



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search  
<http://ageconsearch.umn.edu>  
[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

# SUSTAINABLE AGRICULTURAL DEVELOPMENT: THE ROLE OF INTERNATIONAL COOPERATION

PROCEEDINGS  
OF THE  
TWENTY-FIRST  
INTERNATIONAL CONFERENCE  
OF AGRICULTURAL ECONOMISTS

*Held at Tokyo, Japan*  
22–29 August 1991

Edited by  
G.H. Peters, Agricultural Economics Unit, Queen Elizabeth House,  
University of Oxford, England  
and  
B.F. Stanton, Cornell University, USA  
Assisted by  
G.J. Tyler  
University of Oxford

INTERNATIONAL ASSOCIATION OF  
AGRICULTURAL ECONOMISTS  
QUEEN ELIZABETH HOUSE  
UNIVERSITY OF OXFORD

1992

Dartmouth

© The International Association of Agricultural Economists, 1992

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without the prior permission of Dartmouth Publishing Company Limited.

Published by  
Dartmouth Publishing Company Limited  
Gower House  
Croft Road  
Aldershot  
Hants GU11 3HR  
England

Dartmouth Publishing Company  
Old Post Road  
Brookfield  
Vermont 05036  
USA

A CIP catalogue record for this book is available from the British Library and the US Library of Congress

ISBN 1 85521 272 2

Printed and bound in Great Britain by  
Biddles Ltd, Guildford and King's Lynn

## CONTENTS

Preface	x
<i>John W. Longworth</i>	
Introduction	xiii
<i>George H. Peters and Bernard F. Stanton</i>	
OPENING SESSION	
Elmhirst Memorial Lecture: Agrarian structure, environmental concerns and rural poverty	3
<i>Vijay S. Vyas</i>	
Presidential Address: Human capital formation for sustainable agricultural development	18
<i>John W. Longworth</i>	
SECTION I – GLOBAL STRATEGIES FOR THE DEVELOPMENT OF AGRICULTURAL AND RURAL RESOURCES	
Food security: issues and options	29
<i>Kirit S. Parikh</i>	
World agriculture in the next century: challenges for production and distribution	44
<i>Nikos Alexandratos</i>	
The efficiency of agricultural markets in directing agricultural development	66
<i>Ulrich Koester</i>	
Achieving a reasonable balance between the public and private sectors in agriculture	81
<i>Lawrence D. Smith and Anne M. Thomson</i>	
Sustainability: the paradigmatic challenge to agricultural economists	92
<i>Richard B. Norgaard</i>	
The green revolution, dryland agriculture and sustainability: insights from India	102
<i>K.N. Ninan and H. Chandrashekar</i>	

Section summary <i>David Colman</i>	115
SECTION II – INTERNATIONAL TRADE AND ITS IMPACT ON DOMESTIC POLICIES	
Implications of the GATT negotiations: the process of reaching an agreement on agriculture <i>Aart de Zeeuw</i>	119
Agricultural and trade policy reform: implications for agricultural trade <i>D. McClatchy and T.K. Warley</i>	129
The Soviet Union's agrarian sector on the way to a market economy <i>A. Emel'ianov</i>	152
Transition to market economies in Eastern Europe: the case of Hungary <i>Ferenc Fekete and Csaba Forgács</i>	158
Evaluating policy choices in developing countries: the policy analysis matrix <i>Eric Monke and Scott Pearson</i>	166
General equilibrium effects of trade liberalization in the presence of imperfect competition <i>Thomas Hertel, Kent Lanclos and Marie Thursby</i>	181
Section summary <i>David Colman</i>	192
SECTION III – STRUCTURAL ADJUSTMENT POLICIES AND AGRICULTURAL DEVELOPMENT	
Government and agricultural development <i>Eliseu Alves, Clovis de Faro and Elisio Contini</i>	197
Adjustment policy and agricultural development <i>Patrick Guillaumont</i>	211
Inflation and agriculture: ten years of high inflation and government debt in Brazil <i>Guilherme L.S. Dias</i>	227
Impact of policy reforms on the agricultural sector in Chile <i>Eugenia Muchnik de Rubinstein</i>	241

