ECO ENTREPRENEURSHIP: Transforming Environmental Challenges into Business Opportunities in Developing Countries

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14 January, 2025

Table of Contents

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Abstract

Considering the time of globalization and the constant upgrade of society's lifestyle, issues like sustainable development and eco-entrepreneurship have become a serious topic of discussion in the present time. To sustain and create a healthy and secure life for the next generation, eco-friendly entrepreneurship and businesses can play a vital role. The fundamental objective of this paper is to highlight the possibility of achieving sustainable economic growth for developing countries by utilizing eco-entrepreneurship and green business models. We followed six steps by Rowley and Stack (2004) and applied an SLR approach to fulfill the objective of this paper. We categorized the key findings into Themes, Challenges and Opportunities. The findings reveal that there are some major challenges for eco-entrepreneurs in developing countries like- financial, technological, cultural, etc. Moreover, there is also scope for plenty of opportunities if the entrepreneurs can overcome these challenges with sufficient funding & help from society. Therefore, as businesses worldwide are now adopting green business policies to sustain development, eco-entrepreneurship can serve as a valuable field to entrepreneurs and policymakers. This paper serves as an overview to identify the barriers as well as the opportunities that are associated with the idea of eco-friendly entrepreneurship and with proper policies favoring it can progress towards a more sustainable future in developing countries.

Introduction

Eco-entrepreneurship is a progressive visionary, also known as environmental or “green entrepreneurship”, has appeared as a thriving model in situations or aspects of economic progress and stability that can be seen in the evolving financial structure. Pollution, negative climatic conditions and many more are worldwide issues that are striking but due to this reason, it is beginning a way of immersing in the Eco- entrepreneurship which is generating dimension for new ventures. Fundamentally creating business Possibilities. As articulated by Gast et al., (2020)In economically advanced countries or regions, when forming a responsible business, they concentrate more on the distinction of human and natural assets and knowledge. For example, industries like waste control and recycling industries, and renewable resources industries have a higher inclination toward eco-entrepreneurship. (Fichter & Tiemann, 2020). The share of renewable energy was in the power range of 72 only In 2019 and on an annual basis the investment was increasing at the rate of 12%. (IRENA, 2020). But all these areas do form an impact on transforming issues which in turn support enhancing the economic position in a world where resources are limited. (Shepherd & Patzelt, 2021). Besides, eco architecture, local food production healthcare, and green textiles also affect other sustainable operations which are social and cultural.

However, it shows a critical approach to progression in the green entrepreneurship perspective. , although while doing these types of work many individuals face some difficulties to do the activities. For Instance, here the paucity of study that targets the concepts and the availability of work; the identification is inefficiently acknowledged. Although the waste management sector and others such as energy recycling are the portion where the discussion is still limited. There is a need to know more about other sectors such as eco skills training, consultation for eco business positions with health treatment centers. All

these sectors are diversified based on economic, cultural and geographical circumstances. (Fichter & Tiemann, 2020). More than that, these organizations have non-mentionable or lesser authority on eco-financing due to the limitation of structural and financial binding. From the “World Bank” data of 2021, it is identified that only 35% of middle-level as well as small startup company entrepreneurship companies (SMEs) all had a chance to connect and get financial help and credential benefits to achieve organizational betterment in 2021. (World Bank, 2021). This scarcity of funding creates a limitation in the growth and efficiency of the business and hinders the eco-entrepreneurship future ability and potential.(Ihugba et al. , 2021; Masocha, 2019). “Eco-entrepreneurship” may accelerate the influence on people's basic needs such as food, work status and livelihood. e at a higher rate. However, it will depend on the urban and rural setting in which the business will be established. (Aghelie, 2017).

