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Modern Stoves For All

By: Waclaw Micuta

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MODERN STOVES FOR ALL

Revised Edition

Waclaw Micuta

Illustrated by Hugo Kehrl



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By Waclaw Micuta

A major cause of the rapid deforestation occurring in many developing countries has been excessive use of firewood and charcoal for cooking purposes. It is generally agreed that the large-scale introduction of efficient fuel-saving stoves, bread ovens and improved cooking methods, coupled with increasing efforts to plant more trees, can begin restoring the balance between the growing and consumption of firewood.

The author believes that really efficient stoves can only be built by skilled craftsmen: stove building has always been a profession and an art. Even properly trained craftspeople may need to be supplied with essential components — such as heating plates, grates, metal sheet chimneys, crowls and brushes for sweeping chimneys — and this is where aid can most successfully be applied. But Waclaw Micuta's main intention in writing this book is to show what can be achieved in the immediate future — by skilled workers with assistance where necessary, without waiting for 'wonder stoves' that may never leave the drawing board.

Modern Stoves For All is therefore written for skilled technicians who will be able to use the general drawings as a basis for building stove models. These can then be tested and adapted to local conditions. This latest English edition differs significantly from the original. Various new stove models have been included, some have been removed and specifications of others have been modified. These changes reflect further field experience, and, in particular, continuous testing of the fuel efficiency of the models concerned.

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rural communities in development

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Foreword

by Prince Sadruddin Aga Khan

In the face of man's relentless and indiscriminate plundering of nature, more and more people are beginning fully to appreciate the vulnerability of our planet's life support systems. Indeed, conservationists warn that unless urgent action is taken in the very near future, our children will inherit a barren, polluted and decimated world.

We must stop indulging in abstract debate on the ecological problems threatening our very survival and take **concrete** steps to reverse trends that are already assuming disaster proportions.

A good example of what may be achieved is the pioneering work of Waclaw Micuta in the promotion of more rational means of utilising primary and renewable energy so as to alleviate the unduly heavy burden being placed on the earth's rapidly receding forest reserves.

This second edition of *Modern Stoves for All* provides clear evidence of the contribution that may be made, by individuals as well as by non-governmental and small private organisations. More significantly, it illustrates that work of lasting value may be undertaken with relatively modest means.

On the basis of the field tests already conducted, I am confident that the fuel-saving stoves, bread ovens and heating devices described in this booklet will not share the fate of many other models destined for developing countries. In the past, many such stoves have, despite the vast sums invested, failed to win the acceptance of rural populations simply

because they have not performed well enough to induce a changeover from wasteful traditional methods such as open-fire cooking.

One of the attractions of the Micuta stoves lies in the fact that they form the focal point of a comprehensive package deal of measures which notably emphasise the use of alternative fuels such as waste briquettes, biogas, natural gas, kerosene, diesel oil, peat or coal. Great importance is also attached to the manufacture of standardised cooking pots, the supply of essential metal components, the promotion of more rational cooking methods and the introduction of simple fuel-saving devices such as hay boxes.

The cooking and baking systems proposed sometimes call for additional expenditure. However, national authorities and international organisations must realise that some expense is bound to be involved in the development and manufacture of truly efficient stoves capable of making an impact on long-term energy saving, and consequently the economic interests of developing countries. The poor cannot be expected to bear the entire burden themselves. Some form of assistance is therefore essential and should be regarded as an investment for future prosperity.

In view of the pressing need for action, it is my sincere hope that this booklet will receive a favourable hearing from those — particularly governments and inter-governmental organisations — with the resources to support the various measures proposed.

Sadruddin Aga Khan

Introduction

It is generally agreed that one of the principal causes of the rapid deforestation that is occurring in many developing countries has been the excessive use of firewood and charcoal for cooking and baking purposes. It is also generally agreed that the large-scale introduction of efficient fuel-saving stoves, bread ovens and improved cooking methods, coupled with increasing efforts to plant more trees, could go a long way towards reversing these disastrous trends and help to restore the balance between the growing and consumption of firewood.

Despite this general consensus, however, progress has been disappointingly slow and attempts to introduce efficient stoves have met so far with only limited success.

By way of contrast, many far less essential commodities, such as motorcycles, sewing machines or transistor radios, are being accepted without difficulty by local populations.

Perhaps the principal reason for this paradox is that the above-mentioned products generally render **good service** whilst many of the stoves proposed to date do not.

In addition, behind transistor radios, motorcycles and the like there are professionals who have the training and experience to promote them and ensure maintenance and repairs. If responsibility for introducing stoves could be similarly entrusted to qualified technicians and experts in promotion there is no reason why fuel-efficient stoves should not gain widespread acceptance in the same way as sewing machines — provided, of course, that their cost is compatible with the available purchasing power. In this latter context, appropriate action on the part of governments, together with assistance from bi-lateral and multi-lateral sources, is of the

utmost importance. Without such action it will not be possible to stop — and ultimately reverse — the ecological disasters threatening several regions of the world today.

This booklet is not addressed to **individuals** who wish to build stoves as the author does not believe that really efficient stoves can be constructed by inexperienced amateurs. It was not the case in the past, and it is not the case today. On the contrary, stove building has always been a profession and an art. It must, consequently, be carried out by properly trained craftsmen and craftswomen. Where necessary, they should be supplied with essential components, such as heating plates, grates, metal sheet chimneys and cowls, as well as brushes for sweeping chimneys, moulds and cooking pots.

Modern Stoves for All is thus addressed to skilled technicians, in the hope that they will use the general drawings provided as a basis for building stove models, which they will then test and adapt to local conditions.

Even technicians are warned that their first attempts will rarely prove satisfactory for, whilst the concept of the stoves presented herein is relatively simple, a certain amount of practice and experience is required to master their construction and use.

Our aim is not to supply ready-made answers to the complex problems facing stove designers, but rather to set out ideas and suggestions for further consideration and trials. The stoves were selected, from among many different models, on the basis of good service rendered during field tests in Europe, Africa, Asia and the Caribbean.

The main intention of this publication is to show what it is possible to achieve in the immediate future without waiting for “wonder stoves” that may never leave the

drawing boards of equipment designers.

This latest English edition differs significantly from the first one, published in 1981 under the auspices of the Bellerive Foundation in Geneva. Several stove models have been removed, specifications of others modified and new models added. These changes reflect further field experience and, in particular, continuous testing of the fuel efficiency of the models concerned.

The new stove models and design improvements described in this edition are mainly due to the advice and assistance of

Mr Emil Haas, a retired Swiss industrialist and specialist on heating installations, who has graciously offered, for the benefit of the poor, his craftsmanship and lifelong experience. This publication could not have been revised without his dedication, inventiveness and enthusiasm, for which I am most grateful and indebted. I am also indebted to Barry Gilbert-Miguet who edited and prepared the text for publication.

Waclaw Micuta
Geneva
January 1985.