance refers to an organization's managerial capabilities in dealing with risks and opportunities related to climate change mitigation and the resulting governance mechanisms, which can be divided into two corporate activities: (1) organizational involvement and (2) risk management. Carbon reduction refers to the company's commitment to reduce greenhouse gas (GHG) emissions and the implementation of the steps taken to achieve the set targets, which are divided into four company activities, namely: (1) carbon regulation and measurement; (2) product improvement; (3) process improvement; and (4) carbon compensation. Carbon competitiveness summarizes the corporate activities aimed to maintain or gain competitive advantage and legitimacy for doing their respective businesses in the context of climate change mitigation. Carbon competitiveness is divided into four activities, i.e.: (1) new markets and products; (2) stakeholder engagement; (3) political activities; and (4) corporate communication (Damert *et al.*, 2017).

2.4 CARBON FOOTPRINT MEASUREMENT

Carbon footprint measurement is a new challenge for the corporates trying to proactively adopt sustainability management. The World Business Council for Sustainability Development (WBCSD) and the World Resources Institute (WRI) issued The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, which introduces the concept of scope to help describe the sources of direct and indirect emissions, improve transparency, and provide tools for different types of organizations and different types of climate policy and business objectives.

Operational boundaries are the scope of direct and indirect emissions for the operations within the organizational boundaries set by the company. Operational

boundaries (scope 1, scope 2, scope 3) are decided at the company stage after setting the organizational boundaries shown in Figure 3.

Table 1: Carbon emission reporting boundaries

Source: (WBCSD & WRI, 2004)

<i>Scope 1: Direct GHG emission</i>	Direct GHG emissions - occur from company activities or activities controlled by the company.
<i>Scope 2: Indirect GHG emissions from the electricity</i>	Scope 2 considers GHG emissions from the electricity purchased and consumed by the company, such as for heater or cooler.
<i>Scope 3: Other indirect GHG emissions</i>	Other indirect GHG emissions come from company activities, such as business travel, transportation, waste disposal, and exclude electricity utilization.

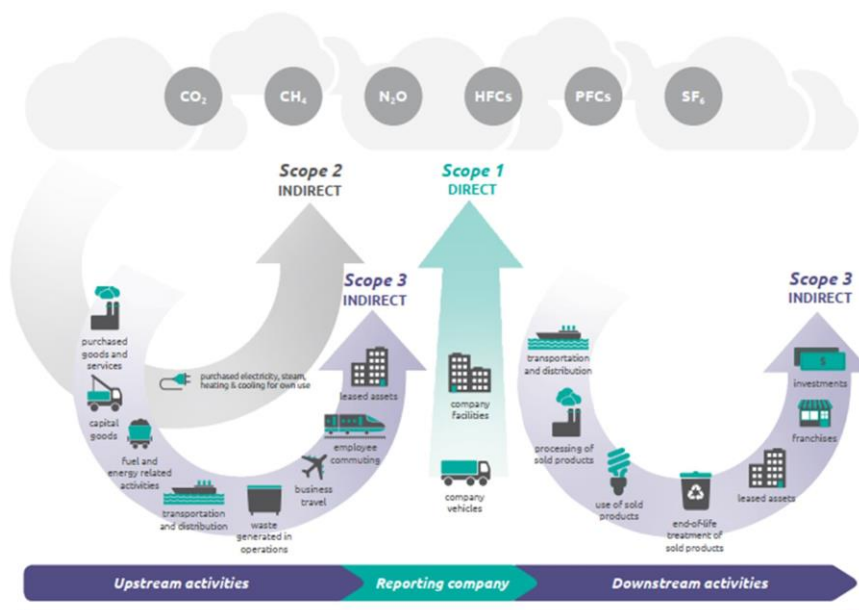


Figure 3: Overview of scopes and emissions across the value chain

Source : (WBCSD & WRI, 2011)

Corporate sustainability depends on the sustainability of stakeholder relationships; therefore, these relationships should be considered as important pillars in a comprehensive corporate strategy. It is necessary to build collaborative and trust-based relationships with both external and internal stakeholders. The main challenge in designing an effective communication strategy is how to find a way to reduce stakeholder scepticism and convey the profitable corporate motives of various corporate activities (Penz & Polsa, 2018). Effective communication and good quality of information are needed for a carbon management control system that will have an impact of change on the organization (Bui & de Villiers, 2017).

