

Enabling Policies And Infrastructure: Catalysts For Circular Tourism Development

Sandhya Prithesh Shet^{1*}

¹Ph.D Scholar, ICFAI University, Jharkhand

Abstract

The transition to circular tourism is essential for achieving sustainability in the tourism industry. Circular tourism replaces the linear "take-make-dispose" model with resource-efficient and closed-loop practices. This requires not only individual efforts but also supportive policies and infrastructure. Policies play a key role by introducing regulations, incentives, and standards for waste reduction, energy efficiency, and resource management. Fiscal measures like tax breaks, green certifications, and public-private partnerships (PPPs) further promote circular tourism. Meanwhile, green infrastructure—such as renewable energy facilities, waste management systems, and eco-friendly transportation—supports sustainable practices. Digital tools, apps, and technologies like IoT enhance transparency and efficiency in adopting circular models. However, challenges like investment needs and low awareness among stakeholders hinder progress. Overcoming these requires education, outreach, and locally adaptable policies. By focusing on policy and infrastructure, destinations can align with global sustainability goals, enhance resilience, and create lasting benefits for communities and visitors.

Keywords: Circular tourism, Sustainable tourism, Enabling policies, Green infrastructure, Public-private partnerships, Waste management, Renewable energy, Digital platforms

1. Introduction

Tourism is a service sector promoted in every country worldwide as an economic activity, contributing to about 10% of the global gross domestic product (GDP), which is expected to grow at 4% per annum (Lenzen et al., 2018). In 2022, India witnessed 678.69 million tourist visits, including about one million international tourists (Annual Report, Ministry of Tourism, Government of India, 2023). In the same year, directly and indirectly, tourism contributed about 1.77 percent of the total GDP of India (Annual Report, Ministry of Tourism, Government of India, 2024) contributing to about 76 million jobs. In the same year, the international tourists contributed about USD 13 billion in receipts (*Country Profile – Inbound Tourism | Tourism Dashboard*, 2022). Tourism also has far-reaching impact than any form of development (Gunn, 1994). The multiplier effect on the economy owing to tourism activities and its corresponding growth and development across tourism products have been widely studied and researched (Khan et al., 1995) (Rusu, 2011).

Gunn points out that when tourism is developed haphazardly, it is likely to destroy the resources that are pre-requisite to tourism in a community (Gunn, 1994). Tourism is largely seasonal in nature and is managed by for-profit entities which look for economic benefits and returns on investment.; leading to the growth of mass tourism in recent times. Tourism service providers find it challenging to consider sustainable aspects of tourism when focusing on mass tourism and the economic benefits associated with mass tourism (Kaszás et al., 2022).

Tourism activities directly lead to an increase in the emission of greenhouse gases into the atmosphere (Katircioglu, 2014) (Gupta & Dutta, 2017) (Ciarlantini et al., 2022). Tourism is considered an industry without a chimney, it contributes to about 8% of the greenhouse gas emissions globally (Lenzen et al., 2018). Therefore, the environmental impact caused due to tourism has been ignored for a long time (Hsieh & Kung, 2013). Tourism also produces a large amount of waste at destinations and tourist accommodations and it also leads to increased consumption of water, energy, and other utilities, which adversely impacts the environment (Savina Nedyalkova, 2018) (Rodríguez, Florida,

et al., 2020) (Foster, 2020). The per capita consumption of water of local residents/ host communities/ or tourists at their base location is lower than their per capita consumption of water at tourist destinations; needless to say, water-based tourism or water amusement parks consume a large amount of water and need to relook at sustainable efforts to conserve and harvest water (Scheepens et al., 2016) (Patti, 2017) (Baporikar, 2020).

Given the significant economic benefits tourism brings, it is vital to also consider the long- term environmental impacts. As tourism continues to grow, the strain it places on natural resources, infrastructure, and communities can no longer be overlooked. Circular tourism presents a sustainable alternative by rethinking how resources are used and managed within the sector. This approach emphasizes reducing waste, reusing resources, and minimizing environmental footprints, ensuring that tourism development does not come at the cost of the very ecosystems and communities that attract visitors. By adopting circular tourism, the industry can align itself with sustainable development goals, fostering responsible growth while preserving the integrity of destinations for future generations. This paper will also explore the critical role that enabling policies and infrastructure play in promoting circular tourism practices in India, highlighting how policy frameworks can support sustainable transitions in the tourism sector.

2. Circular Economy and Tourism

Traditionally, industries have operated on a linear economy that involves converting natural resources into waste through production. This has led to environmental degradation – a reduction in natural resources and pollution of the environment due to the waste generated. The process adopted was a take-make-dispose one which involves a continuous extraction of natural resources and raw materials for human consumption without considering that these resources are limited and may take ages to replenish (Ness, 2008). A circular economy causes no net effect on the environment; it repairs the damage caused to the environment and produces the least amount of waste during the lifecycle of a product.

