Building A Model in Collaborative Approach: IDSurvey's Role as a Corporate Decarbonization Consultant

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Abstract

Carbon trading and carbon markets are critical mechanisms in global efforts to address the impacts of climate change by reducing greenhouse gas emissions. These initiatives incentivize businesses and countries to limit carbon dioxide (CO2) and other greenhouse gas emissions. This study analyzes the role of IDSurvey as a company that provides decarbonization technical assistance or decarbonization consultants. Using Soft Systems Methodology (SSM), this study examines IDSurvey's collaborative innovation in building the company's capacity to reduce greenhouse gas emissions towards the Net Zero Emissions (NZE) 2060 target. The research illustrates the innovation cycle in the public sector, highlighting idea generation, selection, implementation, and dissemination as critical stages in driving collaborative solutions for mitigation towards NZE. The results show that IDSurvey has a strategic role and position as a consulting company to help corporations benefit from carbon pricing by going through essential stages until the realization of emission reductions and the potential added value that can be obtained from carbon trading through the Carbon Exchange. Carbon pricing is a practice of the "polluters-pay-principle," so anyone who emits carbon emissions must pay compensation for the pollution released, especially for industries or businesses. This article highlights the importance of a systemic and collaborative approach to decarbonization, which places IDSurvey in a critical and global context.

Keywords: *Decarbonization, Carbon Exchange, Net Zero Emissions (NZE), Soft Systems Methodology (SSM), Collaborative Innovation, Corporate Capacity Building, Carbon Markets.*

A. INTRODUCTION

Human activities such as fossil fuel combustion, deforestation, and industry have increased greenhouse gas concentrations. Greenhouse gases (GHGs), including carbon dioxide and methane, retain the solar radiation greenhouse effect, thus increasing the temperature of the Earth's atmosphere. The increase in the temperature of the Earth's atmosphere caused by the increase in GHGs is referred to as global warming. Ultimately, global warming, now referred to as global boiling, disrupts and alters the Earth's climate (IPCC, 2023). To prevent climate change from getting worse, the world is beginning to take decarbonization seriously.

Decarbonization efforts have been initiated since 1972 through the United Nations on the Human Environment in Stockholm, Sweden, with Sweden as the leader (MJ et al., 2023). However, only decades later, the world began to take climate change seriously with the United Nations Framework Convention on Climate Change (UNFCCC), attended by 195 countries, including Indonesia. The UNFCCC established

the principle of Common but Differentiated Responsibility (CBDR), which states that developed countries have a greater responsibility to reduce GHG emissions and assist developing countries in mitigating and adapting to climate change. The Kyoto Protocol followed in 1997 to operationalize the UNFCCC by requiring developed countries to reduce GHG emissions by 5% below 1990 levels while building a foundation for international cooperation and encouraging low-carbon technology innovation (Oberthür & Ott, 1999). The Kyoto Protocol also proposes three other emission reduction methods: carbon sinks, dissolution schemes, and flexibility mechanisms. The Kyoto Protocol's flexibility mechanisms utilize market-based methods, such as emissions trading, joint implementation, and clean development mechanisms, to achieve emission reduction targets (Husin, 2016). However, the Kyoto Protocol did not legally bind all countries to reduce emissions, so the Paris Agreement was established in 2015 as a more binding agreement between countries.

The Paris Agreement, Article 6, to be precise, sets out an international carbon trading framework that includes the development of regulations, the determination of emission limits, the distribution of carbon credits, and monitoring, verification, trading, and reporting mechanisms. This aims to ensure effectiveness and sustainability in reducing GHG emissions globally. Indonesia demonstrated its commitment to GHG emission reduction by ratifying the Kyoto Protocol by enacting Law 17/2004 and ratifying the Paris Agreement by issuing Law No. 16/2016. Presidential Regulation 98/2021 was also issued by President Joko Widodo after attending the Paris Agreement, as shown in Figure 1. Presidential Regulation 98/2021 was then derived by Ministerial Regulation of Environment and Forestry 21/2022, which provides a legal basis to encourage decarbonization policies in various sectors, including the energy sector, to achieve sustainable goals in the context of global climate change.

