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## **The Role of Strategic Planning in Environmental Crisis Management**

### **Article Review and Case Study**

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#### **Abstract**

Strategic planning has become necessary for governments and institutions facing global crises, technological innovation, and evolving management sciences. Achieving long-term success and prosperity in a rapidly changing world is essential. The unpredictable nature of the modern world means that environmental crises occur more frequently, demanding a proactive, strategic approach to navigate the uncertainty effectively. Strategic planning empowers organisations to address complexities that hinder the realisation of strategic objectives. It provides a solid scientific foundation for assessing performance at every organisational juncture, facilitating informed decision-making. The efficacy of strategic planning extends to crisis and disaster management, where institutions can rise above emotional turmoil by considering strategic planning as a constant guidepost. This elevated perspective nurtures strategic thinking and leads to a nuanced understanding of disaster root causes, reducing recurrence. This research explores the relationship between strategic planning and managing environmental crises, delving into the pivotal role of strategic planning in averting, facilitating, and responding to a broad spectrum of environmental crises. By revealing the effectiveness of strategic planning in crisis management, this study offers insights and recommendations to organisations and governments aiming to enhance their resilience in environmental challenges. It fosters a comprehensive understanding of the role of strategic planning in navigating environmental crises and disasters, advancing a more resilient and sustainable future.

**Keywords:** Disaster, Environmental Crisis Management, Strategic Planning.

## **Introduction Background**

Environmental crises, ranging from natural disasters to ecological emergencies, have become increasingly prevalent in the contemporary world, exacerbated by factors such as climate change, population growth, and rapid urbanization (Schu & Preuss, 2023). These crises pose significant challenges to governments, societal institutions, and communities worldwide, necessitating effective strategies for crisis management and mitigation. The traditional reactive approach to crisis response has proven inadequate in addressing the complexities and uncertainties associated with environmental emergencies. As a result, there is a growing recognition of the importance of proactive and strategic planning in enhancing resilience and mitigating the impacts of such crises (Omez and Rodriguez, 2024). The concept of strategic planning (SP) has its roots in military strategy, where it was originally developed to anticipate and address various crises and disasters. Over time, strategic planning has evolved into a comprehensive management tool utilized by organizations across various sectors to achieve long-term objectives and navigate uncertain environments. In the context of environmental crisis management (ECM), strategic planning plays a crucial role in anticipating, preparing for, and responding to crises effectively (Guyadeen et al., 2023). Moreover, strategic planning fosters synergy and collaboration among various stakeholders, including government agencies, non-governmental organizations, and local communities, thereby enhancing the overall effectiveness of crisis management efforts (Ekiz Kavuko glu, 2023). By promoting a systematic and coordinated approach to crisis response, strategic planning helps reduce losses, prevent recurrence, and enhance resilience in the face of environmental challenges (Razzak et al., 2023). Therefore, it is essential to assess the strengths and weaknesses of existing strategic planning processes and identify opportunities for improvement (Al-Wathinani et al., 2023). Overall, the integration of strategic planning into environmental crisis management represents a critical step towards building resilience and enhancing preparedness in the face of an increasingly uncertain and volatile world, by understanding the concepts of strategic planning and ECM and assessing their capacity and effectiveness, researchers and practitioners can develop actionable insights and recommendations to strengthen crisis management practices and mitigate the impacts of environmental crises (Salim et al., 2023).

## **Research Problem**

In our fast-paced world, governments and institutions struggle to manage environmental crises amid technological progress and ongoing global turmoil. Strategic planning is crucial for navigating these challenges, yet gaps exist in understanding how to tailor it for environmental crisis management (ECM). This study aims to pinpoint factors shaping strategic planning and its impact on crisis outcomes, offering insights to bolster resilience in environmental crises.

## **Research Aim**

To investigate the role of strategic planning in environmental crisis management (ECM) and provide insights for enhancing resilience in addressing environmental challenges.

## **Research Objectives**

- To understand the concepts of strategic planning (SP) and environmental crisis management (ECM).

- To assess the capacity and effectiveness of strategic planning in addressing ECM, including its role in managing natural disasters, ecological emergencies, and public health crises.

## Literature Review

### Strategic Planning Concept:

Strategic planning (SP) entails establishing clear goals, devising procedures, and creating strategies to effectively and efficiently steer an institution or organisation towards realising its vision and objectives. The ultimate aim of strategic planning is to chart the course for an organisation, guide its efforts, and achieve success amidst stiff competition (**Jeremiah et al., 2019**).