2.5 RELEVANT RESEARCH

Table 2: Relevant Research

Research Title	Method	Gap	Source
<i>Determinants of carbon management strategy adoption: Evidence from Australia's top 200 publicly listed firms</i>	Questionnaire, The study was conducted during the period 2008-2012 in 200 companies in Australia	+ Analyzing the relationship between the adoption of the Carbon management system and internal organizational systems and corporate governance factors - not link actual actions and which stakeholders are affected	Yunus, S., Eljido-Ten, E., & Abhayawansa, S. (2016).
<i>Exploring the determinants and long-term performance outcomes of corporate carbon strategies</i>	Secondary data from 45 companies (multi-national from steel, cement, and automotive sectors) 2 different time points (2008, 2013)	+ Identify the three objectives of the company's carbon strategy + Evidence found for positive effects of institutional and stakeholder pressure on activity implementation -Measurement of the carbon strategy variable (activity ambitions are not measured)	Damert, Paul and Baumgartner (2017)

3. RESEARCH METHODS

The method used in this paper is a qualitative method with a case study approach to understand the context of how ABC Consulting contributes to environmental sustainability, and one of the ways is the Organization's Carbon Emission Reduction Strategy. Research data were obtained directly from field research through in-depth interviews with the key persons in charge as the primary source of empirical evidence. The Country Managing Partner who is responsible for the sustainability initiatives and the Sustainability Leader who is responsible for executing the sustainability programs were interviewed. The interviews lasted from 30 to 60 minutes and were conducted in December 2021 and April 2022, respectively. The interviews were relatively unstructured, but revolved around a few central themes. The data were also obtained from a review of the Firm's internal documents and from the results of three Focus Group Discussions involving managers, senior staff, and staff of ABC Consulting, as well as from analyzing the answers to the questions that could not be obtained from any of the company's documents. This study also used the triangulation method (source and method) to ensure the validity of the data obtained by checking research data to the same source using different techniques. For example, the data were obtained by conducting interviews, and then they were rechecked through observations and from the FGD results and documents of the Firm. This study also uses notes from the field to develop the case study database (interview notes) to ensure the reliability of the research data.

4. ORGANIZATION PROFILE

ABC Consulting is one of the market leaders in providing advisory services in Assurance, Taxation, Transaction Advisory Services, for various types of industries. ABC Consulting mainly provides consulting services for clients in the financial, banking, and capital market sectors, and also in the oil and gas, power generation, mining, manufacturing and chemical industry sectors, as well as in sectors of consumer products, telecommunications, asset management, and automotive industry. The mission of ABC Consulting is "building a better world" that creates sustainable and inclusive economic growth through the services provided. The Firm wants to take a role in building trust in the capital market and the world economy and to contribute to a better world ("planet"), which is manifested in their voluntary contributions to the environment and in practicing sustainability initiatives. The Firm's interest, commitment, and contribution to reduce carbon emissions may serve as an interesting and useful topic for other service companies that intend to start implementing sustainability programs.

5. RESULTS

The three main strategies of the Firm that have been identified by the authors are grouped into: (1) Carbon Governance; (2) Carbon Reduction; and (3) Carbon Competitiveness.

a. Carbon Governance

Carbon governance refers to an organization's managerial capability to deal with risks and opportunities related to climate change, where top management has a very important role in setting goals to be achieved, allocating the resources for utilization and managing the implications in assigning the responsibilities and accountability in a fair and transparent manner.

1. Opportunities and Challenges

The sustainability initiatives of ABC Consulting were not actually based on the local requirements/regulations, as Indonesia has no specific rules or requirements for consulting companies to contribute to the environment. However, the Firm sees a big opportunity in the future in which the Firm can be one step ahead of the prevailing regulations. Another reason is that the Firm also anticipates many opportunities to help their clients that are required by regulators to implement sustainability actions in their industry, for example, the clients in the banking industry that have currently implemented green financing.