Initiated by the Ministry of Environment and Forestry in 2023, a carbon exchange was launched by President Joko Widodo to achieve the 2060 net zero emissions (NZE) target. Carbon exchanges facilitate decarbonization efforts for corporations that are increasingly required. For example, an open letter was issued by sixty global investors demanding that the oil and gas industry support global decarbonization efforts (Wade & Rekker, 2020). Like stock exchange activities, carbon exchanges are also supervised by the Financial Services Authority (Otoritas Jasa Keuangan). Corporations must meet the requirements and obtain OJK's permission to list on the carbon exchange. This is where corporations need the services of a decarbonization consulting firm to understand the regulations, methods, and technical requirements in depth.

The absence of a decarbonization consulting firm in Indonesia is a barrier for corporations looking to capitalize on opportunities from carbon exchanges. IDSurvey is committed to filling this void by providing the support needed by corporations in Indonesia through comprehensive and integrated consulting services, including risk analysis, strategic planning, regulatory compliance, and effective carbon emissions management strategies. This approach is expected to help

Indonesian corporations meet the requirements of carbon exchanges, maximize the benefits of carbon credit sales, and increase the understanding and participation of Indonesian companies in the global carbon market. This article analyzes the innovation collaboration between IDSurvey as a decarbonization consulting agency, corporations, state-owned enterprises, and the government to build corporate capacity to reduce GHG emissions towards NZE in 2060. This study uses collaborative innovation theory as a problem solver where innovation involves a wide range of individuals from various levels and departments of government institutions, as well as utilizing both internal and external resources in order to foster creativity and progress.

This collaboration facilitates the exchange of ideas and knowledge across internal and external barriers, enabling the identification of common goals, allocation of suitable resources, and development of new solutions. These solutions have the potential to be implemented both within and outside of government programs (Sørensen & Torfing, 2011). Nambisan (2008) asserts that collaborative innovation is dependent on effectively utilizing the resources and ingenuity of external entities such as organizations, communities (including individuals), and the business sector (Nambisan, 2008). Figure 2 depicts the innovation cycle as presented in Sørensen & Torfing's work (Sørensen & Torfing, 2011) titled "Enhancing Collaborative Innovation in the Public Sector." The cycle consists of four distinct stages (Figure 2).

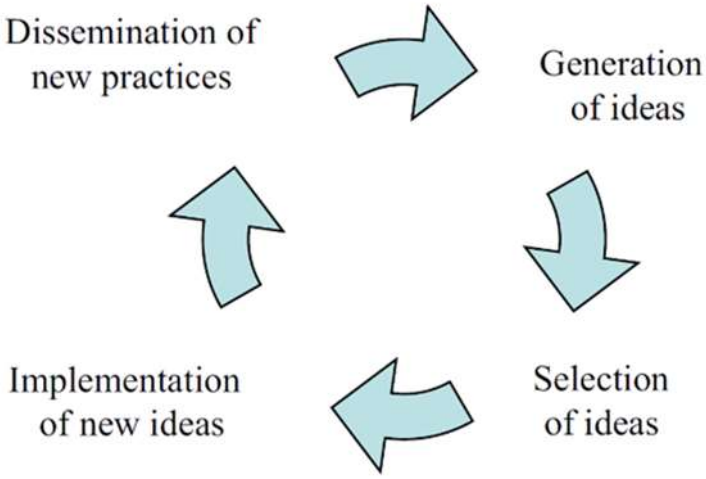

Figure 2. Innovation Cycle

Source: Sørensen & Torfing (2011)

The initial stage in the innovation cycle is the generation of ideas. This process entails the cultivation, articulation, and exchange of ideas. However, creating ideas assumes the prior identification of challenges and opportunities, the clarification of pertinent objectives and values, and the questioning of deeply ingrained beliefs. The next stage, the second stage, is the selection of the ideas. This entails determining which ideas are worth exploring. The ideal idea should be grand, daring, revolutionary, achievable, adaptable, and broadly embraced by everybody involved. Hence, negotiation, compromise formation, and dispute resolution are crucial aspects of selecting ideas. The third stage is the implementation of new ideas. This entails

transforming ideas into novel protocols, methodologies, and offerings. Altering established behavioral patterns is a challenging endeavor that involves effective leadership, fostering a sense of ownership, and establishing favorable incentives. Given the potential for various complications during the implementation stage, public innovators must anticipate uncertainty, unexpected challenges, and temporary obstacles.