The strategic planning process includes several steps, including analysing the internal and external environment of the institution, identifying values, vision, and strategic goals, and developing general plans and strategies to help achieve these goals (**Walker and George, 2019**).

Strategic planning is an essential leadership tool that helps institutions achieve change and success in a changing business environment. It also helps identify competitive needs and opportunities, determine required resources, and tactics and strategies necessary to achieve the specified goals. Essentially, strategic planning helps organisations achieve their vision and goals by defining the general direction and developing the necessary strategies for success in a changing business environment (**Al-Zyoudi, 2020**).

### The strategic planning process includes several steps (**Wood et al., 2023**)

- **Environmental Analysis:** The external environment of the institution is evaluated, including economic, social, technological, political, and legal factors. This analysis aims to understand potential opportunities and threats that may affect the institution.
- **Capability Analysis:** The internal resources and capabilities of the institution are assessed, including financial, human, technological, and operational resources. This analysis helps identify the strengths and weaknesses of the institution.
- **Vision and Mission Development:** The future vision of the institution is defined, and the mission that expresses the nature of its work and direction is determined.
- **Strategic Objective Setting:** The main objectives that the institution seeks to achieve in the long term are defined.
- **Strategy Development:** Comprehensive strategies are developed to achieve the strategic objectives. These strategies include general guidelines on using resources and dealing with potential opportunities and challenges.
- **Strategy Implementation:** The specified strategies are implemented, resources are allocated, and operations are organised to achieve the defined goals.
- **Monitoring and Evaluation:** The execution of the strategy is monitored, and its results are assessed. If necessary, adjustments and improvements are made.

Strategic planning is a fundamental process for institutions and organisations. It helps achieve strategic direction, control its course, and attain sustainable development. It also assists in prioritising and allocating resources effectively and efficiently to achieve long-term success (**Pessima and Dietz, 2019**).

Strategic planning covers a long-term horizon, aiming to achieve the vision and goals of the institution over an extended period, typically ranging from 3 to 5 years or more. However, the extent of strategic planning may vary from one institution to another and can be influenced by the nature of the industry or sector in which the institution operates (Wu et al., 2020).

In some cases, short-term or medium-term strategies may be developed alongside long-term strategic planning to address immediate or medium-term challenges and opportunities that the institution may encounter. Therefore, sustainable strategic planning requires periodic assessment and updates, as conditions and external factors that impact the institution may change over time. Thus, strategic planning should be an ongoing process that requires regular monitoring and evaluation to achieve success and continuity in the institution (Bolland, 2020).

### **The importance of Strategic Planning (Ojha et al., 2023)**

Strategic planning is critical to organisations and entities operating in a dynamic and competitive business environment. The following elucidates the importance of strategic planning:

- **Achieving Vision and Objectives**

Strategic planning aids in defining the long-term vision and objectives of the organisation. It establishes a clear direction that provides strategic guidance for future operations and decisions.

- **Resource Organization**

Strategic planning assists the organisation in directing and organising available resources, including financial, human, and technological resources, to achieve the specified goals. Resources are allocated efficiently according to strategic priorities.

- **Enhanced Decision-Making**

Strategic planning provides a framework for informed decision-making. It involves analysing the external and internal environment and offers vital information for making appropriate strategic decisions while minimising risks.

- **Forecasting and Preparedness**

Strategic planning helps the organisation anticipate potential changes in the external environment and prepares itself for future challenges. The organisation can adapt and respond more effectively to rapid changes in the market and technology.

- **Gaining Competitive Advantage**

Strategic planning empowers the organisation to achieve a competitive edge by focusing on the development and execution of unique strategies that enable it to outperform competitors and excel in the job market.

- **Enhanced Coordination and Communication**

Strategic planning enhances coordination and communication within the organisation. It directs efforts toward common goals and fosters the integration of operations and procedures.

Strategic planning is vital for organisations to control their course and achieve long-term development and success. It helps define vision and objectives, organise resources, make informed decisions to gain a competitive advantage and adapt to changes in the external environment (Ojha et al., 2023).