The origin and source of the term ‘Circular Economy’ is mostly debated. Literature review of the topic shows that the concept is based on varied theoretical backgrounds related to environmental economics, ecological economics, and industrial ecology (Ghisellini et al., 2016). Hofman (1848) believed that a real factory uses its waste. In doing so, it gets closer to its ideal state and earns higher profits (Lancaster, 2002). (Pearce et al., 1990) pointed out that the concept of circular economy was first discussed along with the closed-loop economy in the late 1970s. Other theories, concepts, and approaches on which the circular economy theory rests are Industrial ecology, Regenerative Design, Cradle to Cradle, Performance Economy, Blue Economy, Biomimicry, Zero Waste, and Natural capitalism (Connelly & Koshland, 1996) (Hawken et al., 2013) (Kopnina, 2018) (Geisendorf & Pietrulla, 2018) (Bennett et al., 2019) (Rodríguez, Florido, et al., 2020) (Morseletto, 2020) (Beermann & Austin, 2021).

There has been a lot of debate on what constitutes circular practices in tourism. However, implementing circular economy principles in tourism could be one way of referring to circularity in tourism. The concept of circular tourism is not adequately researched. There are very few research articles and literature on the topic. Much research was conducted only in the last decade due to different countries' focus on circularity and circular business models (Rodríguez, Jacob, et al., 2020). The tourism sector primarily operates on a linear economy model that leads to waste generation. The increasing depletion of natural resources must at least motivate tourists to adopt circular practices. However, tourists do not seem to be proactive or action-oriented in adopting or practicing circular concepts in tourism (Larsen & Broegaard, 2019) (Kaszás et al., 2022).

Most research papers and articles on circular economy and tourism are from Chinese authors, owing to China's inclusion of circular concepts as part of its planning and development in its twelfth five-year plan (Pattanaro & Gente, 2017). Although the circular economy focuses on reducing, refusing, and reusing waste (waste management) and responsible consumption, the circular economy in tourism

must also consider socioeconomic features of consumption and production (Tang, 2015).

Pattanaro & Gente reiterate that circular tourism should take into account the following

- (a) focus on not just environmental but also socio-economic issues associated with tourism; (b) include all stakeholders where the tourist gets to make a choice; (c) create synergies between different tourism products to optimize on consumption and utilization of resources, material and value; and (d) identify new business models and revenue streams like sharing, collaborating, leasing, renting, et Cetra (2017). According to (Vatansever et al., 2021), many barriers make it difficult for the transition from a linear economy to a circular economy in the tourism sector. The most significant barrier is the organizational structure/ infrastructure that creates inconvenience with the supply chain during the transition to a circular economy. Other important barriers are high initial investment and/ or low returns; lack of corporate social responsibility; the need for additional human resources; and lack of awareness/ preference/ pressure from the consumers, lack of new technologies, the cost associated with environmentally friendly packaging, lack of governmental support, et Cetra.

The choices and actions of a tourist determine whether tourism is a circular one. The activities and choices that support a circular approach are - (a) sustainable tourism opportunities offered by the tourism agencies or searching for similar opportunities through the internet, (b) looking out for sustainable tourism service providers, (c) selecting the most environmentally friendly transport option, (d) undertake responsible management of the selected services by use of locally produced food, purchase local crafts, and adopt eco-friendly measures, such as waste management, energy, and water saving, etc.; and (e) transfer of feedback between tourists and tourism service providers to enhance the sustainable tourism offer (Naydenov, 2018).

3. Role of Enabling Frameworks in Implementing Circular Tourism

The adoption of circular economy (CE) principles in tourism is critical to achieving sustainability within the sector. Circular tourism promotes resource efficiency, minimizes waste, and encourages sustainable practices throughout the tourism lifecycle—from production and consumption to the management of waste and resources. There are several enablers that foster circular tourism practices highlighting the significance in driving sustainability within the tourism industry which include policies and regulatory frameworks, business models, and private sector engagements, technology and innovation, financial systems and circular investments, consumer behavior and awareness, collaboration and networks, community engagement and local initiatives, academic research, knowledge sharing, and cultural and societal norms.

3.1. Policy and regulatory frameworks

Government policies and regulations are crucial for establishing a supportive environment for circular tourism. Regulatory frameworks such as bans on single-use plastics, which are prevalent in tourism-heavy regions, play an essential role in reducing waste (Ellen MacArthur Foundation & European Commission, 2020). Incentives such as tax reliefs and grants encourage tourism businesses to invest in sustainable infrastructure, like renewable energy and waste management systems (Stahel, 2016). Public procurement policies can also influence circular tourism by requiring sustainable practices in public facilities and tourism-related services. For instance, governments may mandate the use of eco-friendly building materials in hotels or encourage the use of renewable energy in tourist facilities. Waste management policies further support tourism operators by establishing clear guidelines for recycling and responsible disposal.

