



EMERALD POINTS

BREAKING GROUND

Empowering Women in the
Construction Industry

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INVESTOR IN PEOPLE

*To the Building Technology Department, Accra Technical University.
For the unwavering love, encouragement and sacrifices that the department
members have made to support our dream. Your belief in us has guided us
through every chapter of our lives. This book is a tribute to your enduring
faith and the values you have instilled in us. Thank you for always believing in
us, even when we doubted ourselves.*

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FOREWORD

It is with great pleasure that I introduce you to the pages of *Ground Breaking: Empowering Women in the Construction Industry*. As I had the privilege of perusing its contents before publication, we found ourselves drawn into a world of profound insight, captivating narratives and thought-provoking analyses. In this foreword, we aim to provide a glimpse into the richness that awaits you within these chapters. From the outset, it became evident that the authors have poured not only their intellect but also their heart and soul into this work. The result is a tapestry of ideas woven with precision and passion, inviting readers to embark on a journey of exploration and discovery.

Authors have a remarkable ability to distill complex concepts into accessible narratives, making even the most intricate subjects comprehensible to readers of all backgrounds. Whether you are a seasoned scholar or a curious novice, you will find *Ground Breaking: Empowering Women in the Construction Industry* to be both engaging and enlightening. Throughout these pages, authors tackle a diverse array of topics, ranging from women empowerment to gender equality and women in construction. Yet, amid this diversity, there exists a common thread, a commitment to fostering understanding, empathy and dialogue in an increasingly complex world.

What struck me most about *Ground Breaking: Empowering Women in the Construction Industry* is its relevance. In an era defined by rapid change and uncertainty, authors offer insights that are not only timely but also timeless. By grounding their analysis in both historical context and contemporary relevance, they shed light on pressing issues while also providing a framework for understanding their broader significance. It is my sincere hope that *Ground Breaking: Empowering Women in the Construction Industry* will find its way into the hands of readers around the world, enriching their lives and expanding their horizons in ways they never thought possible.

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PREFACE

Welcome to the journey of *Ground Breaking: Empowering Women in the Construction Industry*. As you hold this book in your hands, you are about to embark on a voyage through ideas, knowledge and perspectives that I hope will resonate with you deeply.

This preface serves as a compass, guiding you through the intentions, inspirations and aspirations that have fuelled the creation of this book. Within these pages lie not just words but fragments of experiences, insights and emotions woven together to form a tapestry of understanding. Writing *Ground Breaking: Empowering Women in the Construction Industry* has been an odyssey – a labour of love and passion. It emerged from a desire to explore, to question and to share. Each chapter is a reflection of countless hours spent pondering, researching and crafting, with the hope of offering something meaningful to those who seek it.

Throughout this book, you will encounter diverse perspectives, challenging ideas and perhaps even moments of introspection. I aim to spark conversation and to invite you into a dialogue that extends beyond the confines of these pages. As you delve into the chapters ahead, I encourage you to approach them with an open mind and a curious heart. Engage with the content, question it, challenge it and allow it to challenge you in return. For it is through this exchange of ideas that we grow, learn and evolve.

I extend my deepest gratitude to those who have supported us on this journey, mentors, friends and loved ones who have offered encouragement, feedback and unwavering belief in the value of this endeavour. And to you, dear reader, thank you for joining me on this expedition. May *Ground Breaking: Empowering Women in the Construction Industry* serve as a guiding light, illuminating new paths of understanding and inspiring you to embark on your quest for knowledge and wisdom.

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ACKNOWLEDGEMENTS

Writing a book is never a solitary endeavour; it is the culmination of support, encouragement and collaboration from numerous individuals. As we reflect on the journey of bringing *Ground Breaking: Empowering Women in the Construction Industry* to fruition, we are grateful for the many people who have contributed to its creation.

First and foremost, we would like to express our deepest appreciation to Mr Seth Allotey, whose unwavering support and belief in this project provided the foundation upon which it was built. Your guidance, encouragement and insightful feedback were invaluable every step of the way.