## Dimensions of Strategic Planning

Several dimensions of strategic planning contribute to achieving the organisation's goals and guiding it towards success and growth. The following are some of the critical dimensions of strategic planning (**Freeman and Lorange, 2023**):

- **Temporal Dimensions:** Strategic planning is concerned with looking into the future and developing plans and strategies for the long term. This includes defining the long-term vision and objectives of the organisation and achieving them through specific plans.
- **Institutional Dimensions:** Strategic planning is related to achieving alignment among various organisational aspects. This involves aligning objectives and strategies to support the organisation's vision, values, identity, and culture.
- **Geographical Dimensions:** Strategic planning involves determining the scope of the organisation's operations, expanding and developing in different geographic regions. This is achieved by identifying target markets and expanding activities and operations in suitable areas to facilitate expansion and growth.
- **Functional Dimensions:** Strategic planning involves coordinating and integrating different organisational functions and operations. This includes coordinating efforts, resources, and procedures across different departments to achieve the organisation's goals in an integrated manner.
- **Financial Dimensions:** Strategic planning is related to achieving financial sustainability for the organisation and ensuring sustainable financial performance. This is done by setting financial goals and establishing the necessary financial policies and procedures to ensure the sustainability of the organisation's financial resources.
- **Social and Environmental Dimensions:** Strategic planning involves considering the social and environmental impact of the organisation's activities. This is achieved by incorporating social responsibility and focusing on sustainability, community development, and environmental preservation in the organisation's strategies.

These are some of the critical dimensions of strategic planning, and the focus and relevant dimensions may vary for each organisation based on its industry and specific context. These dimensions generally enhance the organisation's ability to prepare, respond, and cope effectively with crises and disasters. They promote coordination, integration, and resource provision to overcome challenges and maintain the organisation's continuity in adverse conditions (**Wiggins, 2021**).

## Environmental Crisis

### The Historical Origins of the Concept of Crisis and Disaster Management

The word crisis can be traced back to ancient Greek medicine, which was used to signify a crucial turning point in a disease. In English dictionaries, crisis denotes a challenging turning point characterised by difficulty and future uncertainty, necessitating appropriate decision-making within a specified timeframe. In the French lexicon, crisis signifies conflict, tension, or an acute episode. All these definitions point to the fundamental idea of a crisis as a challenging turning point that requires intervention and measures to overcome it (**Pierides et al., 2021**).

In Arabic, crisis signifies scarcity, deprivation, distress, and severity. It refers to an emergency or a sudden event in a specific domain, marked by tension and extreme pressure, demanding immediate intervention to address and resolve it. Crises typically result from the accumulation of several factors or sudden events that disrupt the ordinary course of affairs.

In Arabic, the term crisis is also used in its general sense to refer to an incident that occurs in a specific domain, characterised by difficulty, complexity, and tension, requiring immediate intervention and measures to address and resolve it (Crisis In Arabic - Translation and Meaning in English Arabic Dictionary of All Terms Page 1, 2023).

**The terms hazard, crisis, and disaster represent different states of challenge and negative impact, with the distinctions outlined as follows** (“Glossary of Disaster Risk Management-Related Terms,” 2022):

**Hazard** is a potential source of harm or damage and may exist in the environment, workplaces, or natural conditions. Hazards can relate to hazardous chemicals, mechanical issues, geological factors, etc. The term reflects the idea of the possibility of harm or damage occurring.

**Crisis** refers to an urgent or decisive situation arising from an unexpected or undesirable development in a specific scenario. A crisis is a phase marked by difficulty, tension, and challenges, and it may affect the system, organisation, or society at large. A crisis necessitates immediate intervention and swift measures to address challenges and restore the normal situation.

**Disaster** is a significant event or a destructive occurrence that results in substantial losses, whether human or material. Unexpected events can cause disasters and may be natural, such as earthquakes or floods, or they can result from industrial or human causes, such as wars or nuclear accidents. Disasters are characterised by their broad and lasting impact on infrastructure and society, requiring intensive response and reconstruction efforts (**Zamoum and Gorpe, 2018**).

In summary, a hazard represents a potential source of harm, a crisis denotes an urgent situation requiring immediate intervention, and a disaster refers to a catastrophic event causing substantial losses.

### **The Distinction Between Crisis and Disaster (Alpert and Merin, 2024)**

The main distinction between a crisis and a disaster lies in the extent of their impact and losses. The primary differences between them are as follows:

Crisis:

- A crisis is an urgent and sudden state in a specific domain.
- It may result from a significant shift or an unexpected change in events or circumstances.
- It is characterised by high tension and severe pressure.
- It can affect individuals, organisations, or communities.
- It may require immediate intervention and the implementation of measures to address it.
- Planning and management are often necessary to control negative consequences and restore normalcy.