3.2. Business Models and Private Sector Engagements

Tourism businesses are central to the circular economy transition. Many tourism operators are adopting circular business models such as eco-tourism, which prioritizes sustainability in all aspects of the travel experience (Ellen MacArthur Foundation, 2013). Models like product-as-a-service (leasing equipment instead of owning) and sharing platforms for accommodation and transportation

reduce the environmental impact of tourism. For instance, businesses that lease outdoor gear for tourists promote resource efficiency while reducing waste. Corporate social responsibility (CSR) initiatives within tourism focus on integrating circular economy principles, such as minimizing food waste in hotels or reducing water consumption in resorts (Hopkinson et al., 2018). Public-private partnerships (PPP) between governments and tourism businesses further enhance the sector's transition by facilitating infrastructure development, such as waste treatment plants and sustainable transportation options.

3.3. Transport Infrastructure, Technology and Innovation

Sustainable transportation options are essential to circular tourism by reducing carbon emissions and optimizing resource efficiency. Electric vehicles (EVs), bike-sharing systems, and public transportation significantly contribute to lowering the environmental footprint of tourism activities. Electric vehicle charging stations at tourist destinations, for example, encourage the use of EVs among visitors, reducing reliance on fossil fuels (Fulton et al., 2017). Bike-sharing services further promote eco-friendly transportation by offering an alternative to traditional modes of transport, particularly in urban tourist destinations. These initiatives not only support local economies by reducing fuel consumption but also align with circular principles by minimizing pollution and encouraging the reuse of resources, such as bicycles.

Technological advancements are key enablers of circular tourism practices. Digital platforms, such as those facilitating bike and car-sharing in tourist destinations, help optimize the use of resources and reduce the environmental impact of travel (Moreno et al., 2016). Technology also supports the efficient management of waste through innovations in recycling and waste-to-resource technologies. For example, some hotels have implemented advanced systems to convert food waste into energy or compost, contributing to closed-loop systems. Transparency tools like blockchain enable tourism operators to track the lifecycle of products and services, ensuring that they meet circular economy criteria, such as recyclability or sustainable sourcing (Saberli et al., 2019). Additionally, smart manufacturing and 3D printing allow local tourism operators to create custom souvenirs and equipment with minimal waste, reducing dependence on imports and long supply chains.

3.4. Energy and Resource Management

Energy and resource management are critical in fostering circular tourism. The use of renewable energy sources like solar, wind, and geothermal energy contributes to reducing the carbon footprint of tourism infrastructure. For instance, resorts and hotels that rely on solar panels or wind turbines for energy generation help decrease dependency on non-renewable resources (Gössling et al., 2013). Efficient water use, particularly in water-scarce tourist destinations, is also vital. Technologies such as greywater recycling and rainwater harvesting help conserve water, while sustainable waste management practices like composting and recycling reduce the strain on landfill sites. Circular tourism benefits from waste-to-energy systems, where organic waste is converted into energy, supporting closed-loop systems in hospitality services (Williams, 2019).

3.4. Financial Systems and Circular Investments

Financial mechanisms are critical for scaling circular tourism practices. Green bonds and impact investing target sustainable tourism projects, such as renewable energy installations at resorts or eco-friendly transportation systems within popular tourist destinations (Skvarciany et al., 2021). Circular economy investment funds, particularly those supporting small and medium-sized enterprises (SMEs) in the tourism sector, play a crucial role in financing sustainable innovations. For instance, SMEs focused on sustainable accommodation or zero-waste travel services often rely on microfinance and grants to establish and grow their operations (Tambovceva et al., 2021). These funds encourage businesses to transition to circular tourism models and adopt practices such as reducing water and energy consumption, using recyclable materials, and promoting zero-emission.

3.5. Collaboration and Networks

Collaborative networks and platforms are important enablers of circular tourism. Industry collaborations—such as partnerships between accommodation providers, tour operators, and waste management companies—create synergies that promote sustainable tourism practices (Kirchherr et al., 2017). For example, hotels partnering with local farmers to source organic food or collaborate with recycling companies to reduce waste create circular loops within the tourism supply chain. PPP also play a role, particularly in developing tourism infrastructure that aligns with circular economy principles, such as renewable energy-powered resorts or waste-free tourism zones. Knowledge-sharing platforms that bring together businesses, policymakers, and researchers help to disseminate best practices and innovations in circular tourism (Geissdoerfer et al., 2017).

Consumer awareness and changing behavior toward sustainability are vital for promoting circular tourism. Tourists are increasingly looking for eco-friendly destinations, accommodations, and experiences, prompting businesses to adapt their offerings (Ellen Macarthur Foundation & European Commission, 2020). Educational campaigns about sustainable tourism practices, such as reducing energy use in hotel rooms or supporting local economies through eco-tourism, help raise awareness. Tourists are more likely to participate in activities such as recycling or reducing food waste when they are provided with clear information on the environmental benefits (Birch & Memery, 2020). The rise of social media influencers promoting sustainable tourism and zero-waste travel has significantly increased consumer demand for circular tourism experiences, pushing the industry to innovate.

