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The Stakeholders' Analysis and Evaluation of Their Impact on the Sustainability and Environmental Management System in Iraqi Universities

Ruqayah F. Alrubaye, Alaa T. Alisawi*

Department of Environmental Planning, University of Kufa, Najaf Governorate 540011, Iraq

Corresponding Author Email: alaataqi.abed@uokufa.edu.iq

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ABSTRACT

This research explores the influence of internal and external stakeholders in the formation of the Environmental Management System (EMS) in the context of the Iraqi Higher Education Institutions (HEI) using the model of the University of Kufa. The study, which is based on a structured stakeholder analysis, acknowledges the importance of EMS in fostering sustainability across environmental, economic, and social dimensions. Stakeholders were evaluated in terms of power, interest, and emotional or economic involvement and then grouped according to the level of their affective and cognitive involvement. The findings indicate that governing bodies and regulatory bodies have significant positive impacts, along with the active roles of institutions, operational contractors, and services; however, students play a rather passive or under-engaged role despite their major environmental impact. The results suggest the need to develop effective campaign strategies that encourage engagement among financial and emotional stakeholders. The research presents practical strategies to develop sustainability programs in universities, as it tackles systemic issues relating to resource constraints, poor knowledge, and fragmented policy within developing regions. The model suggests using a stakeholder approach as a guide for successfully creating and implementing Environmental Management Systems (EMSs) to make sure that local needs match national waste goals and international sustainability standards.

1. INTRODUCTION

The Environmental Management System (EMS) is a critical set of processes and practices that enable organisations to reduce their environmental impacts and increase their operational efficiency. By establishing policies that comply with environmental legislation and align business activities, the EMS reduces environmental impacts [1, 2]. It also monitors and continuously improves organisational performance to enhance integrated environmental, social, and economic performance while achieving business sustainability [3]. Emilsson and Hjelm [4] defined the EMS as an ongoing system of planning, implementing, reviewing, and enhancing the measures and processes that an organisation employs to achieve its business and environmental objectives, as well as comply with regulations.

Over the last seventy years, private codes for corporate environmental management have developed and supplemented conventional environmental initiatives [5]. Instances of early codes encompass the Chemical Manufacturers Association's (CMA) Responsible Care initiative, the Coalition for Environmentally Responsible Economies' (CERES) principles, and the International Chamber of Commerce's (ICC) Business Charter for Sustainable Development. Currently, Environmental Management Systems (EMSs) designed to guide and regulate an organization's environmental initiatives are prevalent in the environmental sector. EMSs are primarily utilised by corporations, as well as by various organisations, including local authorities [6, 7]. Furthermore, EMS is an important procedure used to reduce the environmental effects by building up strategies compliant with environmental legislation and fitting the work actions. It goes with continuous enhancement of the organisational mistakes to improve environmental performance, incorporated with social and economic factors to reach sustainability [8].

It is also an important standard adopted by all reputable organizations to demonstrate their impact on the environment in the organization's geographical location, whether governmental or private. The internationally recognized EMS, which helps organizations implement environmental legislation, is the ISO 14001 standard, developed by the ISO TC207 Standards Development Committee [9]. According to the ISO 14001 standard, environmental standards were established to promote harmonious and balanced development of economic activities, sustainable and non-inflationary growth with respect for the environment, raise living standards and quality of life, and support environmental protection and pollution prevention in line with social and economic needs. The increasing global awareness regarding environmental issues and pollution has compelled the business sector to adopt EMS within their organisations [10]. However, the

environmental issues have become increasingly significant for implementation in the Iraqi universities.

Recent research has also confirmed that the adoption and impact of EMS in Higher Education Institutions (HEIs) differ significantly, hinging on cultural, economic, and institutional aspects. For instance, Lozano et al. [11] analysed EMS implementation at European universities and discovered that effective implementation was facilitated by a strong policy framework and institutional autonomy. Conversely, Alshuwaikhat and Abubakar [12] highlighted that systemic problems, such as insufficient funding, absence of qualified personnel, and ineffective implementation of environmental rules, are acting against the application of EMS among universities in the Middle East and North Africa (MENA) region, including Iraq.

Due to low resources, Egypt, India, and Vietnam represent the practices in Low- and Middle-Income Countries (LMICs), which are less developed in EMS compared with High-Income Countries (HICs). For example, O'Keeffe et al. [13] reported that higher education institutions have difficulty adopting ISO 14001 standards because the institutions have weak technical capabilities and they have a resistance to change. Similarly, Mungai, Ndiritu, and Rajwani [14] examined Kenyan firms and revealed that cultural perceptions of environmental responsibility are substantial—organisations influenced by communal and normative cultural values exhibit elevated levels of stakeholder engagement and the integration of environmental management practices. Furthermore, Bhandari and Raj [15] highlight the importance of EMS in Indian institutions of higher education in promoting sustainable practices and environmental literacy. Their study also shows that EMS is a structured way to enhance environmental performance by following a plan, keeping track of progress, and making necessary adjustments according to ISO 14001 standards. participation in EMS endeavours.

Bashir et al. [16] highlighted 12 main obstacles against environmental sustainability in the management of the construction of the UAE, with 'Economic benefits are preferred over sustainable necessities' identified as the most influential. Their comparative study of ISO 14001-certified versus non-certified companies found significant differences in perceptions of certain barriers, in particular stakeholder consultation and economic priorities.

These variations demonstrate the need for context-specific EMS frameworks that are sensitive to organisational readiness, cultural norms, and local environmental policies. For Iraqi universities, this means they need to develop responsive strategies that align the contents of EMS models with both the national environment and the socio-cultural elements of academic communities.

However, Iraqi universities, as educational institutions, including the University of Kufa, are attempting to implement their own EMSs. Each university has developed policies that are compatible with international environmental legislation, ensuring that educational activities, outcomes, and services are aligned with these legislations and standards. These policies should provide a unified vision for the university's environmental concerns and should be viewed as more than just flowery prose that is written down and then forgotten. At present, the greatest challenge facing the Iraqi organisations is applying the Environmental Management System, where each organisation's EMS is designed to its own individual objectives and targets.