**Disaster**

- Disaster represents a catastrophic event that causes significant losses.
- It results from a significant and unexpected event, whether natural or human-induced.
- It impacts a wide area and leads to substantial human and material losses.
- It can lead to infrastructure destruction, environmental damage, and the disruption of essential services.

- Significant response and relief efforts are required to manage the negative impacts.
- Recovery and reconstruction may take a long time following a disaster (**Boin et al., 2018**).

A crisis is an urgent and sudden state that requires quick and effective handling. At the same time, a disaster represents a destructive event that results in substantial losses and demands extensive efforts for recovery.

### **Environmental Crisis Management**

- Characteristics of a Crisis
- Characteristics of a crisis can vary depending on its type and specific nature, reflecting its unique attributes and distinguishing it from other situations. They typically include the following aspects (**Zheng et al., 2023**):

#### **Suddenness**

Crises typically occur unexpectedly and suddenly, manifesting rapidly without prior notice.

#### **Anxiety and Tension**

Crises are accompanied by anxiety and tension among individuals affected by them as they experience instability and uncertainty about the future.

#### **Complexity**

Crises are usually complex and involve multiple interrelated factors and cumulative effects, making them challenging to comprehend and manage.

#### **Time Pressure**

They necessitate quick intervention and immediate actions, as there is a need for rapid responses to control the situation and reduce negative impacts.

#### **Comprehensive Impact**

Crises affect various aspects and domains, whether economic, social, environmental, or political. They can impact individuals, organisations, and communities in general.

#### **Requirement for Collaboration and Coordination**

Crisis management requires collaboration and coordination among various stakeholders, including government, non-governmental organisations, and the private sector, to respond effectively and enhance recovery.

#### **Psychological Impact**

Crises can affect individuals psychologically, causing anxiety, tension, and emotional disturbances. This aspect should be considered when providing psychological and social support to affected individuals (**Zheng et al., 2023**).

## **Elements of a Crisis (Sawang, 2023)**

These elements refer to a crisis's fundamental components, contributing to its complexity and impact. Although there may be variations in the classification and nomenclature of these elements from one source to another, the following elements are commonly considered in the

### **Study and analysis of crises**

#### **Precipitating Event**

This is the actual event or incident that serves as the starting point of the crisis. It may result from natural factors, such as natural disasters, or human factors, like governmental failures or economic crises.

#### **Escalation**

This term refers to the exacerbation of the crisis over time, with an increasing impact and complexity. It can occur due to the spread of the crisis, its extension to other regions or sectors, or the escalation of related tensions and conflicts.

#### **Response**

This pertains to the measures and actions taken by relevant authorities to address the crisis. It involves situation assessment, decision-making, crisis management strategy implementation, and coordinating efforts to minimise negative consequences.

#### **Communication**

Effective communication is a critical component of crisis management. It includes continuous communication with the target audience and stakeholders, providing accurate and transparent information, and managing responses to the media and other communication channels.

#### **Recovery**

Recovery involves the process of restoring the normal situation after the crisis. It includes reconstruction, rehabilitation, system restoration, and recovery of damaged services. Additionally, it deals with the crisis's psychological, economic, and social consequences (Sawang, 2023).

### **Factors Hindering Early Detection of Crises**

Several factors can impede the early discovery of crises during their initial stages (Mavrouli et al., 2023):

#### **Weak Monitoring and Prediction**

This occurs due to deficiencies in the devices and systems responsible for monitoring early crisis indicators and data, making information analysis and predictions challenging.

### **Lack of Awareness and Understanding**

There needs to be more awareness and understanding of potential challenges and significant environmental and economic indicators to ensure timely crisis response and appropriate actions.

### **Organisational and Administrative Challenges**

Difficulties coordinating among various entities involved in crisis management or delays in decision-making because of bureaucracy or weak organisational structures may hinder early crisis discovery.

### **Cultural and Behavioral Factors**

The unwillingness to disclose potential problems or risks or a focus on individual interests rather than the common good can delay the early detection of crises. Ignoring early crisis indicators and failing to consider them as critical issues are also possible factors.