Ultimately, the fourth stage is the other of new practices. This entails the widespread distribution and promotion of innovative methodologies. This also entails disseminating the invention throughout or from one organization to another. Disseminating novel methods necessitates emphasizing the achievements of those who were the first to adopt them, establishing communication with potential adopters, overcoming common objections such as "we don't require this change" and "it wasn't developed," and applying innovative ideas to new and distinct circumstances(Berkhout et al., 2006). The four stages may not necessarily follow a sequential order, but they are frequently rearranged, merged, interconnected, and iterated through an intricate set of feedback loops (Van de Ven, 2017). Nevertheless, they play a crucial role in the intricate, non-linear, and frequently chaotic process of creation (Rowan Gilmore, 2009).

B. METHODS

Soft systems Methodology (SSM) aims to analyze the empowerment of IDSurvey as a decarbonization consulting agency, corporations, state-owned enterprises, and the government to build corporate capacity to reduce GHG emissions towards NZE in 2060. As defined by Checkland (2000; 2007; 1999), SSM is a systematic approach to addressing action-oriented (social) problem situations. It helps organize thoughts about specific situations in order to facilitate corrective action (Budiarso et al., 2022a; Devi et al., 2023; Muhammaditya et al., 2021). This approach is suitable for addressing the intricate nature of the challenging circumstance encountered in this study, as field conditions constantly change and involve several interconnected perceptions (Reynolds & Holwell, 2020b). Every person involved, whether they are a policy actor, implementer, or policy beneficiary (target group), holds a distinct viewpoint. In order to validate the proposed technique, real examples will be utilized to give further context and ascertain how SSM facilitates exploratory learning and problem-solving (Suryaatmaja et al., 2020). The study conducted by Chandra et al. (2019) and Suryaatmaja et al. (2020) utilized three sources of data: documentation or literature study, in-depth interviews, and direct observation.

C. RESULTS AND DISCUSSION

In the mid to late 20th century, the collective awareness of increasing greenhouse gas emissions as one of the sources of global warming began to take shape in society at large and triggered them to take collective action to reduce emissions. (IPCC, 2023; Bodansky, 2001). One such action is decarbonization, reducing carbon dioxide (CO2) emissions from human activities. Decarbonization efforts have become

a necessity to address climate change caused by increasing greenhouse gas concentrations in the atmosphere (Stern, 2007),

In fact, carbon exchange trading is still not widely implemented, especially in the corporate sector in Indonesia. Meanwhile, companies need to be concerned with current climate change because these changes are also the result of the company's production activities (Pratiwi, 2018). A company that is less responsive to environmental issues is likely to suffer losses, both now and in the future. (Putri & Wirajaya, 2019). Some regulations and mandates govern the implementation of carbon exchanges. However, regulations and mandates alone are not enough to serve as the foundation for implementing a carbon exchange. Furthermore, any party has not officially created a scheme or model for conducting transactions on the carbon exchange as the first step in implementing carbon trading.

IDSurvey, as a consulting company, sought to be an early pioneer in assisting the implementation of carbon exchange transactions through the Carbon Economic Assessment (CEC), which is clarified in the Ministry of Environment and Forestry Regulation No. 21 of 2022. The NEK implementation effort was then translated into an integrated green economy service called "EQUATR," operated by IDSurvey. This initiative is designed to help achieve the Nationally Determined Contributions (NDC) and Net Zero Emissions (NZE) targets set by the Indonesian government.

The First Stage of the Innovation Cycle: Generation of Ideas

Stage one - Situation Considered Problematic (Unstructured Situation)

Corporate awareness and commitment to decarbonization are also important factors in the decarbonization process. Companies should adopt technology-based solutions and do business sustainably to achieve decarbonization goals (Rizqi & Alizar, 2023). Collaboration between companies and the entire value chain is also needed to achieve decarbonization goals in each sector.