This research aims to examine the influence of stakeholders on the Environmental Management System of the University of Kufa, clarifying the role of each stakeholder and their influence on the university's initiative to implement an effective Environmental Management System. It also identifies the challenges, analyses solutions, and evaluates the strategies that may facilitate the university's project and highlights the obstacles that must be overcome to achieve this system.

2. BENEFITS OF ADOPTING EMS

The EMS offers a standardised and certifiable framework that enables the organisations to manage and enhance its environmental performance while ensuring compliance with environmental legislation, as noted by Bravi et al. [17]. The new construction and renovation within the continuing infrastructure development of educational institutions, such as the University of Kufa in Iraq, significantly impacts the environment through site work. However, a report by the Willmott Dixon Group [18] indicates that the construction of buildings and infrastructure primarily affects the environment in two ways; resource consumption and waste generation. The construction sector accounts for approximately 45-50% of global energy consumption, about 60% of total raw material utilisation, and roughly 50% of water consumption. Establishing an effective Environmental Management System yields significant advantages for the organization that adopts these successful policies [19]. The primary advantages of implementing an effective EMS are:

1. Gaining the organization's reputation and competitive advantage in the local and international market, while ensuring clients confidence.
2. Giving the organization the advantage of respecting the environment and thus a major step towards sustainability.
3. Facilitated and accelerated the process of acquiring documents, licences, and permissions for various educational institution activities.
4. Assisting in developing effective action plans for managing crises and disasters, such as emergencies and accidents (e.g. earthquakes, fires, and floods).
5. Transitioning to a safe, clean, and environmentally sensitive work environment by identifying potential hazards and improving the quality of the environment and workplace, to ensure increased employee morale while adhering to organizational policies.
6. Ensuring waste assessment and recycling, which are controlled, as a result of careful selection of raw materials.
7. Conserving water and energy resources, thus a significant and tremendous step towards a sustainable transformation.
8. Reducing the financial problems on the organization and avoiding penalties, and preventing legal violations through reactive management strategies.

In conclusion, the advantages of implementing the EMS are exponentially, including improved environmental performance, enhanced compliance, pollution prevention, resource conservation, access to new customers and markets, increased efficiency and reduced costs, elevated employee morale, strengthened public image with regulators, lenders, and investors, as well as heightened employee awareness of environmental issues and responsibilities.

3. METHODOLOGY

Stakeholder Analysis: A Case Study for the University of Kufa, the qualitative stakeholder analysis was used in this study to examine the significance, interests, and participation of internal and external stakeholders in the implementation of the EMS at the University of Kufa. The approach allowed for analysis to provide information about stakeholder opinions and perceptions, categorise stakeholders by levels of influence and interest, and identify potential strategies to increase EMS's participation.

3.1 Identification and selection of stakeholder groups and sample particles

Stakeholders were identified based on a review of institutional documents (organogram, policy statements, project reports) so that individuals and groups with any kind of direct or indirect participation in decisions related to the EMS were included. Stakeholders were ranked according to their proximity and influence on environmental practices at the university as internal and external (internal, such as university leadership, faculty, students, and services departments), and external, such as the Ministry of Higher Education, local authorities, non-governmental organization (NGOs), contractors, and community members.

To enhance the role and relevance of EMS activities, purposive sampling was used. Sixty-two participants were involved in this study:

Internal stakeholders: 34 attendees, 3 deans, 8 departments heads (e.g., engineering, facilities), 8 administrative staff, and 15 students across colleges.

External stakeholders: A total of 28 stakeholders were described as 3 ministries of higher education officials, 6 local government officers, 6 members of (NGOs), 5 contractors, and 8 community residents who are neighbours to the campus of the university.

This sample aimed to ensure a rich cross-section of functional and strategic actors who are representative of the broader university context.

3.2 Data collection methods

Semi-structured interviews and focus group discussions (FGDs) were conducted for data collection. These two approaches were chosen for their potential to offer both depth and breadth in terms of multiple stakeholder views. Interviews and focus groups were conducted in Arabic, recorded with participant consent, and later transcribed for analysis. Sessions were typically 45–60 minute in duration and were structured around a facilitation guide that addressed EMS issues, the roles of stakeholders, challenges, and how to engage stakeholders. The authors chose to use focus groups rather than larger workshops because of cultural appropriateness and the feasibility of scheduling them with academic schedules.

3.3 Stakeholder scoring system and analysis

Methods in accordance with Brugha and Varvasovszky [20] and the WWF Standards [21] for stakeholder analysis was undertaken in four main stages:

1. Identification of stakeholders
2. Evaluation of power and interest
3. Engagement strategy development
4. Evaluation of economic and emotional stakes

The stakeholders were assessed from two main perspectives:

Influence: An attribute of power, or the power to affect EMS decision-making, resource allocation, and policy-making.

Interest: Level of interest in environmental sustainability and in EMS results.

On each of these dimensions, each stakeholder was awarded a score between 1 (very low) and 5 (very high), which in turn created a combined engagement score out of 10. This score was awarded on the basis of qualitative indices, such as institutional credentials, historical participation, and informal feedback from interviews. The outcomes were later applied to categorise the key stakeholder groups in terms of their engagement with the help of a list of typical engagement categories such as key players, keep informed, monitor, etc., as detailed in sections 5.1 and 5.2 respectively.

This analytical tool added structure and transparency to the scoring, enabled point-to-point comparisons, and directed focused engagement strategies for the enhancement of the EMS system at the university.

4. IMPLEMENT A SUCCESSFUL EMS

Implementing an EMS may appear formidable; nonetheless, with a well-defined strategy and stakeholder support, any organisation can effectively incorporate environmental management practices into its operations. The subsequent stages may provide a beneficial foundation:

Evaluate environmental impact: Organisations must perform an environmental assessment to pinpoint the areas where their influence on the environment is most pronounced. This will facilitate the prioritisation of their efforts and the establishment of improvement goals.

Define environmental management goals: according to the results of the environmental assessment, organisations should establish clear and quantifiable targets that correspond with their aims. These aims may affect waste reduction, resource conservation, or enhancement of energy efficiency.

