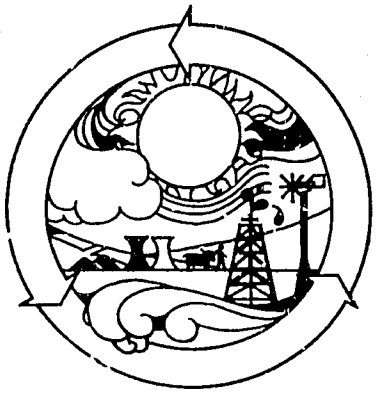
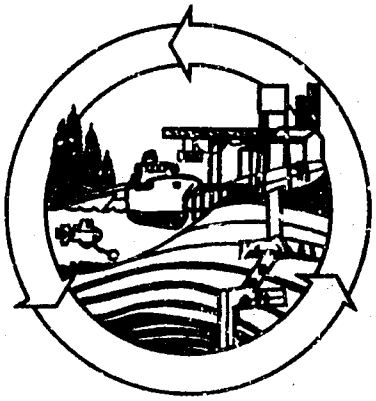
RSI

East-West Resource Systems Institute
East-West Center, Honolulu, Hawaii

food systems



energy systems



raw materials systems

Energy for Rural Development
Research Materials RM-80-4

BIBLIOGRAPHY ON ANAEROBIC DIGESTION

Jamuna Ramakrishna

September 1980

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BIBLIOGRAPHY ON ANAEROBIC DIGESTION

Jamuna Ramakrishna

With the assistance of
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September 1980

INTRODUCTION

The Bibliography on Anaerobic Digestion was produced in response to the priority interest assigned to biogas systems by participants in the inter-country Energy for Rural Development program. The program focuses on energy technologies that are especially suited to the requirements and circumstances of the rural areas of Asia and the Pacific and the role that these technologies can play in integrated rural development. We have tried to maintain this perspective while selecting the references included in this bibliography. The scope of this bibliography extends beyond the technical aspects to the broader social, economic, and institutional concerns of the application of the technology.

Much work has been done on anaerobic digestion in China and India and there is an awakening interest in other countries, including the United States. These various stages of development are reflected in the documents included in the bibliography.

The bibliography is presented in two sections. The first emphasizes literature reporting experiences with anaerobic digesters in south and southeast Asia. The information is largely non-technical in nature. Most of the articles cited are in English. References span the years 1956-1980 with the majority falling between 1970 and 1980. Some documents on sanitation, defecation patterns, fertilizers, manures, and other subjects related to anaerobic digestion are included. The documents are indexed using descriptors from the Thesaurus for Energy and Rural Development, compiled by Diane M. Pruett and Ted S. Toyoshiba, Jr.[1]

The second section of the bibliography is a condensation of a computerized search of Energy Research Abstracts published by the United States Department of Energy. References that seemed to be appropriate for the purposes of the bibliography were selected. The search was confined to the years 1977-1980. The descriptors used in the search were: biogas process, anaerobic digestion, methane, manures, and bioconversion. This section includes both technical and non-technical references that appear to be particularly useful to researchers and others interested in anaerobic digestion. Many of the articles are North American and European in origin and a few are written in German and other European languages.

The different anaerobic digesters are classified in the following manner in the keywording:

Bag type digesters
  UF Taiwan type digesters
Batch digesters
Continuous digesters
Fixed dome digesters
  UF Ball type digesters
  UF Chinese type digesters

UF Janata type digesters
UF PRAD type digesters
Floating dome digesters
UF Indian type digesters
UF KVIC digesters
Plug flow digesters
Water pressure digesters

('UF' means 'unauthorized term' or 'used for')

The literature search was limited due to resource and time constraints. However, even this restricted search revealed a lack of reliable data and an abundance of contradictory information on anaerobic digestion, anaerobic digesters, performance, and potential. It is hoped that besides serving as a bibliography this document will indicate areas that could benefit from further research.

The bibliography as originally planned included author, subject, and reference indexes to help the user locate specific documents. Unfortunately, computer software problems have delayed production of these indexes. It is hoped they will be available at a later date. Please pardon the inconvenience.

1. Diane M. Pruett and Ted S. Toyoshiba, Jr., comp., Thesaurus for Energy and Rural Development (Honolulu: East-West Resource Systems Institute, September 1980).

