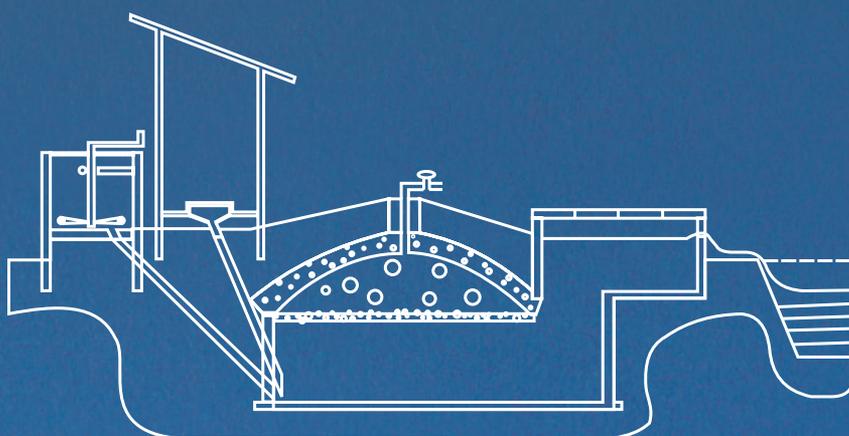


BIOGAS TECHNOLOGY

TOWARDS SUSTAINABLE DEVELOPMENT



R S Khoiyangbam
Navindu Gupta
Sushil Kumar



The Energy and Resources Institute

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ISBN 978-81-7993-404-3

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Suggested citation

R S Khoiyangbam, Navindu Gupta, and Sushil Kumar 2011. *Biogas Technology: towards sustainable development*. New Delhi: The Energy and Resources Institute (TERI)

Published by

TERI Press

The Energy and Resources Institute
Darbari Seth Block
IHC Complex, Lodhi Road
New Delhi – 110 003
India

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E-mail teripress@teri.res.in

Website www.teriin.org

Printed in India

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उप महानिदेशक, (अभियांत्रिकी)

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Foreword

The demand for energy for production agriculture, animal husbandry, agro-processing, and domestic activities in rural sector has increased considerably during the last four decades. Most of the energy requirement of the villages, particularly for rural domestic activities, is being met through non-conventional renewable sources of energy, which includes burning of cattle dung cakes, fuel-wood, and crop residues. However, the appalling wasteful burning of cattle dung as a fuel has been a matter of great concern for all those interested in maintenance of soil fertility, higher crop yield, and clean environment.

In India, attempts at obtaining cooking gas through the process of anaerobic fermentation of cattle dung and other biodegradable waste to achieve the double benefit of rural household energy and biosolid for our agriculture, which is on the verge of fertility impoverishment, are over half a century old; but still a lot needs to be done for achieving the flawless biogas technology.

The present book has brought out the most recent research findings in the area of biogas technology, various plant designs, and details of manurial potential in the context of present energy and fertilizer crisis. The two chapters “Biogas and Environment” and “Biogas and Global Warming”, in particular, are of great significance in the present context of climate change. The authors have made great efforts in bringing out the present book *Biogas Technology: Towards Sustainable Development*. I hope that this book will be of immense value to students, teachers, farmers, and research workers interested in organic manures, biomethanation, and biogas plant.

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Preface

Biogas production technology is a time-tested viable energy conserving technology. With the advent of the first successful cow dung based biogas plant in India in 1941, the technology has evolved tremendously. It is still an emerging and engaging area of study. Biogas is a versatile energy system that can cater to the needs of the rural populace and at the same time has various environmental advantages. Worldwide, various biogas plant propagation programmes have been launched in over 50 countries, with those in China and India being of the largest scale. In India, overall, this programme has been successful, even though it has not been a runaway success as was contemplated earlier.

Biogas Technology: Towards Sustainable Development attempts to cover almost all aspects of biomethanation, such as biogas as a renewable energy and its scope and potential, evolution of biogas technology, process and parameters influencing biogas production, popular biogas models, biogas plant as a source of clean fuel, availability of organic nutrients in biogas spent sludge, carbon credit, and environmental implications of biomethanation.

The book is meant for all those interested in biogas system as a device or an instrument for sustainable rural development, as well for those dealing with large organic waste/biomass, instrumental in enhancing the quality of rural life and planning and conserving resources. It will be of immense interest and use to students, teachers, researchers, and trainers engaged in the field of non-conventional sources of energy, resource and rural sanitation, and health management.

During the course of writing this book, a number of sources have been referred to, which do not find mention in the book due to its limited scope. Nevertheless, the authors gratefully acknowledge all these sources.

There may be some omissions and errors. Comments and suggestions for further improvement of the book are welcome.

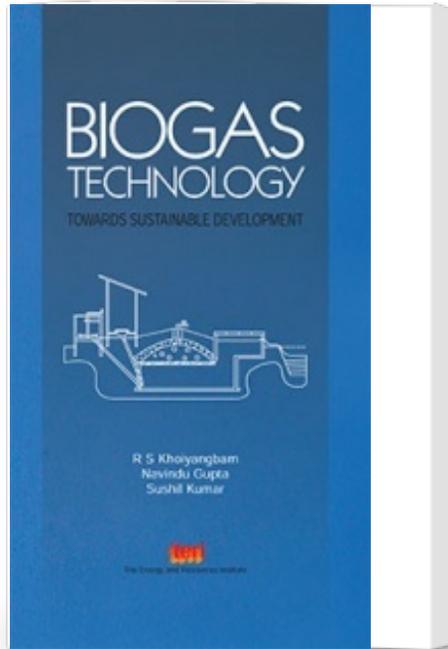
Acknowledgements

We express our deep gratitude to the Director and Joint Directors of Indian Agricultural Research Institute (IARI), New Delhi, for their keen interest in the book and constant guidance. We are also thankful to DDG (Engg.), ADG (Engg.), and project coordinators of All India Coordinated Research Project on Renewable Energy Sources, ICAR, for their support. The first author would also like to thank the Principal, D M College of Science, Manipur, for giving him permission to make contributions to the present book.

Sincere acknowledgements are due to Dr M C Jain and Dr P K Aggarwal, former Heads, and Dr H C Joshi, Head of Division of Environmental Sciences, IARI, New Delhi, for their guidance and encouragement in conceptualizing the book in the present shape.

We also wish to thank all our students who have worked for their academic degree on the various aspects of biogas technology and all those whose work has been cited in this book.

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Publisher : TERI Press

ISBN : 9788179934043

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