3.6. Community Engagement and Local Initiatives

Local communities are often at the forefront of circular tourism. Community-led tourism projects, such as eco-lodges or cultural experiences that emphasize sustainable practices, enable local economies to benefit from tourism while minimizing environmental impact (Hobson, 2020). Community-based waste management programs, such as composting and recycling projects in tourist areas, reduce the waste generated by visitors. Moreover, local initiatives that promote the use of traditional, renewable materials in tourism infrastructure, such as bamboo or recycled building materials, support circular principles. Community-based tourism also enhances the visitor experience by offering sustainable options like farm-to-table dining, eco-friendly accommodations, and low-impact adventure activities.

3.7. Academic Research and Knowledge Sharing

Academic research is an essential enabler of circular tourism practices. Universities and research institutions conduct studies on the environmental, social, and economic impacts of tourism, providing valuable insights into how circular economy principles can be applied (Korhonen et al., 2018). Knowledge hubs and conferences on circular economy and sustainable tourism serve as platforms for sharing best practices and innovations. Research also drives technological advancements, such as energy-efficient tourism infrastructure and circular supply chains for hospitality services. Training programs and educational curricula that emphasize circular economy principles are critical in developing a workforce that is equipped to implement sustainable tourism practices.

3.8. Cultural and Social Norms

The integration of circular economy principles into cultural and social norms is a key enabler of circular tourism. As travelers become more conscious of their environmental impact, a cultural shift toward sustainable tourism practices emerges. Movements that encourage minimalism, eco-friendly travel, and zero-waste vacations are gaining momentum, influencing both tourists and tourism providers (Brown et al., 2020).

Tourism operators are increasingly adopting sustainable practices, such as reducing plastic use, sourcing locally, and offering eco-friendly experiences, to align with consumer preferences. This shift

is further amplified by social media campaigns and influencers who promote sustainable travel as a desirable lifestyle choice.

4. Challenges and Opportunities

Circular tourism practices hold immense potential for fostering sustainability in the travel and tourism industry, yet their implementation is fraught with challenges. One significant barrier is the financial constraint associated with adopting circular economy principles. Businesses, particularly small and medium enterprises, often struggle to allocate resources for the upfront investments required to transition to circular models (Aarikka-Stenroos & Ranta, 2021). These investments typically encompass infrastructure upgrades, technological innovations, and workforce training, all of which can be prohibitively expensive for smaller stakeholders. Without adequate financial support or incentives, the feasibility of such transitions remains limited.

Another critical challenge is the lack of awareness and understanding of circular tourism principles among key stakeholders, including tourists, businesses, and policymakers. This gap in awareness slows down the adoption of sustainable practices, as stakeholders often fail to recognize the long-term benefits or are unaware of available tools and methodologies (Kirchherr et al., 2018). Additionally, regulatory hurdles further impede progress. The absence of harmonized policies and standards for circular practices creates ambiguity and inconsistency, making it difficult for businesses to implement these models effectively. Variations in regulations across regions exacerbate this issue, as tourism operators navigating multiple jurisdictions often face conflicting requirements (Grafström, 2021). Technological limitations also play a role, as many circular tourism practices require access to advanced solutions such as efficient waste management systems, renewable energy sources, and data-driven tools for monitoring resource consumption. For many businesses, especially those in developing regions, these technologies remain out of reach due to cost or limited availability (Trevisan et al., 2023).

Despite these barriers, the opportunities for scaling up circular tourism practices are abundant and promising. Market demand for sustainable and eco-friendly tourism experiences is on the rise, driven by increasing consumer awareness of environmental issues. Tourists are showing a preference for destinations and services that align with their values of sustainability, providing businesses with a compelling incentive to adopt circular models. Technological advancements further bolster this potential. Innovations in artificial intelligence, blockchain, and the Internet of Things (IoT) offer practical tools for improving operational efficiency, tracking resource use, and managing waste, making the implementation of circular practices more accessible and effective (Pagoropoulos & Pigosso, 2017).

Collaborative frameworks also present a significant opportunity for growth. Partnerships between the public and private sectors can enable resource sharing, joint initiatives, and knowledge exchange, fostering a supportive ecosystem for circular tourism. Educational campaigns and advocacy efforts are another critical avenue for driving change. By increasing awareness among tourists and industry players, these initiatives can catalyze behavioral shifts and encourage the adoption of sustainable practices. Additionally, policy support from governments and international organizations is gradually strengthening (Mubarik & Kontoleon, 2024). Subsidies, incentives, and the development of clear regulatory frameworks can address some of the financial and operational barriers, accelerating the transition to circular tourism models.

While the journey toward widespread adoption of circular tourism practices faces obstacles such as financial limitations, lack of awareness, regulatory complexities, and technological gaps, the opportunities for growth are significant. By leveraging market demand, technological innovations, collaborative efforts, and policy support, the tourism industry can overcome these challenges and embrace a more sustainable and circular future.

5. Recommendations

To address the challenges hindering the adoption of circular tourism and to leverage its potential, a comprehensive approach is necessary. This approach must encompass actionable policy recommendations and strategic infrastructure development to create a conducive environment for circular practices in the tourism sector.

