

# **URBAN SOLID WASTE MANAGEMENT IN INDIA**

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**SCIENTIFIC PUBLISHERS (INDIA)**

P.O. Box 91

JODHPUR

*Published by:*

Pawan Kumar  
Scientific Publishers (India)  
5-A, New Pali Road, P.O. Box 91  
Jodhpur - 342 001 (Raj.)  
Tel.: +91-291-2433323  
Fax.: + 91-291-2512580  
E-mail: [info@scientificpub.com](mailto:info@scientificpub.com)  
[www.scientificpub.com](http://www.scientificpub.com)

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ISBN: 978-81-7233-528-1

Laser typeset : Rajesh Ojha  
Printed in India

***Dedicated***

***To***

**Mrs. H. S. RAJAMANI M.A.**

*whose fifty years of experiences, turbulations and  
successes in domestic waste management provided  
the basis for this book*



## **FOREWORD**

At the outset I would compliment the authors Dr. U.S. Sree Ramulu and Dr. U.S. Shoba for having written this book on the “Urban Solid Waste Management in India” which is interesting and very timely.

The various problems of solid waste management are well recognised by various agencies. However the deficiencies and gaps on the implementation of the projects exist which need urgent attention of the administrators, public and municipal corporations. This book highlights the various problems faced in the implementation agencies in segregation, collection and transportation of solid wastes, problems of rag pickers, incineration and landfills, hospital and industrial wastes etc. Finally attention has been drawn of the readers about the advantages and the uses of technologies for compost making and biogas production for recycling of urban organic solid wastes, and concludes with a final chapter on the “Past - Present and Future of Urban Solid Waste Management”.

This book will be very useful to analyse the problems in this area and find out proper solutions with cost effective technologies.

With my best wishes.

New Delhi

**A.C. GAUR**



## PREFACE

Population explosion, industrialization, greater literacy coupled with favourable economic growth etc., have accelerated the migration of rural people towards the urban areas. The number of urban areas have increased 4 to 6 fold in the past few decades. Even the urban population in number of states in India has exceeded 40% of the total population of the state. But the basic infrastructure needed to meet the accelerated urban growth was not put in place simultaneously. One of the most neglected areas in this sector till the beginning of this century is urban solid waste management. This has been the cause for many of the epidemics like plague in Surat, Dengue, Chikungunya in various parts of the country. In this book attempts have been made to focus the state of art of urban solid wastes management as on date and also the future trends, the visible and invisible mechanisms that are in operation at the ground level, the consequences of poor urban solid waste management on the common man and the constraints the city administration have in providing an effective urban solid waste management. It is conceded that the information is not exhaustive due to the dynamic nature of the sector and also the vast diversity of the country. However it is hoped that this book will provide the available information on urban solid waste management in one source for policy makers, administrators, scientists, students and the public like NGOs dealing with environment etc. For the benefit of all a separate chapter titled “Urban solid waste management – Past, Present, Future” is added based on the personnel experience and observations made on this from pre independent days to date and also on the trends of changes in various sectors of the urban areas. Also a section on a new concept on “Multi-tier Compost Park (yard)” is given in Annexure I.

While preparing the book over years, I had the pleasure of receiving considerable help from various quarters and for all of them I owe a deep debt of gratitude. Particular mention of few has

to be made for their involvement during the writing of the book. They are:

- Dr. A.C. Gaur (Fellow of the National Academy of Agricultural Sciences and former Head of Div. of Microbiology, Indian Agricultural Research Institute, New Delhi) for going through the manuscript, offering suggestions and also accepting to write the “Foreword” for this book.
- Mrs. Jayanthi Ananth and Mr. U.K. Ananthapadmanaban for providing some photographs, for going through the section on ‘Hospital waste management’ and offering critical comments.
- Dr. R. Srinivasan, Dr. U.S. Srinivasan and Miss Vidhya Lakshmi for providing photographs on the ground realities in urban solid waste management
- All my students over the years for insisting perfection at every stage and providing me the needed support whenever needed.

I wish to place on record of the fact that I have drawn considerable amount of information from the following sources:

- Report of the Commission of Urban Solid Waste Management of the Ministry of Health, Government of India that was kindly made available by the concerned on the internet.
- Large number of reports and articles that have appeared in “The Hindu” on this aspect over years; a report on urban cities that appeared in “India Today” in 1994 and the “Census 2001” released recently.

For all the above my sincere thanks are due. These have helped me to bring together the high level expertise with the ground realities and also my own experiences and observations in the field from pre independent days to date.

In this connection I have to add that I had drawn considerable amount of insight into future trends in the country from the recent speeches of Shri N. Ram, Chief Editor “The Hindu” in various forums. My sincere thanks are due to him also.



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It is a pleasure to mention and thank the following few noble souls who have been guiding me from my student days (though many of them are not with us today);

- Dr. A. Mariakulandai, Dr. Parker F. Pratt, Dr. N.T. Coleman whose advice and guidance as my teachers has always been my strength.
- Dr. S. Krishnamoorthy and Dr. A. Venkataraman whose affection and understanding as well as parental care can never be equaled by anyone
- The opportunity provided by Rockefeller Foundation, New York for my doctoral programme at University of California, Riverside (U.S.A.) which was responsible for my growth.

To get support and encouragement from personalities whom one does not even know is something that I had the unique privilege. Dr. M.S. Swaminathan (Chairman, Dr. M.S.S. Foundation, Chennai and a well known Agricultural Scientist) had provided me encouragement and support from 1980's, the day he supported the publication of the book "Radioisotopes in Agriculture" to this day. I have to confess that I do not have adequate words to thank him.

Rarely an author of any book gets so much support from his/her home front when he continues to spend most of his time writing books. I have been such a lucky one to have the unstinted solid support of a very understanding family viz. my wife Mrs. H.S. Rajamani, my children Vasu, Sumathi, Seenu and Shoba and my grand children Gouri, Sanju and Sadhana, for whom my sincere thanks automatically go. Only those writing books can really understand how valuable and how supportive it is to have an understanding family.

Also it is to be mentioned here that I had been bestowed by a very understanding and forward looking parents (Mrs. Subbalakshmi and Shri. U. Subbarayappa) and brothers' families (Mrs and Dr. U.S. Aswathnarayanan, and Mrs. and Dr. U.S. Krishnamurthy) all these years and naturally I cherish the same, so also the request of Shri C.S. Raghavan who always inspired me with his down to earth comments.

The driving force behind writing this book as also the earlier ones are the comments, advice and expectations of the following:

- First of all, my chairman Dr. Parker F. Pratt (“continue to write”), that of Dr. A. Venkataraman (“Let your good work continue”), Dr. Usha K. Metha (“What next and when can I expect?”) and that of Dr. Homer D. Chapman (“Why not you write for one of our Indian conditions?”). I hope I am able to at least partly satisfy their expectations though most of them are not now with us.

Frankly admitting, the Co-author of this book Dr. Shoba has shouldered much of the burden of writing this book in addition to her own inputs in every page, polishing the material wherever it needed to be done to suit the present day trends, etc. My ever grateful thanks are due to her.

If this book is in the hands of so many readers across the country, it is because of the publishers Scientific Publishers (India), Jodhpur who have gone all out to bring this book in such a nice form and that too in such a short time.

Finally, I would like to express my sincere gratitude for all my readers and request them to communicate their valuable constructive comments.

**U.S. SREE RAMULU**

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