2. Organizational Involvement

The CEO of the Firm, participated in the UN Climate Change Conference (COP26) in Glasgow, Scotland, and from this conference the company leaders, adopted 3 ways to participate in sustainability actions as follows:

- Learning the “language” of ESG (Environmental, Social, Governance) and sustainability – There are five principles in the Firm, namely a circular economy, entrepreneurial impact, responsible business, sustainable financial transformation, and sustainable business.
- Helping ABC Consulting deliver their carbon ambition - The Firm also provides a platform for all employees to learn and take definite steps in helping the Firm's carbon ambitions, including the 'ABC Consulting Badges' – where all employees can take lessons, seminars, or workshops on sustainability, as well as the Eco-Innovators – which is a networking platform for all employees whose goal is to generate intelligent thinking and advanced technology to solve environmental problems.
- Understanding Value-Led Sustainability – is a movement that creates a long-term value for corporate clients, for example by helping clients to

decarbonize, reporting the ESG metrics, changing client organizations to manage climate risks and moving towards a circular economy.

3. Structures related to carbon governance

In responding to the challenges of reducing carbon emissions, ABC Consulting has established several action plans. Firstly, the Firm has established a management structure to determine who is involved, the roles and responsibilities, and design a report structure in the context of accountability. The Firm formed a Sustainability Committee to meet those needs under the following structure as shown in Figure 4.

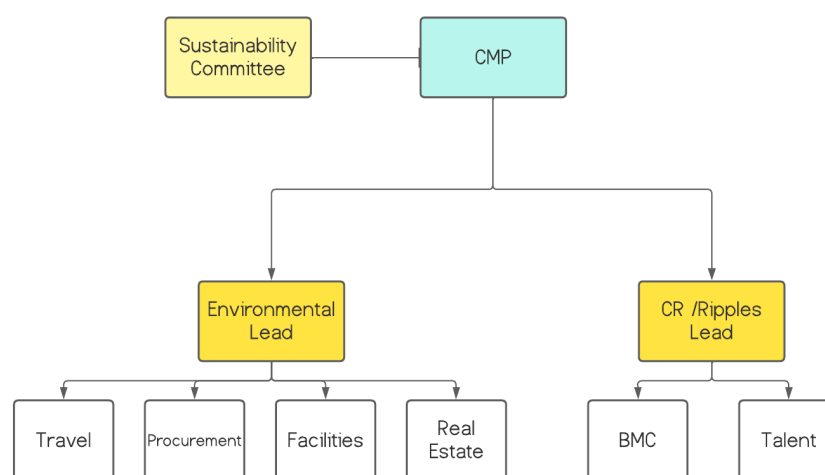


Figure 4:
Structure of Sustainability Committee (proposed)

As the operational activities of the Firm are in 4 major service lines, i.e., assurance, tax, consulting and strategic advisory services, the support from the four service line leaders plays an important role. Therefore, it is proposed that these leaders should also be members of the sustainability committee who will provide advice and input to the CMP.

b. Carbon Reduction

1. Carbon Measurement and Policy

The Firm's emission reduction target is derived from Law no. 16/2016 concerning the Ratification of the Paris Agreement and the Nationally Determined Contribution (NDC) of Indonesia under the Paris Agreement which is to reduce GHG emissions by 29% from Business as Usual (BAU) by 2030, and based on Government Regulation no. 79/2014 on the National Energy Policy (NEP) that aims to increase the share of

renewable energy to 23% in the energy mix by 2025. The Firm stated that “we are committed to reducing carbon in our services and incorporating it into our carbon policy targets. **Our carbon ambition is to be carbon negative in 2021 and to reach net zero by 2025**”

A company's goal can be achieved by reducing carbon emissions, in which carbon reduction refers to the company's commitment to reduce greenhouse gas emissions and the implementation of steps to achieve the targets that have been set (Lee, 2012; Weinhofer and Hoffmann, 2010). Currently, the company has calculated their carbon emissions based on the Corporate Guidance Standard on Greenhouse Gas (GHG) Protocol, which divides the emission into Scopes 1, 2 and 3. The company's emission Scope 1 category is derived from calculating the amount of fuel usage for power generators and the company's vehicles. To calculate the Scope 1 emission, the fuel consumption is converted into liters and then the emission is calculated by using the emission factor for fuel based on the standard of the UK Government GHG Conversion Factors for Company Reporting published by the Department of Environment, Food and Rural Affairs (Defra), UK. The following table presents the results.

