INTEGRATED ENERGY SYSTEM FOR SMALL FARMS

by

ANNAND KUMAR DAHIYA

Thesis submitted
in fulfilment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

CENTRE FOR RURAL DEVELOPMENT AND
APPROPRIATE TECHNOLOGY
INDIAN INSTITUTE OF TECHNOLOGY, DELHI

1985

C E R T I F I C A T E

This is to certify that the thesis entitled, "INTEGRATED ENERGY SYSTEM FOR SMALL FARMS" submitted by Mr. ANNAND KUMAR DAHIYA has been prepared under our supervision in confirmity with the rules and regulations of Indian Institute of Technology, Delhi. The research report and results presented in this thesis have not been submitted for any degree in any other University/ Institution.

(R.C. MAHESHWARI)
Assistant Professor
Centre for Rural Development
and Appropriate Technology,
Indian Institute of Technology,
New Delhi - 110 016.

(PADMA VASUDEVAN)
Professor and Head
Centre for Rural Development
and Appropriate Technology,
Indian Institute of Technology
New Delhi - 110 016.

A C K N O W L E D G E M E N T S

I consider it my proud priviledge to express my deep sense of gratitude to Dr.(Mrs.) Padma Vasudevan, Professor and Head, Centre for Rural Development and Appropriate Technology, Indian Institute of Technology, Delhi for her invaluable guidance, constructive suggestions, keen and sustained interest and incessant encouragement during the entire period of investigation and preparation of manuscript. My gratitude is also due to the co-supervisor Dr. R.C. Maheshwari, Assistant Professor, Centre for R.D. & A.T. for his valuable suggestions and advice during the entire period of study.

I wish to put on record my cordial thanks to Prof. S.V. Patwardhan, the former head, R.D. & A.T. for providing necessary facilities for the execution of present work and valuable advice.

The devotion and team spirit of my friends especially Messers Chander Deo, G. Giridhar, T.S. Kumar, Aditya Mishra, S.K. Tandon, M.L. Gupta, R.K. Tandon, and Drs. G.S. Gujral, S. Singh and Madhok in helping me, was a source of encouragement and strength without it could have been really difficult to cope up with the work. I wish to express sincere gratfulness for the help they gave me and consideration they showed.

I would like to record my deepest regards to my parents and family members with whose blessings and continuous support I was able to achieve this objective. It is my great pleasure to record the invaluable support and patience of beloved wife Nirmal during the course of investigations. Manu did miss me a lot and I tender my apology to my little son.

Lastly I would like to thank all the farmers who really helped whole-heartedly in data collection.

(ANNAND KUMAR DAHIYA)

C O N T E N T S