Decollectivization in East and Central Europe <i>Karen Brooks and Avishay Braverman</i>	254
Agricultural policy and structural adjustment in Cameroon <i>Joseph Ntangsi</i>	265
Structural adjustment policies and agricultural development in Morocco <i>Mokhtar Bouanani and Wallace E. Tyner</i>	281
Agricultural trade and pricing policies in developing countries: implications for policy reform <i>Alberto Valdés</i>	292
Section summary <i>Antonio Brandão</i>	306
SECTION IV – THE POTENTIAL OF BIOTECHNOLOGY FOR AGRICULTURE AND THE FOOD INDUSTRY	
Key elements of modern biotechnology of relevance to agriculture <i>W. James Peacock</i>	311
Comments from various perspectives <i>C.H. Hanumantha Rao, Cornelis L.J. Van der Meer and Randolph Barker</i>	317
Plant breeders' rights legislation, enforcement and R & D: lessons for developing countries <i>Carl E. Pray</i>	330
Financing agricultural research in the presence of international benefit spillovers: the need for institutional coordination and innovation <i>David B. Schweikhardt and James T. Bonnen</i>	343
Biotechnology and the International Agriculture Research Centres of the CGIAR <i>M.P. Collinson and K. Wright Platais</i>	355
The role of the private and public sectors in the development and diffusion of biotechnology in agriculture <i>R.K. Lindner</i>	371
Section summary <i>Herbert Stoevener</i>	386

SECTION V – ENVIRONMENTAL ENHANCEMENT  
STRATEGIES AND POLICY LINKAGES

Sustainable development: concepts and strategies <i>Sandra S. Batie</i>	391
Sustainable development strategies in less favoured and marginal production areas <i>R. P. Yadav</i>	405
Management of fisheries as a common property resource <i>Trond Bjørndal</i>	422
Management of common-pool forest resources <i>Randall A. Kramer and Vishwa Ballabh</i>	435
Climate change, agriculture and the environment: some economic issues <i>Richard M. Adams</i>	450
Air pollutants and options for their control: experiences from the European scene <i>Sten Nilsson</i>	462
Section summary <i>Herbert Stoevener</i>	474

SECTION VI – FARM HOUSEHOLDS AS THE DOMINANT  
INSTITUTIONAL UNITS IN AGRICULTURE

Household time allocation – the ultimate determinant of improved agricultural technology adoption in Nigeria: an empirical activity interphase impact model <i>Anthony Ikpi</i>	481
The theory of resource allocation by farm households: the role of off-farm employment, household production and transaction costs <i>Günther H. Schmitt</i>	502
Family farms, cooperatives and collectives <i>Yoav Kislev</i>	520
Contributions of women and household members to the economy in rural areas <i>Helen H. Jensen</i>	533

Agriculture, rural labour markets and the evolution of the rural non-farm economy <i>Steven Haggblade and Carl Liedholm</i>	542
Capital formation of the farm household and resource allocation in agricultural – rural sectors: an analysis of sustainability of Japanese agriculture <i>Ryohei Kada</i>	558
Section summary <i>Mahabub Hossain</i>	568
SECTION VII – SMALLHOLDER AGRICULTURE AND CHANGES IN DEVELOPMENT	
Will biotechnology alleviate poverty? <i>Iftikar Ahmed</i>	573
Agricultural biotechnology and the poor in developing countries <i>Robert W. Herdt</i>	592
Green revolution, agrarian structure and income distribution in Asia <i>Keijiro Otsuka</i>	607
‘Small farmers’ in China and their development <i>Niu Ruofeng and Chen Jiyuan</i>	619
An assessment of the role of informal finance in the development process <i>Richard L. Meyer and Geetha Nagarajan</i>	644
Informal credit markets in Bangladesh agriculture: bane or boon? <i>K.A.S. Murshid</i>	657
Section summary <i>Mahabub Hossain</i>	670
SYNOPTIC VIEW	
<i>Csaba Csáki – President Elect</i>	673
INDEX	689