

Preface

Like carbon dioxide, methane is also generated in nature through a number of different routes and plays a crucial role in keeping the earth warm enough to be habitable. But during the last two centuries, and more so in the last few decades, anthropogenic activities have been contributing more *extra* methane to the earth's atmosphere than is good for the health of the Earth.

Each methane molecule contributes about 25 times as much to global warming as a molecule of carbon dioxide but methane has one major attribute which carbon dioxide does not have – methane can be used as a fuel. These twin aspects makes it doubly gainful to “capture” anthropogenic methane.

In developing countries, especially India and China, the importance of capturing methane that is generated from animal manure was recognized from the early twentieth century and major programmes were launched to popularize the “biogas digesters” that made this methane capture possible. Then the advent of several “high-rate” digesters during the late 1960s and early 1970s dramatically enhanced the reach of anaerobic digestion to wastewaters which were, till then, considered to be too “dilute” to be profitably handled by anaerobic digestion. Now a third, and perhaps the most important, phase of the evolution of biogas technology is underway wherein treatment of municipal solid waste, crop waste, and other forms of “high-solids” biowaste is being increasingly brought under its preview.

We deem it a privilege to have been asked by Springer to articulate this book at a time when there is a great resurgence of interest in methane capture – hence biogas technology – all over the world.

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