

Circular Economy and Its Impact on Economic, Environment and Societal Aspects: A Survey Among Fashion Industry Business in Lalitpur, Nepal

Richan Shrestha¹,  Rushma Shakya², Akita Shrestha³ 

¹Department of Development Studies, School of Education, Kathmandu University, Lalitpur, Nepal

²Naaya Aayam Multi-Disciplinary Institute (NAMI), Baneshwor, Kathmandu, Nepal

³ACE International Business School, Sinamangal, Kathmandu, Nepal

ARTICLE INFO

Corresponding Author

Richan Shrestha

Email

richan.shrestha@kusoed.edu.np

Article History

Received: 10 November 2024

Revised: 15 December 2024

Accepted: 12 January 2025

Zenodo DOI

<https://doi.org/10.5281/zenodo.14992769>

Cite

Shrestha, R., Shakya, R., & Shrestha, A. (2025). Circular economy and its impact on economic, environment, and societal aspects: A survey among fashion industry business in Lalitpur, Nepal. *Apex Journal of Business and Management (AJBM)*, 4(1), 27–40. <https://doi.org/10.61274/apxc.2025.v04i01.003>

ABSTRACT

Despite the global shift towards sustainability, the adoption of Circular Economy (CE) principles within the Nepalese fashion industry remains understudied. This research aims to fill this gap by exploring the potential benefits and influence of implementing CE practices in this sector on society, environment, and the economy. The primary objective of this study is to investigate the knowledge, attitudes, and practices related to CE among individuals in the fashion industry in Lalitpur, Nepal, and to assess the impact of CE practices on various dimensions. This study employs a quantitative research design utilizing a survey approach grounded in CE principles. Data were collected through a self-administered questionnaire distributed to individuals associated with the fashion industry in Lalitpur, resulting in a sample size of 220 respondents. The findings indicate a moderate level of knowledge, attitude, and practice regarding CE principles among individuals in the fashion industry. Furthermore, there is a positive and significant impact of CE practices on societal, environmental, and economic aspects. This research represents the first instance of such a study in Nepal's fashion sector. The findings are valuable for environmental policymakers, fashion entrepreneurs, educational institutions, and future researchers seeking to enhance sustainability within the industry.

Keywords: circular economy, sustainable development, economic impact, environmental impact, social impact

Introduction

The global fashion industry, a significant contributor to the world economy, is characterized by rapid trends and high consumption rates. Valued at over \$2.4 trillion, it plays a crucial role in economic development and employs more than 300 million individuals (Abdelmeguid et al., 2022). However, the environmental and social impacts of the fashion sector have come under increasing scrutiny. The

industry is responsible for approximately 10% of global carbon emissions annually (MacArthur, 2017). Additionally, it consumes vast amounts of water, with the textile sector alone accounting for 20% of global wastewater.

In response to these environmental challenges, there has been a global shift towards sustainable fashion. Leading international brands such as Stella McCartney, H &M, and Zara have begun to adopt

sustainable practices, including the use of recycled materials, reduction of water consumption, and implementation of take-back programs for recycling old clothing (Athwal et al., 2019). These initiatives are part of a broader movement towards a Circular Economy (CE), which emphasizes waste reduction, resource reuse, and the regeneration of natural systems, contrasting sharply with the traditional linear model (Barros et al., 2020). At its core, the CE principle aims to retain the value of resources for as long as possible to minimize waste and reduce reliance on virgin materials.

Nepal, with its rich cultural heritage and growing presence in the international fashion industry, faces similar challenges as those experienced by larger fashion markets globally. Although smaller in scale, the Nepalese fashion industry grapples with the same environmental and social impacts prevalent in the global sector (Tamang, 2020). The traditional linear economic model—characterized by a “take, make, dispose” approach—dominates in Nepal, exacerbating these issues. This model leads to extensive extraction of raw materials, resource depletion, and environmental degradation (Conrad, 2022). The industry's reliance on imported raw materials and outdated production techniques results in significant environmental costs. For instance, dyeing and finishing processes used in textile production consume vast amounts of water and release harmful chemicals into local water bodies, adversely affecting both the environment and human health (Uprety, 2020).

Problem Statement

Despite the global fashion industry's ongoing efforts to embrace sustainability through Circular Economy (CE) principles, significant challenges persist, particularly in emerging markets such as Nepal. The adoption of CE practices within the Nepalese fashion industry remains largely understudied, creating a critical gap in understanding how these principles can be effectively implemented. While comparative studies have explored perceptions and awareness

of CE practices (Upadhayay & Alqassimi, 2019), there is a notable lack of literature addressing the Knowledge, Attitudes, and Practices (KAP) related to CE in the context of the fashion industry. This gap hinders the potential for sustainable development within this sector and limits the understanding of CE'.

This research represents a pioneering effort to investigate these aspects within Nepal's fashion sector, contributing to knowledge creation in the field of sustainable development from a CE perspective. By addressing these objectives, this study seeks to provide valuable insights for policymakers, industry practitioners, and future researchers interested in promoting sustainability within the fashion industry in Nepal.

Research Objective

The primary objective of this research is to assess the level of knowledge, attitudes, and practices regarding the adoption of Circular Economy principles among stakeholders in the Nepalese fashion industry. Additionally, this study aims to evaluate the potential benefits associated with implementing CE practices in terms of societal, environmental, and economic impacts.