Indonesia has demonstrated its commitment to reducing greenhouse gas (GHG) emissions through several laws and regulations that have been drafted. Indonesia ratified the climate change convention Law No. 17 of 2004, which is Indonesia's ratification of the Kyoto Protocol that focuses on a global agreement to reduce GHG emissions, Presidential Regulation No. 98 of 2021, that the Indonesian government has a strong commitment to reduce emissions and promote renewable energy following the Paris Agreement. Minister of Environment Regulation No. 21 of 2022 provides the legal foundation to encourage the implementation of decarbonization policies in various sectors, including the energy sector, to achieve sustainable goals in the context of global climate change. (Kementerian Lingkungan Hidup, 2021; Suhardi & Purwanto, 2015).

Concurrently, Minister of Environment Regulation No. 21 of 2022 plays a critical role in operationalizing these ambitions by establishing actionable policies for decarbonization across diverse sectors. This regulation not only encourages the adoption of low-carbon technologies but also fosters the implementation of sustainable industry practices, thereby advancing Indonesia's contributions to the

global reduction of GHG emissions. These policies are pivotal in shaping the nation's trajectory towards a greener economy and positioning Indonesia as a responsible participant in international environmental governance

The presence of carbon exchange in Indonesia, a trade for carbon emission permits and carbon credits, has emerged as a segment of the global initiative to reduce GHG emissions and tackle climate change (Ki, 2023). As carbon exchanges emerge in Indonesia, there is an urgent need for a consulting firm that can help corporations anticipate the dynamics and regulations of carbon exchanges.

Figure 3. Launch of the Carbon Exchange in Indonesia

Source: IDXChannel, (2023)

Based on Figure 3 dan 4, Indonesian President Joko Widodo (Jokowi) officially launched and opened the Indonesia Carbon Exchange at the Main Hall of the Indonesia Stock Exchange (IDX) in Jakarta on Tuesday (26/09/2023). The President said that the Indonesian Carbon Exchange is a form of Indonesia's real contribution to efforts to deal with the impacts of climate change.

Figure 4. President of the Republic of Indonesia signs the Carbon Exchange in Indonesia

Source: https://setkab.go.id/buka-bursa-karbon-pertama-ri-presiden-kontribusi-nyata-indonesia-hadapi-perubahan-iklim/

Currently, the absence of a consulting firm is a barrier for corporations who wish to capitalize on the opportunities of the carbon exchange. In this context, IDSurvey, with its expertise and in-depth understanding of the dynamics of carbon exchanges, is committed to filling this void and providing the necessary support for corporations in Indonesia to prepare for the challenges and capitalize on the opportunities in carbon exchanges. Since the onset of the industrial revolution, human activities have led to the release of greenhouse gases, which present worldwide problems to both societal progress and the natural environment. (Zandalinas et al., 2021). Due to increasing environmental consciousness and the enhancement of international collaboration mechanisms, there is a worldwide agreement to regulate greenhouse gas emissions. In order to prevent catastrophic climate change, it is imperative that more firms promptly take action and establish credible pledges to address climate change and achieve carbon reduction objectives.

In line with the Paris Agreement, UN Sustainable Development Goals, and Permen LHK Number 21 of 2022. As one of the State-Owned Enterprises PT Biro Klasifikasi Indonesia with Survey Services Holding members PT. Sucofindo and P T.SurveyorIndonesiai, in collaboration with other BUMN, Stake Holder, and Private have made aggressive pledges to science-based climate objectives, which involve decreasing greenhouse gas emissions from their own activities.

Stage two problem situation Expressed

From the explanations outlined in the first stage, the author developed a picture that visualized the thinking related to the situation analysis, starting from the key issues, relationships, and organization in a rich picture see Figure 3. To capture and analyze actors, structures, perspectives, processes, and potential constraints or

problems. (Budiarso et al., 2022b; Mingers, 2000; Reynolds & Holwell, 2020c, 2020a) Based on the RP results, the research problem obtained is the need to build a model for the corporation as a decarbonization consultant.