### **Economic and Financial Factors**

Inadequate funding and budgets allocated for monitoring and response can reduce early crisis anticipation efforts. The pressure of a limited economy and budget can affect the capacity to proactively manage crises and allocate resources for early monitoring and analysis.

### **Technical Factors**

A lack of investment in modern technology and a shortage of technical expertise can hinder the early detection of related crises and data analysis.

### **Political Factors**

Delays in decision-making or political considerations in declaring a crisis can lead to late discovery and handling (Mavrouli et al., 2023).

## **Stages of Crisis and Disaster Management**

### **Mitigation Stage**

**Identification of Risks:** This phase identifies potential risks that could lead to crises and disasters.

**Risk Assessment:** Risk assessment involves evaluating the risks, determining their impact, and assessing the likelihood of occurrence.

**Development of Mitigation Strategies:** Strategies for reducing the severity of risks and minimising negative impacts are formulated during this stage.

**Implementation of Mitigation Measures:** This step involves implementing preventive and mitigating measures to reduce risks.

**Continuous Monitoring and Evaluation:** Ongoing monitoring and evaluation of the effectiveness of the measures and strategies employed in risk reduction are conducted.

## **Preparedness Stage**

**Development of Emergency Response Plan:** An emergency response plan is developed to guide actions in a crisis or disaster.

**Training and Capacity Building:** Training and capacity-building efforts are undertaken to prepare teams involved in the response.

**Establishing a Communication System:** Effective communication systems are established to facilitate coordination and information sharing.

**Resource Mobilisation:** The necessary material, human, and logistical resources are mobilised to support response efforts.

**Conducting Drills and Exercises:** Crisis drills and exercises are conducted to train and prepare response teams.

## **Response Stage**

**Activation of Emergency Response Plan:** The emergency response plan is activated during a crisis or disaster.

**Coordination and Communication:** Coordination and communication between all relevant teams and entities are essential during the response phase.

**Search and Rescue Operations:** These operations are initiated to save at-risk lives.

**Providing Emergency Assistance:** Emergency assistance is provided to affected individuals to meet their basic needs.

**Damage Assessment:** The extent of damage is assessed, and the scale of the disaster is determined.

## **Recovery Stage**

**Damage and Needs Assessment:** An evaluation of the damage and the requirements for rebuilding and recovery is conducted.

**Rehabilitation and Reconstruction:** Efforts are made to rehabilitate damaged infrastructure and rebuild affected communities.

**Psychological and Social Support:** Psychological and social support is provided to those affected, including communities and individuals.

**Economic Recovery:** Activities to restore economic activity and promote sustainable development are pursued.

**Lessons Learned and Improvement:** This final stage involves deriving lessons from the crisis and enhancing future response strategies (**Buchholz and Knorre, 2023**).

## **Strategic Planning in Crisis Management**

Strategic planning and environmental crisis management are closely related. Both involve diagnosing risks, developing plans, coordinating efforts, and continuously improving performance. Strategic planning provides the framework for crisis management, while the latter

executes specific strategies. The interplay between these two processes includes the following aspects:

**Diagnosis and Risk Analysis:** SP and ECM involve identifying and analysing potential risks.

**Development of Plans:** SP involves developing plans to achieve objectives. Emergency response plans are created in ECM to address potential environmental disasters.

**Coordination of Efforts:** Effective coordination among entities managing crises is crucial for achieving defined objectives.

**Continuous Evaluation and Improvement:** Continuous evaluation and learning from past crises are essential for improving performance.

SP guides ECM, which executes specific plans within the framework (Mudalal, 2021).

### Case Studies and Examples

On September 10, 2023, Storm Daniel swept across eastern Libya, impacting a vast region inhabited by approximately 884,000 people, including around 353,000 children. This catastrophic storm resulted in a tragic loss of life, claiming over 4,300 lives, causing the breach of dams, and inflicting extensive structural damage, particularly in Al Bayda, Al Marj, and the coastal city of Derna. Furthermore, the storm wreaked havoc on critical infrastructure, severely impairing bridges, roads, and electricity grids.

The longstanding political crisis and prior conflicts in Libya have significantly undermined the provision of public services, with sectors like healthcare, social protection, and education being particularly affected. These challenges are compounded after this disaster, amplifying the suffering and losses experienced by those previously displaced and in desperate need (*Devastating Floods in Libya* / UNICEF, 2023).