Literature Review

Circular Economy in the Fashion Industry: Environmental, Social, and Economic Implications

This section explores the concept of Circular Economy (CE) within the fashion industry, emphasizing its environmental, social, and economic benefits. CE is an approach that prioritizes resource efficiency across the entire lifecycle of a product, from sourcing raw materials to final consumption and disposal (Upadhayay & Alqassimi, 2019). The impact of CE extends across various dimensions: economically, it fosters innovation and creates new business opportunities; environmentally, it mitigates pollution and conserves resources; and socially, it enhances community well-being by promoting equitable practices (Mishra & Aithal, 2023; Mishra, 2024). In the context of the fashion

industry, embracing CE can significantly reduce its substantial carbon footprint and water consumption while simultaneously addressing social equity issues inherent in production processes (Mishra, 2019; Mishra, 2023). This holistic approach not only benefits the environment but also contributes to economic resilience and societal advancement, making it a critical area for further exploration and implementation. This model extends beyond traditional waste management strategies like reusing, upcycling, and recycling, aiming to create a regenerative system that minimizes environmental impact and maximizes resource utility.

Reusing, Upcycling, and Recycling within Circular Economy

In the fashion industry, CE is closely associated with the principles of reusing, upcycling, and recycling. Reuse involves extending the life of a product without significant alterations. For example, vintage clothing, such as leather bags, is reused in its original form, which helps to reduce waste (Laitala & Klepp, 2017). Upcycling goes a step further by transforming waste materials or products into new items of equal or greater value, thereby “closing the loop” on waste (Marques et al., 2019). An example is the repurposing of old textiles, such as those from airplane seats, into fashion products like coats. Recycling, in contrast, entails breaking down materials from used products and converting them into new products through chemical or mechanical processes. Adidas, for instance, has pioneered the development of sneakers made from ocean plastic waste, demonstrating the potential of recycling to create high-value products (Todeschini et al., 2017).

Transitioning from a linear economy to a CE system presents substantial benefits. The Ellen MacArthur Foundation (2024) highlights that CE could reduce global carbon emissions by 50% by 2030. Furthermore, businesses that adopt CE strategies can reduce costs through the use of recycled materials, build stronger customer relationships, and open new profit opportunities. A 2015 study by McKinsey and the Ellen MacArthur Foundation revealed that CE strategies could enhance resource productivity in Europe by 3%

by 2030, yielding economic benefits of up to 1.8 trillion euros (McKinsey, 2017). Despite significant progress in Europe, fully realizing these benefits requires continued commitment to CE practices.

The growing volume of research on CE in the fashion industry reflects the increasing recognition of its potential. In the past decade, scholarly attention to CE has doubled annually, coinciding with the rise of sustainable fashion brands like Levi’s and H&M Group (Homrich et al., 2018; Rana, 2024). Organizations like the Ellen MacArthur Foundation continue to advocate for the widespread adoption of CE, reinforcing its importance as a tool for sustainable fashion (Balke et al., 2017).

Environmental, Social, and Economic Benefits of CE in Fashion

Environmental Benefits

CE practices offer substantial environmental benefits, particularly in reducing the environmental footprint of the fashion industry. The fashion sector is responsible for approximately 10% of global carbon emissions, but the adoption of CE could cut these emissions by as much as 50% by 2030 (United Nations Environment Programme, 2020). Strategies such as extending garment lifespans, recycling materials, and utilizing renewable energy sources for production can collectively reduce the industry's carbon footprint.

Additionally, CE can help mitigate marine pollution. It is estimated that synthetic textiles account for about 35% of the primary microplastics found in the ocean (European Environment Agency, 2022). By recycling fibers and designing products with better waste management practices, the fashion industry can reduce its contribution to plastic pollution. CE also promotes a reduction in energy consumption and reliance on non-renewable resources. Through improved recycling practices, the demand for scarce materials could decrease by 20%, and energy consumption could be reduced by 15% within the next decade (Dissanayake & Weerasinghe, 2021).

Water consumption in the fashion industry is another area where CE can have a significant impact. The sector uses approximately 79 billion cubic meters of water annually (World Resources Institute, 2020). By adopting sustainable practices like organic cotton farming, CE can reduce water usage by up to 91% compared to conventional cotton farming methods, thus promoting environmental sustainability and conserving vital water resources (Textile Exchange, 2021).

Social Benefits

CE in fashion also offers considerable social benefits, particularly in terms of consumer engagement, labor conditions, and public health. The adoption of circular business models—such as clothing rentals, second-hand markets, and product customization—enhances consumer utility by offering high-quality, durable goods at lower costs. This approach could result in annual savings of up to 400 billion euros globally by 2030, as consumers benefit from increased product longevity and reduced waste (Niinimäki et al., 2020).

CE also fosters the creation of new employment opportunities within the fashion industry. Jobs related to recycling, re-manufacturing, and sustainable production are projected to increase, providing better wages and improved working conditions compared to traditional linear economy roles. The European Union, for example, estimates that a transition to a CE could generate up to 700,000 new jobs by 2030 (European Commission, 2018). Furthermore, the reduction in exposure to harmful chemicals and non-toxic materials can lead to improved health outcomes for both workers and consumers. The use of green materials could decrease respiratory and skin conditions among garment workers by up to 30% (Rigamonti & Rigamonti, 2021).

