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A Path Towards Green University: A Case Study of Mid-West University

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Abstract

As sustainability becomes an increasingly crucial global imperative, educational institutions play a vital role in shaping environmentally responsible leaders and fostering sustainable practices. This research article presents a case study titled "A Path Towards Green University: A Case Study of Mid-West University," which explores the transformative journey of Mid-West University towards becoming an eco-friendly and sustainable institution. The study investigates the various initiatives and strategies implemented by the university to reduce its environmental impact, promote sustainable behavior among stakeholders, and achieve its sustainability goals.

The research used a qualitative approach to comprehensively understand the university's sustainability efforts. Interviews provided detailed information about the motivations, challenges, and strategies involved in the green transformation. Additionally, quantitative data from surveys and institutional records offered measurable progress indicators, such as reduction in energy consumption, waste diversion percentages, and changes in sustainability-related curriculum offerings.

Keywords: green university, sustainability, energy conservation, waste management.

Introduction

Contemporary society is currently grappling with various economic, social, and environmental challenges necessitating responses from individuals, organizations, and governments across all tiers. Within this context, sustainability and sustainable development have emerged as critical global imperatives (Filho, 2018). The escalating demand for a sustainable society has significantly impacted higher education (Marques et al., 2019), where sustainability poses a mounting challenge for academics, students, and policymakers alike (Yuan et al., 2013). This challenge is exacerbated by the substantial influence many modern universities wield over the economy, society, and environment, often resembling "small cities" in size and population (Avila et al., 2017). Moreover, universities play a pivotal role in shaping societal values by educating present and future decision-makers (Godemann et al., 2014, p. 218). Within this framework, the higher education sector must advance the profound, sustainable development of society through two primary avenues: first,

by mitigating the adverse impacts of its operations on the economy, society, and environment (Leal Filho et al., 2019a); and second, by integrating and fostering sustainable practices within curricula and research endeavors (Stough et al., 2018). Furthermore, numerous studies underscore the strategic importance of the higher education sector as a catalyst for regional economic advancement (Fuster et al., 2019). It can be asserted that universities have the potential to contribute to sustainability both internally, as organizations, and externally, as agents within their regions (Dagiliute et al., 2018). The heightened significance of sustainability on universities' agendas is further underscored by the proliferation of national and international declarations about sustainability within higher education institutions (Lozano et al., 2013). Notably, recent initiatives such as the "UN Agenda 2030" and UNESCO's "Education for Sustainable Development" have underscored the pivotal role of universities in fostering a more sustainable society (Marques et al., 2019) and in realizing the globally recognized "Sustainable Development Goals" (Leal Filho et al., 2019).

The literature extensively covers how universities have incorporated sustainability into their functioning. These aspects include the institutional framework, campus activities, teaching methodologies, research initiatives, community engagement, and mechanisms for accountability and reporting, as detailed in the subsequent section. Theoretically, scholars posit that when a university integrates sustainability across these dimensions, it can be deemed as "sustainable" or "green" (Dagiliute et al., 2018).

However, despite theoretical discussions, more empirical studies need to be conducted to delve into the practical realization of a green university in the existing literature. Current research on sustainability in universities tends to concentrate on individual aspects, such as initiatives targeting environmental conservation on campuses (Leal Filho et al., 2019), the infusion of sustainable principles into academic curricula (Bradley, 2019), and the publication of sustainability reports (Brusca et al., 2018). Only some studies have undertaken comprehensive examinations of the implementation of green concepts across all six dimensions simultaneously. Hence, there is a pressing need to bridge this gap by conducting case studies that scrutinize the incorporation of sustainability within higher education management.

A "sustainable university" is a higher education institution that adheres to environmentally friendly economic, social, and environmental practices while fulfilling its educational, research, and community engagement obligations to facilitate society's transition toward sustainable lifestyles (Velazquez et al., 2006). Consequently, a green university is a multifaceted "complex system" (Yuan et al., 2013) characterized by four interrelated dimensions: campus operations, teaching, research, and community engagement.