**From an environmental crisis management perspective, the reasons for this disaster can be attributed to several key factors:**

**Extreme Weather Event:** The primary cause of the disaster is the extreme weather event, in this case, Storm Daniel. These events can lead to destructive impacts, including heavy rainfall, strong winds, and flooding, which can overwhelm the existing infrastructure and harm communities.

**Vulnerable Infrastructure:** The disaster was exacerbated by the vulnerability of the region's infrastructure. Dams bursting, building collapses, and damage to critical infrastructure such as bridges, roads, and electricity grids indicate that the existing infrastructure was not adequately designed to withstand extreme weather events.

**Climate Change:** Climate change can influence the frequency and severity of extreme weather events like storms. Rising global temperatures and changing weather patterns can contribute to the increased occurrence of such disasters, making them more frequent and intense.

**Lack of Preparedness:** Inadequate disaster response and mitigation preparedness measures likely played a role. The region may have been ill-equipped to deal with a magnitude storm, leading to higher casualties and damage.

**Environmental Degradation:** The disaster may have been worsened by environmental factors such as deforestation, soil erosion, and degradation of natural protective barriers like wetlands

and mangroves. These factors can increase the susceptibility of areas to flooding and landslides.

**Population Density:** The high population density in the affected region, with a significant number of children, increased the vulnerability of the local population to the impacts of the storm, including health and safety risks.

**Political Instability:** The scenario hints at the impact of the protracted political crisis and past conflicts in Libya. Such instability can hamper the capacity of governments and local authorities to respond effectively to disasters, further exacerbating the situation.

To manage and mitigate these environmental disasters more effectively, it is essential to improve infrastructure resilience, invest in early warning systems, implement sound land-use planning, and address environmental degradation's root causes, including climate change mitigation and adaptation strategies. Additionally, disaster preparedness and response systems should be robust and adaptable, considering the region's vulnerabilities and challenges (**Zhong, 2023**).

Strategic planning can positively impact crisis management, including environmental crises like the Libyan Flooding.

**Here are some potential ways in which strategic planning might have had a positive influence:**

**Risk Assessment and Mitigation:** Strategic planning often involves risk assessment, which helps identify potential threats and vulnerabilities. It enables the development of mitigation strategies to reduce the impact of disasters. If the region had undertaken comprehensive risk assessments in their strategic planning process, they might have been better prepared for a disaster like Storm Daniel.

**Emergency Response Planning:** Part of strategic planning includes developing emergency response plans. These plans outline various agencies' and stakeholders' roles and responsibilities during a crisis. An effective emergency response plan can facilitate a swift and coordinated response to mitigate the impact of the disaster and save lives.

**Resource Allocation:** Strategic planning can involve resource allocation strategies. Adequate allocation of resources to disaster preparedness, including training, infrastructure development, and the procurement of essential equipment, can enhance the capacity to respond effectively when a crisis occurs.

**Coordination and Communication:** Effective strategic planning emphasises coordination and communication among relevant agencies and organisations. This coordination can be crucial for an efficient response to a disaster. Timely communication and collaboration can help mobilise resources, support, and expertise.

**Lessons Learned and Improvement:** Strategic planning allows for evaluating the response and identifying lessons learned after a crisis. These lessons can improve future disaster management strategies and strengthen preparedness.

However, the success of strategic planning in positively affecting a crisis depends on the quality of planning, its implementation, and the region's capacity to execute the plan effectively. It is also essential to recognise that in a rapidly evolving disaster situation, no plan

can be foolproof, and the magnitude and unpredictability of certain events, like extreme storms, can pose severe challenges (Fakhruddin et al., 2023).

### **Future Directions and Research Gaps**

This informative article sheds light on two crucial areas that require additional research: integrating AI and machine learning into strategic planning and the enduring effects of crises on organisations and communities. Moreover, the authors delve into the advantages of AI-generated scenarios for scenario development and analyse their efficacy. Although AI can generate numerous scenarios at a minimal expense, its usefulness hinges on the user's direction. Ultimately, AI can unlikely supplant human scenarists entirely (Spaniol et al., 2023).

Optimising maintenance operations is vital to avoid unforeseen breakdowns and financial setbacks. Implementing intelligent systems and effective management strategies can enhance technological infrastructure and aid in informed decision-making. During emergencies, integrating AI technology is crucial to bolster situational awareness (Ahmed et al., 2023).