This study consists of the concept of “Eco-entrepreneurship” of the growing nations with the intention of educational activities as well as practical implementation. Sriram et al. (2020) have stated that it is an upcoming probability and capability for “eco-entrepreneurship” to create stable job security and generation in the village and city area settings and space might be advantageous through the investor and big green-based organizations or farms. In the recent past, there has been about a 10% increase in investment in sustainable technologies because of demand and it is expected in the world wide market to hit “$12 trillion” by 2030 (World Economic Forum, 2022). However, it is visible that gap in the connection to eco-entrepreneurship will create barriers while creating the issues into scope for the companies and other unexplored chains. Besides, to build a region-based information set with suitable recommendations for the other authorities of policy creation or stakeholders to improve the business and stability of the economy (Sharma et al., 2021). For Example, to be part of the detailed and elaborative permanent achievement there are sectors like the water

processing unit, eco and cultural sector (Bansal et al. , 2022). This particular study is completed in order to find out the possibilities and challenges of enhancement and progression on social and cultural issues through “eco entrepreneurship” and to also discuss things like poverty, insecurity of food and how it can be eradicated. It will also assist in developing world wide sustainability following the “Sustainable development goals” (SDGs) of the United Nations. (UN, 2019).

Research Questions:

RQ1 : What are the key environmental challenges (themes) faced by eco-entrepreneurs in developing countries, considering research areas (contexts) and methodologies (used methodology)?

RQ2: What are the key opportunities for eco-entrepreneurship to create sustainable business solutions in response to environmental challenges in developing countries?

In short, the background of “Eco-entrepreneurship” was in the first part of this research and the relevance which is based on the economic and environmental aspects of the growth in the growing nation . Looking at the second portion of this study, In the second part it underlined the importance of recognizing the issues, which were discussed as economical, socio-cultural, financial and infrastructural barriers and explained the main shortcomings of the previous knowledge about them. Lastly, the third portion stresses the rationale of this particular study to focus on the disruption and lack of information and the possibility of “eco-entrepreneurship” to build a constant system by turning the challenges into opportunities in growing nations . This paper is aimed at presenting the task to identify the main scope and benefit for entrepreneurs and stakeholders to participate in creating eco-entrepreneurial growth in the growing nation . All these parts will explore through

findings, research methodology, proper recommendations for the subsequent research and practical utilization.

Sustainable entrepreneurship plays a significant role on tackling problems to do with the environment and at the same time improving on the economic improvement especially on the third world countries. According to many authors, eco-entrepreneurship improves both environmental and economic performance by offering new business solutions to environmental problems (Gast et al., 2020). Thanks to the development of green economics, sustainable entrepreneurship has recently become one of the significant trends in the modern business environment with the main goal of achieving economic objectives while preserving the environment at the same time. Eco-entrepreneurship is common in developed countries especially in energy, farming and waste management industries. IRENA (2020) reported that renewables contributed 72 per cent of new energy capacity in 2019; therefore, it is possible to undertake eco-entrepreneurship in the sectors.

However, in developing countries, the growth of eco-entrepreneurship is hampered due to financial constraints, inadequate infrastructure and limited technological resources. According to Shepherd and Patzelt, more than 65% of green ventures in these regions face a financing problem, which hampers their growth and sustainability. Moreover, only 35% of the SMEs have appropriate funding sources available to them, which slows down the progress more (World Bank, 2021). This financial exclusion implies that majority of the entrepreneurs operating in the resource-scarce environments cannot afford to implement sustainable business strategies.

The literature also reveals a general ignorance and training deficit concerning eco-entrepreneurship in developing nations. For example, Masocha ascribes socio-cultural factors as the chief barrier to the execution of eco-entrepreneurial initiatives in Nigeria and other nations. The future of industries including eco-skills training, green consulting and sustainable health care are still unclear in these areas. But Sriram et al inform that eco-entrepreneurship provides an opportunity to transform rural and urban communities, create employment, fight poverty and carry out social innovations on the basis of environmental initiatives. Further, eco-entrepreneurship can assist in achieving the United Nations Sustainable Development Goals (UN SDGs) and the consumption and production patterns (UN, 2019).

Research Methodology

In line with the six steps outlined by Rowley and Stack (2004), the study employed an SLR approach to achieve the objectives. Systematic reviews assist in understanding the current research and what it entails. “An SLR identifies the current research on a given topic and highlights the gaps and further research needed on a particular research question. ” (Feak & Swales, 2009, p. 3) It is a structured approach to analyzing data or other sources of knowledge and developing a strategy for reviewing the literature, including the points that define it (Paul & Barari, 2022). The SLR method is widely applied in the social sciences (Tranfield et al., 2003) and is frequently employed in entrepreneurship research.

