

WASTE TO WEALTH:

TOWARDS CIRCULAR ECONOMY



A Blueprint for India's Sustainable Future

Himanshu Tilwankar



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First Edition

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A Blueprint for India's Sustainable Future

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Foreword

Across the globe, societies are grappling with the mounting crisis of waste — a challenge that is no longer confined to overflowing landfills or polluted water bodies, but one that threatens the very systems that sustain human and ecological well-being. India, producing nearly 62 million tonnes of municipal solid waste annually, recycles less than 30 percent of it. By 2030, this figure is expected to rise by over 40 percent if consumption patterns and linear economic models remain unchanged. Yet, embedded within this challenge lies an immense opportunity: transforming waste into a resource—a true “waste to wealth” paradigm.

Himanshu’s *Waste to Wealth: Towards Circular Economy* arrives at a moment of both urgency and possibility. Drawing from his expertise as an environmental engineer, Himanshu meticulously navigates through India’s diverse waste streams — from municipal solid waste to e-waste, plastics, textiles, and construction debris — offering a comprehensive roadmap for reclaiming value from materials society has discarded. Each chapter is a step deeper into understanding how re-thinking waste management can unlock economic, social, and environmental co-benefits.

This book begins by exposing the stark reality in Chapter 1, “A Nation Drowning in Its Own Waste,” reminding us of the scale of the crisis, and yet daring us to see waste as a *hidden goldmine*. Subsequent chapters reveal practical pathways: circular loops in material flows, innovative recycling systems, bio-value generation from organics, and responsible handling of complex streams such as e-waste and C&D waste. Particularly insightful are the discussions on policy frameworks, business leadership through ESG, and financing the transition, which together form the backbone of a functioning circular ecosystem.

As India commits to its net-zero 2070 vision and aligns with the Sustainable Development Goals, the circular economy offers not just an environmental imperative but also an economic opportunity

estimated at \$624 billion by 2050 (NITI Aayog, 2022). The book's strength lies in linking macro-policy ambitions with micro-level action — from local waste entrepreneurs and citizen initiatives to industry-scale interventions and educational reforms. It showcases that circularity is not an abstract theory, but a practical, inclusive movement that thrives on innovation, collaboration, and behavioural change.

What makes *Waste to Wealth: Towards Circular Economy* particularly relevant for practitioners is its multi-dimensional approach. Whether you are a municipal officer, environmental consultant, CSR manager, policymaker, or student, you will find in these pages both inspiration and implementation guidance — case studies, models, and frameworks that can inform real-world projects. The final chapters, “Blueprint for Action” and “Future Forward”, aptly capture the spirit of collaboration — that everyone has a role to play in the circular transition, from individuals to industries and institutions.

Himanshu Tilwankar's contribution is timely and commendable. This book bridges the gap between environmental science and actionable policy, between innovation and inclusion. It transforms the narrative of waste from despair to possibility — urging us to see value where we once saw only loss.

As someone who has worked across sectors to advance the circular economy in India, I believe this book will serve as a vital guide for those seeking to turn knowledge into action and policy into practice. The journey from *waste to wealth* is not a distant dream — it is a pathway that begins with awareness, supported by evidence, and sustained by collaboration. This book lights that path.

Shalini Goyal Bhalla

Managing Director,

International Council for Circular Economy

New Delhi, India

Preface

Purpose of the Book

India today stands at a pivotal crossroads. With unprecedented urbanization, burgeoning consumption, and evolving lifestyles, the country is witnessing a dramatic escalation in the volume and complexity of waste. Overflowing landfills, marine and freshwater pollution, air contamination, and the burdened public health system are no longer isolated issues; they are urgent calls to reimagine how we view and manage waste.

This book, “Waste to Wealth: Towards Circular Economy”, has been written with a singular purpose: to catalyse a shift in perspective from a linear “take-make-dispose” model to a circular economy that closes the loop through reuse, recycling, and regeneration. It seeks to recast “waste” not as a liability but as a latent resource, a potential engine for economic, environmental, and social transformation.

The book aspires to:

- Illuminate the concept of a circular economy and its critical relevance to India’s growth story.
- Present practical, scalable models of waste reduction, segregation, valorization, and policy interventions from across India and the globe.
- Offer a roadmap that integrates policy, practice, innovation, and public participation.
- Inspire multi-stakeholder action, bridging communities, governance structures, industries, and individuals.

This is not merely a theoretical exposition but a handbook for urgent, pragmatic action. It is both a mirror and a guide, reflecting the challenges of today and pointing towards the opportunities of tomorrow.

Who Should Read this Book

This book is designed to serve a diverse and inclusive readership. Each chapter is curated to resonate with a wide spectrum of stakeholders:

- **Common Citizens & Households:** To inspire everyday action at the grassroots level, from responsible consumption to household segregation.
- **Environmentalists & NGOs:** To strengthen advocacy, community engagement, and bottom-up initiatives for waste minimization and reuse.
- **Entrepreneurs, Recyclers & Industrialists:** To uncover emerging business opportunities in green innovation, waste valorization, and circular supply chains.
- **Corporate Leaders & CSR Professionals:** To align sustainability mandates with operations, strategy, and Environmental-Social-Governance (ESG) compliance.
- **Academicians, Teachers & Students:** To integrate circular economy principles into art of teaching, research, and innovation projects.
- **Urban Planners, Policymakers & Government Officials:** To connect waste management with larger policy goals of climate resilience, economic development, and social inclusion.
- **Women's Groups, Youth Organizations & RWAs:** To promote decentralized, community-led zero-waste initiatives that drive local ownership and empowerment.

No matter your profession or background, if you are concerned about the planet's future and India's sustainable development, this book is for you.

