



Revealing Stakeholder Perceptions in the Implementation of Environmental Sustainability Policies in Industrial Areas: A Contextual Study of Subjective Experiences

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ABSTRACT

This study explores the subjective experiences of stakeholders in the implementation of environmental sustainability policies in industrial areas. Despite comprehensive policy design, the effectiveness of implementation is heavily influenced by stakeholders' perceptions and subjective experiences. The study addresses the knowledge gap by investigating how these experiences shape policy effectiveness within a social and cultural context. Using a phenomenological approach, data were collected through in-depth interviews and observations with stakeholders, including industry managers, workers, local communities, government officials, and environmental activists. Thematic analysis revealed diverse perceptions of sustainability, motivation, challenges, and social dynamics influencing policy acceptance. The findings highlight the significant impact of subjective experiences on policy effectiveness and provide practical insights to enhance environmental sustainability in industrial areas. These results contribute to a deeper understanding of stakeholder perceptions in environmental policy implementation, guiding future research and policymaking.



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INTRODUCTION

The implementation of environmental sustainability policies in industrial zones is a critical issue in the global push for sustainable development (Ahmed & Gopi, 2024). As industries are major contributors to environmental degradation, including pollution and resource depletion, the adoption of sustainability practices is seen as essential for mitigating these impacts. However, the integration of sustainability policies in industrial settings is often fraught with challenges. These challenges are not only technical but also deeply rooted in the socio-economic and cultural context of the stakeholders involved. Understanding how different stakeholders—such as industrial managers, government officials, and local communities—experience and interpret these policies is crucial to improving their effectiveness and ensuring long-term environmental benefits.

Technological innovations in environmental management, such as cleaner production techniques and sustainable waste management systems, have been developed to address the environmental footprint of industrial operations (Tang dkk., 2024). Similarly, the introduction of regulatory frameworks, such as international environmental agreements and national sustainability laws, has provided a structure for guiding industrial practices toward sustainability. However, the mere existence of such technologies and policies does not guarantee their successful implementation. The gap between regulatory frameworks and on-the-ground practices is often influenced by the subjective experiences of those who must enforce or comply with these policies. In particular, the economic pressures faced by industries, the lack of consistent enforcement by governments, and the limited engagement of local communities create a complex web of challenges that hinder the realization of sustainability goals.

Previous studies have predominantly focused on the technical aspects of sustainability in industries, such as the adoption of green technologies or compliance with environmental standards (Nila & Roy, 2024). While these studies provide valuable insights into the mechanisms of policy implementation, they often overlook the lived experiences of the key stakeholders involved. Phenomenological approaches, which focus on understanding the subjective experiences and meanings that individuals attach to their actions and decisions, offer a valuable lens for exploring this gap. Such an approach allows for a deeper understanding of how stakeholders perceive and experience the barriers and opportunities associated with sustainability policies, as well as how they navigate the complexities of balancing environmental and economic interests.

This research aims to explore these subjective experiences by focusing on how stakeholders in industrial zones understand and engage with sustainability policies (Zhang & Fu, 2023). By examining the personal meanings and challenges associated with these policies, the study seeks to contribute to a more nuanced understanding of the factors that influence the success or failure of sustainability efforts in industrial contexts. This exploration of lived experiences is essential for developing more context-sensitive, effective strategies for policy implementation and fostering greater collaboration among all parties involved.

Research into the subjective experiences of individuals within the context of environmental sustainability policies has become a critical area of focus in recent years. As industries around the world face increasing pressure to align their operations with sustainable practices, understanding how these policies are experienced and interpreted by various stakeholders is crucial. This shift toward exploring the lived experiences of industrial managers, government regulators, and local communities offers valuable insights that are often overlooked in traditional studies. While the technical aspects of sustainability, such as the adoption of green technologies or compliance with environmental standards, have been widely explored, there remains a significant gap in understanding how these policies are perceived and acted upon by those directly involved in their implementation.

One of the primary challenges in exploring such experiences lies in the methodological approach (Lan dkk., 2024). The subjective nature of the phenomenon requires methods that go beyond the scope of traditional quantitative research, which often focuses on measurable outcomes such as compliance rates or pollution reduction levels. While such approaches provide important data on the extent of policy implementation, they fail to capture the deeper, more nuanced understanding of how stakeholders experience and navigate the complexities of sustainability policies. Quantitative methods, with their emphasis on statistical analysis and generalizability, are ill-suited to address the richness and depth of individual perceptions, motivations, and challenges faced by stakeholders in industrial settings.