Economic Benefits

Adopting CE principles in the fashion industry can lead to significant economic benefits. By reducing reliance on virgin raw materials and increasing the use of recycled materials, companies can lower production costs. The MacArthur (2017) forecasts that using recycled materials could reduce demand for virgin raw materials by 50%

by 2023, resulting in substantial cost savings for companies. Moreover, the innovation-driven nature of CE encourages the development of new technologies and business models, creating competitive advantages for companies that lead in sustainability efforts. Patagonia's Worn Wear program, which encourages customers to purchase used clothing and repair their garments, exemplifies how CE practices can foster brand loyalty and expand market share (Patagonia, 2020).

The potential for economic growth within a CE framework extends beyond cost savings and innovation. The regenerative aspects of CE also create opportunities for job creation and the development of new businesses focused on circular principles. In Nepal, for instance, the fashion industry's adoption of CE could lead to a 20% reduction in material costs through the use of recycled textiles, while simultaneously contributing to the country's sustainable development goals (Radhakrishnan, 2021).

Conceptual Framework

This study employs the principles of circular economy as a theoretical framework to explore the relationship between CE practices and the fashion industry's environmental, social, and economic impacts. The CE model promotes a closed-loop system where products are designed for longevity, reuse, and recycling. This framework emphasizes the need for sustainable production practices, the regeneration of natural systems, and the preservation of resource value through various forms of recycling and re-purposing (Kirchherr & Piscicelli, 2019). The effectiveness of CE initiatives is influenced by the knowledge, attitudes, and practices surrounding CE principles (Liao et al., 2022). The conceptual framework guiding this study is illustrated in Figure 1.

Hypotheses

- H1** The implementation of circular economy practices has significant economic benefits for the fashion industry.
- H2** The adoption of circular economy principles contributes to environmental sustainability in the fashion industry.

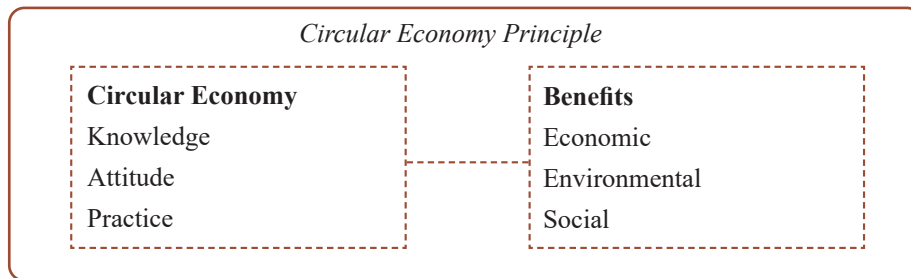
H3 The integration of circular economy practices benefits society by creating jobs, improving health, and enhancing consumer well-being.

The transition to a circular economy in the fashion industry presents a multifaceted opportunity to enhance sustainability across environmental, social, and economic dimensions. By rethinking production processes and embracing innovative

recycling, upcycling, and reuse strategies, the fashion industry can reduce its environmental impact, improve labor conditions, and foster economic growth. The integration of CE principles is essential for driving the sector towards long-term sustainability, creating value for consumers, businesses, and the global community.

Figure 1

Conceptual Framework



Methodology

This research adopts a quantitative methodology to examine the environmental, economic, and social impacts of Circular Economy (CE) practices within the Nepalese fashion industry. The study utilizes surveys and questionnaires to collect data, providing insights into the relationships between various variables and enabling generalizable findings from a larger sample population. The quantitative data collection methods are designed to ensure high levels of reliability and validity, consistent with the guidelines set by Fryer et al. (2018).

Research Design

The study uses a Knowledge, Attitude, and Practice (KAP) survey to assess the understanding, beliefs, and actions associated with CE practices in the Nepalese fashion industry. Additionally, the survey evaluates the perceived impacts of CE on the economy, environment, and society within the fashion sector. The data is analyzed using the Statistical Package for the Social Sciences (SPSS 25) to provide a comprehensive overview of current CE practices and identify areas for improvement.

Study Area, Population, and Sampling

The target population for this study consists of individuals engaged in the fashion industry in Lalitpur City, Nepal. The sample includes employees and employers of fashion brands, fashion designers, manufacturers, retailers, and wholesalers. A total of 220 respondents from various segments of the fashion industry in the study area were selected through convenience sampling. This sample size is deemed sufficient to provide reliable and valid results, reflecting a diverse range of stakeholders within the sector.

Data Collection Tools

The primary data collection tool for this study is a self-administered questionnaire, which was adapted from established sources (Simane et al., 2024; Ahmad et al., 2020; Geissdoerfer et al., 2017; Kirchherr et al., 2017; Ghisellini et al., 2016; Bocken et al., 2016). The questionnaire consists of 24 items, divided into multiple sections designed to measure:

Knowledge, Attitude, and Practice (KAP) of CE

Knowledge. Five items to assess respondents' understanding of CE principles (e.g., "I have good knowledge of recycling").

Attitude. Five items to evaluate respondents' attitudes toward CE practices (e.g., “I prefer to design products to be easily recycled or recovered”).

Practice. Five items to explore actual practices related to CE (e.g., “Our practices include participating in environmental campaigns”).

Impact of CE on the Economy, Environment, and Society

Economic Impact. Three items to assess the perceived economic benefits of CE (e.g., “CE can lead to cost savings for fashion businesses in the long run”).

Environmental Impact. Three items to gauge the environmental outcomes of CE practices (e.g., “Implementing CE will help reduce the carbon footprint of the fashion industry”).

Social Impact. Three items to measure the social impact of CE (e.g., “CE practices can improve working conditions in the fashion industry”).

Each item uses a Likert scale with responses ranging from Strongly Disagree to Strongly Agree to ensure consistency and minimize vague responses. The questions were structured logically and grouped into sections to enhance clarity and ensure ease of completion.