We are also grateful to Mr Mark Brookman-Amisah and Mr Gladstone Kportufe for their expertise and assistance. Your dedication to excellence and attention to detail greatly enhanced the quality of this book.

To our friends and family, thank you for your patience, understanding and words of encouragement during the writing process. Your unwavering support sustained us through the inevitable challenges and doubts, and we are profoundly grateful for your presence in our lives.

We would like to extend our appreciation to the team at Emerald, whose professionalism, enthusiasm and expertise have been instrumental in bringing this book to publication. Your commitment to excellence and passion for sharing knowledge has made this collaboration a truly rewarding experience.

Finally, to the readers of *Ground Breaking: Empowering Women in the Construction Industry*, thank you for your interest and engagement. It is our sincere hope that this book will inform, inspire and provoke thought and that it will spark meaningful conversations and reflections long after its pages have been turned.

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CONSTRUCTION AND ITS WORKFORCE

ABSTRACT

Chapter one of this valuable book focuses primarily on the construction industry and emphasises on thematic areas such as industry entities, including its social and economic impact supported by the workforce within the industry. The workforce, which consists of a wide variety of training, semi-skilled and unskilled labourers, is crucial to the building sector. These people are vital to the conception, management and accomplishment of construction projects in various industries. The chapter also highlights the lack of female gender involvement and how the gender gap would be filled.

Keywords: Construction; female; labour; skill; unskill; workforce

1. INTRODUCTION

The book *Breaking Ground: Empowering Women in the Construction Industry* provides a thorough analysis of the obstacles, chances and programs meant to advance gender equality and empowerment in the historically male-dominated building sector. This groundbreaking study explores the many dimensions of the construction sector, illuminating the obstacles that women encounter and providing guidance on tactics for promoting equality and inclusivity. For an extended period, the construction industry has been marked by a gender disparity, wherein women constitute a minority within the workforce. The objective of this book is to investigate the reasons behind the underrepresentation of women in construction-related roles, with a focus on

historical background, societal standards and organizational dynamics. 'Breaking Ground' offers a road map for removing obstacles and fostering an inclusive construction workplace by looking at the experiences of women who have successfully navigated this field and case studies of businesses enacting progressive practices. For those working in the construction business, legislators and advocates who want to make the industry a more equal and inclusive place for women, 'Breaking Ground' is an invaluable resource. With an emphasis on breaking down barriers, promoting inclusivity and opening doors for women, 'Empowering Women in the Construction Industry' offers an engaging look into the ever-changing world of the construction industry. This effort aims to break down barriers, dispel myths and advance an empowerment and equality-focused culture in a typically male-dominated field. Through an exploration of the distinct obstacles encountered by females in the construction industry and the presentation of triumphant tales, this project seeks to stimulate transformation and augment the continuous discourse around gender parity in professional settings. 'Empowering Women in the Construction Industry' is a blueprint for a more diverse and equitable future for the industry, not just a cry for change. This effort seeks to promote a culture shift that recognises the significant contributions made by women in creating the built environment through careful analysis and strategic ideas. This book encourages a change towards a future in which women are integrally involved in defining the built environment, thereby contributing to the ongoing discourse on diversity and empowerment.

2. CHARACTERISTICS OF THE CONSTRUCTION INDUSTRY

The construction sector is a dynamic and complicated one, distinguished from other industries by several unique features. [Chapman and Ward \(2003\)](#) opined that stakeholders, politicians and experts must comprehend these qualities to effectively navigate and leverage the potential presented by this complex industry. The construction sector typically uses a project-based business model (Construction Industry Institute, 2018). The scale, complexity and duration of projects can differ greatly; they might range from modest residential developments to massive infrastructural projects. This emphasis on projects adds to the industry's cyclical cycles and particular difficulties. Collaboration across a range of stakeholders, including suppliers, contractors, subcontractors, architects, engineers and regulatory agencies, is essential for construction projects to be successful. The achievement of the project is dependent on