Table 3: Summary of Emission Results Scope 1 ABC Consulting FY 2019 – FY 2022

	Unit	FY 2019	FY 2020	FY 2021	FY 2022 (9 months)	FY 2022 (1 year projection)
Total Scope 1 Emissions	ton CO2e	12.44	10.07	4.65	5.01	6.68
Direct office energy consumption	ton CO2e	-	-	-	-	-
ABC Consulting owned vehicles	ton CO2e	12.44	10.07	4.65	5.01	6.68
	liter	5,646.56	4,556.49	2,146.43	2,281.49	3,041.98

*Company FY: July of the previous year to June of the current year

The calculation of Scope 2 emissions is shown in Table 4 which consists of the total electricity consumption in the organization for office operations in Jakarta and Surabaya. The total emission of Scope 2 in FY 2019 reached 1,658 tons of CO2e. In the following year, the total emission decreased to 1,642 tons CO2e in FY 2020. The most rapid decline occurred in FY 2021 to FY 2022, where the total emissions declined to 1,316 tons CO2e and 963 tons CO2e respectively.

Table 4: Summary of Emission Results Scope 2 ABC Consulting FY 2019–FY 2022

	Unit	FY 2019	FY 2020	FY 2021	FY 2022 (9 months)	FY 2022 (1 year projection)
Total Emisi Scope 2	ton CO2e	1,658.02	1,642.84	1,316.65	963.42	1,284.56
Indirect electricity purchase	kWh	1,884,114.69	1,888,324.10	1,513,388.69	1,107,379.43	1,476,505.90
	kgCO2e	1,658,020.93	1,642,841.97	1,316,648.16	963,420.10	1,284,560.14

The calculation of Scope 3 emissions is shown in Table 5 which is sourced from the usage of air transportation and land transportation (cars and trains).

- In calculating air transportation emissions, the data were obtained from aircraft usage that is recorded every year, and the distance is estimated from the departure terminal to the arrival terminal in kilo meters (km). After that, the calculation is classified by the distance based on the flight class (economy/business/first class) and the distance category (domestic, short haul, and long haul).
- The calculation of land transportation emissions by car uses the employee travel data. Expenses from using private vehicles, taxis, or public transports that were recorded under the categories of Pocket (OPE) and Overtime Transportation (OT) reimbursements were collected. The OPE data in Rupiah currency were converted using the conversion value (Rupiah per liter), then converted again using the Indonesian fuel economy conversion value published by the International Energy Agency in 2019.
- Land transportation (railway): Emission data from train travel were obtained from the out-of-town reimbursement activities and the estimated number of the Firm’s employees on the relevant train rides along with the estimated distance from the departure terminal to the arrival terminal.
- Air transport emission factors, road transport by car, and land transport (by train) are quantified into total CO2e emissions by multiplying rail transport emission factors based on available conversion factors using the Defra UK Government GHG Conversion Factors for the standard in Company Reporting for each related calculation year.

Tabel 5: Summary of Emission Results Scope 3 of ABC Consulting FY 2019 – FY 2022

	Unit	FY 2019	FY 2020	FY 2021	FY 2022 (9 months)	FY 2022 (1 year projection)
Total Scope 3 Emissions	ton CO2e	5,075.27	4,271.74	556.99	810.94	1,081.25
Air Travel Emissions	ton CO2e	1,056.26	776.33	30.90	336.68	448.90
Total Distance Traveled	km	6,004,329.00	4,474,782.00	200,677.50	1,263,450.00	1,684,600.00
Domestic Travel	km	28,486.50	16,791.00	3,813.00	2,224.50	2,966.00
Short-Haul Travel						
Economy	km	5,198,028.00	3,462,664.50	176,196.00	510,213.00	680,284.00
Business	km	269,517.00	21,132.00	0.00	0.00	0.00
Long-Haul travel						
Economy	km	280,941.00	686,410.50	20,668.50	224,145.00	298,860.00
Business	km	227,356.50	287,784.00	0.00	526,867.50	702,490.00
Average distance per trip	km	2,751.00	2,736.00	2,179.50	3,972.00	5,296.00
Total number of trips	#	3,250.50	2,452.50	141.00	477.00	636.00
Land Travel Emissions	ton CO2e	4,010.97	2,524.83	526.04	473.73	631.64
	km	21,836,702.81	13,961,698.93	3,017,977.64	2,717,774.93	3,623,699.90
Train Travel Emissions	ton CO2e	8.05	970.58	0.05	0.53	0.71
	kgCO2e	8,045.79	970,580.02	51.71	533.41	711.21