Table 1

Reliability Analysis

Reliability Statistics	Cronbach's Alpha	N of Items
Overall	0.901	24
Knowledge	0.885	5
Attitude	0.897	5
Practice	0.936	5
Impact on Economy	0.889	3
Impact on Environment	0.842	3
Impact on Society	0.849	3

Regarding validity, three forms were considered to ensure that the survey measures what it is intended to:

Content Validity

The survey items were derived from existing literature and expert reviews to ensure

Data Analysis

To achieve the study's objectives, descriptive statistics will be used to analyze the levels of knowledge, attitude, and practice regarding CE. The statistical analysis will also include simple regression to assess the impact of CE implementation on the economy, environment, and society in the Nepalese fashion industry. This method will help test the hypotheses and examine the relationships between CE practices and their effects on these three domains (Afyouni et al., 2019).

Reliability and Validity

To ensure the reliability of the questionnaire, a Cronbach’s Alpha test was conducted. The pilot testing, performed with 30 individuals involved in the fashion industry, yielded an overall Cronbach's Alpha value of 0.901, which confirms that the questionnaire is highly reliable. All individual variables within the questionnaire also exhibited Cronbach’s Alpha values greater than 0.7, which indicates that the measurements for each variable are consistent. The reliability statistics for each domain are shown below in Table 1:

they comprehensively cover key aspects of CE implementation and its impacts.

Criterion Validity

The results from this survey were compared with findings from previous studies on CE to ensure the survey outcomes align with established research.

Construct Validity

The survey was designed to measure theoretical concepts related to CE implementation, ensuring that the items align with the study's framework (Sürücü & Maslakci, 2020).

Ethical Considerations

Ethical considerations were integral to the design of the study. Participation was voluntary, and respondents were informed that they could withdraw at any time without any consequences. The survey was hosted on Google Forms, where responses were only recorded upon the participant's submission, ensuring their privacy. No personal data, such as names or emails, was collected, and participants were assured that their responses would remain confidential and anonymous. Moreover, the

Table 2

Knowledge on CE

Descriptive Statistics	N	Mean	Std. Deviation
Knowledge (K) I have good Knowledge about [The green fashion concept]	220	3.50	1.225
Knowledge (K) I have good Knowledge about [Recycling]	220	4.08	0.930
Knowledge (K) I have good Knowledge about [Safe disposal of wastes]	220	3.98	0.967
Knowledge (K) I have good Knowledge about [Green machines and equipment for assembly lines that are environmentally-friendly]	220	3.54	1.268
Knowledge (K) I have good Knowledge about [Innovative ways for extending a product's life, e.g., maintenance/repair/re-manufacturing]	220	3.87	1.050
Overall Mean K		3.7945	

Table 2 represents the result of descriptive analysis of level of Knowledge. It shows the average score for all the statements of Knowledge regarding CE implementation in the fashion industry. The highest mean value is 4.08 for the statement "I have good knowledge about Recycling". This value is closer to 4 (Agree) and therefore indicates that the respondents have 'agreed' opinion on knowledge of recycling. The

respondents were informed that the data would be used solely for academic purposes.

Results and Findings

In this section, first of all level of knowledge, attitude, and practice of CE is shown using mean value and standard deviation. Then, the result of simple regression analysis is presented to show the impact of CE practice on environment, economic aspect, and society.

Level of Knowledge, Attitude, and Practice of CE

This segment presents the details of the Knowledge, Attitude, and Practice (KAP) level of the participants on the implementation of CE in the Nepalese Fashion industry.

lowest mean value is 3.5 for the statement, "I have good knowledge about the green fashion concept", which means that respondents have a mix opinion of 'somehow agreed' and 'agreed' option. The overall mean value of level of knowledge is 3.7945 which indicate that the respondents Agree that they have knowledge regarding CE practices in Fashion industry.

Table 3*Attitude on CE*

Descriptive Statistics		N	Mean	Std. Deviation
Attitude (A)	I Prefer to [Design products to be easily recycled or recovered]	220	4.06	1.043
Attitude (A)	I Prefer to [Have special chimneys and solar energy to minimize environmental pollution]	220	3.73	1.108
Attitude (A)	I Prefer to [Use innovative ways to get rid of materials resulting from the manufacturing process]	220	4.08	0.987
Attitude (A)	I Prefer to [Recycle vintage clothes and remaining fabrics]	220	4.18	0.950
Attitude (A)	I Prefer to [Use of green methods in designs, transportation, manufacturing, distribution, and waste management third-party logistics]	220	3.93	1.098
Overall Mean A			3.9964	

Table 3 represents the result of descriptive analysis of level of Attitude. It shows the average score for all the statements of level of Attitude in CE implementation in the fashion industry. The highest mean value is 4.18 for the statement “I Prefer to recycle vintage clothes and remaining fabrics”. This value is closer to 4 (Agree) and therefore indicates that the respondents have ‘agreed’ opinion on recycling of vintage clothes and fabric. The lowest mean value is 3.73 for the

statement, “I Prefer to Have special chimneys and solar energy to minimize environmental pollution”, which therefore depicts that the respondents ‘somewhat agree and disagree’ that they prefer to have special equipment contributing to control environmental pollution. The overall mean value of level of attitude is 3.9964 which indicates that the respondents Agree that they have good attitude towards CE practices in Fashion industry.