Formulate an implementation plan: Organisations must subsequently devise a comprehensive strategy delineating the actions required to fulfil their environmental management goals. This strategy must encompass dates, designated parties, and necessary resources.

Organisations should involve their employees by conveying the significance of EMS and their contributions to its success. Organisations ought to allocate resources for training to guarantee that all individuals understand their roles and responsibilities in fostering environmental sustainability.

Establish monitoring and reporting systems: Organisations should implement mechanisms to assess and quantify their advancement towards goals. Fundamental actions should include consistently evaluating and analysing data to pinpoint areas for enhancement and acknowledge achievements; see Figure 1. Moreover, ISO's environmental standards convert enthusiasm into impactful environmental initiatives. ISO 14001, establishes the criteria for an EMS that organisations can employ to identify, monitor, and improve their environmental performance, meet compliance requirements, and accomplish their environmental goals. The standard is applicable in full or in part to any organisation, irrespective of size or sector, seeking to enhance its environmental initiatives through the sustainability of products, operational practices, or

service offerings [22, 23]. However, organisations should employ the Plan-Do-Check-Act model (PDCA) cycle to perpetually enhance their environmental performance. Establish new objectives, execute measures, track progress, and make requisite adjustments; subsequently, all aforementioned actions guarantee the EMS remains efficient and aligned with corporate objectives, (see Figure 2). ISO 14001 is founded on the continuous improvement framework known as Plan-Do-Check-Act (PDCA). Utilising the PDCA cycle enables organisations to remain proactive about addressing evolving environmental demands and expectations. They may identify opportunities for enhancement, execute creative solutions, and monitor their advancement towards their environmental goals [9]. This iterative process guarantees that EMS remains effective and consistent with the organisation's business objectives.

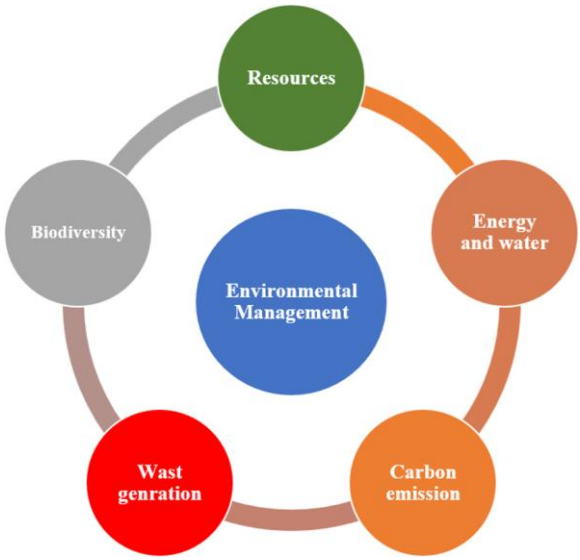

Figure 1. Steps toward create and implement an EMS for an organization

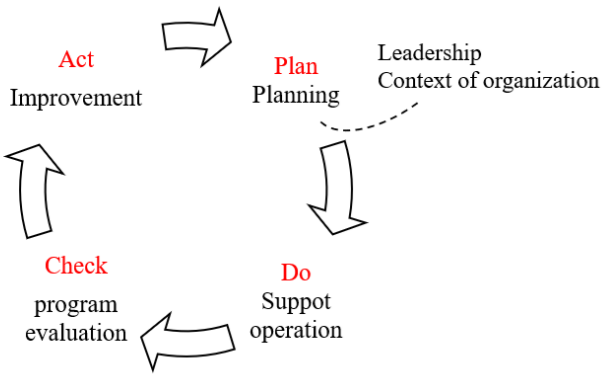

Figure 2. Plan-Do-Check-Act (PDCA) cycle in the EMS framework [9]

4.1 Achieving a successful EMS

All individuals associated with the university, whether directly or indirectly, should be aware of the university's environmental policy and the expectations regarding their roles and representation in various activities, both within the institution and beyond. Participants need to recognise the university's commitment to continuous environmental improvement and the crucial role they play in this endeavour. Effective stakeholder management within an Environmental Management System is essential for an organisation to achieve its objectives. Involving the appropriate individuals in a suitable manner can substantially impact the attainment of these objectives and, ultimately, the desired outcome. However, stakeholder analysis is a technique used to identify the essential individuals that organization must persuade. Next, leverage the outcomes of the stakeholder analysis to cultivate support that will contribute to the success of organisations [24, 25]. The stakeholders with whom individuals engage and have vested interests in an organisation are crucial to its successful functioning and can influence or be influenced by the organisation's goals. Freeman and McVea [26] defined stakeholders as individuals or organisations, both external and internal, whose interests may be influenced by or may influence the activities of the organisation. Eden and Ackermann [27] characterised stakeholders in the EMS as "individuals or small groups with the power to respond to, negotiate, and change the strategic future of the organisation.". The advantages of employing a stakeholder-based strategy involve utilising the perspectives of the most influential stakeholders to influence project development at an initial phase. Their contributions can enhance the quality of the project, in addition to providing support. Secondly, securing support from influential stakeholders can facilitate the acquisition of more resources, thereby increasing the likelihood of project success. Thirdly, by engaging stakeholders early and consistently, the organisation may ensure a comprehensive understanding of the project and its advantages, enabling them to provide active support when required. Ultimately, the organisation may anticipate potential public reactions to the initiative and incorporate strategies into its overall plan to gain support. Consequently, stakeholder management is essential for the success of every project in any organisation. By involving the appropriate individuals in an effective manner within the project, the organisation can significantly enhance its success [26-28]. Thompson [29] asserted that “As you become more successful in your career, the actions you take and the projects you run will affect more and more people. The more people you affect, the more likely it is that your actions will impact people who have power and influence over your projects. These people could be strong supporters of your work—or they could block it.” Stakeholder management is a crucial discipline employed by successful individuals to obtain support from others. It assists them in ensuring the achievement of their undertakings where others failed.