5.1. Policy Recommendations

Policymakers are pivotal in driving the transition toward circular tourism. A primary step involves introducing financial incentives to ease the economic burden of adopting circular practices. Tax rebates, subsidies, and low-interest loans can encourage businesses to invest in sustainable initiatives such as waste management systems, energy-efficient technologies, and eco-friendly infrastructure. These incentives can bridge the financial gap often associated with the initial implementation of circular practices.

Another essential measure is the establishment of unified regulatory frameworks. A clear, harmonized set of guidelines is necessary to reduce ambiguities and inconsistencies across regions and stakeholders. These frameworks should address critical areas, including waste management, resource efficiency, and green construction standards, tailored specifically to the tourism industry. Encouraging public-private partnerships (PPPs) is another avenue for fostering collaboration and innovation in circular tourism. PPPs can pool resources, expertise, and funding to develop scalable and impactful models for circular practices. Governments can act as facilitators, bringing together businesses, non-governmental organizations, and communities to address sustainability challenges collectively.

Raising awareness of circular tourism is equally important. Policymakers and tourism boards must prioritize educational campaigns to enhance understanding of the benefits and importance of circular practices among businesses, tourists, and local communities. By showcasing successful case studies and providing evidence of long-term economic, social, and environmental benefits, these campaigns can drive widespread acceptance and participation.

Finally, mandating the integration of circular principles into destination planning and development is crucial. By embedding sustainability requirements into tourism projects from the outset, governments can ensure that new developments align with circular economy goals, minimizing negative environmental impacts while maximizing resource efficiency.

5.2. Infrastructure Development Strategies

Infrastructure plays a critical role in enabling circular tourism practices. One of the key priorities is the establishment of resource recovery systems. Investments in advanced waste management facilities, including recycling and composting centers, are essential for processing the waste generated by tourists. These systems can facilitate the recovery of valuable resources and minimize the burden on landfills.

Promoting renewable energy solutions is another cornerstone of sustainable infrastructure development. Solar panels, wind turbines, and other renewable energy systems should be integrated into tourism infrastructure, including hotels, resorts, and tourist attractions. Such initiatives not only reduce carbon emissions but also demonstrate the sector's commitment to sustainability.

Tourism facilities should also embrace circular design principles. By using modular, durable, and reusable materials, the lifespan of these facilities can be extended, reducing the demand for new raw materials. This approach aligns with the core tenets of the circular economy, emphasizing reuse, repair, and recycling.

Digital infrastructure can further enhance circular tourism. Technologies like the Internet of Things (IoT), blockchain, and artificial intelligence (AI) enable efficient monitoring and management of resource consumption. For instance, IoT sensors can track water and energy usage in real-time, while blockchain can enhance transparency in supply chains, ensuring that materials and services align with sustainability goals.

Improving transportation networks is also critical for reducing the environmental footprint of tourism. Sustainable options such as electric buses, bike-sharing systems, and pedestrian-friendly pathways should be prioritized to provide eco-friendly alternatives for tourist mobility. These solutions not only reduce emissions but also enhance the visitor experience by promoting accessibility and convenience.

Finally, strengthening local supply chains is vital for promoting sustainability in tourism. By sourcing materials and products locally, the sector can reduce transportation emissions and support regional economies. Investments in logistics and storage infrastructure can further facilitate this transition, ensuring the timely and efficient delivery of locally produced goods.

In conclusion, the integration of targeted policy interventions and sustainable infrastructure development strategies is essential for overcoming barriers to circular tourism. Policymakers and stakeholders must work collaboratively to create an ecosystem that supports and incentivizes the adoption of circular practices. These efforts will not only address current challenges but also position the tourism sector as a leader in advancing global sustainability goals.

6. Conclusion

This paper has explored the role of enabling framework, challenges and opportunities associated with implementing circular tourism practices, as well as the recommendations for advancing this transformative approach. Barriers such as financial constraints, lack of awareness, regulatory hurdles, and technological limitations were identified as significant obstacles. However, the opportunities for growth, driven by increasing market demand for sustainable experiences and advancements in technology, underscore the potential for circular tourism to become a cornerstone of the sustainable tourism agenda.

The recommendations provided focus on two critical dimensions: policy and infrastructure. Policy measures, including financial incentives, unified regulatory frameworks, public-private partnerships, and awareness campaigns, are essential for creating an enabling environment. Simultaneously, investments in sustainable infrastructure, such as resource recovery systems, renewable energy solutions, circular design principles, digital technologies, eco-friendly transportation networks, and robust local supply chains, are fundamental to operationalizing circular practices in tourism.

While this paper offers actionable insights, several areas warrant further research. First, more empirical studies are needed to quantify the economic, environmental, and social impacts of circular tourism initiatives across diverse destinations. Such research would help policymakers and stakeholders better understand the return on investment in circular practices.

Second, an in-depth analysis of consumer behavior in relation to circular tourism is crucial. Understanding the preferences, motivations, and barriers for tourists in adopting sustainable practices can help tailor interventions more effectively.