The Second Stage of the Innovation Cycle is the Selection of Ideas

Stage three- Root Definitions of Relevant Systems

At this stage, we generate Root Definitions by utilizing intentional action models within a cognitive system. The two processes in systems thinking are the development of a root definition (RD) and the creation of a conceptual model (CM). The research challenge is associated with the RD system, as indicated by Budiarso et al. (2022b) and Reynolds & Holwell (2020). When examining the Root Definition, the PQR formula is utilized. This formula involves performing P through Q, with the purpose of facilitating the accomplishment of R. The PQR formula addresses the question: What? How? and Why?. PQR preparation is a system implemented and managed by IDSurvey (P) through the creation of SOPs to prepare a scheme for a corporate company to list on the carbon exchange (Q), which will be supervised by the Government (R).

The researchers used CATWOE elements to investigate the transformation process seen during the RD analysis. The system or transformation process has beneficiaries and consequences. The parties involved in these events are Companypany and the government. The fundamental essence of the study can be described as follows:

Root Definition (XYZ):

The user text is " Obtaining a thorough understanding of the significant domains of ComCompany'separation model scheme for NZE and on the carbon exchange through utilizing a customized innovation model for integrated planning Z, developed by IDSutvey.

The Third Stage of the Innovation Cycle is the Implementation of New Ideas

In the context of IDSurvey's involvement, the integration of public corporations into the collaborative framework of decarbonization consultancy will be the following actions are the next stage in putting new ideas into practice:

1. Government-Led Forums with IDSurvey's Expertise: The government, via the Ministry of Environment and Forestry, should facilitate forums that set the stage for policy development and capitalize on IDSurvey's technical expertise. In these forums, IDSurvey would guide public corporations on the intricacies of decarbonization, helping them understand their role within the broader national and global climate goals.
2. Strategic Partnerships with Non-Governmental Actors and IDSurvey: Public corporations are encouraged to form strategic partnerships with NGOs, industry experts, and IDSurvey. The consultancy's role would be to incorporate actions and environmental advocacy, ensuring that decarbonization strategies are both commercially viable and environmentally sound.

3. Direct Corporate Engagement Facilitated by IDSurvey: IDSurvey would actively involve public enterprises in setting realistic decarbonization targets, sharing innovative practices, and promoting investment in sustainable technologies. This involves not only consultation but also the facilitation of collaborative projects that could serve as benchmarks for the industry.
4. Official Recognition of Corporate Decarbonization Efforts: The government, advised by IDSurvey's assessments, should officially recognize the decarbonization efforts of public corporations. This could include certifications, awards, or incentives that highlight the commitment and progress of these corporations toward green practices.
5. Corporate-Led Forums Augmented by IDSurvey: Decision-making forums should be established with significant input from public enterprises and facilitated by IDSurvey's consultancy to ensure that decarbonization policies are practical, industry-focused, and technologically informed.
6. Public Policy Collaboration with Corporate and IDSurvey Insights: In developing public policies for decarbonization, the insights of public corporations, together with the technical and strategic input from IDSurvey, are invaluable. IDSurvey would help translate corporate needs and capabilities into policy recommendations, ensuring that the resulting policies are supportive of sustainable industrial practices while meeting the nation's emission reduction targets.

By incorporating IDSurvey's consultancy services into the framework, the approach emphasizes the critical role of public enterprises in achieving Indonesia's decarbonization objectives. IDSurvey is an essential conduit between the government, corporations, and other stakeholders, ensuring that all parties are aligned, and corporate actions are effectively integrated into national climate strategies.

Referring to Figure 5, the role of the ID Survey is to help business actors benefit from the NEK by going through the critical stages until the realization of emission reductions and the potential added value that can be obtained from carbon trading through the Carbon Exchange.