### **Findings**

#### **Importance of Strategic Planning in Crisis Management**

- The research highlights the critical role of strategic planning SP in addressing environmental crises, such as natural disasters, ecological emergencies, and public health crises.
- SP is a proactive approach to confronting multifaceted environmental challenges and offers valuable insights to enhance resilience in the face of environmental challenges.

Key Dimensions of Strategic Planning:

- Strategic planning includes several essential dimensions: environmental analysis, capability assessment, vision and mission development, strategic objective setting, strategy development, implementation, and continuous monitoring and evaluation.
- The strategic planning process covers a long-term horizon, typically ranging from 3 to 5 years, and may involve short-term or medium-term strategies for addressing immediate challenges and opportunities.

#### **The Significance of Strategic Planning**

- Strategic planning aids in achieving an organisation's long-term vision and objectives, effectively organising available resources, and making informed decisions to gain a competitive advantage.
- It enhances organisational coordination and communication, fostering integration of operations and procedures.

#### **Characteristics of Environmental Crises**

- Environmental crises are characterised by suddenness, anxiety and tension, complexity, time pressure, comprehensive impact, and the requirement for collaboration and coordination.
  - These crises can have a significant psychological impact on individuals and communities.
- Elements of a Crisis:
- A crisis involves elements such as a precipitating event, escalation, response, communication, and recovery.
  - Understanding these elements is crucial for effective crisis management.

### **Factors Hindering Early Detection of Crises**

Weak monitoring and prediction, lack of awareness and understanding, organisational and administrative challenges, cultural and behavioural factors, economic and financial constraints, technical deficiencies, and political considerations can hinder the early detection of crises

### **Stages of Crisis and Disaster Management**

- Crisis and disaster management encompasses stages, including mitigation, preparedness, response, and recovery.
- Each stage plays a vital role in reducing the impact of crises and facilitating recovery.  
Integration of SP in ECM:
- Strategic planning can positively impact crisis management, including environmental crises.
- Effective integration of SP in ECM involves risk assessment, emergency response planning, resource allocation, coordination, and continuous improvement.

### **Case Study: Libyan Flooding Storm Daniel**

- The case of the Libyan Flooding highlighted the devastating impact of extreme weather events on a vulnerable region.
- Inadequate preparedness, lack of resilient infrastructure, and the influence of political instability exacerbated the disaster.

### **Recommendations for Enhancing Resilience**

Collaboration and coordination, public awareness and education, technology and innovation, cross-border cooperation, community engagement, resilient supply chains, mental health support, legislation alignment, research and development, training and simulation, public-private partnerships, multilingual communication, and crisis recovery planning are recommended to enhance resilience and strategic planning in environmental crisis management.

### **Findings of the review could be summarised in**

- The literature review revealed that strategic planning SP is vital in addressing environmental crises, including natural disasters, ecological emergencies, and public health crises.
- SP involves various dimensions, including environmental analysis, capability assessment, vision and mission development, strategic objective setting, strategy development, implementation, and continuous monitoring and evaluation.
- It is a fundamental process that helps organisations achieve long-term vision and goals, organise resources effectively, and prioritise sustainable development.
- The extent of strategic planning may vary based on the organisation's industry and specific context.

### **Results of the Case Study: Libyan Flooding Storm Daniel Findings**

- The case study of the Libyan Flooding demonstrated the catastrophic impact of extreme weather events on a vulnerable region.

- Inadequate preparedness and a lack of resilient infrastructure exacerbated the disaster's effects. The region's political instability further hampered the crisis response, affecting the disaster's scope and scale.

Table 1. Key Concepts in SP and ECM.

| <b>Concept</b>                      | <b>Description</b>  |
|-------------------------------------|---|
| Strategic Planning SP               | Involves setting goals, developing strategies, and charting the course for an organisation or institution's success |
| Environmental Crisis Management ECM | Focuses on mitigating and responding to environmental crises, including natural disasters and public health crises  |

Table 2. Characteristics of a Crisis.

| <b>Characteristic</b> | <b>Description</b>  |
|-----------------------|---|
| Suddenness            | Crisis typically manifest suddenly and unexpectedly   |
| Anxiety and Tension   | Individuals affected by crises experience anxiety and tension due to instability and uncertainty            |
| Complexity            | Crisis are characterized by complexity and multiple interrelated factors, making them challenging to manage |
| Time Pressure         | Rapid intervention and immediate actions are necessary in response to crises                                |
| Comprehensive Impact  | Crisis affect various aspects and domains, including social, economic, and environmental factors            |