Step 1. Define the research problems.

Step 2. Establishing literature review.

Step 3. Formulate hypotheses or research questions.

Step 4. Data collection.

Step 5. Data Analysis.

Step 6. Conclusion.

Themes	Explanations
Research Questions	1. What are the main challenges for establishing eco-entrepreneurship in global business practices? 2. What are future opportunities for establishing eco-entrepreneurship in global business practices?
Objectives	1. To draw attention to challenges & opportunities for eco-entrepreneurship establishment considering these themes context and methodologies.
Data string	➢ “Environmental entrepreneurship”, or “Green entrepreneurship”, or “Eco friendly”, or “Eco Entrepreneurship”.
Inclusion Criteria	➢ We consider (quantitative, qualitative, and mixed) articles related to our topic. ➢ Our selected topic (2012-2024)
Data sources	➢ Bing, Google Scholar, Research Gate. com, ScienceDirect, Springer Link.

To answer the research questions on eco-entrepreneurship in developing countries, this research will employ a qualitative research method that will involve the use of secondary data and case studies. This research methodology will enable the researcher to have a broad view of the problems encountered and the prospects of this discipline.

Data Reporting

This part will contain some statistical values and data regarding the 22 articles collected. It will help the reader interpret the data and understand the areas of research (contexts) and methodologies by graphical representations.

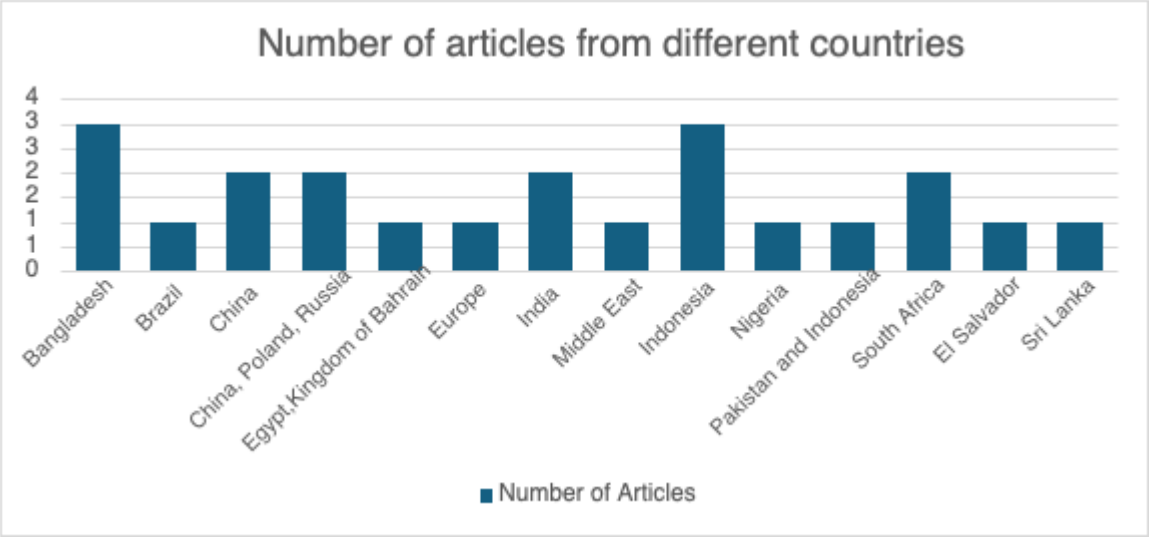

Fig 1: Article sources from different countries

This figure demonstrates that three articles were taken from the Bangladesh Context, three were from the Indonesian context, two articles were from India and China context, one from Sri Lanka, South Africa, Nigeria and El Salvador context.