5. STAKEHOLDER ANALYSIS

Stakeholder analysis delineates the primary and secondary stakeholders who possess a vested interest in the issues pertinent to the project or policy. The objective of stakeholder analysis is to cultivate a strategic perspective on the human and institutional environment, as well as the interrelations among various stakeholders and their primary concerns. Stakeholder analysis may be conducted at any phase of the project cycle, but it is essential to perform it at the initiation of a project or program. Specifically, in the ‘Define Phase’, stakeholder analysis is an essential element of scenario analysis (Step 1.4 in the WWF Standards of Conservation Project and Programme Management) [21]. There are several methods for undertaking a stakeholder analysis. Workshops,

focus groups, and interviews represent three prevalent methodologies. Throughout the project cycle, all three techniques may employ, aligning each with the project's changing requirements. Regardless of the methodology employed, three fundamental processes are included in stakeholder analysis [25]:

1. Identifying the principal stakeholders.
2. Evaluating the influence, significance, and degree of impact of/on each stakeholder.
3. Determining the most effective methods for stakeholder engagement. And their interests (positive or negative) in the project.
4. Determining the financial and/or emotional interest for each stakeholder.

Essential enquiries were outline to pose at each stage and present an illustrative tool.

Table 1. Identifying the external and internal stakeholders of the case study organization

Internal Stakeholders	External Stakeholders
Vice chancellor	Ministry of Higher Education (M.H.E)
Deans	Local Government
Educational team	Provincial Council
Administrative Staff	External Organizations and Foundations (E.O.F)
Students	Environmental Protection Organizations (E.P.O)
Accommodation	Competitors
Health care centres	Contractors and Material Suppliers (C.M.S)
Service departments	The society
Eng. and maintenance department (E.M.D)	Visitors
Service departments	Transportation (people in charge)

Table 2. The analysis results, including the degree to which various types of stakeholders may be engaged

a. Internal Stakeholders	Power (P) (1-5)	Interest (I) (1-5)	Total Score (1-10)
Vice chancellor	5	5	10
Deans	4	4	8
Educational team	2	3	5
Admin. staff	2	3	5
Students	3	2	5
Accommodation	2	3	5
Health care centres	2	4	6
Services	1	2	3
(E.M.D)	4	2	7
Security	2	3	5
b. External Stakeholders	**Power (P) (1-5)**	**Interest (I) (1-5)**	**Total Score (1-10)**
(M.H.E)	5	5	10
L. Government	5	3	8
Council	5	3	8
(E.O.F)	5	4	9
(E.P.O)	4	5	8
Competitors	2	2	4
(C.M.S)	1	1	2
The society	2	5	7
Visitors	3	2	5
Transportation	3	3	6

5.1 Identification of stakeholders

The Basic Guidance to Situation Analysis indicates that each threat or opportunity component is linked to one or more stakeholder groups. To analyse stakeholder groups, it may commence with individual situation analysis to identify significant stakeholders related to each aspect or initiate with a stakeholder analysis and thereafter associate them with specific threat and opportunity aspects. The table below shows the internal and external stakeholders who influence and are influenced by the institution's project. However, following the drawn methodology for this study, the outlined steps were implemented for the adopted case study—University of Kufa. Nevertheless, an effective EMS requires communication among stakeholders to clarify and disseminate information about environmental and legal requirements, share details on environmental achievements and programs, and allow stakeholders to provide feedback and suggestions for improving the system. Table 1 listed and identified the external and internal stakeholders of the case study organisation, (The University of Kufa).

5.2 Evaluating the influence, significance, and degree of impact

The key question for the second step in a stakeholder analysis includes prioritising them with respect to 'power' and 'interest'. This step of the stakeholder analysis involves assessing the influence, importance, and level of impact of each stakeholder. Table 2 and Figure 3 demonstrate the degree to which various types of stakeholders may be engaged. It categorises stakeholders based on their potential influences on decision-making and the anticipated effects of project decisions on them– 'power' and 'interest'. Each stakeholder's power and interest are ranked from 1 to 10, reflecting their combined power (1-5) and impact (1-5). However, the group of high-power and interested stakeholders primarily consisted of external stakeholders, which included the Ministry of

Higher Education, the local government, the provincial council, and environmental protection organisations, as well as various external organisations and foundations. Moreover, some internal stakeholder groups, such as vice chancellors and deans, are also included. Given their significant influence and elevated interest levels, this group must fully participate in the institution's program. Consequently, it is imperative to make every effort to satisfy their needs. On the other hand, the stakeholders with high power and less interest include students; to some extent, the engineering and maintenance department from the internal groups; and visitors and transportation groups as external stakeholders. To please these groups, a good effort must be made without boring them. For the stakeholder groups with high interest and low power impact, the institution must provide sufficient information and ensure that no major problems arise by updating the provided information. These groups in the current study, represent the educational team, admissions staff, security, health care, and accommodation groups from the internal side; only the society group comes from the external side of stakeholders. The institution's environmental management program will positively reflect the associations between the aforementioned groups and the institution.

