Appropriate Technology

Technology with a Human Face

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Foreword

In the summer of 1965, a group of people in London formed the Intermediate Technology Development Group. They had in common a variety of overseas experience; the conviction that 'development' means first and foremost the development of people; and the knowledge that aid and development as currently practised was bypassing the majority of poor people in the developing countries.

Membership and support grew rapidly, and soon the Group had a nucleus of staff and had started work on filling the 'knowledge gap' about self-help technologies: technologies that are relatively small, simple, and capital-saving, and therefore more appropriate to the needs and resources of the majority of poor people in the rural and small-town areas of the developing countries.

These modest efforts nearly thirteen years ago have since grown into a world-wide network of people and organisations concerned with the development and application of Appropriate Technologies. There are now many groups—representing various combinations of professional people, universities, industry and government—engaged on such tasks as scaling down large-scale technology to bring it within the reach of rural people, up-grading traditional crafts to make them more productive and versatile, and inventing new tools and equipment with which the poor can work themselves out of poverty.

Work on Appropriate Technology is going ahead in many countries in Africa, in the Indian sub-continent, the Far East, and Latin America; and as I write more are in process of formation. Many of these—indeed most of them—were started by small groups supported by voluntary agencies throughout the world. Today, this spearheading voluntary effort is being backed up by government and international support. Work programmes in Appropriate Technology are being built into the official aid programmes of the British, American, Netherlands, German and Scandinavian aid programmes, and a growing number of

U.N. agencies. So we are at least on the threshold of a significant shift in the allocation of aid and development resources, away from the heedless promotion of technologies that make the rich richer, and towards the development of technologies that can enable the rural and urban poor to earn a decent living.

One of the pioneers in the work of developing Appropriate Technologies, and helping others to do so, is the author of this book. Professor Dunn was one of the first distinguished scholars and academics to become an active supporter of the Intermediate Technology Development Group. As Chairman of the Group's Power Panel he has systematically built up a work programme on small-scale energy sources; and he has also assisted several universities in developing countries on the launching of their own research and development work on Appropriate Technologies based on renewable energy sources, and he has advised on the setting up of small industry. His work—and this book—demonstrate beyond question that the discovery of low-cost, small-scale, sustainable technologies offers a whole new range of challenges and opportunities to scientists and engineers—and especially to the new generation of technologists coming up in the developing countries.

GEORGE McROBIE
I.T.D.G., London
December 1977

Introduction

This book is about a self-help approach to development, a method variously described as Intermediate Technology or Appropriate Technology. The term 'intermediate technology' was first coined by Dr E. F. Schumacher to express his views on how development might be achieved, and his ideas have been further extended and elaborated in his book *Small is Beautiful*. Whilst Intermediate Technology is concerned with techniques, Appropriate Technology covers, in addition, the social aspects of development. Dr Schumacher's work and writings have been responsible for much of the recent upsurge of interest in the application of appropriate technology techniques in the developing countries. Its general aims are summarised in the quotation at the head of chapter 1.

Development has been going on for many years and a large number of highly competent and experienced professionals have been, and still are, engaged in it. Quite often these people have been practising Appropriate Technology but not under that name, rather like the man in the Molière play who was surprised to find that he had been speaking prose for the last forty years. What then, if anything, is new about Appropriate Technology? I think that the principal feature about Appropriate Technology which is new is that it offers a complete package solution to the development problems of a particular community rather than a piecemeal list of particular solutions. This package is appropriate to the local skills and other resources and offers the prospect of continuous development in the future. An important requirement of the field workers is information on the availability of low-cost equipment, information on techniques, and designs for equipment for local manufacture. Over the last ten years or so a number of organisations have been set up in different parts of the world to satisfy these needs. One of the earliest of these organisations was the Intermediate Technology Development Group Ltd (I.T.D.G.), started in 1965 by Dr Schumacher and two of his colleagues, George McRobie and Mrs Julia Porter.

This book attempts to provide a systematic and comprehensive general treatment of the subject. It is always valuable to see the place of one's work in the general social context and to have some idea of long-term future trends. Not only is this important in order to have some feeling for priorities but such knowledge also makes life so much more interesting. For these reasons I have outlined some of the more important views of the development economists and also those of the futurologists, and hope that this introduction will stimulate more reading in these fascinating fields. I am not an economist, and should I inadvertently

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(Photo Peter Fraenkel)

have misrepresented their, or any other specialist's, views I apologise; this of course is a risk one takes in writing on a broad range of topics. This book is concerned essentially with poverty and methods by which it might be alleviated, and inevitably this has political implications which often in a particular situation cannot be ignored. Social, political and economic circumstances differ very widely and views on them differ even more; so, whilst recognising its local importance, no political view has been expressed here. Most of the book is devoted to the actual

practice of *Appropriate Technology*. The subjects treated include food and agriculture, water and health, energy, medical services, building and other services, small industry, education and research. It is intended to provide background information and both to supplement and introduce the specialised textbooks and handbooks.

Since it is expected that the specialist knowledge of readers will vary very widely, the standard has been selected to be at a level suitable for the intelligent general reader. Mathematics is not used and specialist terms have been avoided as far as possible. Where they have been required, for example in distinguishing between energy and power, or in referring to G.N.P., they have been explained in appendices.

Statistical information is also presented in appendices. Short lists of general reading have been given at the end of the book. Bacon once wrote that 'some books are to be tasted, others to be swallowed, and some few to be chewed and digested'. Most of the books listed under general reading fall under the latter category and I hope will give the reader as much pleasure as they have given me.

Appropriate Technology can, I believe, make a significant contribution to solving one of the greatest human problems, that of poverty. There is no doubt of the worthwhile nature of working in this field; it also happens to be interesting, satisfying and great fun. I am not saying of course that this work is never distressing, exasperating, frustrating and hard—it often is, but so are all human activities from time to time. However, the positive returns far outweigh these negative aspects. For those readers who would like to learn more about it, I have suggested some ways in which they can do this, in chapter 10. I hope that a few might actually want to join us in the work.

Acknowledgements

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I also wish to express my thanks to a number of authors and organisations for generously allowing me to reproduce their photographs and diagrams. Credits have been given where the material appears in the book. I.T.D.G. and I.T.D.G. colleagues Peter Fraenkel, Vernon Littlewood, Jane Landymore and Frank Solomon have been especially helpful.