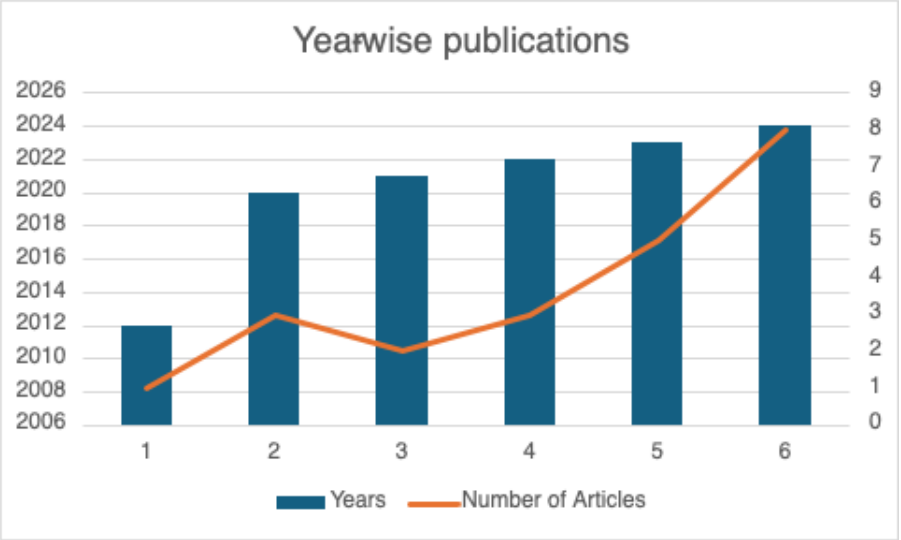

Fig 2: Year-wise publications

This figure demonstrates that the number of articles relating to Eco-Entrepreneurship is slowly increasing. Out of the 22 chosen articles, six (27.27%) were published in the year 2024, and four (18.18%) were published in 2023.

Research Context (C) and Methodologies (M)

No.	Authors	Name of The Journal	Context	Methodology
1	Odeyemi et al. (2023)	Sustainable entrepreneurship: A review of green business practices and environmental impact	Nigeria	Qualitative method
2	Shehawy and Khan (2024)	Consumer readiness for green consumption: The role of green awareness as a moderator of the relationship between green attitudes and purchase intentions	Saudi Arabia	Quantitative method
3	Han and Zhou (2024b)	Responding to consumer environmental awareness: A variational inequality approach to green manufacturing optimization	South Asia	Quantitative method
4	Ritter et al. (2015)	Motivations for promoting the consumption of green products in an emerging country: exploring attitudes of Brazilian consumers	Brazil	Mixed methods
5	Dlamini and	Investigating factors that influence the purchase behavior of green cosmetic products	South Africa	Quantitative method

	Mahowa (2024)			
6	Rahaman et al. (2024)	Green production and consumption of textiles and apparel: Importance, fabrication, challenges and prospects	Bangladesh	Qualitative method
7	S. Khan (2024)	Vertical Farming: Propelling agriculture into a new era of sustainability	Bangladesh	Qualitative method
8	Achmad et al. (2023)	Government support, eco-regulation and eco-innovation adoption in SMEs: The mediating role of eco-environmental	Indonesia	Quantitative method
9	Mondal et al. (2023)	Assessing enablers of green entrepreneurship in a circular economy: An integrated approach	India	Mixed method
10	Islam (2023)	Newly developed green technology innovations in business: paving the way toward sustainability	Bangladesh	Qualitative method
11	T. Khan et al. (2023)	Private healthcare initiatives in developing countries – Building sustainable neurosurgery in Indonesia and Pakistan	Pakistan and Indonesia	Qualitative method

12	Saqib and Shahzad (2024)	Pathways to sustainability: Evaluating the impact of green energy, natural resources, FinTech, and environmental policies in resource-abundant countries	Saudi Arabia	Qualitative method
13	De Mello et al. (2022)	The impact of the institutional environment on entrepreneurial activity: an analysis of developing and developed countries	Brazil	Quantitative method
14	Sreenivasan and Suresh (2022)	Green Start-ups: Start-ups Accelerating Sustainability	India	Qualitative method
15	Rahmawati et al. (2021)	Green Entrepreneurship: A Study for Developing Eco-Tourism in Indonesia	Indonesia	Qualitative method
16	2021	Climate change policy and entrepreneurial opportunities	El Salvador	Quantitative method
17	Jayasinghe et al. (2020)	Sustainable waste management through eco-entrepreneurship: an empirical study of waste upcycling eco-enterprises in Sri Lanka	Sri Lanka	Qualitative method