Table 4*Practice on CE*

Descriptive Statistics		N	Mean	Std. Deviation
Practice (P)	Our Practices include [Training employees on circular economy]	220	4.27	0.834
Practice (P)	Our Practices include [Participating in environmental campaigns]	220	3.96	0.898
Practice (P)	Our Practices include [Establishing an active recycling program for materials in all sections of the venture]	220	3.94	0.891
Practice (P)	Our Practices include [Eco-labeling]	220	4.18	0.848
Practice (P)	Our Practices include [Utilize environmentally responsible cleaners throughout the property]	220	4.03	0.883
Overall Mean P			4.0764	

Table 4 represents the result of descriptive analysis of level of Practice. It shows the average score for all the statements of level of Practice in

CE implementation in the fashion industry. The highest mean value is 4.27 for the statement “Our Practices include Training employees on circular

economy. This value is in between 4 and 5 and therefore, means that respondents have a mix opinion of 'Agree' and 'Strongly agree' on training employees. The lowest mean value is 3.94 for the statement, "Our Practices include Establishing an active recycling program for materials in all sections of the venture" which means that mean value closer to (Agree), therefore depicts that the respondents 'somewhat agree' the importance of practicing recycling. The overall mean value of level of practice is 4.0764, closer to 4 and indicates that the respondents Agree that they follow practices regarding CE in Fashion industry.

Impact of CE Practice on Economy, Environment and Society

This segment presents the results of the impact of CE practice on economy, environment, and society in the study area. Three separate models are developed for the impact of CE practice on economy, environment, and society using simple linear regression. All the assumptions (normality of dependent variables, linearity, and homoscedasticity) of simple regression analysis are fulfilled. The first model is

$$\text{Impact}_{\text{Economy}} = a + b \text{ Practice}_{\text{CE}}$$

The result of ANOVA, $F(1, 219)=16.875$, $p<0.01$ shows model is fit for conducting the regression analysis. The $R^2=0.072$ shows Practice of CE represent 7.2% variance on economical impact. The unstandardized regression coefficient for Practice on CE was 0.326 (SE = 0.079), $t(209) = 4.108$, $p < 0.001$. The standardized regression coefficient was 0.268, suggesting a significant positive impact of Practice of CE on economy. Thus, hypothesis 1 is accepted. Likewise, second model is

$$\text{Impact}_{\text{Environment}} = a + b \text{ Practice}_{\text{CE}}$$

The result of ANOVA, $F(1, 219) = 11.536$, $p<0.01$ shows model is fit for conducting the regression analysis. The $R^2=0.05$ shows Practice of CE represent 5% variance on environmental impact. The unstandardized regression coefficient for Practice on CE was 0.251 (SE = 0.074), $t(209) = 3.397$, $p < 0.001$. The standardized regression coefficient was 0.224, suggesting a significant

positive impact of Practice of CE on environment. Therefore, hypothesis 2 is accepted. Finally, the third model is

$$\text{Impact}_{\text{Society}} = a + b \text{ Practice}_{\text{CE}}$$

The result of ANOVA, $F(1, 219)=14.786$, $p<0.01$ shows model is fit for conducting the regression analysis. The $R^2 = 0.064$ shows Practice of CE represent 6.4% variance on societal impact. The unstandardized regression coefficient for Practice on CE was 0.251 (SE = 0.065), $t(209)=3.845$, $p < 0.001$. The standardized regression coefficient was 0.252, suggesting a significant positive impact of Practice of CE on society. Therefore, hypothesis 3 is accepted.

Discussion

This section presents the findings of the study on the adoption of Circular Economy (CE) practices in the Nepalese fashion industry, along with a discussion of the implications of these results. The analysis focuses on the levels of Knowledge, Attitude, and Practice (KAP) regarding CE, as well as the impact of CE practices on the economy, environment, and society.

Level of Knowledge, Attitude, and Practice of CE

Knowledge on CE

The study revealed that the respondents generally have a moderate level of knowledge regarding CE principles, with an overall mean score of 3.79. Among the different areas of CE knowledge, participants were most knowledgeable about recycling (mean = 4.08), indicating a strong understanding of recycling practices in the fashion industry. This finding is consistent with previous studies that highlight recycling as one of the most recognized aspects of CE (Niinimäki et al., 2020). However, the lowest mean value was for the green fashion concept (mean = 3.50), which suggests that respondents have only a moderate understanding of more advanced CE concepts such as sustainable design and eco-friendly production processes. This aligns with the findings of Owojori et al. (2022), who also noted limited knowledge about CE in certain contexts, pointing to the need for further education on the broader aspects of CE in fashion.

Attitude on CE

The overall mean score for the attitude towards CE was 3.9964, indicating a generally positive disposition toward CE practices. Respondents showed the strongest support for recycling vintage clothes and fabrics (mean = 4.18) and designing products to be easily recyclable (mean = 4.06). This suggests that the participants are inclined to adopt sustainable practices that extend the lifecycle of fashion products, aligning with the findings of [Simane et al. \(2024\)](#), who reported strong attitudes toward sustainable practices in the textile industry. However, the preference for using special chimneys and solar energy to reduce environmental pollution (mean = 3.73) received a more mixed response, reflecting a somewhat lower level of support for more technical or infrastructure-related changes, which may require higher investment or policy support.