effective interaction and coordination due to the complex web of interactions within the sector. Construction projects frequently require large capital expenditures for labour, supplies and machinery. Due to its capital-intensive nature, the industry is prone to changes in interest rates, the state of the economy and the availability of funds (Chapman & Ward, 2003). The construction business must adhere to safety rules, building requirements and environmental norms. The regulatory environment is varied and region-specific, which makes project planning and implementation more difficult. The building sector depends significantly on both skilled and unskilled labour. There are craftsmen, engineers, project managers and labourers among the workforce's diverse members. The industry is characterised by Project budgets and schedules that are greatly impacted by labour productivity and availability. Inherent risks and uncertainties associated with weather, supply chain interruptions and unforeseen site circumstances are present in construction projects. For a project to be profitable and successful, effective risk management is essential (Chapman & Ward, 2003). The particular possibilities and challenges faced by stakeholders are defined by the features of the construction business, which include its collaborative environment, project-centric approach and responsiveness to technological improvements. In an ever-changing industry, this knowledge is the basis for wise choices and efficient administration. The construction industry is defined by its supply chain management, globalisation, diversity, fragmentation, cyclical nature and reliance on labour, regulations, technology, sustainability and project management. To negotiate the complexities skilfully of the industry and accomplish successful project outcomes, it is imperative that stakeholders in the construction sector, including contractors, subcontractors, suppliers, designers, project managers, policymakers and investors, have a thorough understanding of these characteristics (Construction Industry Institute, 2018). The construction sector can adjust to changing market conditions, tackle new issues and help create resilient, sustainable and inclusive built environments by embracing innovation, teamwork and sustainable practices.

3. ECONOMIC IMPACT OF THE CONSTRUCTION INDUSTRY

In both developed and developing nations, the construction sector is a major driver of employment, economic growth and infrastructural development. Its influence is felt in several sectors, impacting important economic metrics including GDP, employment and investment levels (Deloitte, 2018). An

important factor in a country's economic growth is the construction sector, which stimulates investment, jobs and the development of infrastructure. Its influence goes beyond the construction of actual buildings; it affects other industries and also adds to the general vibrancy of the economy (Deloitte, 2018). Policymakers, investors, and other stakeholders who want to capitalize on the construction industry's potential for long-term expansion must comprehend its economic ramifications. The construction industry's status as a key employment is among its main economic contributions. A wide variety of skilled and unskilled individuals, such as architects, engineers, project managers, labourers and support staff, can find employment in this sector. The creation of jobs has a knock-on effect on associated industries, which supports a healthy labour market. Projects in the construction business require a large amount of capital, which means large expenditures on labour, supplies and machinery. Because the sector is capital-intensive, demand for complementary goods and services is stimulated in addition to driving economic activity within the sector, which promotes capital formation and economic growth (Bhattacharya & Wardhana, 2017). A common indicator of the state of the economy is the construction sector. Increased public and private investment in building projects can boost economic recovery during recessions by providing income, jobs and business environment confidence. Bhattacharya and Wardhana (2017) further suggested that the real estate market and the construction sector are intimately related, with the former influencing housing affordability, rental rates and property values. The growth of the residential, commercial, and industrial real estate sectors is facilitated by construction activity, which affects consumer spending and wealth development. Wide-ranging employment, investment and general economic well-being are all impacted by the building business. Policymakers and other stakeholders can create plans that maximise the industry's potential for long-term economic growth by acknowledging its many contributions. With companies, capital, and talent moving across international borders, the construction industry is becoming more globally integrated (Yiu & Tang, 2017). Increased efficiency and innovation in the construction industry are the results of globalisation's facilitation of the transfer of best practices, technology, and information. Research and development (R&D) spending stimulates innovation, boosts productivity and increases competitiveness in the construction sector (GCP, 2019). Innovations in technology, such as robotics, green building materials and building information modelling (BIM), have the power to transform the construction industry and produce favourable economic results.