In contrast, phenomenological approaches, which emphasize the exploration of lived experiences, provide a more holistic understanding of the phenomenon. These methods allow for a deeper exploration of the meanings that stakeholders attribute to their experiences, and how these meanings shape their actions and interactions with sustainability policies. However, phenomenological research also presents its own set of challenges (Frick dkk., 2024). It requires careful attention to how data is gathered and analyzed, as the subjective nature of the experiences makes it difficult to capture and represent the full complexity of participants' viewpoints. Despite these challenges, phenomenology has proven to be an invaluable tool for exploring how individuals make sense of their environments, particularly in complex and multifaceted contexts like sustainability policy implementation.

These challenges in both traditional research methods and the complexity of the phenomenon itself highlight why existing approaches have often fallen short in providing a comprehensive understanding of the experience of stakeholders involved in environmental sustainability policies. The limitations of previous research, particularly in capturing the essence of the subjective experience, underscore the need for studies that delve deeper into the meanings and personal interpretations of those affected by these policies. This research seeks to address this gap by employing a phenomenological approach to better understand the lived experiences of stakeholders in industrial zones, thus contributing to a more nuanced and comprehensive perspective on sustainability policy implementation.

While practical solutions to sustainability policy implementation in industrial zones often involve established frameworks, regulatory compliance measures, and technological innovations, these

approaches tend to focus on external and quantifiable outcomes such as emission reductions or resource efficiency (Rao dkk., 2024). These solutions, although essential, are limited in their ability to capture the deeper, subjective experiences of the stakeholders involved. The existing body of literature primarily addresses the technical, economic, and operational aspects of sustainability implementation, relying heavily on quantitative data or generalized assessments of policy adherence. However, this focus on measurable results fails to account for the nuanced perceptions, personal challenges, and meaning-making processes of individuals directly impacted by these policies, including managers, government officers, and local community members.

The lack of attention to the subjective experiences of these stakeholders represents a significant gap in our understanding of sustainability policy effectiveness. While compliance rates and technological adoption provide valuable data, they overlook the complexities inherent in human behavior, decision-making, and the socio-economic factors that influence the acceptance or resistance to sustainability measures. Furthermore, these approaches rarely explore how policies are interpreted, understood, or navigated by individuals in their daily lives, and how these perceptions shape their engagement with sustainability goals.

A promising solution to address this gap is the adoption of a phenomenological approach. By focusing on the lived experiences of stakeholders, phenomenology offers an opportunity to explore the essence of these experiences in a way that is both holistic and contextually rich (Y. Li dkk., 2023). This approach enables researchers to understand not only what stakeholders do in response to sustainability policies, but also how they make sense of their roles within these frameworks. Phenomenological research allows for the exploration of the meanings that individuals attach to their interactions with policies, providing insights into how these policies are perceived as either supportive or obstructive to environmental and economic goals. Such an approach moves beyond the limitations of traditional research methods, offering a deeper, more comprehensive understanding of the complex, multi-dimensional nature of sustainability policy implementation.

This study seeks to fill this knowledge gap by exploring the subjective experiences of stakeholders in industrial zones, using phenomenology to uncover the underlying meanings, challenges, and perceptions that influence the success or failure of sustainability efforts. By adopting this approach, the research aims to provide a more nuanced and holistic view of sustainability policy, offering insights that are essential for improving policy design and fostering more effective collaboration among stakeholders.

Research on the experiences of stakeholders within sustainability policies in industrial zones has grown over the years, but much of it remains focused on measurable outcomes and technological solutions. Studies have highlighted the role of regulatory frameworks and green technologies in shaping sustainability practices, but they often overlook the subjective, lived experiences of those directly involved in these processes (Y.-Y. Li & Gan, 2023). The existing literature has begun to explore the importance of stakeholder perceptions and experiences, yet there is still a limited understanding of how these stakeholders make sense of the policies that affect them. This gap underscores the need for a more comprehensive exploration of the meanings and challenges associated with sustainability policy, particularly from the perspective of individuals who face the practical realities of policy implementation.

To address this gap, this research adopts a phenomenological approach to explore the subjective experiences of stakeholders in industrial zones. Phenomenology, with its focus on understanding the essence of lived experiences, offers an ideal method for uncovering the deeper meanings that stakeholders attach to sustainability policies. By engaging with stakeholders through in-depth interviews, this study aims to illuminate the ways in which individuals interpret and respond to policies, and how these responses are shaped by personal, economic, and social factors. This approach enables a richer understanding of the challenges and opportunities inherent in sustainability efforts, providing a nuanced view that quantitative methods alone cannot offer.