2. Product and Process Improvement

The Firm stated that “we improve our processes and services to reduce the company's carbon emissions by establishing seven main steps. We call them the Seven Key Actions”. The Seven Key Actions of the Firm are as follows:

- (1) Reducing business travel emissions, with a target to achieve a 35% reduction by FY25 (against FY19* baseline).
- (2) Reducing overall office electricity usage and procuring 100% renewable energy for our remaining needs.
- (3) Structuring electricity supply contracts through virtual power purchase agreements, to introduce more electricity than ABC Consulting consumes into national grids.
- (4) Providing ABC Consulting teams with tools that enable them to calculate and reduce the volume of carbon emission when carrying out client work.
- (5) Using nature-based solutions that help ABC Consulting clients profitably decarbonize their businesses and provide solutions for other sustainability challenges and opportunities.
- (6) Requiring 75% of ABC Consulting suppliers in their spending to set science-based targets no later than FY25.
- (7) Investing in our services and solutions that help clients create value from decarbonizing their businesses and provide solutions to other sustainability challenges and opportunities”.

c. Carbon Competitiveness

Carbon competitiveness includes company activities that aim to maintain or gain competitive advantage and legitimacy for future business continuity.

1. Future business opportunities

The Firm is developing new global sustainability solutions for their corporate clients. The solution will focus on value-led sustainability. The Firm has also set an ambitious goal of having a positive impact by 2030 through Ripples corporate responsibility program which is expected to drive long-term change by working with impactful entrepreneurs, supporting the next generation, and accelerating environmental sustainability. Similar with ABC Consulting Ripples that was founded in 2018, globally the impact has reached more than 55 million people who have been positively impacted, including 20 million in FY21. Additionally, in FY21, there was a total investment of US\$119 million in projects dedicated to strengthening societies, and employees also contributed 837,000 hours of time to various initiatives and value-in-kind projects.

2. Stakeholder Engagement

To support its business as well as to achieve the carbon reduction targets, Stakeholder involvement is needed to support the activities carried out by the company, including the ABC Consulting Ripples program and the Personnel Pledge with CCaSS as the Growth Engine.

- Ripple's ABC Consulting is a corporate responsibility program that provides people the opportunity to positively impact others by using their skills, knowledge, and experience. One of the activities is conducting a Carbon Neutral Survey to determine the level of awareness of the company personnel which involved more than 400 employees. Other activities include holding a Carbon Neutral Talk show and launching a micro volunteer program in collaboration with the Center for Environmental, Social, and Governance Studies (CESGS) of XYZ University for the Sustainable Financial Lab (SFL) program.
- The Personnel Pledge is a promise for every personnel from the top management to the lowest level of the Firm to commit themselves in various actions that can accelerate environmental sustainability at home, at the office, and when working with clients.
- The Growth Engine Team is meant to boost the company's revenue, driven by the company's sub-services, i.e., Climate Change and Sustainability Services (CCaSS), which is growing very rapidly in line with high market demand. CCaSS consists of a multidisciplinary team that can help clients to deal with challenges related to sustainability, environmental, health, and safety (EHS) and climate change risks and stakeholder concerns by understanding and evaluating broader impacts and value outcomes, identifying opportunities, and supporting the reporting of financial and non-financial performance risks to stakeholders.

6. DISCUSSION

This paper highlights the core challenges faced by companies in developing carbon management calculation and reducing the company's carbon footprint, in which the company is committed to running their business in a sustainable manner. The company rebuilds its business with a sustainability concept and places it as a value creation. The company is also committed to building a better world for the work environment that can create sustainable and inclusive economic growth and contribute to making the world ("planet") to be a better place.