Third, future research should focus on developing innovative business models for circular tourism that align profitability with sustainability. Exploring the role of emerging technologies, such as blockchain and artificial intelligence, in enhancing the efficiency and transparency of circular practices can also provide valuable insights.

Finally, comparative studies across different regions and tourism markets can shed light on the cultural, regulatory, and economic factors that influence the success of circular tourism practices. Such studies can help identify best practices and adapt strategies to local contexts.

The transition to circular tourism represents a significant opportunity to align the tourism industry with global sustainability goals. Enabling policies and strategic investments in infrastructure are pivotal in overcoming the barriers and unlocking the potential of circular practices. By fostering collaboration among policymakers, businesses, communities, and tourists, the sector can redefine its approach to resource use, waste management, and economic growth.

Ultimately, circular tourism is not just a pathway to sustainability—it is a necessity for preserving the natural and cultural heritage that forms the foundation of tourism itself. By embracing this approach,

the industry can ensure its resilience and relevance in a rapidly changing world, contributing meaningfully to a more sustainable and equitable future.

7. References

1. Aarikka-Stenroos, L., & Ranta, V. (2021). *Financial drivers and inhibitors of circular economy business*. <https://trepo.tuni.fi/handle/10024/124859>
2. *Annual Report, Ministry of Tourism, Government of India*. (2021).
3. Baporikar, N. (2020). *Handbook of research on entrepreneurship development and opportunities in circular economy*. <https://books.google.com/books?hl=en&lr=&id=WjXnDwAAQBAJ&oi=fnd&pg=PP1&dq=Handbook+of+Research+on+Entrepreneurship+Development+and+Opportunities+in+Circular+Economy&ots=6RfXGcCyMc&sig=PJeh8O8Sp62rySMkKOYECRudit0>
4. Beermann, K., & Austin, M. C. (2021). An Inspection of the Life Cycle of Sustainable Construction Projects: Towards a Biomimicry-Based Road Map Integrating Circular Economy. *Biomimetics* 2021, Vol. 6, Page 67, 6(4), 67. <https://doi.org/10.3390/BIOMIMETICS6040067>
5. Birch, D., & Memery, J. (2020). Tourists, local food and the intention-behaviour gap. *Journal of Hospitality and Tourism Management*, 53–61.
6. Brown, P., Weber, J., & Booth, S. (2020). Sustainability as social norm: Moving beyond individual behavior change. *Sustainability Science*, 15(3), 895–904.
7. Ciarlantini, S., Madaleno, M., Robaina, M., Monteiro, A., Eusébio, C., Carneiro, M. J., & Gama, C. (2022). Air pollution and tourism growth relationship: exploring regional dynamics in five European countries through an EKC model. *Environmental Science and Pollution Research*, 1, 1–19. <https://doi.org/10.1007/S11356-021-18087-W/TABLES/12>
8. Connelly, L., & Koshland, C. (1996). Industrial ecology: a critical review. *International Journal of Environment and Pollution*. <https://nature.berkeley.edu/orourke/PDF/IE.pdf>
9. *Country profile – inbound tourism | Tourism Dashboard*. (2022). UNWTO. <https://www.unwto.org/tourism-data/country-profile-inbound-tourism>
10. Ellen MacArthur Foundation. (2013). Towards the circular economy. *Journal of Industrial Ecology*. https://www.werktrends.nl/app/uploads/2015/06/Rapport_McKinsey-Towards_A_Circular_Economy.pdf
11. Ellen MacArthur Foundation, & European Commission. (2020). *The EU's Circular Economy Action Plan*.
12. Foster, G. (2020). Circular economy strategies for adaptive reuse of cultural heritage buildings to reduce environmental impacts. *Resources, Conservation and Recycling*. <https://www.sciencedirect.com/science/article/pii/S0921344919304136>
13. Geisendorf, S., & Pietrulla, F. (2018). The circular economy and circular economic concepts—a literature analysis and redefinition. *Thunderbird International Business Review*, 60(5), 771–782. <https://doi.org/10.1002/TIE.21924>
14. Geissdoerfer, M., Savaget, P., Bocken, N. M. P., & Hultink, E. J. (2017). The Circular Economy – A new sustainability paradigm? *Journal of Cleaner Production*, 143, 757– 768. <https://doi.org/10.1016/J.JCLEPRO.2016.12.048>
15. 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. <https://doi.org/10.1016/J.JCLEPRO.2015.09.007>
16. Gössling, S., Scott, D., & Hall, C. M. (2013). Challenges of tourism in a low-carbon economy. *Wiley Interdisciplinary Reviews: Climate Change*, 4(6), 525–538. <https://doi.org/10.1002/WCC.243>
17. Grafströ. (2021). Breaking circular economy barriers. *Elsevier*. <https://doi.org/10.13140/RG.2.2.12383.48809>