18	Salaheldeen et al. (2024)	Green Entrepreneurship and Sustainability in Developing Countries: Opportunities, Challenges, and Future Research Directions	Bahrain	Quantitative method
19	Apostu and Gigauri (2023)	Sustainable development and entrepreneurship in emerging countries: Are sustainable development and entrepreneurship reciprocally reinforcing?	Europe	Quantitative method
20	Jeong et al. (2020)	The Role of Venture Capital Investment in Startups' Sustainable Growth and Performance: Focusing on Absorptive Capacity and Venture Capitalists' Reputation	South Africa	Quantitative method
21	Guo et al. (2020b)	Green Technology and Sustainable Development: Assessment and Green Growth Frameworks	Russia	Quantitative method
22	Gunawan (2012)	Ecopreneurship Concept and its Barriers: A Literature Review	Indonesia	Qualitative method

Results and Discussions

We divided our key findings into three categories & they are - Themes, Challenges and Opportunities. We have highlighted the challenges along with themes in one table and opportunities in another. Each of the challenges and opportunities has several factors associated with them.

The first challenge the eco-entrepreneurs face is the high investment and limited funding. To establish a startup that focuses on green business policy and eco-friendly products, financial support becomes the most crucial resource in such cases. In most cases, entrepreneurs cannot start their new projects as a result of a lack of adequate investment (Jeong et al., 2020). Another challenge is the lack of support from the government and required policies. When it comes to promoting green businesses there has been limited focus from the government. According to Achmad et al. (2023), government support can encourage eco-entrepreneurs and ultimately increase the likelihood of adopting eco-friendly innovation and practices. The lack of promotion and support also results in a lack of consumer awareness. This gap exists as green marketing is often vague and misleading with no proper information regarding the actual benefits of the products. Consumers either have no idea about the benefits of using eco-friendly products or they simply do not want to pay a slightly higher price to buy those products (Shehawy & Khan, 2024). One of the most significant challenges for eco-entrepreneurs is acquiring green technologies and proper infrastructure, especially in developing countries. Due to this entrepreneurs cannot get their expected outcomes efficiently. It often creates product shortages or delays in the supply of the products causing a

loss for the business and dissatisfaction among the consumers. Another fact of doing green business in developing countries is the cultural and social barriers that are resistant to adopting any changes. Lack of skills and education also make things complicated for the development of eco-entrepreneurships. It is also concerning for entrepreneurs as they face issues regarding the expansion or development of their businesses as there is a shortage of educated and skilled workers. Things can get more challenging with extreme weather or climate change as it can be linked with economic losses and the unavailability of certain raw materials for production.

Some opportunities are mentioned with the themes that will encourage the eco-entrepreneurs to go ahead with their ventures. To support the entrepreneurs with their green business there program like - Green MicroFinance that will offer finance to actively support socially and technologically appropriate innovation. Environmental policies play an important role in green businesses. In such cases the green audit can help the entrepreneurs to develop their business and identify cost-effective management techniques. The economy and agriculture are seen as opportunities. As the approach of green entrepreneurship supports the principles of a circular economy, entrepreneurs can reduce waste and optimize their resources efficiently (Badjeena et al., 2024). There is also a social and cultural aspect of opportunity seen in terms of eco-entrepreneurship. This results in the sustainable textile industry, healthcare sector, and educational practices. These eco-friendly practices overall will bring more advancement in society as well as positively impact people’s lives. Using an efficient water irrigation system and renewable energy sources is part of the environmental opportunity, as it will ensure an economic advantage and reduce any environmental burdens for the entrepreneurs. Sustainable fisheries and local food production will ensure food security in society while raising the consumer demand for fresher and healthier food.