Basically, the Firm carries out a carbon emission reduction strategy for various reasons including:

1. **Business reasons:** energy reduction carried out through efficiency (space, paper, office air conditioning usage, room electricity, etc.). In addition, the Firm also focuses on reducing carbon emissions as there is an increase demand for

services as a result of the large number of corporate clients required by regulators in their industry to implement sustainability actions.

2. **Environmental responsibility:** having special attention to GHG emissions and climate change by participating in the UN Climate Change Conference (COP26) in Glasgow, Scotland, the Firm also requires their suppliers to be committed to Science Based Targets on reducing their carbon emissions and providing training through Supply Chain Professional Services and supplier training, as well as establishing a Sustainability Committee structure.
3. **Pressure from the stakeholders:**
 - Leadership role: it can be seen from the role of company leaders who encourage the topic of sustainability, especially the Global Vice Chair of Sustainability, who also shares about the progress of the company's sustainability journey.
 - Internal stakeholder by function: Having an Environmental Manager or Environmental Leader in the new structure will support the management of travel reduction initiatives and uphold the management of waste/water reduction initiatives, identify and manage environmental priorities and other efficiency programs.
 - External stakeholders: there are no requirements/regulations or rules and those impose service provider organizations to contribute to the environment, but many of the Firm's clients are required by regulators in their industry to implement sustainability actions. Thus, this is a manifestation of the Firm's voluntary ambitions in accordance with the theory of legitimacy.

The reduction of carbon emissions in the company to achieve their long-term goals has had a big impact. This paper reports on the areas of carbon emission reductions, the reasons of emission reductions, and which areas of emission reductions affect the stakeholders. From the analysis results, during FY 2019 to FY 2022, there has been a decrease in greenhouse gas emissions of the Firm for each emission category. The biggest decline occurred in the middle of FY 2020 to FY 2021 which is in line with the COVID-19 pandemic in Indonesia. During the pandemic, there was a 68% year-on-year (yoy) decrease in ABC Consulting's total emissions from FY 2020 to FY 2021. In addition to the overall emission reduction, there was a shift in the contribution of ABC Consulting's emission sources from Scope 3 (land and air transportation emissions) to Scope 2 (emissions from purchasing electricity) which is in line with the "Work From Home" policy. However, with the improving conditions of the COVID-19 pandemic, it is projected that by the end of FY 2022, ABC Consulting's emissions will increase again, especially from the transportation usage. For example, the number of company trips by air transportation in FY 2021 was 94, and it has started to increase to 318 flights in FY 2022. However, there has been no significant change from other emission sources for FY 2022.

Table 6 Summary of Corporate Emission Results in FY 2019 – FY 2022

				(9 months)		(1 year projection)
	Unit	FY 2019	FY 2020	FY 2021	FY 2022	FY 2022
Total Emisi	ton CO2e	10,118.59	8,886.96	2,817.43	2,669.05	3,558.74
Total Emisi Scope 1	ton CO2e	18.65	15.10	6.98	7.52	10.02
Total Emisi Scope 2	ton CO2e	2,487.03	2,464.26	1,974.97	1,445.13	1,926.84
Total Emisi Scope 3	ton CO2e	7,612.91	6,407.60	835.48	1,216.41	1,621.88
(%) Scope 1	%	0.28%	0.25%	0.37%	0.42%	0.42%
(%) Scope 2	%	36.87%	41.59%	105.15%	81.22%	81.22%
(%) Scope 3	%	112.86%	108.15%	44.48%	68.36%	68.36%

Building stakeholder relationships including identifying stakeholders and providing them with the information they need is an important factor that companies must identify, as the resilience of a company depends on the sustainability of stakeholder relationships. This is in accordance with stakeholder theory. This relationship should be considered as an important pillar in a comprehensive corporate strategy, in which it is important to learn who the stakeholders are and how the activities in reducing carbon emissions are communicated, and the activities are presented in Table 7.