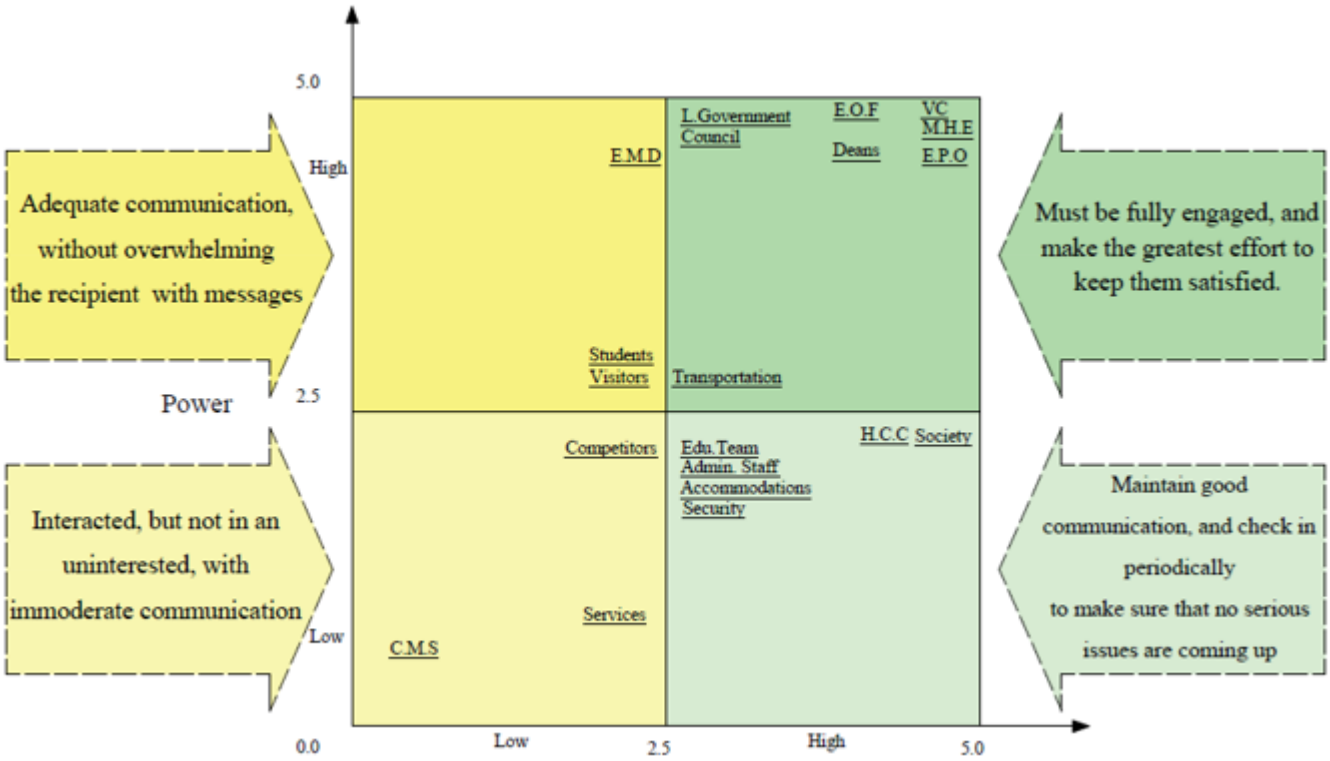

Figure 3. The analysis of the stakeholders, stakeholder power-interest matrix for the University of Kufa

Finally, the organisation must communicate with the stakeholders who have less interest and less power, ensuring communication remains unobtrusive to prevent disengagement from excessive correspondence. Table 2 lists the services, competitors, and contractors as members of this group. Figure 3 represents a comprehensive analysis of the source of engagement and the strengths and weaknesses of all the stakeholder categories included in the current study.

5.3 Determining the effective methods for stakeholder engagement

The third step in the stakeholder analysis process is determining how to involve the diverse stakeholders in the institution's system. Different categories of stakeholders will be engaged in different ways at the various stages of the project, ranging from obtaining and giving information to consultation, dialogue, working together, and partnership. This third stage in the stakeholder analysis is covered in step 3.4 of the Standards, which focuses on partnerships [30]. Collaborations can be built upon by first identifying who needs or wants to be involved, then determining when and how that involvement might be realised. However, in order to decide whether to pursue collaboration, it is necessary to understand stakeholder perspectives. The significance of this process in strategizing and executing effective collaborations should not be overstated. Good-faith endeavours frequently falter due to the parties' lack of proficiency in the collaboration process and their inadequate focus on its design and management. In order to foster ownership and commitment, it is important to use an open and honest approach throughout the project's development and execution. It may be necessary to implement a method for gradual involvement if it is not feasible or practical to incorporate all important stakeholders immediately. This section of the analysis requires additional information regarding the major stakeholders' sentiments and interactions with the institution's Environmental Management System. Firstly, the most effective methods to engage and communicate with them must be ascertained. Secondly, it is crucial to comprehend the potential financial and/or emotional benefits that the stakeholders could be given to the EMS of the institution, the nature of their opinions, both positive and/or negative, and the incentives that will drive their support for the system. Thirdly, the stakeholder analysis team must determine the information stakeholders require from the educational institution and the methods through which they can obtain this

information. Yet, this study has carefully determined and employed the most suitable approach to connect with stakeholders, which is compatible with the University of Kufa policies as an educational institution. However, it is essential to comprehend their perspectives regarding the system and ascertain whether they possess adequate information about all the factors that shape their views. Furthermore, it is crucial to identify the individuals who shape the educational institution's perspectives. Finally, it is imperative to establish the stakeholders' perceptions and identify the factors that may appeal to them regarding the educational institution's Environmental Management System. How will the institution address stakeholder objections to the EMS? And the optimal method for engaging stakeholders is to talk directly and cultivate a productive connection. Figure 3 illustrates the outcomes of the stakeholder analysis, including the strengths and weaknesses of all participating stakeholder categories.

Table 3. The results of stakeholder analysis, indicate the type of engagement – Positive or/and negative

a. Internal Stakeholders	Positive	Negative
Vice chancellor	√	
Deans	√	
Educational team	√	
Admin. Staff	√	√
Students	√	√
Accommodation	√	
Health care centres	√	
Services	√	
(E.M.D)	√	√
Security	√	
b. External Stakeholders	**Positive**	**Negative**
(M.H.E)	√	
L. Government	√	
Council	√	
(E.O.F)	√	
(E.P.O)	√	
Competitors	√	√
(C.M.S)	√	√
The society	√	√
Visitors	√	√
Transportation	√	√

