

**HANDBOOK OF  
ENVIRONMENTALLY  
CONSCIOUS  
MANUFACTURING**

# HANDBOOK OF ENVIRONMENTALLY CONSCIOUS MANUFACTURING

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*Printed on acid-free paper.*

*This book is dedicated to my wife  
Assumpta and our three boys -  
Chichi, Chike and Chidi*

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## **Preface**

The Handbook of Environmentally Conscious Manufacturing is written as an introductory reference material on environmentally conscious manufacturing (ECM). The chapters as well as the authors were carefully selected. The authors of the chapters are respected figures in the field and have done extensive research and /or practice work in the field of ECM, it is important to organize this body of knowledge in a substantial form. Authors of the chapters have emphasized both theory and practice and many of the chapters contain real life case studies.

The chapters are written with the reader in mind. The aim of the authors is to carefully organize and convey their thoughts to the reader. These chapters are readable and can appeal to a wide range of audience interested in environmental manufacturing issues.

The reader will find that the handbook is very comprehensive as it covers all the major topics in Environmentally Conscious Manufacturing. There are specific chapters to deal with sustainable manufacturing, recycling, eco-labelling, life cycle assessment, and ISO 14000 series of standards, as well as decision-making aspects of Environmentally Conscious Manufacturing. Decision-oriented topics on supply chain, decision models, quality initiatives, environmental costing and decision support systems are also covered. The influence of ECM on marketing imperative is also covered. The reader will find this book an excellent reference guide to ECM and perhaps, the most comprehensive ECM handbook in the market.

The Handbook could not have been possible without the devotion and dedication of the authors who have to follow strict guidelines and also abide by the publishers style of format. It took a lot of time commitment but the results are worthwhile. I am greatly indebted to the authors for producing an excellent masterpiece and I'm sure you will all be proud of the work. I will also like to acknowledge the support of my graduate assistant Lere Odusote, who spent innumerable hours to ensure the consistency of the chapters in following the publisher's style format. I am grateful for the excellent work you have done.

I thank all that have participated in one way or another to ensure that this project is completed. The aim of this book is not simply as an academic piece, but also, a way of creating awareness to the growing environmental problems that the world is facing. This book has addressed major strategies that can help manufacturers to conserve limited natural resources and protect the natural environment. It discusses in an unbiased way, how our quality of life and standard of living can be maintained without compromising the future of generations yet to come. It sends a strong message on reducing

environmental burdens and making optimal use of limited resources. I am hopeful that after reading this book, the reader will be a different person and contribute in achieving the goals espoused in the book.

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## **Biographical sketch**

Christian N. Madu is research professor and chair of the management science program at the Lubin School of Business, Pace University. He is the author/co-author of more than 100 research papers in several areas of operations research and management science that have appeared in journals such as *Decision Sciences*, *IIE Transactions*, *Journal of Operational Research Society*, *Applied Mathematics Letters*, *Mathematical and Computer Modeling*, *Journal of Environmental Planning and Management*, *Quality Management Journal*, *Long Range Planning*, *OMEGA*, *European Journal of Operational Research*, *Socio-economic Planning Sciences*, *Futures*, *Technological Forecasting and Social Change*, and several others. He is the author/co-author and editor of more than 10 books including the *Handbook of Total Quality Management*. Dr. Madu is also co-Editor of the *International Journal of Quality and Reliability Management*.