3.1 Social Impact of the Construction Industry

The construction sector is a potent force that significantly affects people's quality of life on an individual and community level, and it does more than just create infrastructure and buildings as asserted by [Akintoye et al. \(2000\)](#). Beyond the tangible buildings, the social effects of construction can be seen in areas like cultural enrichment, community development and general societal well-being ([Akintoye et al., 2000](#)). To build resilient and sustainable communities, it is imperative to comprehend and capitalize on this influence. Communities are shaped in large part by construction projects, particularly those that are centred on urban development and regeneration. Community revitalisation is facilitated by mixed-use developments, affordable housing initiatives and infrastructure upgrades that create a sense of pride and belonging. Apart from the financial advantages, the construction sector is a noteworthy job creator, offering a wide range of roles to people with different abilities. This industry promotes professional development and skill development by acting as a training ground for apprenticeships and vocational education. Communities' well-being is directly impacted by the social infrastructure that is improved through the building of schools, hospitals and recreational areas. Social cohesiveness, general community resilience and health are enhanced by accessible and well-designed public areas ([Akintoye et al., 2000](#)). The cultural diversity of societies is enhanced by construction projects that prioritise the preservation and restoration of old structures. By preserving a link to the past, these initiatives also strengthen community identities and characters, encouraging a feeling of continuity and legacy ([Baccarini, 2019](#)). Beyond only building tangible structures, the construction sector shapes communities and affects societal well-being as a whole. Community members are included in the planning and decision-making stages of successful construction projects ([Chapman & Ward, 2003](#)). Through this involvement, initiatives are made sure to meet the objectives and goals of the community, which promotes social cohesiveness and a sense of ownership. By acknowledging and optimising these societal contributions, the building industry can function as a constructive agent for community advancement and cultural enhancement ([Chapman & Ward, 2003](#)).

The construction industry contributes significantly to inclusive development, meeting societal needs and reshaping social landscapes ([Baccarini, 2019](#)). The sector may maximise its positive social impact while minimising negative impacts by placing a high priority on social equity, sustainable practices and community engagement ([Akintoye et al., 2000](#)). To make sure that building projects help to create dynamic, resilient and socially inclusive

societies, collaboration between stakeholders, governments and local people is crucial. The construction sector may remain a driving force behind sustainable growth and constructive social change if it remains dedicated to ethical behaviour and meaningful involvement.

3.2 Environmental Impact of the Construction Industry

Despite being vital to the advancement of society, the building sector has long been linked to serious environmental problems (Acosta et al., 2021). The activities associated with building lead to ecological degradation through resource exploitation and waste creation. However, the business is moving towards greener practices as a result of a growing awareness of environmental sustainability. This section of the book informs how the construction industry affects the environment and emphasises how crucial it is to use sustainable practices. Massive amounts of raw materials, such as metals, aggregates and wood, are needed for construction projects. These resources' extraction and processing increase energy use, habitat degradation and deforestation (Tam & Tam, 2006). By recycling and using materials efficiently, sustainable construction techniques seek to reduce the depletion of resources. Although the construction sector is essential to the growth of the world economy, its operations hurt the environment. From resource extraction to energy consumption and waste generation, construction activities contribute to various environmental issues (Tam & Tam, 2006).

The building sector is highly dependent on limited natural resources, including water, minerals and timber. Soil erosion, habitat damage, and biodiversity loss can result from unsustainable extraction methods (Van Der Heijden et al., 2002). Using recycled materials, sustainable sourcing methods and alternative materials is necessary to mitigate resource depletion. A significant portion of greenhouse gas emissions is caused by the construction industry, mostly by the usage of heavy gear and cement manufacture (Acosta et al., 2021). Reducing emissions requires investing in cleaner building equipment, enhancing construction logistics and using low-carbon cement substitutes. Large volumes of waste, such as demolition and construction debris, are produced by construction activities. Reduce the environmental impact of waste associated with construction by implementing waste reduction initiatives, encouraging recycling and material reuse and embracing the circular economy. The construction sector can play a constructive role in environmental conservation as it adopts sustainable methods. The industry can help create a built environment that is more resilient and sustainable by using resources responsibly, cutting waste and designing with eco-friendliness (Acosta et al., 2021). The construction industry's environmental effect highlights