Initially, universities' integration of sustainability principles primarily focused on the first dimension, namely campus operations. This dimension, as delineated by Leal Filho et al. (2019), encompasses various areas such as:

- Green building: This encompasses the comprehensive approach to constructing and managing buildings with a strong emphasis on sustainability principles. It involves integrating sustainability criteria into every phase of a building's lifecycle, from initial planning and construction to ongoing maintenance, eventual renovation, and even demolition. Key considerations include optimizing energy efficiency, harnessing renewable energy sources, and utilizing environmentally friendly materials.
- Waste management: This involves efficiently handling various types of waste produced on campus. It includes collecting, transporting, and appropriately treating waste materials through recycling or safe disposal methods. Waste streams typically include but are not limited to office waste, furniture, hazardous waste from laboratories or medical facilities, and organic waste from cafeteria operations.

- Sustainable procurement pertains to the strategic sourcing of goods and services in alignment with green public procurement guidelines. The primary objective is to minimize adverse environmental impacts while fostering positive outcomes for the university and society. This may involve reducing resource consumption, selecting eco-friendly products, and supporting socially responsible suppliers.
- Sustainable mobility: This focuses on providing transportation options for faculty, staff, and students that are both economically viable and environmentally sustainable. Measures may include promoting alternative modes of transportation such as bicycling, electric vehicles, and public transit and facilitating car-sharing initiatives. Ensuring accessibility for individuals with disabilities is essential to sustainable mobility efforts.

In recent years, there has been a noticeable uptick in efforts to infuse green principles into the core activities of universities, particularly in teaching and research domains (Avila et al., 2017). Regarding teaching, multiple studies underscore the pivotal role of higher education institutions in shaping the environmental and social awareness of future generations, including leaders and policymakers. By integrating green principles into the curriculum, universities can better prepare students to incorporate sustainability practices into their future professional endeavors (Dagiliute et al., 2018; Jabbour et al., 2013). Stough et al. (2018) argue that this integration can be achieved through dedicated sustainability courses and by incorporating sustainability concepts into existing courses.

Likewise, research, regarded as a vital source of new knowledge essential for sustainable development, should not be viewed solely as an academic pursuit but as a critical response to the pressing need for a more sustainable global society (Waas et al., 2010). Universities are urged to bolster sustainability-focused research efforts across diverse fields through specialized projects, patents, scholarly publications, research centers, and associated spin-off ventures (Lozano et al., 2015).

Furthermore, universities increasingly emphasize community engagement to foster stakeholder collaboration and instill a sense of identity among students, faculty, staff, local businesses, government entities, and broader society (Sassen & Azizi, 2018). Cultivating shared values, facilitating collaboration, and elevating stakeholders' awareness regarding their role in the institution's sustainability transition are indispensable (Blanco et al., 2017).

To effectively embed green principles across the four significant dimensions of campus operations, teaching, research, and community engagement, a comprehensive approach that considers all sustainability-related activities is imperative (Geng & Zhao, 2020; Velazquez et al., 2006). Sustainable development necessitates structural and operational innovations, entailing significant changes in university governance, management, organization, and accounting practices (Avila et al., 2017). This includes reevaluating the university's business model and adopting a systemic sustainability approach, establishing a clear institutional framework comprising mission, vision, and policies as the foundational step (Leal Filho et al., 2019).

Moreover, due to universities' substantial impact on the economy, society, and environment, there is a growing demand for enhanced accountability and reporting regarding institutional management practices (Brusca et al., 2018). The need for social reporting stems from escalating competitive pressures, globalization, increasing student enrollments, and declining public funding (Lombardi et al., 2019). This has led to a trend of "corporatization" in public universities, where entrepreneurial concepts and tools are utilized to enhance institutional management effectiveness (Küpper, 2013). Sustainability reporting serves as a valuable mechanism for universities to communicate their sustainability endeavors, demonstrate responsible

utilization of public resources, enhance institutional image and reputation, and meet stakeholders' expectations (Alonso-Almeida et al., 2015; Del Sordo et al., 2016; Moggi, 2019). Hence, accountability and reporting constitute another critical dimension of sustainability.

Therefore, a research gap exists concerning integrating green initiatives across all significant dimensions within higher education institutions (Yanez et al., 2019).

Society grapples with myriad economic, social, and environmental challenges in the contemporary era, necessitating concerted efforts from individuals, organizations, and governments at all levels. Within this context, the importance of sustainability and sustainable development has surged globally (Leal Filho, 2018).

