The Complete Book on Waste Treatment Technologies (Industrial, Biomedical, Water, Electronic, Municipal, Household/ Kitchen, Farm Animal, Dairy, Poultry, Meat, Fish & Sea Food Industry Waste)

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About the Book
Waste management is a global problem that continues to increase with rapid industrialization, population growth, and economic development. As the world hurtles towards the urban future, the amount of Municipal Solid Waste (MSW) is growing very fast. Waste includes any solid material or material that is suspended dissolved or transported in water or deposited on land. Wastes are generally classified into solid, liquid, & gaseous and are broadly classified as household waste; municipal waste; commercial and non-hazardous industrial wastes; e- waste, hazardous (toxic) industrial wastes; construction and demolition waste; health care wastes – waste generated in health care facilities (e.g. hospitals, medical research facilities); human and animal wastes; and incinerator wastes.
In the recent years, modern society has become more responsible when it comes to waste management. The fast industrialization, urbanization, modern technology, and rapidly growing population in India have posed a serious challenge to the waste management. In India, per capita generation rate of municipal solid waste ranges from 0.2 to 0.5 kg/day. At present, the daily generation rate in South Asia, East Asia and the Pacific combined is approximately 1.0 million tons per day.
The current scenario reveals that there is a tremendous scope for the development of waste treatment technologies and is expected to offer significant opportunities in the near future. Sustainability of waste management is the key for providing an effective service that can satisfy the need of end users. Solid Waste Management sector in India has become a very lucrative sector for investors. With a growing urgency for efficient waste management in many cities, there will be more and more employment opportunities in the sector. The participation of different sectors, roll of Government and private organization is important for better management of waste.

This book describes the various waste treatment technologies like; Physical treatment techniques, biological treatment techniques, anaerobic lagoon techniques etc.

It will be a standard reference book for professionals, entrepreneurs, students, teachers, researchers, administrators, and planners of various disciplines who are directly or indirectly involved in the waste management.

About the Author

Dr. Mahendra Pal born on April 10, 1946 in Delhi, and obtained B. V. Sc. and A. H., M.V. P. H., Ph. D. and D. Sc. in 1969, 1975, 1981 and 1998,respectively. Prof. Pal worked at Massey University, Palmerstone, New Zealand (1984), Institute of Tropical Medicine, Antwerp, Belgium (1985-1986), and Tokyo University, Japan (1989-1990). Prof. Pal has acted as Advisor of over 68 students for D.V.M., M.Sc., and Ph.D. degree both in India, and Ethiopia. He has served in Veterinary and Medical institutes, and published over 475papers in national and international journals. Prof. Pal has published many papers in collaboration with the scientists of Japan, New Zealand, South Korea, USA, Nepal and Ethiopia. He has authored seven books including "Zoonoses" and "Veterinary and Medical Mycology" which are highly appreciated by veterinary and medical scientists. Prof. Pal has developed sunflower seed medium (Pal's medium) in 1980, “PHOL” (Pal, Hasegawa, Ono, Lee) stain, in 1990, “Narayan” stain in 1998 and “APRM” medium in 2015, which are proved very useful for the study of fungi. Prof. Pal is credited to elucidate the etiologic significance of Cryptococcus neformans for the first time with mastitis of goat (1975) and buffalo (1980), Nocardia asteroides in corneal unlcer of cattle (1982), Apergillus fumigatus in keratitis of buffalo calf (1983), Candida tropicalis in human lung empyema (1987), Fusarium solani in corneal ulcer of buffalo (1992) and Trichophyton verrucosum in dermatitis of barking deer (1993). Prof.Pal established for the first time the prevalence of Cryptococcus neoformans in the environment of New Zealand, Nepal, and Djibouti. He described for the first time the etiologic role of Candida albicans, and Trichophyton verrucosum in mastitis and dermatitis of camel, respectively in Ethiopia. Prof. Pal is serving as Honorary Member/Associate Editor of nine online journals. His papers are frequently cited as reference by many academicians in their papers, reviews, books, and monographs. Prof .Pal has started M.V.Sc. and Ph.D.in Veterinary Public Health at Veterinary College, Anand, India. He is also an instrumental to start Ph.D.in Veterinary Public Health at Addis Ababa University for the first time in Ethiopia. Prof. Pal is a recipient of several awards, including "Jawaharlal Nehru Award", "Distinguished Teacher Award", and “Life Time Achievement Award." Presently, he is working as Professor of Veterinary Public Health, Addis Ababa University, Ethiopia.

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About NIIR

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