the pressing need for innovative, sustainable practices, and regulatory interventions to reduce environmental deterioration and enhance ecological resilience. The construction industry may reduce its ecological footprint and support international efforts towards environmental sustainability and climate resilience by using sustainable construction practices, championing environmental stewardship and embracing the ideas of the circular economy. To promote innovation, drive systemic change and build a built environment that strikes a balance between human needs and environmental preservation, stakeholders, industry actors, governments and civil society must work together (Tam & Tam, 2006). By committing to sustainable development, the construction sector can play a constructive role in environmental conservation and act as a catalyst for a more resilient and greener future.

4. CHALLENGES IN THE CONSTRUCTION INDUSTRY

The construction sector is the backbone of contemporary infrastructure, defining skylines and promoting economic expansion. Beneath its impressive accomplishments, however, are a plethora of formidable obstacles that put the industry's participants' resiliency and flexibility to the test (Dainty & Bagilhole, 2000). These obstacles, which range from labour shortages to complicated regulations, require creative thinking and teamwork to overcome. Although the construction sector is essential to economic expansion, it faces several obstacles that could prevent development and sustainability. Historically, the construction sector has been reluctant to accept new technologies quickly (Ofori, 1990). One of the challenges is incorporating cutting-edge construction technologies into conventional operations, such as Building Information Modelling (BIM), robotics and automation. Adopting technology can boost productivity, cut expenses and improve project results (Dainty & Bagilhole, 2000). For construction industry specialists, navigating a complicated web of rules and standards is a major task. Paying close attention to local building laws, environmental restrictions and safety standards is necessary for compliance. Simplifying rules and encouraging uniform procedures can lessen the load on the sector. The environment is significantly affected by the construction sector. The perpetual challenge lies in striking a balance between environmental sustainability and economic prosperity. To lessen these difficulties, green building techniques, eco-friendly material adoption and sustainable construction approaches are crucial (Ofori, 2019).

The construction industry supply chain may be disrupted by international occurrences like pandemics and geopolitical tensions, which could result in delays and higher expenses. To overcome these obstacles, supply chain managers must embrace digital technologies, diversify their supplier sources, and create robust supply chain plans. Keeping construction workers safe is a constant struggle (Cordero & Roig, 2014). Construction sites continue to be dangerous places despite improvements in safety laws and procedures. Ensuring safety problems are addressed through strict adherence to safety protocols, ongoing training programs and technological advancements for site safety. The lack of qualified workers in the construction sector is made worse by changing demographics and insufficient training initiatives. The scarcity may be addressed and a competent labour force for the future can be guaranteed by supporting apprenticeships, vocational education and workforce development initiatives. The construction sector faces a wide range of formidable obstacles, from environmental concerns and regulatory compliance difficulties to labour shortages and safety threats (Dainty & Bagilhole, 2000). Industry stakeholders must work together to address these issues, embrace technology-driven solutions proactively and demonstrate a dedication to sustainability and innovation. Through aggressively addressing these issues and adopting a continuous improvement mindset, the construction sector can surmount barriers, improve project results and clear the path for a future that is more robust and sustainable (Cordero & Roig, 2014).

5. WORKFORCE IN THE CONSTRUCTION INDUSTRY

The workforce in the construction business is essential to its success, but it faces a wide range of opportunities and problems in a constantly changing environment (Braverman, 1974). Particularly in important trades and professions, the construction industry is beset by a continuous skills deficit. To close these skills and competency gaps and guarantee a trained and competent workforce, a proactive strategy for workforce development is necessary, involving strong training programs, apprenticeships and collaborations with academic institutions (Construction Industry Institute (2019)). The ageing workforce makes succession planning and knowledge transfer difficult. Construction organisations must put in place efficient succession plans, mentorship programs and efforts to draw in and keep younger people to lessen the impact of retiring workers. With the introduction of digital technology, construction workers now need to be digitally literate and able to adjust to new tools like construction management software and Building Information Modelling (BIM).