Practice on CE

The level of practice regarding CE in the fashion industry was also positive, with an overall mean score of 4.0764. The highest mean score was found for training employees on CE (mean = 4.27), suggesting that industry players recognize the importance of equipping their workforce with knowledge about circular practices. This is in line with studies such as [Ahmad et al. \(2020\)](#), which emphasize the role of training and awareness in driving CE adoption. While there was also strong agreement regarding the practice of eco-labeling (mean = 4.18) and the use of environmentally responsible cleaners (mean = 4.03), the lowest mean score was for establishing an active recycling program (mean = 3.94), which indicates that while recycling is practiced, it may not be as thoroughly implemented across all areas of operation.

Impact of CE Practice on Economy, Environment, and Society

The study further examined the impact of CE practices on the economy, environment, and society through regression analysis. The results showed that CE practices have a significant positive impact on all three dimensions of sustainability.

Economic Impact

Regression analysis revealed that CE practices contribute significantly to the economic performance of the fashion industry, explaining 7.2% of the variance in economic impact ($R^2 = 0.072$). The unstandardized regression coefficient for practice on CE was 0.326, indicating that as CE practices increase, so does the positive economic impact. This is consistent with the findings of [Hysa et al. \(2020\)](#), who also found a strong relationship between CE adoption and economic growth in the European Union fashion sector. The findings support the view that CE practices, such as resource recovery and eco-design, can contribute to cost savings and improved profitability in the fashion industry, particularly in markets like Nepal, where cost-effective and sustainable solutions are vital.

Environmental Impact

CE practices were also found to have a positive impact on the environment, accounting for 5% of the variance in environmental outcomes ($R^2 = 0.05$). The regression coefficient of 0.251 for CE practice on the environment suggests that implementing circular practices significantly contributes to reducing the environmental footprint of the fashion industry. This result aligns with [Colucci & Vecchi \(2020\)](#) and [Haupt & Hellweg \(2019\)](#), who highlighted the critical role of CE in reducing the environmental impact of fashion through practices like recycling and waste reduction. The study underscores the need for continued efforts in waste management, energy efficiency, and the use of sustainable materials to further reduce the environmental burden of fashion production.

Societal Impact

The societal impact of CE practices was also significant, with 6.4% of the variance in social outcomes explained by CE practices ($R^2 = 0.064$). The regression coefficient of 0.251 indicates a positive effect of CE on social aspects, suggesting that CE adoption can improve working conditions, labor rights, and community engagement within the fashion industry. This finding is consistent

with the work of Moreau et al. (2017) and Walker et al. (2021), who emphasized the need for CE to address not only material flows but also social and institutional dimensions. The positive societal impact highlights the potential of CE to contribute to fair labor practices and social equity in the fashion industry.

Conclusion

The results of this study demonstrate that the adoption of Circular Economy (CE) practices within the Nepalese fashion industry has significant and positive impacts across the economy, environment, and society. The findings reveal that respondents exhibit a generally moderate to positive level of knowledge, attitude, and practice regarding CE, suggesting that there is a solid foundation for the further adoption and implementation of circular practices in the sector. This represents an encouraging starting point for sustainable transformation within the industry, which holds great potential to contribute to the country's environmental and economic goals.

The study highlights the critical role of promoting education and training to further enhance understanding of advanced CE principles such as green fashion and eco-design. These concepts remain essential for the continued development of a truly circular fashion industry that can effectively reduce waste, conserve resources, and minimize environmental impact. Furthermore, stakeholders within the fashion industry in Nepal must prioritize key CE practices like recycling, resource recovery, and eco-friendly production processes to unlock the full economic and environmental benefits. As the industry continues to develop, leveraging these practices can help ensure long-term economic stability while making significant strides towards environmental sustainability.

While the study reveals generally positive trends, it also identifies areas that require further efforts, particularly in implementing comprehensive recycling programs and adopting sustainable technologies across production processes. Addressing these areas is essential to achieving the broader objectives of CE, which include the reduction of material waste, the enhancement

of resource efficiency, and the minimization of harmful emissions in the fashion sector. Nepalese fashion businesses must align with international best practices and incorporate innovative solutions into their business models. This alignment will not only improve their competitive edge but also contribute to global sustainability goals, positioning Nepal as a key player in the ongoing movement toward environmental protection.

The adoption of CE practices in the Nepalese fashion industry presents a promising path to achieving sustainability, boosting economic performance, and enhancing social outcomes. However, the industry must continue to invest in both knowledge-building and infrastructure to ensure that CE principles are fully realized and integrated into all operational aspects. A collaborative approach involving industry leaders, policymakers, and other stakeholders is critical to ensuring the widespread adoption and effective implementation of CE principles, which will, in turn, ensure the industry's long-term viability and sustainability.

While this research highlights the importance of CE in the Nepalese fashion industry, certain limitations must be considered. First, the study relied on a moderate sample size of 220 respondents. Although this sample size provided valuable insights, it may not be fully representative of the entire fashion sector, which could limit the generalizability of the findings. A larger, more diverse sample could offer a broader perspective and more nuanced understanding of CE practices across the industry. Second, the study's geographical scope was confined to Lalitpur City, which means the findings may not reflect the diversity of practices and perspectives across the entire country. Future research should extend its coverage to include multiple regions in Nepal, thereby providing a more comprehensive view of CE practices on a national scale. Additionally, the study exclusively employed quantitative methods, which, while effective in identifying broad trends, may have overlooked the richness and complexity of individual experiences. Incorporating qualitative research methods, such as interviews or focus groups, could provide deeper insights into the

personal motivations and challenges faced by industry stakeholders in adopting CE practices, complementing the quantitative data with more nuanced perspectives.