The imperative for sustainable practices in higher education institutions has gained unprecedented momentum in recent years. Mid-West University, situated in an urban hub, faces the dual academic excellence and environmental responsibility mandate. This paper delves into Mid-West University's journey towards sustainability, examining its initiatives, challenges, and lessons learned.

Initiatives and Strategies

Mid-West University's sustainability initiatives spanned various domains, including:

Infrastructure Upgrades: Investments in energy-efficient technologies, renewable energy sources, and green building practices aimed to reduce the university's carbon footprint and enhance resource efficiency.

Curriculum Integration: Sustainability principles were integrated into academic programs, fostering environmental literacy, interdisciplinary collaboration, and hands-on learning opportunities.

Community Engagement: Partnerships with local stakeholders, municipalities, and businesses facilitated knowledge exchange, collaborative projects, and outreach initiatives to promote sustainability beyond campus borders.

Environmental challenges and the call for sustainable practices have become pressing issues in the contemporary world. As significant societal influencers, academic institutions are critical in addressing these challenges and promoting sustainability. For example, In Santos et al. (2019), the higher education industry has been significantly impacted by the growing need for a more sustainable society, where sustainability is currently becoming a more significant problem for academics, students, and policymakers (Yuan et al., 2013).

The mid-West region of Nepal is known for its rich natural resources, yet it faces its share of environmental challenges. As the impacts of climate change intensify and environmental awareness grows, universities in this region are under increasing pressure to demonstrate their commitment to sustainability. Many mid-west universities have already initiated efforts to become greener campuses. Still, the path towards becoming a truly sustainable and green university is often fraught with complexities, barriers, and uncertainties.

Mid-West University (MU) is an autonomous and public institution of higher learning established on June 17, 2010, with the mission to serve the people of Nepal. Based on the concept of a multi-university system, it is a state-backed institution on land donated by the Nepalese government. The university campus and Central Executive Office are in Birendranagar, in the Surkhet district of Nepal.

Rationale

This article explores Mid-West University's journey as it strives to become a Green University. By conducting an in-depth case study, this research aims to provide a comprehensive understanding of the challenges, opportunities, strategies, and outcomes involved in this transformation. The case study will delve into various aspects of the university's green initiatives, ranging from sustainable campus infrastructure and renewable energy adoption to waste management strategies and curriculum integration of sustainability.

The research findings will provide valuable insights into the existing literature on sustainable development in higher education. By analyzing Mid-West University's challenges and the strategies used to overcome them, the thesis will offer a practical guide for other universities seeking sustainable transformations.

Additionally, the study will assess the environmental, social, and economic impacts of Mid-West University's green transition, highlighting the tangible benefits of sustainable practices for the institution and its surroundings. This information will be instrumental in convincing other universities to embark on a sustainable journey and showcase the positive outcomes that can be achieved.

Mid-West University, a leading higher education institution in Nepal, has recognized the urgent need for environmental responsibility and has embarked on a transformative journey to become a green university. The thesis is driven by the need to accelerate sustainability efforts in higher education, particularly in regions like the mid-western United States, which face unique environmental challenges. By examining Mid-West University's experiences, successes, and lessons learned, the research aims to contribute to the global movement towards greener universities and a more sustainable future.

Objectives of the Study

- To investigate the sustainable initiatives and policies implemented by Mid-West University on its path towards becoming a Green University.
- To assess the role of stakeholder engagement and collaboration, including university administrators, faculty, students, staff, and the local community, in driving sustainable change within the institution.
- To identify practical approaches and strategies for fostering a culture of sustainability and garnering collective support for green initiatives among various stakeholders.
- To analyze the challenges faced by Mid-West University during its green transition and explore the strategies employed to overcome these obstacles.
- To evaluate the environmental, social, and economic impacts of Mid-West University's sustainability efforts and the benefits of adopting green practices for the institution and its surrounding community.
- To contribute valuable insights and recommendations to the existing literature on sustainable development in higher education, providing a practical guide for other universities aspiring to pursue a similar path towards sustainability.
- To showcase the positive outcomes of Mid-West University's sustainable transformation and use this information to encourage other universities to embark on their sustainable journey.
- To understand the experiences, successes, and lessons learned from Mid-West University's green initiatives and apply this knowledge to accelerate sustainability efforts in higher education institutions, particularly in regions facing distinct environmental challenges like the mid-western regions.