This article is structured to first introduce the background and significance of the phenomenon under study, followed by a detailed explanation of the phenomenological methodology employed (Vysocký dkk., 2023). The process of data collection is outlined, highlighting the use of semi-structured

interviews with key stakeholders in industrial zones. The data analysis, employing a thematic approach, is then discussed in relation to the key themes that emerged from the interviews. The results are followed by a discussion that interprets the findings within the broader context of sustainability policy, with the article concluding with recommendations and insights for future policy development.

RESEARCH METHODS

Study Design

This study adopted a phenomenological approach to explore the subjective experiences of stakeholders in the implementation of environmental sustainability policies within industrial areas. Phenomenology was chosen because it is particularly suited to uncovering the lived experiences and perceptions of individuals regarding a specific phenomenon (Friebel dkk., 2024). By focusing on the essence of these experiences, phenomenology enables a deep understanding of how stakeholders interpret and make sense of sustainability policies in their day-to-day practices. This design is particularly relevant for answering the research questions, as it seeks to explore not only the experiences but also the meaning attributed to the implementation of sustainability policies in the context of industrial settings. The study employed a descriptive phenomenological approach, which focuses on describing and interpreting the participants' lived experiences without making assumptions or imposing predefined theoretical frameworks. This approach allows the research to remain grounded in the voices and perspectives of the stakeholders themselves.

Participants

The participants in this study were selected through purposive sampling, targeting individuals directly involved in the implementation of sustainability policies in industrial zones. The inclusion criteria were: a minimum of two years of experience in roles related to environmental management or oversight, involvement in the decision-making or enforcement of sustainability policies, and direct interaction with the policy implementation process (Lone dkk., 2024). Exclusion criteria included individuals without direct experience in the industry or sustainability policies, as well as those without significant engagement with the local community or industrial practices. In total, 15 participants were involved, consisting of environmental managers from industrial companies (n=6), community representatives (n=5), and environmental oversight officers from government agencies (n=4). The participants ranged in age from 30 to 58 years, with an average age of 42. The gender distribution was balanced, with eight male and seven female participants. This diverse group provided a range of perspectives on the implementation and impact of sustainability policies in industrial settings.

Data Collection

Data was collected through in-depth, semi-structured interviews, which provided an opportunity for participants to share their experiences and reflections in their own words. The interviews were conducted face-to-face in private locations chosen for comfort and to ensure confidentiality, such as participants' offices or quiet meeting spaces within the industrial zones. The interview guide, developed based on the research questions, included open-ended questions that allowed participants to discuss their personal experiences, challenges, and perceptions regarding the implementation of sustainability policies. Interviews lasted between 45 and 75 minutes and were audio-recorded with the participants' consent. A follow-up interview was conducted with some participants to clarify responses or explore specific issues in more depth. In addition to the interviews, participant observation was conducted in several industrial areas to contextualize the verbal data and observe practices related to sustainability measures. The observations helped validate the themes that emerged from the interviews, particularly regarding the actual implementation of policies in these industrial zones.

Data Analysis

The data were analyzed using thematic analysis, a widely used method in phenomenological research to identify and interpret patterns or themes within qualitative data. The analysis process followed a systematic approach, which included transcribing the interviews verbatim and organizing the data into meaningful units. Each interview was read and re-read to capture the essence of

participants' experiences. Key themes were then identified through an inductive process, which involved grouping similar responses and identifying recurring patterns. These themes were further analyzed and refined to ensure they accurately represented the participants' lived experiences. The software NVivo was used to assist with organizing and coding the data, although the analysis remained primarily manual to preserve the nuanced understanding of each participant's perspective. The final step in the analysis involved interpreting the themes within the context of the research questions, aiming to provide a deep understanding of the participants' experiences with sustainability policies in industrial contexts.

Ethics

Ethical approval for this study was obtained from the relevant research ethics committee, ensuring that the study adhered to ethical standards for research involving human participants (Deniša & Ude, 2024). Informed consent was obtained from all participants prior to data collection, and participants were assured of their right to withdraw from the study at any time without penalty. All interviews were conducted with the participants' explicit consent, and the confidentiality of their responses was guaranteed. Pseudonyms were used throughout the reporting of the study to protect participants' identities. The data collected were stored securely, with access limited to the research team. This study complied with both local and international ethical standards for qualitative research, ensuring that participants' rights, privacy, and well-being were safeguarded throughout the process.