Despite these limitations, the findings of this study have significant implications for environmental policymakers, fashion entrepreneurs, educational institutions, and future researchers. Policymakers can use this research to create stronger policies that enforce the integration of CE principles in business practices across industries. Mandating the adoption of CE practices will encourage businesses to prioritize sustainability in their operations, contributing to both environmental and economic improvements. For fashion entrepreneurs, these results provide valuable guidance on how to integrate CE principles into their operational cultures, motivating employees to actively participate in sustainable practices. By promoting a culture of sustainability, industry leaders can drive innovation and enhance their businesses' competitiveness while benefiting from long-term cost savings and improved environmental performance.

Educational institutions also play a critical role in shaping the future of the fashion industry by integrating CE principles into their curriculum. By raising awareness and equipping students with knowledge about sustainable practices, they can prepare the next generation of industry leaders to embrace sustainability and lead efforts in driving the sector towards circularity. Lastly, for future researchers, this study serves as a foundation for further investigation into the adoption of CE in Nepal's fashion sector. Expanding the participant base to include a larger sample of respondents, covering diverse geographical regions, and incorporating qualitative methods will enhance the richness of the research and provide more comprehensive insights into the challenges and opportunities of CE adoption.

The integration of Circular Economy principles in the Nepalese fashion industry holds tremendous potential to drive both environmental sustainability and economic growth, while also enhancing social welfare. This research underscores the need for further investment in knowledge-building, infrastructure, and policy

support to accelerate the transition to a more sustainable and circular fashion sector. Through collective efforts, the Nepalese fashion industry can not only improve its own practices but also contribute to global sustainability efforts and the achievement of the United Nations Sustainable Development Goals (SDGs).

Funding: This research did not receive any funding.

Data Availability: The data used to support the findings of this study are available from the corresponding author upon request.

Declaration of Competing Interest: The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

- Abdelmeguid, A., Afy-Shararah, M., & Saloniitis, K. (2022). Investigating the challenges of applying the principles of the circular economy in the fashion industry: A systematic review. *Sustainable Production and Consumption*, 32, 505–518.
- Afyouni, S., Smith, S. M., & Nichols, T. E. (2019). Effective degrees of freedom of the Pearson's correlation coefficient under autocorrelation. *NeuroImage*, 199, 609–625.
- Ahmad, A., Madi, Y., Abuhashesh, M., & Nusairat, N. M. (2020). The knowledge, attitude, and practice of the adoption of green fashion innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(4), 1–22.
- Athwal, N., Wells, V. K., Carrigan, M., & Henninger, C. E. (2019). Sustainable luxury marketing: A synthesis and research agenda. *International Journal of Management Reviews*, 21(4), 405–426.
- Balke, V., Evans, S., Rabbiosi, L., & Monnery, S. A. (2017). Promoting circular economies. In T. Altenburg, & C. Assmann (Eds.), *Green industrial policy: Concept, policies, country experiences* (pp. 120–133). German Development Institute.

- Barros, M. V., Salvador, R., de Francisco, A. C., & Piekarski, C. M. (2020). Mapping of research lines on circular economy practices in agriculture: From waste to energy. *Renewable and Sustainable Energy Reviews*, 131.
- Bocken, N. M., De Pauw, I., Bakker, C., & Van Der Grinten, B. (2016). Product design and business model strategies for a circular economy. *Journal of industrial and production engineering*, 33(5), 308–320.
- Colucci, M., & Vecchi, A. (2021). Close the loop: Evidence on the implementation of the circular economy from the Italian fashion industry. *Business Strategy and the Environment*, 30(2), 856–873.
- Conrad, V., Shrestha, K. K., & Robinson, D. (2022). Ethical and sustainable manifestations of 'Made in Nepal': An investigation of the global value chain of the production of hemp apparel. In S. Gordon (Ed.), *Proceedings of the 3rd Australian industrial hemp conference 2022* (pp. 128-139). AgriFutures Australia Publication.
- Dissanayake, D. G. K., & Weerasinghe, D. (2021). Towards circular economy in fashion: Review of strategies, barriers and enablers. *Circular Economy and Sustainability*, 2(1), 1–21.
- Dolci, G., Rigamonti, L., & Grosso, M. (2021). Life cycle assessment of the food waste management with a focus on the collection bag. *Waste Management & Research*, 39(10), 1317-1327.
- European Commission (2018). *Circular economy: New rules will make EU the global front-runner in waste management and recycling*. European Commission.
- European Environment Agency. (10 February, 2019). *Microplastics from textiles: Towards a circular economy for textiles in Europe*. EEA
- Fryer, L.K., Larson-Hall, J., Stewart, J. (2018). Quantitative methodology. In, A. Phakiti, P. D. Costa, L. Plonsky, & S. Starfield (Eds.), *The palgrave handbook of applied linguistics research methodology* (55-77). Palgrave Macmillan.
- Geissdoerfer, M., Savaget, P., Bocken, N. M., & Hultink, E. J. (2017). The circular economy: A new sustainability paradigm? *Journal of Cleaner Production*, 143, 757–768.
- Ghisellini, P., Cialani, C., & Ulgiati, S. (2016). A review on circular economy: The expected transition to a balanced interplay of environmental and economic systems. *Journal of Cleaner production*, 114, 11-32.
- Grosse, T., & Sodhi, M. S. (2021). Towards a circular economy in the fashion industry: A conceptual framework for a new textiles economy. *Journal of Cleaner Production*, 287, 125000.
- Haupt, M., & Hellweg, S. (2019). Measuring the environmental sustainability of a circular economy. *Environmental and Sustainability Indicators*, 1–2.
- Homrich, A. S., Galvão, G., Abadia, L. G., & Carvalho, M. M. (2018). The circular economy umbrella: Trends and gaps on integrating pathways. *Journal of Cleaner Production*, 175, 525–543.
- Hysa, E., Kruja, A., Rehman, N. U., & Laurenti, R. (2020). Circular economy innovation and environmental sustainability impact on economic growth: An integrated model for sustainable development. *Sustainability*, 12(12), 1–16.
- Kirchherr, J., & Piscicelli, L. (2019). Towards an education for the circular economy (ECE): five teaching principles and a case study. *Resources, Conservation and Recycling*, 150, 104406.
- Laitala, K., & Klepp, I. G. (2017). Clothing reuse: The potential in informal exchange. *Clothing cultures*, 4(1), 61–77.
- Liao, X., Nguyen, T. P. L., & Sasaki, N. (2022). Use of the knowledge, attitude, and practice (KAP) model to examine sustainable agriculture in Thailand. *Regional Sustainability*, 3(1), 41–52.
- MacArthur, E. (2017). Beyond plastic waste. *Science*, 358(6365), 843-843.
- Marques, A. D., Moreira, B., Cunha, J., & Moreira, S. (2019). From waste to fashion—a fashion upcycling contest. *Procedia CIRP*, 84, 1063–1068.