Research Methodology

The study has chosen qualitative research methodology because it is well-suited for exploring complex phenomena, such as organizational change and adopting sustainability in higher education institutions. It enables an in-depth understanding of the perspectives, experiences, and behaviors of key stakeholders involved in the process. The study uses qualitative methods to reveal the nuances and intricacies of Mid-West University's journey towards sustainability, capturing rich, contextualized data that quantitative approaches may overlook.

The research approach for this study will be a qualitative case study. A case study design allows for an in-depth exploration of a specific phenomenon (in this case, Mid-West University's sustainability journey). Qualitative methods will enable the researcher to gather rich and detailed data, capturing the complexity of the university's sustainability initiatives and experiences.

Overview of Mid-West University

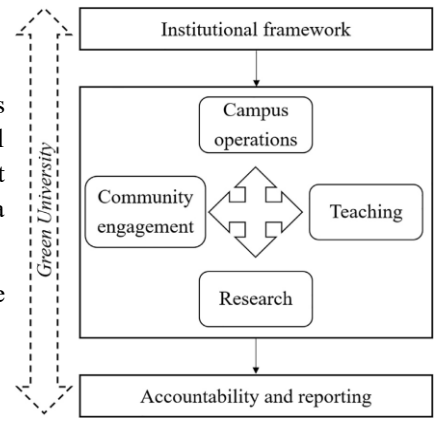
Mid-West University, located in Nepal, is one of the prominent higher education institutions in the Midwestern region of the country. It was established to provide students from the Midwestern provinces of Nepal with access to quality education and academic opportunities. The university will likely offer undergraduate and postgraduate programs across various disciplines, including humanities, social sciences, natural sciences, and professional fields.

Being situated in the Mid-Western region of Nepal, the university may play a significant role in addressing regional challenges and contributing to the development of the local communities. It could have community engagement programs, social outreach initiatives, and projects to promote sustainable development and address the region's needs.

As Nepal's higher education landscape continues to evolve, Mid-West University has actively promoted sustainability practices, environmental stewardship, and social responsibility. It has become a green university by implementing eco-friendly practices on its campus, integrating sustainability principles into its curriculum, and engaging the university community in environmental initiatives.

For the most up-to-date and accurate information about Mid-West University in Nepal, it is recommended that you visit the university's official website or refer to recent publications and reports about the institution.

Fig. 1. The dimensions of sustainability at green universities.



Challenges and Lessons Learned

Mid-West University encountered several challenges on its sustainability journey, including financial constraints, institutional inertia, and resistance to change. However, these obstacles were met with proactive leadership, stakeholder engagement, and a commitment to continuous improvement.

Key lessons learned from Mid-West University's experience include the importance of:

- Leadership Commitment: A top-down approach and bottom-up engagement proved essential in driving organizational change and fostering a culture of sustainability.
- Stakeholder Collaboration: Building partnerships and fostering inclusive dialogue empowered diverse stakeholders to contribute towards shared sustainability goals.
- Institutionalization of Sustainability: Embedding sustainability principles into policies, procedures, and organizational culture ensured long-term commitment and accountability.

The initial step towards Sustainability

The first step towards sustainability for Mid-West University involves conducting a comprehensive sustainability assessment to understand the institution's current environmental, social, and economic impact. This assessment will serve as a baseline and identify areas where sustainability practices can be improved. Based on the findings, the university will establish clear and measurable sustainability goals that align with its mission and values. A dedicated sustainability committee or task force will oversee initiatives and coordinate efforts. A formal sustainability plan will outline specific actions, timelines, and responsible parties to achieve the goals. Engaging the campus community through awareness campaigns and workshops will foster a culture of sustainability. Practical measures, such as energy-efficient upgrades, waste reduction, water conservation, and sustainable procurement, will be integrated into daily operations. The university will lead by example with sustainable showcases on campus. Collaboration with external partners will enhance the impact of sustainability efforts. Mid-West University will pave the way for a comprehensive and impactful sustainability journey, benefiting the campus community and contributing positively to the broader society and environment by taking these initial steps.