RESULTS AND DISCUSSION

Awareness of Sustainability Policies and the Perceived Cost Burden

A significant theme emerging from the interviews is the awareness of sustainability policies among stakeholders, particularly industry managers. Most managers expressed a clear understanding of the importance of environmental sustainability. However, they frequently cited the perceived financial burden as a primary challenge in fully implementing these policies. As one manager stated: "We know the importance of sustainability, but the additional costs are hard to accept, especially when profitability is already tight."

This sentiment was echoed by several other managers, highlighting a widespread concern about the balance between environmental responsibility and economic viability. The economic pressures faced by industries often resulted in a fragmented approach to sustainability practices, with many companies opting for the minimum required measures to comply with regulations. This theme underscores a significant tension between the recognition of environmental needs and the pragmatic limitations imposed by cost factors.

Government Support and the Challenge of Consistent Enforcement

Another key theme that emerged from the interviews was the role of government support, or the lack thereof, in the implementation of sustainability policies. Local community representatives and environmental regulators pointed out the inconsistent enforcement of sustainability regulations as a critical barrier. As one community representative put it: "We hear about these policies, but there's no consistent monitoring, and the penalties for non-compliance are often too lenient to make a real difference."

Environmental officers also shared similar frustrations, particularly regarding the limited resources available for effective enforcement. One officer explained: "There are just not enough of us to oversee all the industries properly. We need more manpower and funding to ensure compliance." This reveals a systemic gap between policy formulation and on-the-ground enforcement, which has direct consequences for the successful implementation of sustainability measures in industrial areas. Despite the clear intention behind the policies, the lack of consistent governmental oversight leaves many industries to regulate themselves, often resulting in minimal or ineffective action.

Conflicts of Interest Between Economic Profit and Environmental Sustainability

A recurrent theme across interviews was the conflict between economic interests and environmental sustainability, particularly in industrial settings. Stakeholders often acknowledged that the primary drivers for industry were economic, and sustainability concerns were seen as secondary or secondary to profit-making goals. One manager summarized this conflict: “It’s difficult to prioritize environmental measures when the business is struggling to stay profitable. Sometimes, it feels like the financial side always trumps the environmental side.” This theme also emerged in discussions with community representatives, who felt that industries often opted for short-term economic benefits at the expense of long-term environmental health. A community leader stated: “There is a clear disconnect between what is good for the environment and what is good for the company’s bottom line. Often, the company will cut corners to save money, and the environment suffers as a result.”

This tension between profit maximization and sustainability goals appears to be a significant barrier to the successful implementation of environmental policies. It indicates that without aligning economic incentives with sustainability objectives, achieving true environmental sustainability within industrial zones remains a distant goal.

Inconsistent Participation of Local Communities in Waste Management

Observation of industrial practices revealed a notable lack of active participation from local communities in sustainability efforts, particularly in waste management. While industry managers and environmental regulators emphasized the importance of involving the local community in environmental initiatives, actual participation was low. One environmental officer explained: “We’ve tried to engage the community in waste management programs, but the response has been lukewarm at best. Many people are simply not motivated to take part.”

This disconnect highlights a significant gap in the collaboration between industry and the surrounding community. Despite recognizing the value of collective action for environmental sustainability, the local community’s engagement remains minimal, often due to a lack of incentives or awareness.

The results reveal a complex landscape where awareness and intentions regarding sustainability policies are strong, but implementation is hindered by economic pressures, inconsistent government support, conflicts of interest, and limited community participation. Industry stakeholders acknowledge the importance of sustainability but face practical challenges that hinder full implementation. These challenges are exacerbated by weak enforcement mechanisms and the prevailing economic incentives that prioritize short-term profits over long-term environmental goals. The fragmented nature of policy implementation, both in terms of industry practices and community involvement, indicates a need for more integrated, context-sensitive approaches to sustainability in industrial settings.

This study revealed that the experiences of stakeholders in industrial zones regarding environmental sustainability policies are shaped by a complex interplay of personal perceptions, economic considerations, and social dynamics. The core findings highlight that while stakeholders recognize the importance of sustainability, the practical challenges they face—such as resource constraints, lack of coordination, and conflicting priorities—often undermine the effectiveness of policy implementation. These findings provide deep insights into how policies are experienced subjectively, answering the central research question about the lived experiences of stakeholders in sustainability efforts.

The research contributes significantly to understanding the subjective experiences of stakeholders in the context of sustainability policy implementation. By focusing on the lived experiences of industrial managers, local communities, and government officials, the study sheds light on the complexities and contradictions inherent in the application of sustainability policies. Participants expressed a clear awareness of the importance of sustainability but also emphasized the difficulties they face, such as financial constraints and conflicting priorities between environmental goals and economic objectives. These findings suggest that, although policies are often well-intentioned, their real-world impact is often diluted by the practical realities that stakeholders experience. This research highlights the need for a more nuanced approach to policy design, one that considers not only the technical aspects of sustainability but also the lived realities of those who must implement these policies.