5.4 Determining the financial and/or emotional interest

Based on the EMS analysis outcomes and the results shown in Table 3, the step 4 of the analysis is made, in which it is determined whether each stakeholder involved in the study has a financial and/or emotional interest in the institution's project. It can be seen that the ministry of higher education, local government, council, vice chancellor, and deans have a positive role in the EMS of the institution due to their responsibility and aim to control and improve the quality of the environment to achieve a sustainable economy and society by ensuring the application of the national environmental policy. Their interest is impacted on both the financial and emotional sides. The Environmental Protection Organisations (E.P.O.) and External Organisations and Foundations (E.O.F.) groups have a positive impact, as they are non-profit organisations, and their main objectives are to pay attention to problems that may affect the environment negatively and attempt to maintain a continuous orientation. However, due to their positive view about the benefits of good environmental management, they have gotten society's trust, and their interest is mainly emotional rather than financial. Students compare organisations to find the best options for living without environmental risks. However, they should be able to learn how to manage the potential risks. Given this fact, there are negative environmental effects when students are not environmentally aware and a positive impact when they are. From this perspective, students' interest can be both financial and emotional. On the other hand, the educational team and administration staff can evaluate whether the institution possesses effective health and environmental management practices and understand the rationale behind any environmental concerns and their potential impact on the business. They may assist in enhancing students' awareness of these issues. They typically exert a positive influence and possess both financial and emotional significance. The society, visitors are interested in comprehending the processes of the organisation to identify the impacts of these processes on the quality of life of the communities surrounding them. For instance, organisational processes may affect water, land, and air quality. Furthermore, people are concerned about potential risks to their health and safety. For that reason, they may affect the environment positively or negatively, and their interest is more emotional. In order to maximise their own financial gain, competitors and transportation groups always pursue new ways to differentiate their information, services, and products from those of their rivals. Even if it helps society overall, it can harm the organisation's environmental system. Consequently, financial gain, not emotional connection, is their primary concern. Contractors and Material Suppliers (C.M.S.) reflect the achievements of the university. They have an important role in the success of work through the implementation of policies, methods, and processes that have direct impacts on all stakeholders' performance in these organisations.

Furthermore, the effectiveness and efficiency of procedures and processes may have positive or negative impacts on the environmental system, the organisation, and all stakeholders, and their interest is only financial. There are other internal stakeholders who were analysed in the current study, like the Engineering and Maintenance Department (E.M.D.), the service providers, and the accommodation centre staff. They are affected by the organisation's EMS significantly and conscious of the public's interest in environmental management; thus, many endeavour to meet environmental criteria to achieve success within the system. Subsequently, a positive impact is likely to occur, and their interest is likely to be mostly financial. The healthcare and security centres ensure the health and safety of individuals residing and working in the area by engaging them in environmental projects and implementing policies to enhance awareness of nearby hazards and promote environmental and job sustainability. Thus, their influence and established interests can yield both emotional and financial advantages. Ultimately, various internal and external issues may influence the execution and efficacy of the EMS program. A primary internal challenge in adopting an EMS is the deficiency of resources, including time, financial capital, staff, and expertise. Additional obstacles encompass opposition to change, compliance difficulties, and the necessity for ongoing enhancement. These substantial challenges must be meticulously planned and controlled to ensure an exemplary and successful EMS program.

6. FRAMEWORK DEVELOPMENT AND VALIDATION

The stakeholder analysis model used in this research is derived from established theoretical models and tested empirical frameworks widely used in environmental as well as organisational management research. The theoretical foundation of the framework was established on the stakeholder theory of Freeman [31] and further developed by Freeman and McVea [26] which highlights the necessity of stakeholder identification and interest management in order to enhance institutional outcomes. Shaping the theory in the context of EMS in higher education, we combined aspects of the WWF Standards Program, Conservation Project Management [21] and the Power Interest Matrix introduced by Eden and Ackermann [27]. These models articulate a process for systematically relating stakeholders to projects based on a simple matrix that classifies them by their relative power and interest in the project outcomes.

The development of our framework consists of four major steps:

Identification of stakeholders: Attention will be directed to relevant internal and external actors, and identification will be performed based on institutional documents and expert consultation.

Power and interest scoring: Organisations were scored 1–5 both for power and for interest, using qualitative evaluations (such as policy influence and operational value) to justify scores.

Stakeholder classification: Stakeholders were classified into quadrants (e.g., "Key Players", "Keep Informed") with respect to both power and interest, in a manner similar to Brugha and Varvasovszky [20] and Eden and Ackermann [27].

Motivation analysis: Drawing upon techniques exercised by Waxin et al. [10] and Banafa et al. [14] stakeholders were additionally classified based on whether their engagement was predominantly emotional, financial, or both.

The validation of the framework was achieved at a conceptual level by grounding it in the literature and in context by getting inputs in the form of comments and feedback during preliminary interviews and focus group discussions. The participants confirmed the appropriateness of the categories and provided corresponding real-world examples that aligned with the logic of the classification system. This approach, which combines information from various sources and is based on theory and real-world context, supports the framework's reliability for understanding how different stakeholders interact during EMS implementation, especially in developing countries.

7. RESULTS ANALYSIS

The stakeholder mapping and classification generated in-depth understanding of the power, interest, and levels of engagement among internal and external actors that drive EMS implementation at the University of Kufa. This knowledge provides a better insight into the institutional dynamics behind successful and not successful sustainable developments.

7.1 Stakeholder influence and interest

According to the scores of powers and interests (Table 2, Figure 3), stakeholders were clustered in four quadrants. Highly influential, very interested internal stakeholders were the Vice Chancellor (10/10) and Deans (8/10), demonstrating their strategic importance in determining environmental priorities and resource distribution. This finding confirms earlier results by Freeman and McVea [26] who posit that leadership support is necessary in order to implement effective stakeholder-driven strategies. On the external dimension, high scores were also achieved by MHE and EPO, suggesting that both external regulators and environmental NGOs have a strong influence on the development of EMS. This aligns with Waxin et al. [10] who revealed that the success of public sector EMS lies in the ability to maintain collaborative relationships with other non-academic parties. However, the results also uncovered disheartening apathy from other important factions. For example, students, builders, and the maintenance division revealed only moderate-to-low interest, although all of these stakeholders operate within the University of Kufa environmental footprint. This discrepancy mirrors problems identified in other studies Alshuwaikhat and Abubakar [12] where tactical EMS staff are frequently omitted from strategic EMS planning, resulting in reduced system effectiveness.