Stage Four - Building a Conceptual Model

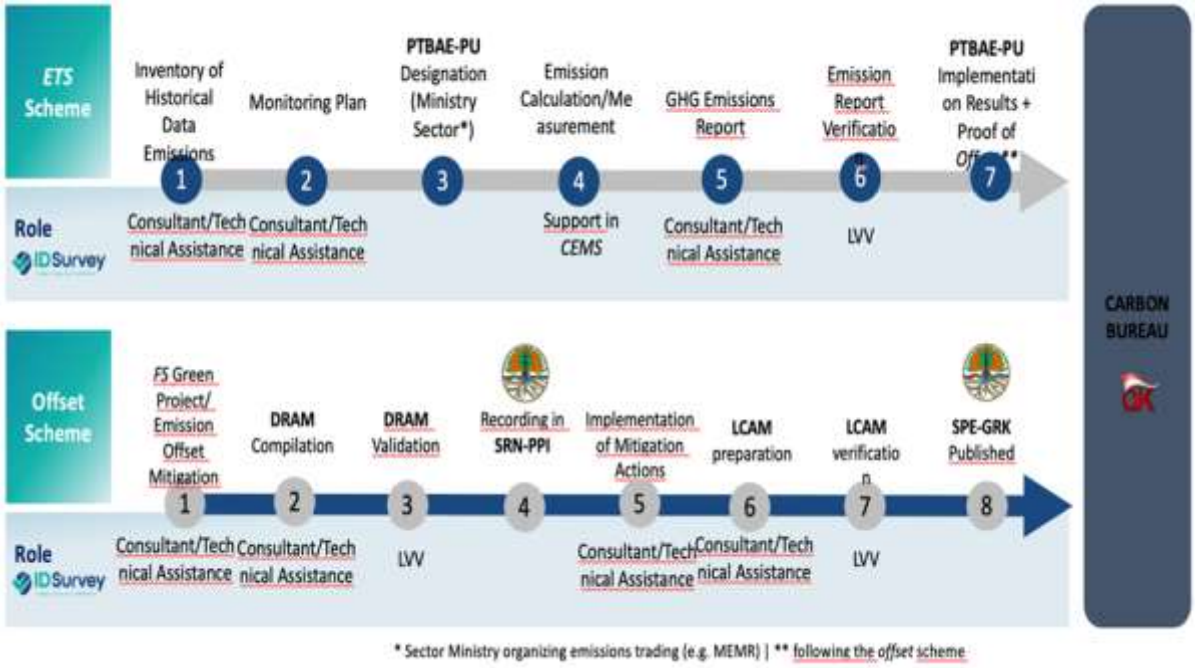

Figure 5. Best Practice Implementation of Decarbonization Consulting

Source: BUMN Holding Company ID Survey, 2022

The conceptual model represents how each party's actions and tasks are interconnected to accomplish their objectives. Each function possesses a reciprocal connection, and occasionally, constraints and significant demands may give rise to a conflict that needs resolution. The lack of consulting services in preparing firms to participate in the carbon exchange, which is the main focus of this essay, is a genuine situation that arises as a result of the catastrophic stability of the local community. The relationship between IDSurvey as a consultant and corporate enterprises demonstrates that IDSurvey offers innovative solutions to help corporate programs transition to low greenhouse gas emissions and participate in the carbon exchange market. The optimization of the roles of different parties is necessary.

The Fourth Stage of the Innovation Cycle Is the Dissemination of New Practices

Stages five and six - Back in the real world and define the changes to be implemented

Following the mandate from the Ministry of SOEs, together with PMO Decarbonization, we conducted carbon market development. IDSurvey plays a role in evaluating the performance of companies to achieve their carbon reduction targets based on analysis of reported carbon estimates and reduction strategies. It also provides future strategic advice and guidance by adopting case study analysis. While companies have reported great progress in reducing carbon emissions, further efforts are needed to achieve such goals and be measurable. IDSurvey is a consultant or technical assistance provider essential in data management and emission reduction strategies. In this capacity, the entity collects historical data, the foundation of emissions trend analysis and mitigation strategy development.

The design of emission inventory schemes is one of the key services provided, enabling organizations to identify emission sources and accurately measure their impacts. Furthermore, IDSurvey designs monitoring plans that ensure continuous and effective emissions monitoring and develops calculation and measurement methodologies that meet international standards and local regulations. Transparent reporting of GHG emissions and independent verification of reports are key to meeting regulatory requirements and supporting the emissions in the integrity of the Green & Offset project; IDSurvey'sy's role extends to preparing Documented Mitigation Action Plans (DRAMs), which are an important first step in registering emission reduction projects. Validation of these projects ensures that they operate according to established standards and recording in the Emission Reduction National Registration System (SRN PPI) provides a centralized and accessible database for mitigation initiatives.