We hope that the book, "Waste to Wealth: Towards Circular Economy", serves as a clarion call for collective consciousness, catalyzing India's transition towards a cleaner, resilient, and regenerative future. Let this be more than a book; let it be the beginning of a national movement.

Acknowledgement

I wish to express my deepest gratitude to my father, Late Shri Vasudev Tilwankar, my mother, Smt. Malini Tilwankar and my aunt Nalini Rewadikar for instilling in me, from my childhood years, the habit of conserving resources and valuing every asset nature provides. Their teachings have been the foundation of my journey towards sustainability and environmental responsibility.

I extend my heartfelt gratitude to my father-in-law, Mr. S. P. Aterkar, and my mother-in-law, Mrs. Meena Aterkar, for their constant motivation and invaluable guidance.

I am profoundly thankful to my wife, Anupama Tilwankar, whose unwavering support, patience, and encouragement over the past year have been instrumental in the completion of this book.

My heartfelt thanks also go to my children, Siddharth Tilwankar and Atharva Tilwankar, and my daughter-in-law, Sayali Tilwankar, for their enthusiastic involvement in gathering numerous inspiring "Waste to Wealth" success stories from India and around the world.

I sincerely acknowledge and appreciate the invaluable contributions of all startups, recyclers, entrepreneurs and ULBs whose inspiring success stories and innovative models of converting waste to wealth have been featured in this book.

I am indebted to Professor Brajesh Dubey, IIT Kharagpur, whose insightful lectures and numerous YouTube videos on the subject of waste management and circular economy have been a source of great inspiration.

Finally, I wish to acknowledge Professor DJ Killedar and Professor Sandeep Narulkar, SGSITS Indore, for their kind encouragement and belief in my ability to write this book.

To all of you, I extend my sincere thanks.

Himanshu Tilwankar
Gurgaon

Content

Chapter no.	Title	Page no.
Chapter 1	A Nation Drowning in Its Own Waste – and Why that’s Also a Hidden Goldmine	1-10
Chapter 2	What Goes Around, Comes Around – The Power of the Circular Economy	11-32
Chapter 3	Turning Garbage into Gold – A Story of Municipal Solid Waste	33-56
Chapter 4	Plastic & Packaging – Rethinking the Way We Wrap Our World	57-71
Chapter 5	Organic Waste – The Untapped Goldmine	72-81
Chapter 6	Construction & Demolition Waste – Building the Future Responsibly	82-90
Chapter 7	E-Waste and Battery Waste – Mining Urban Resources	91-109
Chapter 8	Textile and Fashion Waste – From Fast Fashion to Conscious Consumption	110-125
Chapter 9	Circularity of Green Waste – From Biomass to Bio-Value	126-132
Chapter 10	Policy Landscape – Laws, Regulations, and Gaps	133-150
Chapter 11	The Role of Business and Industry – From CSR to ESG	151-159

Chapter 12	Financing the Transition – Investments, Innovation, and Impact	160-174
Chapter 13	Waste Warriors at Work – Communities and Citizens in Action	175-181
Chapter 14	Women and Youth – Champions of Change	182-185
Chapter 15	Education, Research & Curriculum – Powering the Circular Mindset	186-190
Chapter 16	Cities as Circular Hubs – Making Urban Life Sustainable and Resilient	191-196
Chapter 17	Circular Economy in Rural and Semi- Urban India	197-204
Chapter 18	Blueprint for Action – Everyone has a Role	205-209
Chapter 19	Future Forward – A Call to Action	210-213
	Appendices	214-215
	Bibliography	216-216
	List of Abbreviations	217-218

ABOUT THE BOOK

India today stands at a defining moment. Rapid urbanization, rising consumption, and shifting lifestyles have led to a surge in waste generation that is overwhelming our cities, waterways, and ecosystems. Overflowing landfills, polluted air and water, and stressed public health systems signal the urgent need to rethink how we view and manage waste. The book "Waste to Wealth: Towards Circular Economy" reimagines this challenge as an opportunity—positioning waste not as a liability but as a valuable resource that can fuel economic growth, environmental regeneration, and social well-being. This book serves as both a mirror and a guide. It illuminates the principles of the circular economy and their critical relevance to India's future, while offering practical models, global best practices, and policy roadmaps to close the loop through reuse, recycling, and regeneration. Designed for citizens, entrepreneurs, NGOs, corporates, policymakers, students, citizens and communities alike, it bridges knowledge with action—encouraging collective ownership of India's sustainability journey. More than just a book, it is a call to action: a blueprint for turning today's waste crisis into tomorrow's wealth, and for shaping a cleaner, resilient, and regenerative future.

ABOUT THE AUTHOR



Himanshu Tilwankar is a seasoned expert in Sustainability and Environmental Management, with over 38 years of experience across diverse domains including environmental impact assessment, solid and hazardous waste management, circular economy practices, sustainability reporting, and compliance with environmental laws. An alumnus of IIT Kharagpur with an M. Tech. in Environmental Engineering, he also holds degrees in Civil Engineering from SGSITS Indore and also an MBA degree in Project Management. With career-spanning leadership roles in the State pollution Control Board, consultancy, academia, and the corporate sector, Himanshu has prepared over 200 Environmental Impact Assessment reports, developed ECOCITY reports, managed pollution control activities during the Kumbh Mela at Ujjain, and overseen environmental compliance for more than 40 industrial plants under the RSPL Group of Industries. He has also spearheaded numerous waste management and recycling initiatives within industries. A sought-after speaker at IIT Roorkee, various universities, industry associations, and professional forums, he addresses topics ranging from waste management and the circular economy to sustainable development goals. His enduring commitment to turning environmental challenges into opportunities for economic and social benefit is the foundation of his philosophy—transforming waste into wealth while advancing towards a truly circular economy.



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