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Compost Science, pp.7-11, March/April, 1976.
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Islamabad: ATDO, undated. 16p.
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Matching Renewable Energy Systems to Village-Level Energy Needs.
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Biswas, T.D.
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Anaerobic digesters; Anaerobic digestion; Biogas; Sludges; Utilization; Design; Operation; Production; Seasonal variations; Temperature; India.

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The Organization of Labour and the Use of Human and Other Organic Resources in Rural Areas of the Indian Subcontinent.
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Biogas; Pilot projects; Rural areas; Technology; Utilization; Egypt.

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New York, U.S.A.: John Wiley, 1977. 399p. (ISBN 0 471 99410 3)
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(Address unavailable)

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(Department of Agricultural Engineering, Cornell University, Ithaca, New York, U.S.A.)
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(National Center for Appropriate Technology, P.O. Box 3838, Butte, Montana 59701, U.S.A.)
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(Appropriate Agricultural Technology Cell, Bangladesh Agricultural Research Council, 130-B Dhanmandi Residential Area, Road No.1, Dacca-5, Bangladesh)
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Biogas; Economic aspects; Feasibility; Social aspects; Surveys; Firewood; Policy; India.

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Chichester, England: John Wiley, 1978. 238p.
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Prasith-rathsint, Suchart; Chupikoolchai, Sopha; Arthornthurasook, Tawatchai; Sukreeyapongse, Pisit
(Department of Social Sciences, Faculty of Social Sciences and Humanities, Mahidol University, 420/1 Rajvithi Road, Bangkok 4, Thailand)
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Presented at the International Seminar on Energy, January 4-7, 1978, at Hyderabad, India. 21p.
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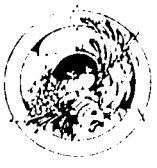
THE EAST-WEST RESOURCE SYSTEMS INSTITUTE is directed to the overall goal of understanding how nations can maintain adequate, equitable, and reliable access to resources. The institute consists of a broad study of three interrelated programs: Food Systems, Energy Systems, and Raw Materials Systems.

International research groups are collaborating with RSI staff to analyze and conduct research on these systems. A series of databases and information exchange facilities is now being developed to support their studies. On an interdisciplinary basis, the various teams will explore these problems stressing their interrelationships in both local and international terms in the Asian and Pacific region.



Food Systems conducts research on the institutional and policy aspects of improving food security in the Asia-Pacific region; examines the complex interactions of administrative, technological, and social issues involved in developing food systems in marginal areas; and explores alternate food systems with special emphasis on: food and the city, food systems based on water environments, and institutional and policy aspects of biological nitrogen fixation.

Energy Systems provides analyses of the vulnerabilities of nations to disruptions in the flow of fuels; collects and analyzes data on energy supply, demand, and flows, especially those in rural areas; evaluates alternative development policies on a variety of energy systems; and develops energy indexing methodologies and information exchange both within and among nations.

Raw Materials Systems is concerned with the identification and evaluation of policy and strategy options that will benefit nations from the exploration and development of their mineral resource potential. The main research areas are: mineral assessment for national planning, innovative government-transnational company arrangements, uncertainties in future commodity trade, and case histories of mineral projects.

THE EAST-WEST CENTER—officially known as the Center for Cultural and Technical Interchange Between East and West—is a national educational institution established in Hawaii by the U.S. Congress in 1960 to promote better relations and understanding between the United States and the nations of Asia and the Pacific through cooperative study, training, and research. The Center is administered by a public, nonprofit corporation whose international Board of Governors consists of distinguished scholars, business leaders, and public servants.

Each year more than 1,500 men and women from many nations and cultures participate in Center programs that seek cooperative solutions to problems of mutual consequence to East and West. Working with the Center's multidisciplinary and multicultural staff, participants include visiting scholars and researchers; leaders and professionals from the academic, government, and business communities; and graduate degree students, most of whom are enrolled at the University of Hawaii. For each Center participant from the United States, two participants are sought from the Asian and Pacific area.

Center programs are conducted by institutes addressing problems of communication, culture learning, environment and policy, population, and resource systems. A limited number of "open" grants are available to degree scholars and research fellows whose academic interests are not encompassed by institute programs.

The U.S. Congress provides basic funding for Center programs and a variety of awards to participants. Because of the cooperative nature of Center programs, financial support and cost-sharing are also provided by Asian and Pacific governments, regional agencies, private enterprise, and foundations. The Center is on land adjacent to and provided by the University of Hawaii.

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