In addition, IDSurvey is involved in the implementation of mitigation actions, preparation of Mitigation Action Achievement Reports (LCAMs), and an in-depth verification process, all of which culminate in the issuance of the Greenhouse Gas Emissions Reporting Standard (SPE-GRK). This role confirms IDSurvey's commitment to sustainable development. It demonstrates its critical role in validation and verification in the emissions reporting process, emphasizing its contribution to global efforts to tackle climate change.

IDSurvey plays a critical role within the framework of climate change strategies, particularly in the r framework, particularly in verification in the Document Plan Action Mitigation (DRAM) scheme, and in the monitoring and verification processes within the Emission Trading System (ETS). In the DRAM scheme, IDSurvey is pivotal in providing expertise and guidance for companies to develop comprehensive mitigation action plans that are robust, measurable, and verifiable. This ensures that the planned actions contribute effectively to emission reductions, comply with regulatory standards, and contribute to sustainable development goals. Furthermore, in the ETS context, IDSurvey's responsibilities extend to the meticulous reporting and verification of verifying (GHG) emissions.

Here, IDSurvey's role is integral to the integrity and success of the ETS, as accurate reporting and third-party verification are the cornerstones upon which the market's trust and functionality are built. By confirming that emissions data are reliable and that reduction efforts are genuine, IDSurvey upholds the environmental and economic efficacy of the ETS, facilitating a transparent and credible carbon market that incentivizes and rewards genuine emission reduction efforts. By providing this service, IDSurvey enables companies to confidently engage in the carbon market, ensuring that their contributions to emission reduction are recognized and valued. Moreover, IDSurvey's role in bolstering the ETS contributes to the broader climate change mitigation strategy, encouraging companies to adopt more sustainable practices and innovate in their approach to carbon management.

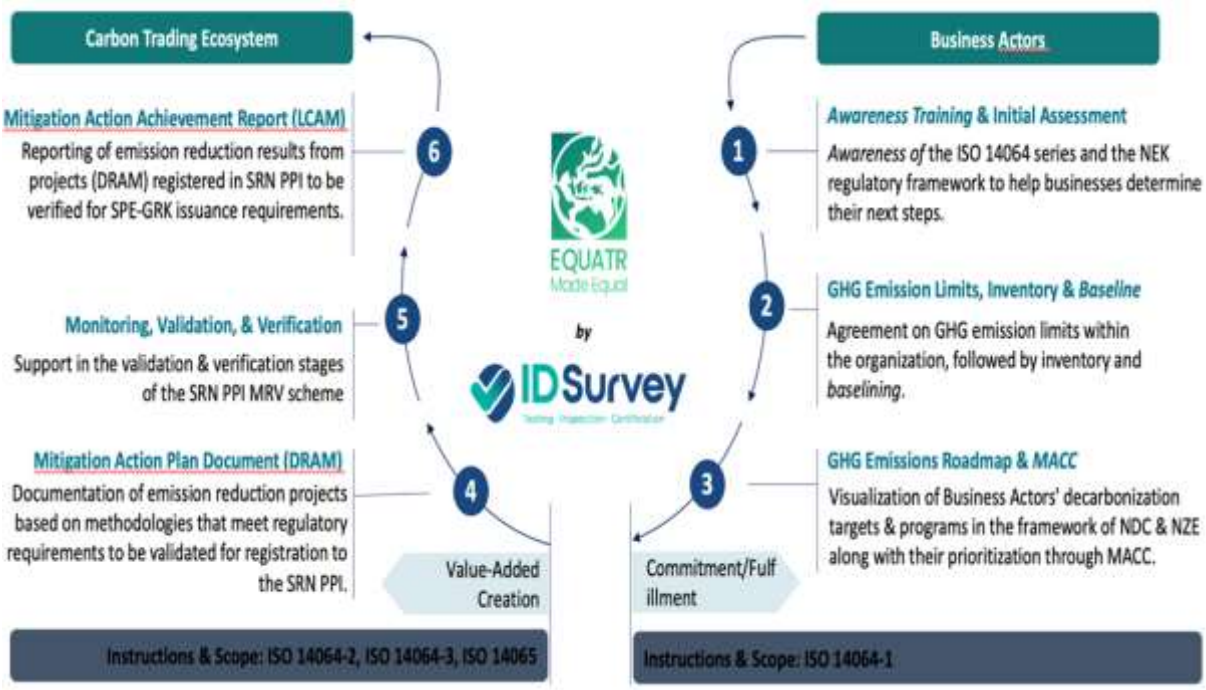

Figure 6. IDSurvey's Role in Carbon Divisions for Businesses

Source: BUMN Holding Company ID Survey, 2022

Referring to Figure 6, the following is the general role of IDSurvey based on the information obtained:

1. Report on Mitigation Action Achievement (LCAM): IDSurvey plays a role in reporting emission reduction results from projects registered in the National Emission Reduction Registration System (SRN PPI) that must be verified to fulfill the requirements for issuance of the Greenhouse Gas Emission Reporting Standard (SPE-GRK).
2. Monitoring, Validation, and Verification: IDSurvey supports the validation and verification stages of the SRN PPI Monitoring, Reporting, and Verification (MRV) scheme.
3. Documentation of Mitigation Action Plan (DRAM): IDSurvey contributes to the documentation of emission reduction projects based on methodologies that meet regulatory requirements and must be validated for registration to the SRN PPI.
4. Awareness Training and Initial Assessment: IDSurvey provides awareness training on the ISO 14064 series and the NEK regulatory framework to help businesses determine their next steps.
5. Greenhouse Gas Emission Limits, Inventory & Baseline: IDSurvey agrees on GHG emission limits within the organization, followed by inventories and baselines.
6. Greenhouse Gas Emission Roadmap & MACC: IDSurvey helps in the visualization of decarbonization targets and programs of businesses in the framework of NDC & NZE, along with their prioritization through Marginal Abatement Cost Curve (MACC).

To support the transition towards decarbonization and meet Indonesia's Nationally Determined Contribution (NDC) commitments, IDSurvey has taken a strategic step by strengthening the capacity of its internal Human Resources (HR) through a series of trainings focusing on international standards. Training on the ISO 14064, ISO 14065, and ISO 17029 series was successfully organized in January 2022 in collaboration with TUV. This move strengthened understanding and mastery of measuring, reporting, and verifying greenhouse gas (GHG) emissions. Following this, in March 2022, BKI also conducted specialized training on GHG emission calculations delivered by BV, sharpening technical skills related to emissions estimation and management.

IDSurvey's activities are an integral part of the collective effort to achieve the emission reduction targets set out in the Nationally Determined Contributions (NDC) commitments and move towards Net Zero Emission (NZE). This shows how important entities like IDSurvey are in supporting energy transition and climate change mitigation efforts at the national and global levels.

D. CONCLUSIONS

IDSurvey's application of Soft Systems Methodology (SSM) in developing a consulting model for enterprise decarbonization is a strategic and sustainable initiative highly relevant to the current dynamics of carbon policies and markets. With its seven stages, this SSM approach not only provides a framework for addressing the complexities of decarbonization but also facilitates the creation of systems-oriented solutions. The initial stage involves a deep situational understanding, where the Situational context and the regulatory environment, as stipulated in Presidential Regulation No. 98 of 2021 and Minister of Environment Regulation No. 21 of 2022, are thoroughly analyzed.

The ensuing conceptual modeling process allowed IDSurvey to construct a model describing the decarbonization process and criteria for participation in the carbon exchange. This model became the basis for discussion and debate between stakeholders, ensuring that all perspectives and interests were reflected in the action plan to be created. This dialog paves the way for identifying issues and opportunities, enabling companies to formulate responsive and compatible strategies with national policies and the global carbon market.

IDSurvey's SSM also emphasizes the assessment and selection of appropriate interventions, ensuring that measures taken comply with regulations and optimize the company's decarbonization performance. Implementing strategies formulated through the model is followed with continuous monitoring and evaluation, allowing companies to adjust their approach in response to evolving market and policy dynamics. This research underscores the importance of a systemic and collaborative approach in achieving effective decarbonization, marking IDSurvey's contribution as a solution provider, a capacity builder, and an innovative thinker in the face of climate change challenges.

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