7.2 Positive versus negative engagement

Table 3 reveals that despite the generally positive contributions made by most high-power stakeholders, a few groups—competitors, transportation staff, and certain administrative units—presented a combination of positive and negative attitudes towards EMS or even negative attitudes. Such actors may view EMS projects as obstacles or extra red tape rather than openings. O'Keeffe et al. [32] also reported similar resistance among key stakeholders in higher education EMS initiatives, emphasizing the critical role of communication and inclusive strategies to mitigate such opposition.

7.3 Emotional and financial motivations

As can be seen in Table 4, stakeholders' interests were categorised as financial and/or emotional-based. Internal leadership and staff members had doubled self-interests that were related both to institutional performance and to self-responsibility for sustainability. On the other hand, external contractors and competitors mainly seemed to be motivated financially, which leads to a greater emphasis on performance-based incentives and clearly defined compliance requirements. These observations are in agreement with Waxin et al. [10] who emphasised that understanding why stakeholders are involved is a critical factor in shaping successful engagement strategies, and Banafa et al. [14] who found that people in LDCs prefer EMS when they can see clear short-term financial benefits.

This form of emotional versus financial interest is an additional layer of analysis. It may be that, despite the negative impressions of signals, EMS efforts are likely to work best if they align with the core values of educators and mem bers of the community, as well as if certain profit-minded individuals see that their participation can lead to direct financial gains in the form of enhanced reputations (or even long-term financial savings).

7.4 Implications

These results are directly related to the research objectives

and support the importance of stakeholder dynamics in determining the success of EMS implementation in Iraqi universities. The findings show that high-level stakeholders are generally aligned with the EMS, but there are notable shortcomings in mid-level operational engagement and external partner coordination. Moreover, the partitioning of stakeholders by influence and motivation guides institutions on how to strategically decide where to focus engagement efforts and thus enhance the design and implementation of the EMS act over time.

Table 4. The results of stakeholder analysis, indicate the type of interest– Financial or/and emotional

a. Internal Stakeholders	Interest	
	Financial	Emotional
Vice chancellor	√	√
Deans	√	√
Educational team	√	√
Admin. Staff	√	√
Students	√	√
Accommodation	√	
Health care centres	√	√
Services	√	
(E.M.D)	√	
Security	√	√
b. External Stakeholders	**Interest**	
	Financial	**Emotional**
(M.H.E)	√	√
L. Government	√	√
Council	√	√
(E.O.F)		√
(E.P.O)		√
Competitors	√	
(C.M.S)	√	
The society		√
Visitors		√
Transportation	√	

7.5 Stakeholder differentiation effect on EMS outcomes

Although the scoring matrix may be useful for categorisation purposes, a significant distinction has been noted in the way stakeholders influence EMS outcomes:

Government bodies such as the MHE provide policy direction and funding. Their power is formal and top-down. However, without evident operational direction and follow-up, the impact of such actions can be limited. The same constraints are discussed by Waxin et al. [10] who observed comparable limits, indicating that centralised structures lacked localised adaptability.

Institutions' leadership (e.g., vice chancellors, deans) are internal enablers who interpret national policies as a means of creating institutional strategies. Their efficacy is context dependent and a function of environmental awareness and leadership commitment [32].

Despite their limited official power, students have the potential to drive significant change. The current low interest of students in local environmental issues (reflected in Table 2) restricts their potential contribution, but student-driven sustainability movements from other fields, like the U.S. higher education system. Wright and Wilton [33] brought evidence that students are an untapped resource for EMS success.

Organisations, such as contractors and maintenance staff, are the practical arbiters of waste management, energy use, and compliance in the field. Nonetheless, in most cases, they are not taken into account in strategic planning, which leads to reducing implementation efficiency. However, similar findings were made by Alshuwaikhat and Abubakar [12].

These discrepancies highlight the necessity of distinct forms of engagement, not simply between power or interest but also function and potential impact.

8. DISCUSSION AND IMPLICATIONS

The results of this study proved that the successful adoption of EMS in the Iraqi universities depends upon the harmony between influential stakeholders, interests, and institutions. Top-level actors (e.g., the M.H.E and the leaders of universities) are the ones that possess power and can put the change into practice; however, the less engaged but operationally crucial groups, the students, service departments and contractors, are commonly neglected. This imbalance restricts the incorporation of EMS objectives at the system level and weakens long-term sustainability impacts.

8.1 Differential impact and strategic implications

Differentiation in policy action is required given the variety of stakeholders' influence. Government and university officials possess the official power and material assets to promote the popularisation of EMS; however, the success of these efforts ultimately depends on middle-level managers (such as mid-level staff and students, as their practices significantly contribute to environmental behaviour. For instance, students can be disempowered, but they can still be a critical force behind awareness-raising and behavioural change. In contrast, contractors and maintenance departments influence operations but are less involved in policy discussions, which may lead to a dilution of alignment and accountability. This supports the argument made in references [26, 34], which emphasizes that successful EMS implementation must take into account all relevant communities of practice—namely, decision-making, operational, and cultural.

8.2 Implications for Iraqi universities and policymakers

With the stakeholder relations dynamics emerging, the author suggests the following institutional efforts:

Create open, cross-sectional EMS committees with members from faculty, students, service divisions, and external collaborators.

Incorporate EMS into university curricula and internal training programs to sensitise them and create long-term capacity.

Develop national EMS implementation guidelines linked to university rankings or accreditation to create accountability.

Establish positive reinforcement tools (such as awarding funds through awards and recognition programs) to encourage compliance and innovation.

These approaches seek to establish EMS systems that are equitable, transparent, and performance-focused.

8.3 Systematic barriers to EMS implementation

Although stakeholder mapping helps identify institutional preparedness, there are structural and contextual challenges

that persist and impede the development of an EMS in the Iraqi higher education system.

Financial and resource constraints:

The majority of colleges do not have a dedicated budget for EMS. For example, at the University of Kufa in Iraq, there was insufficient support to install waste-sorting facilities and energy-monitoring devices on campus. This constraint reflects the findings of Alshuwaikhat and Abubakar [12], who reported that financial limitations in developing contexts hinder the development of EMS.

Strategy: Establish dedicated EMS grants and potential private sector partnerships to co-fund infrastructure and training.