Table 7: Areas of Carbon Emission Reduction and Stakeholders' Engagement

Carbon Emission Reduction Area	Area Specific Description	Stakeholders
Electricity / power source	<ul style="list-style-type: none"> - Energy saving and renewable energy (LED Lighting, Arrangement of power supply contracts through virtual power purchase agreements, etc.) - Efficiency (space, paper, cooling system, etc.) - Technology usage IT solutions including telepresence, video conferencing, and the Microsoft Teams platform, virtual technology to track user errors/problems) - Modernization (building) - Waste reduction and waste segregation - Supplier selection target based on Science Based Targets 	<p>Employees:</p> <ul style="list-style-type: none"> - Energy saving - Efficiency of resources used at work <p>Suppliers:</p> <ul style="list-style-type: none"> - Requirements to implement Science Based Targets on reducing carbon emissions - Complying supplier code of conduct where ABC Consulting suppliers have to prove the environmental impacts and risks as well as their responsibility for the products or services provided by the suppliers.

Heating / building	<ul style="list-style-type: none"> - Insulation (walls, windows, roofs) - Computer controlled heating, smart meter (monitor temperature) - Periodic reports to the landlord and head office regarding sustainability reporting related to the building 	<p>Employees: Energy saving</p>
Travel and Transportation	<ul style="list-style-type: none"> - Reducing air travel -> tele/video conferencing - Efficiency (CO2 emissions; travel distance) - Innovative vehicles / fuel-cars to reduce CO2: electric cars, gas-fueled cars, etc. - Sharing a car (Car pooling) or using public transport 	<p>Suppliers: - Business partners as well as overseas clients, more efficient work, and save travel costs</p> <p>Employees: - Public transportation usage / travel costs saving and saving travel time to the office, more efficient in saving energy and time</p> <p>Customers/Clients: - Offering shared modes of transportation (saving travel costs and travel time to the office)</p>
Green services	<ul style="list-style-type: none"> - The services provided by the company are more efficient by conducting meetings and checking through online platforms - Reducing paper waste and maximizing recycled paper - Optimizing energy consumption at home, at work, and at the meeting with clients 	<p>Suppliers, and Customers / Clients: -Process efficiency and help them to identify the sources of CO2 emissions</p> <p>Employees: -Minimize CO₂ consumption at home, at work, and at the meeting with clients</p>

The main and driving activity in communicating carbon emission reduction programs to employees, clients, suppliers, investment community, and the public is by raising the awareness of such issues led by the company. Following the stakeholder theory and the theory of sustainability, companies -that can identify the interests of relevant stakeholders, and create value by paying attention to profit, people and planet- will have a positive impact on strengthening the trust and reputation of the company as well as the company's competitive advantage. While earlier research has studied corporate ecological activities (e.g., Cadez and Czerny, 2016), this study maps the activities of the stakeholders as shown in Table 8.

Table 8 Carbon Emission Reduction Activities and Communication Tools for Stakeholders

Stakeholders	Activities	Communication Tools
Employees	<ul style="list-style-type: none"> • Increase personnel/employee awareness • Motivate to use green transport • Perform efficiency (resources) • Eco-friendly mobility 	<ul style="list-style-type: none"> • Survey (Carbon Quiz) • ABC Consulting <i>Ripples</i> dan Personnel <i>pledge</i> • Workshop • Information on the intranet • Technology (using teleconferencing instead of traveling)
Customers / Clients	<ul style="list-style-type: none"> • Raise the awareness • Show company commitment • Show them how to reduce energy efficiently • Help to respond the challenges related to sustainability, EHS, climate change risk, and support reporting of financial and non-financial performance risks to corporate stakeholders or client through <i>Climate Change and Sustainability Services (CCaSS)</i> 	<ul style="list-style-type: none"> • Grouping environmental behavior • CO2 information on website and offers • To promote <i>Climate Change and Sustainability Services (CCaSS)</i>
Suppliers	<ul style="list-style-type: none"> • Cooperation, supplier code of conduct • Raise awareness: teaching / providing training related to sustainability in the supply chain 	<ul style="list-style-type: none"> • Dialog • Interaction • Workshop