Table 3. Factors Hindering Early Detection of Crises.

| <b>Factors</b>                               | <b>Description</b>   |
|--|--|
| Weak Monitoring and Prediction               | Deficiencies in monitoring systems and data analysis hinder early crisis detection         |
| Lack of Awareness and Understanding          | Insufficient awareness and understanding of potential challenges can delay crisis response |
| Organisational and Administrative Challenges | Coordination issues and bureaucratic delays impede early crisis detection                  |

## **Interpretation of the Literature Review Findings**

### **Discussion**

The literature review highlights the importance of strategic planning in environmental crisis management. It provides a proactive approach to addressing multifaceted environmental challenges.

- The key dimensions of strategic planning, including environmental analysis and capability assessment, serve as critical components in effective crisis preparedness and response.

## **Case Study Analysis**

### **Discussion**

The Libyan Flooding case study exemplifies the real-world impact of extreme weather events on a vulnerable region. It underscores the need for better disaster preparedness and infrastructure resilience.

- The political instability in the region further emphasises the importance of robust crisis management and coordination.

## **Integration of SP in ECM**

### **Discussion**

- The research findings indicate that integrating strategic planning positively impacts crisis management. This integration enhances risk assessment, resource allocation, and overall crisis response effectiveness.
- Effective crisis management requires a comprehensive and well-integrated approach that aligns with the dimensions of strategic planning.

## **Key Tables and Figures**

### **Discussion**

- The tables presented in the research serve as valuable reference points and visual aids for understanding the key concepts, characteristics of crises, and factors hindering early detection.
- These tables help summarise and organise complex information, making it more accessible to readers.

## **Recommendations and Future Directions**

### **Discussion**

- The research culminates in a set of recommendations for enhancing resilience and strategic planning in environmental crisis management. These recommendations underscore the need for collaboration, public awareness, and technology adoption.
- Future research should focus on areas such as integrating AI into strategic planning and optimising maintenance operations to avoid unforeseen breakdowns.

## **Conclusions**

In conclusion, this research emphasises the crucial role of strategic planning in addressing environmental crises effectively. It integrates critical elements like risk assessment, mitigation

strategies, and coordinated efforts. The Libyan storm case study exemplifies how strategic planning can significantly improve crisis outcomes, emphasising its need in crisis management to enhance preparedness.

The partnership between strategic planning and environmental crisis management harmonises pragmatism and foresight, providing a foundation for resilience in an ever-uncertain world. Recognising strategic planning as a constant guiding force is essential.

The dynamic relationship between strategic planning and crisis management remains pertinent as environmental challenges evolve. Governments, organisations, and institutions must invest in ongoing strategic planning to adapt their disaster preparedness and response to the changing crisis landscape. This adaptability is vital for community safety and a sustainable future amid unpredictable environmental challenges.

## Recommendations

Recommendations for Enhancing Resilience and Strategic Planning in Environmental Crisis Management:

- **Collaboration and Coordination:** Promote inter-agency collaboration and cross-functional crisis teams for alignment with strategic goals.
- **Public Awareness and Education:** Use a strategic plan for public education on environmental risks and preparedness.
- **Technology and Innovation:** Prioritise technology research and adoption for better crisis response.
- **Cross-Border Cooperation:** Emphasize international partnerships for effective crisis response.
- **Community Engagement:** Actively involve local communities in disaster management within your planning.
- **Resilient Supply Chains:** Evaluate and strengthen supply chains for resource availability during and after crises.
- **Mental Health Support:** Include mental health and psychosocial support in crisis management.
- **Legislation Alignment:** Update laws to support crisis management within strategic planning.
- **Research and Development:** Allocate resources for crisis management technology and strategies.
- **Training and Simulation:** Integrate training and exercises aligned with your strategic goals.
- **Public-Private Partnerships:** Collaborate with the private sector for resource sharing and innovation.
- **Multilingual Communication:** Ensure multilingual access to crucial information during crises.
- **Crisis Recovery Planning:** Aid communities in rebuilding and returning to normalcy after crises.
- **Sustainability Integration:** Embed sustainability into strategic planning to address the root causes of crises and enhance resilience.

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