19. Gunn, C. (1994). *Tourism Planning: Basic Concept Cases* (3rd ed.). Taylor and Francis.
20. Gupta, M. R., & Dutta, P. B. (2017). Tourism development, environmental pollution and economic growth: A theoretical analysis. *Https://Doi.Org/10.1080/09638199.2017.1346139*, 27(2), 125–144.
21. <https://doi.org/10.1080/09638199.2017.1346139>
22. Hawken, P., Lovins, A., & Lovins, L. H. (2013). *Natural capitalism: The next industrial revolution*. <https://www.taylorfrancis.com/books/mono/10.4324/9781315065755/natural-capitalism-paul-hawken-amory-lovins-hunter-lovins>
23. Hobson, K. (2020). Small stories of closing loops': social circularity and the everyday circular economy. *Climatic Change*, 163(1), 99–116.
24. Hopkinson, P., Zils, M., & ... P. (2018). Managing a complex global circular economy business model: Opportunities and challenges. *Journals.Sagepub.Com P Hopkinson, M Zils, P Hawkins, S Roper California Management Review*, 2018•*journals.Sagepub.Com*. <https://journals.sagepub.com/doi/abs/10.1177/0008125618764692>
25. Hsieh, H.-J., & Kung, S.-F. (2013). The Linkage Analysis of Environmental Impact of Tourism Industry. *Procedia Environmental Sciences*, 17, 658–665. <https://doi.org/10.1016/J.PROENV.2013.02.082>
26. Kaszás, N., Keller, K., & Birkner, Z. (2022). Understanding circularity in tourism. *Society and Economy*, 44(1), 65–82. <https://doi.org/10.1556/204.2021.00025>
27. Katircioglu, S. T. (2014). International tourism, energy consumption, and environmental pollution: The case of Turkey. *Renewable and Sustainable Energy Reviews*, 36, 180–187. <https://doi.org/10.1016/J.RSER.2014.04.058>
28. Khan, H., Phang, S. Y., & Toh, R. S. (1995). The Multiplier Effect: Singapore's Hospitality Industry. *Cornell Hotel and Restaurant Administration Quarterly*, 36(1), 64–69. <https://doi.org/10.1177/001088049503600121>
29. Kirchherr, J., Piscicelli, L., Bour, R., Kostense-Smit, E., Muller, J., Huibrechtse-Truijens, A., & Hekkert, M. (2018). Barriers to the circular economy: Evidence from the European Union (EU). *Elsevier*, 150, 264–272. <https://doi.org/10.1016/j.ecolecon.2018.04.028>
30. Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources, Conservation and Recycling*, 127, 221–232. <https://doi.org/10.1016/J.RESCONREC.2017.09.005>
31. Kopnina, H. (2018). Circular economy and Cradle to Cradle in educational practice. *Journal of Integrative Environmental Research*, 15(1), 119–134. <https://doi.org/10.1080/1943815X.2018.1471724>
32. Korhonen, J., Honkasalo, A., & Seppälä, J. (2018). Circular economy: the concept and its limitations. *Ecological Economics*, 143, 37–46.
33. Lancaster, P. (2002). *Lambda-matrices and vibrating systems*. <https://books.google.com/books?hl=en&lr=&id=GAktg2-fwi4C&oi=fnd&pg=IA9&dq=lancaster+2002&ots=yZYUjxI9J5&sig=FtuIW7IHAmY dn-L-iOforK-3L0c>
34. Larsen, K. T., & Broegaard, R. (2019). *Destination: A circular tourism economy A handbook for transitioning toward a circular economy within the tourism and hospitality sectors in the South Baltic Region (Final edition) Rural development in a translocal lens; multilocal actors and their place effects View project CIRTOINNO-Circular Economy tools to support innovation in blue and green tourism SMEs View project Jesper Manniche Centre for Regional and Tourism Research*. <https://www.researchgate.net/publication/337085400>
35. Lenzen, M., Sun, Y. Y., Faturay, F., Ting, Y. P., Geschke, A., & Malik, A. (2018). The carbon footprint of global tourism. *Nature Climate Change* 2018 8:6, 8(6), 522–528. <https://doi.org/10.1038/s41558-018-0141-x>
36. Moreno, M., Rios, C. D. los, Rowe, Z., Sustainability, F. C.-, & 2016, undefined. (2016). A