Challenges

Table: Challenges faced by Eco-entrepreneurs in developing countries

Main Themes	Challenging Factors	Cited Authors
Financial Barriers	High Startup Costs	Darnihamedani et al. (2018), Sreenivasan, A., & Suresh, M. (2022), Jeong et al.(2020), Cojoianu et al.(2020)
	Limited funding	Jeong et al. (2020), Sreenivasan and Suresh (2022),Van Den Heuvel and Popp (2023)
Regulatory and Policy	Lack of Government Support	Achmad et al. (2023), Donis et al. (2023)
	Regulatory complexity	Donis et al. (2023), Mahmood et al. (2022)
	Unclear or Inconsistent Environmental Policies	De Mello et al. (2022), Cojoianu et al. (2020)
Market and Consumer Challenges	Lack of Consumer Awareness	Shehawy and Khan (2024), Han and Zhou (2024)
	Price Sensitivity	Chen et al. (2024), Dlamini and Mahowa (2024)
Technological and	Limited Access to Green Technologies	Guo et al. (2020), The Economist(2020)

Infrastructure Constraints	Inadequate Infrastructure	Ajakaiye, D. O.& Oyejide, T. A. (2012)
Cultural and Social Barriers	Resistance to Change	Pandey (2019), Chatterjee et al. (2023)
	Lack of Skills and Education	Young (2021)
Environntal and Resource Limitatons	Resource shortage	Crecente et al (2021), Mahmood et al (2022)
	Climate Change	Darnihamedani et al. (2018),Crecente et al(2021), Cojoianu et al(2020)

In this result and discussion part, 6 themes of barriers and challenges are discussed. Each theme glances into different obstacles that eco-entrepreneurs face. First of the challenges is financial constraints which is a major factor of concern in most organisations. Some of the most important difficulties that eco-entrepreneurs meet are the need for more capital and high initial investment. Sreenivasan and Suresh (2022) have also noted that the fixed cost of investment for green start-ups is pretty steep. This is made worse by the fact that financial capital is still a limited resource that hinders the new ventures from accessing the required capital to finance their new ventures and operations (Jeong et al., 2020). Other major concerns that also need to be addressed include regulatory and policy issues. Lack of government support and a high level of regulation is the problem for eco-entrepreneurs. This

is because, according to Achmad et al. (2023) and Mahmood et al. (2022), the fluctuations and uncertainties of environmental policies hamper progress. These regulatory difficulties can cause an increased level of risk and issues with business management for eco-entrepreneurs. The other factor is the market and consumer issues. The market is hindered by a lack of awareness among consumers about the benefits of using products that are friendly to the environment. In addition, the consumer's price sensitivity means that while green products are often costlier than conventional products, they are unable to enter the market due to the high costs (Shehawy & Khan, 2024). This is made worse by the fact that the consumer is not well-informed and educated to the extent required (Han & Zhou, 2024).

Some technological and infrastructure considerations are also quite apparent. There is also the issue of unavailability or limited access to green technologies as well as inadequate facilities to support the development and implementation of these green solutions (Guo et al., 2020). The major issue that business people face is the issue of acquiring the right technology and amenities that may affect their operations. Other conditions which include cultural and social constraints, resistance to change, and lack of skills and education make things even more difficult. Some of the challenges that may limit the development of eco-entrepreneurship include a shortage of skilled human capital and organization's reluctance to change to new practices (Dlamini & Mahowa, 2024). These barriers suggest that there is a need to allocate more resources to education and skills training to promote the development of sustainable enterprises. Some of the challenges are therefore environmental and resource constraints. There can be a scarcity of resources for green technologies and negative impacts of climate change may reduce the availability of such materials (Crecente et al., 2021). These are constraints that require to be resolved and with originality and considering different possibilities.

Opportunities

Table: Opportunities for Eco-entrepreneurs in Developing Countries

Main Themes	Opportunity Sectors	Cited Authors
Monetary Prospects	Green MicroFinance	Shahidullah and Haque (2015), Rouf (2012), Uddin et al.(2021)
	Impact Investing	Bouri et al. (2018), Chiappini et al. (2023), Schramade et al. (2019), Dam (2006)
Political & Legal scopes	Policy Consulting and Green audits	Nazarova et al. (2021), D'Amato et al. (2017), Stahel (2016)
Economic & Agriculture	Circular Economy	Badjeena et al. (2024),Mondal et al. (2023), Arruda et al. (2021), lomsma & Brennan (2017)
	GreenTech	Islam (2023), Sakhrekar & Sayankar (2023), Abdelkafi & Hansen (2018)
	Vertical Farming	S. Khan (2024), Kalantari et al. (2017), Van Den Heuvel, M., & Popp, D. (2023)
Social &	Sustainable Textile	Fadara and Wong (2022),Rahaman et al. (2024)

