Soil Conservation

Problems and Prospects

Edited by

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Foreword

In 1978 the Department of Soil Physics of the University of Ghent arranged a "Workshop on the Assessment of Erosion in USA and Europe". At the end of that meeting it was agreed to hold a second conference at the National College of Agricultural Engineering in England with emphasis on the developing countries and on the tropics as well as Europe and North America.

The importance of soil conservation in the world today is highlighted by the reference to population and food resources in the keynote address by Dr R Dudal, Director of the Land and Water Development Division of FAO. The assessment of FAO is that by the year 2000 there will be 2000 million more people in the world to be fed, clothed, and housed. In spite of the increasing use of synthetic products, for the great majority of the world's population the source of all their basic requirements is the land. In this context we must do all we can to avoid damaging the land resource which must supply the growing needs. But irreversible damage caused by unwise exploitation is taking place every day.

Conferences will not solve this problem but CONSERVATION 80 brought together 135specialists from more than 35 countries to share their ideas and experience on the problems and practice of soil conservation.

It might seem unusual that Britain should be taking the lead in this field when ourproblem of soil erosion is much less than in the tropics and in developing countries. However, there is a long and proud historical record of British involvement in soil conservation going back to the Indian Forest Service in the last century. Later, the Colonial Agricultural and Forestry Services were actively engaged in soil conservation programmes in many territories, and in most cases professional and technical links continued after the territories became independent.

Today this traditional involvement continues in Universities and Institutions, as shown by the interest in this first International Conference on Soil Conservation to be held in this country.

Norman Hudson,
Chairman, Organising Committee

Preface

Soil conservation remains vitally important to the future of world food production and, therefore, to man's survival. Since the 1930 s basic erosion research has led to a better understanding of the mechanics of soil erosion processes and the way in which erosion can be controlled. As a result of this work it is frequently argued today, though perhaps not completely justifiable, that the technology for soil conservation exists and that the major research effort ought now to be placed on the problems of implementation. It is in the social and economic environment that the reasons for the failure of soil conservation schemes all too often lie. Improvements in the design of soil conservation strategies will only come about if the agricultural engineers and geomorphologists carrying out the bulk of the erosion research learn more from the economists and sociologists about the conditions in which the results of their work will be applied. At the same time, economists and sociologists and those engaged in extension services must have a greater appreciation of soil erosion processes in order to determine which conservation strategies are likely to work technically and which are not.

The International Conference on Soil Conservation, CONSERVATION 80, held at Silsoe in July 1980, provided a forum for the exchange of ideas and experiences between agricultural engineers, geomorphologists, pedologists, foresters, economists and extension workers. It brought together contributions from those working in universities and research stations and those directly concerned with implementing soil conservation in the field.

In deciding on the themes for the four main sessions of the Conference, the objective was to provide an opportunity for further reviewing ideas discussed in depth two years earlier at the *Workshop on the Assessment of Erosion in Europe and the USA,* held in Gent, Belgium in March 1978,

whilst, at the same time, considering problems involved in the application of soil erosion research to soil conservation practice. The first session on land classification and erosion assessment is followed by sessions directly concerned with linking erosion studies to the design of conservation strategies. The second session on empirical studies reflects the approach traditionally adopted in universities and research stations world wide and which, in the USA, has led to the development of the Universal Soil Loss Equation. The papers in this session deal with the background to empirical studies and with applications of the USLE. Although the USLE is the best-known and most widely used soil erosion model, a small group of researchers are currently working on other models which have a sounder physical base. The third session examines the practical value of these latter models to soil conservation compared with making modifications to the USLE and similar empirical models. The fourth session allows the research into erosion to be placed in a wider social and economic perspective. Attention is focussed on the relevance of much erosion research, particularly where it leads to solutions to the erosion problem which are sound technically but otherwise quite inappropriate to the social and economic conditions in which they are applied.

The arrangement of the papers in this volume follows their order of presentation at the Conference. The keynote addresses, one for each of the four themes, appear first, followed by the papers on each session in turn. In each session the contributed papers are preceded by two personal statements or reviews from rapporteurs. The session papers are followed by special presentations on soil erosion and conservation in China and the USSR, the research programme being carried out at NCAE, the host institution, and soil erosion and peat wastage in eastern England, the latter being related to the Conference field visit. A summary of the main points raised in the discussion sessions and two papers reviewing the achievements of the Conference as a whole complete the proceedings.

The preparation and editing of the papers for this volume has been a challenging, stimulating and enjoyable task. In the process I have been aided by the authors who generally adhered to the deadlines set and accepted editorial changes with kindness and good humour. I am indebted to Phyl King at NCAE for secretarial assistance throughout; Norman Hudson (NCAE) and Bob Evans (Soil Survey of England and Wales) for joining me in an editorial committee; and Dennis Chaplin of John Wiley and Sons Ltd for helping to foresee and clear production problems. My wife, Gillian, gave much time to the project in journalistic advice, sizing illustrations and pasting copy, and other assistance for which I am extremely grateful.

R P C Morgan
Silsoe, October 1980

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