Waste management and recycling program

- Management and recycling programs are essential for sustainability efforts at higher education institutions like Mid-West University. Implementing effective waste management and recycling practices helps to reduce the university's environmental impact, promote resource conservation, and foster a culture of sustainability among students, faculty, and staff. Here are some key aspects of waste management and recycling programs that Mid-West University might adopt:
- Segregation of Waste: Mid-West University may have established a waste segregation system on its campus, encouraging the separation of different types of waste, such as recyclables (paper, plastics, glass, and metals) and non-recyclables (organic waste, non-recyclable plastics, etc.).
- Recycling Stations: Recycling stations with clearly labeled bins for different waste categories might be strategically placed across the campus, making it convenient for individuals to dispose of their waste correctly.
- Awareness and Education: The University likely conducts awareness campaigns and educational programs to inform students, faculty, and staff about the importance of waste management, recycling, and the specific waste segregation guidelines.
- Composting: Mid-West University may have initiated composting programs to divert organic waste from landfills. Composting organic waste produces nutrient-rich compost that can be used for landscaping and gardening on campus.
- E-Waste Management: Proper e-waste management is crucial to handle electronic waste responsibly. The university might have a dedicated system for collecting and recycling electronic waste, such as old computers, printers, and gadgets.

- Collaboration with Recycling Companies: Mid-West University may collaborate with recycling companies or waste management organizations to ensure the collected recyclables are effectively processed and sent for recycling.
- Waste Audits: Periodic waste audits might be conducted to assess the university's waste generation, diversion rates, and areas for improvement. Waste audits help identify patterns and opportunities for enhancing waste reduction and recycling efforts.

Water Conservation Measure

Water conservation measures are essential for promoting sustainable water management at higher education institutions like Mid-West University. By implementing effective water conservation practices, the university can reduce water consumption, preserve this valuable natural resource, and contribute to environmental sustainability. Some standard water conservation measures that Mid-West University might adopt include:

- Low-Flow Fixtures: Installing low-flow faucets, showerheads, and toilets in campus buildings to reduce water usage while maintaining adequate functionality.
- Water Audits: Conduct regular water audits to assess water consumption patterns, identify leaks, and pinpoint areas for improvement in water efficiency.
- Rainwater Harvesting: Implementing rainwater harvesting systems to capture and store rainwater for non-potable uses, such as irrigation, flushing toilets, and landscape maintenance.
- Xeriscaping: Landscaping campus areas with drought-resistant plants and employing xeriscaping techniques to minimize water requirements for irrigation.
- Irrigation Management: Using innovative irrigation systems that adjust watering schedules based on weather conditions, soil moisture, and plant needs to avoid overwatering.
- Leak Detection and Repairs: Regularly inspecting and promptly repairing any leaks in water supply lines, plumbing, and fixtures to prevent water wastage.
- Water-Efficient Appliances: To reduce water consumption, campus facilities should choose water-efficient appliances and equipment, such as dishwashers and washing machines.
- Water Conservation Education: Conducting educational campaigns and workshops to raise awareness among students, faculty, and staff about the importance of water conservation and ways to reduce water waste.
- Sustainable Land Use Planning: Implementing sustainable land use planning to minimize water-intensive areas and prioritize water-efficient activities and developments on campus.
- By integrating these water conservation measures into its daily operations and campus facilities, Mid-West University can significantly contribute to water sustainability and set an example for its students and the broader community. For specific details on the water conservation measures adopted by Mid-West University in Nepal, it is recommended to refer to the university's official sustainability reports or related publications.

Conclusion

Mid-West University has become a trailblazer in the quest for a greener, more sustainable future by adopting a holistic approach that includes infrastructure upgrades, curriculum integration, and community engagement. This exemplifies the transformative potential of higher education institutions in addressing pressing environmental challenges.

Mid-West University aims to inspire individuals and institutions globally to embrace environmental stewardship by sharing insights, lessons learned, and best practices. In navigating the complexities of the 21st century, the university's vision and leadership serve as a beacon of hope and a model for sustainable development.

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