Main Themes	Opportunity Sectors	Cited Authors
Monetary Prospects	Green MicroFinance	Shahidullah and Haque (2015), Rouf (2012), Uddin et al.(2021)
	Impact Investing	Bouri et al. (2018), Chiappini et al. (2023), Schramade et al. (2019), Dam (2006)
Political & Legal scopes	Policy Consulting and Green audits	Nazarova et al. (2021), D'Amato et al. (2017), Stahel (2016)
Cultural	Sustainable Healthcare	Khan et al.(2023), Guo et al.(2020)
Educational and Infrastructure	Eco entrepreneurial Skills Training	Cojoianu et al.(2020), Fitriansyah, F. (2023)
	Green Architecture	Ragheb et al. (2016), Mohammed (2021), Crecente et al.(2021)
Environmental	Water efficient irrigation system	Bounajra et al.(2024),Levidow et al. (2014)
	Renewable energy	Gabriel (2016), Uddin et al. (2019), Islam et al. (2017)

Despite the challenges, there is also scope for opportunities that give eco entrepreneurs to progress in their cause. There are 7 themes for opportunities mentioned in this paper.

Financial opportunities like green microfinance and impact investing offer other funding sources that can help develop eco-entrepreneurial opportunities (Van Den Heuvel & Popp, 2023). These financial instruments can assist in filling the gap which has been occasioned by traditional funding limitations. Political and legal spheres are the other opportunities that can be explored. Policy consulting and green audits can help in establishing the right policies and standards for the development of eco-entrepreneurship (Cojoianu et al. , 2020). In this way, eco-entrepreneurs can help to change the policy and regulatory environment to be more conducive to their business. There are also economic and agricultural opportunities that can be used as a development potentiality. The circular economy is efficient in the utilization of resources and minimizes waste, GreenTech and vertical farming are solutions to the challenges faced in agriculture (Guo et al., 2020). These approaches can lead to economic development while at the same time being environmentally friendly.

Society and culture as a whole gain from the developments. Textile and healthcare products, education and infrastructure development including skills development in eco-entrepreneurial ventures and green building can improve the quality of life and sustainability of communities (Chen et al., 2024). The above initiatives are also beneficial for social advancement and the development of eco-entrepreneurship. Environmental opportunities include the availability of water-efficient irrigation techniques and renewable energy sources. Such innovations can greatly minimize environmental effects and encourage sustainability (Mahmood et al., 2022).

From this we can say, it is possible to state that despite the numerous challenges that eco-entrepreneurship in developing countries has, it is a rather promising field for economic, social, and environmental development. If these challenges are well addressed and the

available opportunities are well exploited, eco-entrepreneurship can foster significant improvements in these regions.

Conclusion

In this review paper, we have analyzed and presented the state of eco-entrepreneurship in developing countries, specifically emphasizing the challenges faced by green entrepreneurs and the opportunities created by sustainable initiatives. We have used the SLR approach to accomplish the objective of the paper which is achieving economic growth in developing countries by adapting and using sustainable business concepts. Also, we have discussed the major challenges of sustainable business under 6 themes and the opportunities for how to advance under 7 themes. Even though remarkable development has been seen in applying eco-friendly concepts in business models, there is still a huge gap in factors like financial market barriers, regulatory policy, consumer awareness, technological constraints and resource obstacles regarding sustainable products. For this, the findings suggest that the government and private sectors can work jointly to create a flexible environment for eco-entrepreneurs by investing in green technology, circular economy, sustainable healthcare, vertical farming, and education can help to boost the green business model. This paper is limited to the context of developing countries' regions. In conclusion, by cultivating a supporting ecosystem, developing countries can achieve their full potential of green entrepreneurship which will help to strengthen the economy and sustainable development.

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