When comparing these findings with previous research, this study reinforces several key insights while also challenging some established assumptions. Previous studies have noted that a lack of resources and insufficient coordination among stakeholders can hinder the successful implementation of sustainability policies (Bertels et al., 2010; Hoffman & Jennings, 2011). However, this study goes beyond these general observations by exploring the deeper emotional and psychological responses of stakeholders to these challenges. The tension between economic growth and environmental protection, often discussed in the literature (e.g., Colleoni, 2013), was echoed in participants' accounts but with a stronger emphasis on the personal conflicts stakeholders face when balancing these priorities. The findings align with the work of scholars such as Locke and Latham (2015), who argue that a successful sustainability policy must address both the practical and emotional dimensions of stakeholder engagement. Moreover, the study extends this literature by providing rich, contextualized insights into how different actors negotiate these tensions in real-time, offering a more comprehensive understanding of the barriers and opportunities that shape policy outcomes.

The findings of this study offer both practical and theoretical implications for the implementation of sustainability policies in industrial zones. On a practical level, the research suggests that successful policy implementation requires a deeper understanding of stakeholders' subjective experiences, including their perceptions, emotions, and everyday challenges. These insights highlight the need for policies that are more flexible and responsive to the specific contexts and lived realities of those involved in their execution. For instance, industrial managers emphasized the importance of balancing environmental goals with economic constraints, suggesting that policies could be more effective if they incorporate practical support mechanisms, such as financial incentives or capacity-building initiatives (Mitterlehner dkk., 2023). On a broader societal level, the study underscores how sustainability policies cannot be fully understood without considering the social and cultural contexts in which they are implemented. The personal experiences of stakeholders—shaped by their professional roles, local community dynamics, and broader economic conditions—should be considered when designing policies to ensure they resonate meaningfully with all parties involved.

While this study offers valuable insights into the subjective experiences of stakeholders, several limitations should be considered when interpreting the findings. First, the sample size and the focus on specific industrial zones may limit the generalizability of the results to other regions or industries (Rustandi & Farid, 2023). The research was conducted in a particular socio-economic context, and the experiences of stakeholders may differ in different cultural or economic settings. Additionally, while the phenomenological approach provides rich, qualitative data, it remains inherently subjective, and the findings reflect the perspectives of a specific group of participants. Future studies could expand the sample size, include diverse industries, or examine cross-cultural differences in stakeholders' experiences. Another limitation is the reliance on interviews as the sole data collection method. While interviews provide in-depth insights into individual experiences, they may also be influenced by participants' biases or limited by their ability to articulate their experiences fully.

Building on the findings of this study, future research could further explore how the subjective experiences of stakeholders influence the long-term success of sustainability policies. For instance, longitudinal studies could track how stakeholders' perceptions and practices evolve over time as policies are adjusted or refined. In addition, research could focus on exploring the role of stakeholder engagement and how different forms of participation (e.g., community consultations or industry partnerships) impact policy effectiveness (Arif dkk., 2024). Another promising direction is to explore the intersection of emotional and cognitive factors in policy implementation, especially in terms of how stakeholders negotiate the tension between economic pressures and environmental values. By deepening our understanding of these dynamic and complex interactions, future studies can contribute to more effective, context-sensitive sustainability policies that resonate with diverse stakeholders.

CONCLUSION

This study explored the subjective experiences of stakeholders involved in the implementation of environmental sustainability policies in industrial zones, addressing the gap in understanding how these policies are perceived and enacted in practice. The findings revealed that while stakeholders

acknowledge the importance of sustainability, their experiences are shaped by economic constraints, lack of coordination, and conflicting priorities, which often hinder effective policy implementation. By focusing on these lived experiences, the study contributes new insights into the complexities of sustainability policies, which have often been oversimplified in previous research. This research also highlights the need for more flexible, context-sensitive policies that account for the emotional and practical challenges faced by stakeholders. Future studies could build on these findings by expanding the sample, exploring cross-cultural variations, or examining the long-term impacts of sustainability initiatives. Such research would further enrich our understanding of how to design and implement policies that align more effectively with the diverse realities of stakeholders.

CONFLICT OF INTEREST

This article has undergone independent peer review. The editor responsible for the assessment of this article has no direct relationship with the author and has not previously collaborated on any publications. The review process was conducted by an editor who has no affiliation with the author in terms of collaboration or conflict of interest.

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