Stakeholders	Activities	Communication Tools
Investment community	<ul style="list-style-type: none"> • Participate in a Carbon Disclosure Project, which requires companies to report environmental information, for example, at the UN Climate Change Conference (COP26) in Glasgow, Scotland 	<ul style="list-style-type: none"> • Publish environmental information on the website • Publication and information of company leaders on social media accounts
Public	<ul style="list-style-type: none"> • Demonstrate a general pro-environmental attitude • Spread the message: environmental performance, information on reducing CO2 emissions, car sharing options, etc.) 	<ul style="list-style-type: none"> • Media • Company website • CEO's message

7. CONCLUSION

The findings which are presented in this study explain how the Firm's Carbon Emission Reduction Strategy is carried out by identifying steps that support the company's goals and sustainability programs with three main strategic objectives, i.e. Carbon Governance, Carbon Reduction, and Carbon Competitiveness.

Carbon Governance is carried out by maximizing the role of the organization in observing opportunities related to climate change, maximizing the role of management in setting goals, and having a company structure that is responsible for environmental issues and the allocation of the resources usage; Carbon Reduction is carried out by implementing a special Carbon Measurement and Policy that is aimed to improve business processes and products that reduce the company's carbon emissions by establishing the Seven Key Actions; and Carbon Competitiveness is carried out by maximizing future business opportunities and strengthening the role of stakeholders, also by investing in the CCaSS sub-service line and developing products/services related to sustainability.

The Firm used the standard GHG Protocol concept in their operations to measure carbon emissions by identifying Scope 1 emissions derived from the fuel consumption used for generators and office operational vehicles. Scope 2 emissions are calculated from the organization's total electricity consumption for office operations, and Scope 3 emissions are calculated from the various modes of transportation used, such as air transportation (airplanes) and land transportation (cars and trains). The calculation of the total emission is converted by using emission factors from each Scope based on the UK Government GHG Conversion Factors for Company Reporting standard published

by the UK Department of Environment, Food and Rural Affairs (Defra). The results showed that the company's greenhouse gas emission sources were mostly from Scope 2 (electricity purchases) and Scope 3 (air and land transportation) emissions. Meanwhile, the contribution of Scope 1 emissions was not too significant, with an average contribution of less than 0.5% in each Financial Year (FY), which is calculated from the company's Scope 1 emissions, namely from motorbikes used as operational vehicles. Meanwhile, the Firm does not have its own power generator.

From the analysis results, the Firm implements a carbon emission reduction strategy for several reasons including business goals, environmental responsibility, and pressures from stakeholders. The next step is to analyze the area of carbon emission reduction and the relationship with the stakeholders as well as the Carbon Emission Reduction Activities and Communication Facilities per Stakeholder. This can be done by identifying various processes and activities for carbon footprint actions including building management, travel, transportation, and others. By doing so, it can create a sustainable stakeholder relationship that will be useful for the Firm's long-term sustainability policy.

8. REKOMENDATIONS

This research provides benchmarking opportunities that can be used by other service organizations who may be interested in reducing their carbon emissions. The authors recommend to improve the accuracy of calculating greenhouse gas emissions for reporting and calculating the GHG emissions. For Scope 1, the report generally requires the volume of fuel consumption measured in liters; therefore, measurement units in "liters" would be necessary. As for Scope 2, the electricity consumption in kWh units would also be needed for calculation. Meanwhile, the data from Scope 3 from air transportation would need information on the flight class and the types of flight in total mileage. As for land transportation using company vehicles, the data of the total fuel consumption in liters should also be available, along with the total number of passengers and travel distances using trains. Therefore, it is recommended that in collecting data, the information should not be only in record of the Rupiah value for the fuel purchased but also in the volume in liters, the units in KWH purchased, and other information that is used as inputs in calculating the selected standard. This is to ensure more accurate data since fuel and electricity prices often fluctuate. Furthermore, the authors recommend further research in expanding the emission reduction targets beyond the direct operational emissions of a company. For example in the procurement process, it is recommended to include supplier determination factors based on Science-Based Targets.

9. ACKNOWLEDGMENT

The authors would like to acknowledge the support from the CCaSS team of ABC Consulting in calculating carbon emissions.

10. DISCLOSURE

The authors declare that they have no conflict of interest.

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