- conceptual framework for circular design. *Mdpi.ComM Moreno, C De Los Rios, Z Rowe, F CharnleySustainability, 2016•mdpi.Com*. <https://doi.org/10.3390/su8090937>
37. Morseletto, P. (2020). Restorative and regenerative: Exploring the concepts in the circular economy. *Journal of Industrial Ecology*, 24(4), 763–773. <https://doi.org/10.1111/JIEC.12987>
38. Mubarik, M., & Kontoleon, A. (2024). Beyond the hurdles: Exploring policy obstacles in the path to circular economy adoption. *Elsevier*. <https://www.sciencedirect.com/science/article/pii/S0301479724026537>
39. Naydenov, K. (2018). Circular tourism as a key for eco-innovations in circular economy based on sustainable development. *International Multidisciplinary Scientific GeoConference Surveying Geology and Mining Ecology Management, SGEM*, 18(5.3), 135–142. <https://doi.org/10.5593/SGEM2018/5.3/S28.017>
40. Ness, D. (2008). Sustainable urban infrastructure in China: Towards a Factor 10 improvement in resource productivity through integrated infrastructure systems. *International Journal of Sustainable Development and World Ecology*, 15(4), 288–301. <https://doi.org/10.3843/SUSDEV.15.4:2A>
41. Pagoropoulos, A., & Pigosso, D. (2017). The emergent role of digital technologies in the Circular Economy: A review. *Elsevier*. <https://www.sciencedirect.com/science/article/pii/S2212827117301452>
42. Pattanaro, G., & Gente, V. (2017). Circular economy and new ways of doing business in the tourism sector. *European Journal of Service Management*, 21, 45–50. <https://doi.org/10.18276/ejasm.2017.21-06>
43. Patti, S. (2017). Circular economy and sharing consumption: Attitudes towards low- carbon tourism. *ECONOMICS AND POLICY OF ENERGY AND THE ENVIRONMENT*, 2017(1), 219–234. <https://doi.org/10.3280/EFE2017-001011>
44. Pearce, D., Turner, R., & Turner, R. (1990). *Economics of natural resources and the environment*. <https://books.google.com/books?hl=en&lr=&id=ex8vaG6m4RMC&oi=fnd&pg=PR11&dq=pearce+and+turner&ots=1A7PYBTBhO&sig=PXAjTYxDsAFqN85Zpv-cOL8Tx7U>
45. Rodríguez, C., Florido, C., & Jacob, M. (2020). Circular Economy Contributions to the Tourism Sector: A Critical Literature Review. *Sustainability 2020, Vol. 12, Page 4338, 12(11)*, 4338. <https://doi.org/10.3390/SU12114338>
46. Rodríguez, C., Jacob, M., & Florido, C. (2020). Socioeconomic Profile of Tourists with a Greater Circular Attitude and Behaviour in Hotels of a Sun and Beach Destination. *International Journal of Environmental Research and Public Health*, 17(24), 1–28. <https://doi.org/10.3390/ijerph17249392>
47. Rusu, S. (2011). Tourism multiplier effect. *Journal of Economics and Business Research*. <https://www.ceeol.com/search/article-detail?id=568581>
48. Saberi, S., Kouhizadeh, M., Sarkis, J., Shen, L., & Foisie, R. A. (2019). Blockchain technology and its relationships to sustainable supply chain management. *Taylor & FrancisS Saberi, M Kouhizadeh, J Sarkis, L ShenInternational Journal of Production Research, 2019•Taylor & Francis, 57(7)*, 2117–2135. <https://doi.org/10.1080/00207543.2018.1533261>
49. Savina Nedyalkova. (2018). Applying circular economy principles to sustainable tourism development. *2nd UNWTO World Conference on Smart Destinations*, 1–13. https://eventos.segittur.es/_files/_event/_19238/_editorFiles/file/24093_Nedyalkova_15_06_Circular_tourism_Savina.pdf
50. Scheepens, A. E., Vogtländer, J. G., & Brezet, J. C. (2016). Two life cycle assessment (LCA) based methods to analyse and design complex (regional) circular economy systems. Case: making water tourism more sustainable. *Journal of Cleaner Production*, 114, 257–268.

<https://doi.org/10.1016/J.JCLEPRO.2015.05.075>

51. Skvarciany, V., Lapinskaitė, I., & Volskytė, G. (2021). Circular economy as assistance for sustainable development in OECD countries. *Oeconomia*, 12(1), 11–34.
<https://doi.org/10.24136/oc.2020.001>
52. Stahel, W. (2016). The circular economy. *Nature.Com*.
<https://www.nature.com/articles/531435a>
53. Tambovceva, T. T., Melnyk, L. H., Dehtyarova, I. B., & Nikolaev, S. O. (2021). *Circular economy: Tendencies and development perspectives*.
54. Tang, Z. (2015). An integrated approach to evaluating the coupling coordination between tourism and the environment. *Tourism Management*, 46, 11–19.
<https://doi.org/10.1016/J.TOURMAN.2014.06.001>
55. Trevisan, A., Lobo, A., & ... D. G.-. (2023). Barriers to employing digital technologies for acircular economy: A multi-level perspective. *Elsevier*.
<https://www.sciencedirect.com/science/article/pii/S0301479723002256>
56. Vatansever, K., Akarsu, H., & Kazançoğlu, Y. (2021). Evaluation of Transition Barriers to Circular Economy: A Case from the Tourism Industry. *International Journal of Mathematical, Engineering and Management Sciences*, 6(3), 824–846.
<https://doi.org/10.33889/IJMEMS.2021.6.3.049>
57. Williams, A. M. (2019). Circular economy and waste management: From recycling to the circular supply chain. *Sustainability Science*, 14(2), 355–365.