

The Gene Revolution
GM Crops and Unequal development
Edited by Sakiko Fukuda-Parr

‘An accessible introduction to the food and environmental policy issues posed by the Gene Revolution... should be required reading!’ *Vernon W. Ruttan, University of Minnesota*

‘An indispensable guide for evidence-based discussions on the institutional aspects of biotechnology. Every myth-maker should take seriously the findings and implications’ *Calestous Juma, Harvard University*

‘A much needed antidote to the highly polemical writing on both sides of the this issue’ *Raymond C. Oppenheiser, President, Oxfam America*

‘Shows how biotechnology research and development could be fostered on the principle of social inclusion in access to its fruits... [and] clearly elucidates the pathway to avoiding the addition of the genetic divide to the other divides prevailing globally and nationally’ Professor M S Swaminathan, Chairman, National Commission on Farmers, Government of India

The high-yield selective breeding of ‘the Green Revolution’ of the 1960s and ’70s is now being overtaken by ‘the Gene Revolution’ – the development and spread of GM crops across the world. With over 90 million hectares already under cultivation and 60 countries conducting research, GM is reviled by some as a vast Pandora’s Box and corporate sell-out, while hailed by others as the necessary technological solution to stagnating agricultural output, ballooning populations, climate change and drought. Sandwiched in between are developing and transitional countries where the need to feed vast populations and to compete against the US in international markets are compelling reasons to get on the GM bandwagon while lack of access to EU markets for export crops and the fear of environmental and health risks give reason to pause.

This is the first book to bridge the gap between the ‘naysayers’ and ‘cheerleaders’ and look at the issues and complexities facing developing and transitional countries over decisions about GM in light of the reality of what is happening on the ground. This volume sorts the issues facing countries in the GM debate and looks at the realities, policies and institutions at work. Chapter authors representing different national and institutional perspectives from China, India, Brazil, Argentina, South Africa and western Africa, well as the USA and Europe, present the experiences, issues and points of debate as viewed from different quarters.

Global inequalities in the 21st century will be driven not only by resources and governance but by technological divides. Mired in distrust of scientists and corporations, policy debates on agricultural biotechnology are polarized between the opposition movement intent on stopping its spread and the advocates pursuing market expansion for GM products.

This book is an attempt to stimulate attention towards an alternative vision for GM crops and development, one that can harness this powerful technology to meet national priorities - for growth, equity and sustainability.

The core message is that new and alternative institutional (and business) models are needed in developing countries: licensing corporate technologies will not be adequate to meet developing country priorities; the corporate model of tight patents that facilitated the emergence of GM crops in the US, the precautionary regulations that set high biosafety standards in the EU, and the contract based seed marketing do not work in developing country contexts. A new model is needed to redirect R & D to priorities of resource poor farmers and low income consumers, and to create competitive seed markets that can deliver well adapted varieties to farmers at low cost. What is missing today is a political alliance for a pro-poor agenda for GM technology development - global public support for a pro-poor R & D agenda, a political alliance of pro-poor civil society advocacy for mobilizing new technology for human development, and public financing for developing country access.

Part I: National Development Priorities and the Role of Institutions • Introduction: GM Crops and National Development Priorities ▪ The Role of Institutional Change in the Emergence and Global Spread of GM Crops ▪ USA: Leading Science, Technology and Commercialization ▪ Europe: Turning Against Agricultural Biotechnology ▪ West and Central Africa: Strategizing Biotechnology for Food Security and Poverty Reduction • *Part II: GM Crops for Development: The Experience of Argentina, Brazil, China, India and South Africa* • Argentina: Adopting RR Soy, Economic Liberalization, Global Markets and Socio-economic Consequences ▪ Brazil: Confronting the Challenges of Global Competition and Protecting biodiversity ▪ China: Emerging Public Sector Model for GM Crop Development ▪ India: The Potential of Genetically Modified Crops for the Poor ▪ South Africa: Revealing the Potential and Obstacles, the Private Sector Model and Reaching the Traditional Sector ▪ *Part III: Comparing and Analysing Developing Country Experiences* ▪ Institutional Changes in Argentina, Brazil, China, India and South Africa: Comparative Analysis ▪ The Role of Government Policy for Growth, Sustainability and Equity ▪ *References, Index*

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Pb £22.95 978-1-84407-409-9 January 2007

Hb £80.00 978-1-84407-410-5

224 pages 234 x 156mm Figures, Tables Index