- McKinsey, Q. (2017). *Mapping the benefits of a circular economy*. McKinsey & Company.
- Mishra, A. (2024). *Reconstructing celebrity endorsement: Unveiling new operations in marketing and consumer behavior*. Intellectuals' Book Palace.
- Mishra, A. K. (2019). Influential marketing strategies adopted by the cement industries. *International Journal of Research Granthaalayah*, 7(10), 155–173.
- Mishra, A. K. (2023). Export propulsion system of Nepalese garment enterprises. *Tuijin Jishu/ Journal of Propulsion Technology*, 44(6), 2470–2490.
- Mishra, A. K., & Aithal, P. S., (2023). Assessing the Association of Factors Influencing Green Banking Practices. *International Journal of Applied Engineering and Management Letters (IJAEML)*, 7(3), 36–54.
- Moreau, V., Sahakian, M., Van Griethuysen, P., & Vuille, F. (2017). Coming full circle: why social and institutional dimensions matter for the circular economy. *Journal of Industrial Ecology*, 21(3), 497–506.
- Niinimäki, K., Peters, G., Dahlbo, H., Perry, P., Rissanen, T., & Gwilt, A., (2020). The environmental price of fast fashion. *Nature Reviews Earth & Environment*, 1(4), 189–200.
- Owojori, O. M., Mulaudzi, R., & Edokpayi, J. N. (2022). Student's knowledge, attitude, and perception (KAP) to solid waste management: A survey towards a more circular economy from a rural-based tertiary institution in South Africa. *Sustainability*, 14(3), 1310.
- Patagonia. (2020). *Worn Wear: Better than new*. Patagonia.
- Radhakrishnan, S. (2021). Circular Economy in textiles and fashion. In S. S. Muthu (Ed.) *Circular economy: Environmental footprints and eco-design of products and processes* (pp. 163-202). Springer.
- Rana, N. (2024). *Threaded harmony: A sustainable approach to fashion* (1st Ed., pp. 45-63). Emerald Publishing Limited.
- Rigamonti, D., & Rigamonti, K. H. (2021). Achieving and maintaining safety in Healthcare requires unwavering institutional and individual commitments. *Cureus*, 13(2), 1–5
- Simane, B., Malcolm, R., O'Meara, N., Oremo, F., Geleta, Y., & Ahmedin, A. (2024). Knowledge, attitudes, and practices on circular economy among senior managers of ethiopian textiles and agro-food processing companies. *Circular Economy and Sustainability*, 4 3093–3117.
- Sürücü, L., & Maslakci, A. (2020). Validity and reliability in quantitative research. *Business & Management Studies: An International Journal*, 8(3), 2694–2726.
- Tamang, A. (2020). *Consumer buying behavior in Nepal and in Finland: Market dominated variables*. Theseus.
- Textile Exchange. (2021). *Organic Cotton Market Report 2021*.
- Todeschini, B. V., Cortimiglia, M. N., Callegaro-de-Menezes, D., & Ghezzi, A. (2017). Innovative and sustainable business models in the fashion industry: Entrepreneurial drivers, opportunities, and challenges. *Business Horizons*, 60(6), 759–770.
- United Nations Environment Programme (2020). *Sustainability and circularity in the textile value chain: Global stocktaking*. UNEP
- Upadhayay, S., & Alqassimi, O. (2019). A survey on understanding the perception and awareness towards a circular economy: A comparative study between Nepal and the USA. *Westcliff International Journal of Applied Research*, 3(1), 37–6.
- Uprety, P. (2020). *Business plan: Importing garment clothing from Nepal to Finland case study of himalayan trade fair* [BBA dissertation, Centria University of Applied Science]. Theseus.
- Walker, A. M., Opferkuch, K., Lindgreen, E. R., Simboli, A., Vermeulen, W. J., & Raggi, A. (2021). Assessing the social sustainability of circular economy practices: Industry perspectives from Italy and the Netherlands. *Sustainable Production and Consumption*, 27, 831–844.
- World Resources Institute (2020). *The fashion industry's water footprint: How build a circular economy can help*. WRI