Institutional capacity gaps:

EMS tasks are often performed by departments unexperienced in the technical details, and therefore implementation and compliance are often suboptimal. This finding emerged from interviews with administrative and service staff, most of whom are unfamiliar with ISO 14001 procedures.

Strategy: Provide in-country training programs with consensus among environmental NGOs and international bodies.

Limited stakeholder awareness:

Students and mid-level staff may potentially benefit, but they are disengaged due to their low awareness and unclear roles. This constrains participation in saving energy, recycling, and reporting violations.

Strategy: Integrate EMS content into student orientations, support ecological clubs, and reward participation.

Weak policy enforcement:

A minuscule number of environmental guidelines issued by ministries are followed at the university level. Vigilance mechanisms and checks and balances have gone missing in the local governance structure.

Strategy: Associate EMS implementation with university accreditation standards and create mechanisms for reporting.

Resistance to change:

Cultural barriers by staff and administrators, established in traditional practices, frequently hinder reform of EMS. This resistance to change was particularly noticeable in the number of departments, such as the service departments at Kufa University.

Strategy: Employ change management techniques that acknowledge early adopters, facilitate transparency, and provide non-financial motivations for compliance.

8.4 General implications for developing countries

The difficulties and interests outlined in this research are not exclusive to Iraq. EMS challenges, such as low stakeholder involvement, limited funding, and fragmented policy enforcement, are similar in other developing areas [13, 14]. Therefore, the lessons learnt from this study provide a framework for such institutions in low-resource or post conflict settings, where EMS is still developing.

9. RECOMMENDATIONS

According to the current study outcomes, it has been concluded that the implementation of EMS in the Iraqi universities lacks systemic reformation, as well as the involvement of specific stakeholders. Recommendations for educational institutions, governmental bodies, national policymakers, and educational practitioners are provided based on the observed results and conclusions. The targeted bodies have been identified carefully, and some empirically grounded recommendations have been developed. Moreover, the lessons learnt from the University of Kufa case study will have wider application in the developing world for the development of EMS in similar settings.

9.1 For Iraqi universities and policymakers

Each Iraqi university should implement coordinated, practical, and contextually feasible initiatives in partnership with national regulators to address the application of successful EMS obstacles and the roles of related stakeholders. The subsequent recommendations are pragmatic measures for strengthening institutional commitment, stakeholder engagement, and policy consistency across the higher education system:

Embedding stakeholders' involvement in EMS policies:

Mechanisms in terms of formal committees (e.g., EMS steering, advisory board, cross-functional working groups, etc.) should exist, with a mix of both internal and external stakeholders. This process is consistent with the experience so far in European universities [32] and is important in transferring the process to local situations, such as that of Iraq [12].

Incorporate EMS into your curriculum and training:

Integrating environmental education in all the subject areas helps create sustained responsible attitudes towards the environment. Workshops and training for faculty, staff, and students improve awareness and mutual responsibility [33]. Engaging the students in the EMS projects also offers an opportunity for hands-on learning at the same time the students create a sense of belonging.

National policy and intergovernmental coordination strengthen:

The Ministry of Higher Education needs to develop policies, provide technical support, and allocate resources to help universities adopt an EMS practice that is inherently integrated into their operations. If the policy receives community support, environmental protection agencies and NGOs can engage in planning, reach out to the policy, and activate the community behind it [10].

Create Incentives and Recognition Schemes:

Awarding adherence to EMS—through environmental certifications, national rankings, or competitive grants—may serve as a stimulus for competition that encourages universities to excel. As Bravi et al. [17] note, "Incentives like these are critical, particularly in environments of finite resources, where unmandated action might otherwise never materialise."

9.2 Broader implications for developing countries

The circumstances of the University of Kufa may be beneficial in illustrating several barriers to EMS implementation that are commonly encountered in developing world settings, including low funding, poor governance, disconnected stakeholder engagement, and resistance to change. However, it also demonstrates that the limitations can be overcome through the engagement of local stakeholders and local innovation. For example, studies in Southeast Asia and Sub-Saharan Africa have shown that when EMS strategies

are aligned to local governance structures and socio-cultural standards, the acceptance and effectiveness of interventions are improved [13, 14]. Moreover, understanding whether stakeholders' interests are emotional or financial-specific (as categorised in this study) can help guide communication frames and policy prioritisation [26].

10. CONCLUSION

This research determined that the effectiveness of an EMS in Iraqi universities is not independently a technical or practical issue; it is also a multilateral mission that requires the involvement of all stakeholders, including institutional commitment, comprehensive engagement, and structural improvement. Using a stakeholder analysis at the University of Kufa, the roles, interests, and levels of influence of the main players, including government ministries, university administration, students, service departments, and external bodies, were revealed.

The outcomes show that, although high-power stakeholders, such as the Ministry of Higher Education and university leaders, play a key role in starting the EMS process, the long-term effectiveness of these systems hinges on the meaningful involvement of lower-power stakeholders, who are also operationally more critical. Students, for example, represent an untapped potential for change, whereas contractors and maintenance staff have a significant direct influence on environmental outcomes yet operate in areas where formal engagement is limited.

Apart from the stakeholder interaction, the study has found that there are several structural challenges, including a resource restriction, lack of institutional capacity, limitation of stakeholder awareness, fragmented implementation of policy, and cultural resistances to change. These barriers are commonly found throughout the development sector and necessitate targeted interventions from national EMS funding programs, comprehensive university training initiatives, incremental curriculum implementation, and participatory governance processes.

The stakeholder model applied in this research, based on power-interest theory and supported by motivational analysis, provides a pragmatic approach for identifying priorities for engaging and shaping EMS interventions. It is replicable or adaptable by other institutions in comparable contexts that aspire to better environmental performance.

Ultimately, the pathway to sustainable implementation of EMS in higher education lies in the connection between top-down dictates and bottom-up involvement, with the goal of empowering everyone and situating environmental accountability in organisational philosophy. For Iraqi universities (and many elsewhere in the world), such initiatives are also important for harmonising academic practices with national environmental ambitions and with global sustainability aspirations.

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