Book Review

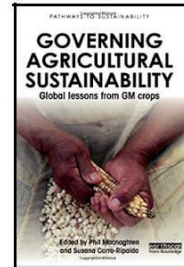## Governing Agricultural Sustainability – Global lessons from GM crops

Editors: Phil Macnaghten and Susana Carro-Ripalda
Publisher: Routledge
Year: 2015
ISBN: 978-1-138-89182-1
Pages: 244 (paperback)

Use of biotechnology is considered important to express novel traits for crop improvement by their advocates, and they value it as a key component for the future of the world agriculture. Growth and maturation of biotechnology is most evident in the countries of the North, but its span and reach in the globalized economy has also permeated it into developing countries. Many claims either positive or negative of agronomic, environmental, health, social, and economic effects of the existing genetically modified (GM) crops have been put forth. There has been a highly polarized public as well as scientific debate on the agricultural biotechnology and development, specifically on its role in reduction of poverty and hunger. It has been characterized primarily by two contrasting views—an unqualified acceptance of the agro-industrial biotechnology developments in the name of the progress and free market, and of complete rejection as a form of (self) protection.

A diversion from above approach, this publication Governing Agricultural Sustainability – Global lessons from GM crops, edited by Phil Macnaghten and Susana Carro-Ripalda, focuses on what kind of politics is needed to accommodate GM agriculture on a global scale. Rather than merely delving into pros and cons of genetically modified crops, the book reflects on how and under what conditions genetically modified crops should be widely accepted and be qualified as for global public good. The wide-ranging information indicates a new approach to understand controversy on GM crops in relation to sustainable agriculture in future. Drawing on the extensive scholarship at the intersection of technological advance, globalization, political and economic power and cultural identity, the book

presents an alternative pluralistic and inclusive model for decision-making – a model that just might move us towards better governance of technological change. Responding to the challenge of agricultural sustainability, this book offers a new pathway for governing GM crops through the recent debates on responsible innovation, agricultural sustainability and on social justice.

The book is in two parts with 17 contributions. Part 1 draws on the empirical research undertaken in Brazil, India and Mexico – exploring views of scientists, farmers and public. Using a diverse array of ethnographic and qualitative methodologies, it examines dynamics that underpins controversy in three diverse geo-political contexts — the manner in which dominant institutional framing has closely been aligned with the interest of powerful elites; multiple ways in which these have been resisted through local, symbolic and material practices. Part 2 comprises a series of short pieces from 11 leading academics in social and life sciences; responding to the question of how to develop a policy framework for responsible innovation of sustainable, culturally appropriate and socially just agricultural GM technologies.

The book, which can be easily understood even by those without any specialised knowledge about GM crops, gives valuable insight on governance of emerging technologies in a responsible manner. The Chapter 1 sets out the context and the conceptual approach, which is informed by debates in five intersecting literatures: on science and publics; on extant analyses of the GM controversy; on emerging frameworks on responsible innovation; on literatures on pathways to sustainability; and on culture and forms of life. Chapter 2, 3 and 4 review trajectory of debate and also on controversy over GM crops in Mexico, Brazil and India. Rich empirical ethnographic research with farmers, scientists and public in these countries bring different voices to the fore; the authors reiterate how technologies are framed differently in different settings.

In the Mexican case, the prospect of GM maize is seen by smallholder farmers as an intrusion on the traditional practices. The scientific community views are divided on the use of genetically modification technologies on maize genome and the urban public, in general, has a negative reaction to GM crops and foods. Further, there has been little sustained effort by the state to engage the public. In the Brazilian case, presented in

Chapter 3, scientists are optimistic about the role of GM crop technologies; they emphasize national benefits and necessity for agricultural GM research for a strong national base. The urban public was either ignorant or to had little knowledge or awareness on GM crops and foods, and were genuinely surprised about the extent of their adoption. Although there is a trust in the expert systems, the Brazilian public, however, adopted a negative opinion on GM crops and foods as the technology was perceived to benefit the producer (not the consumer) and it was felt that the public was not adequately consulted or clearly informed. The conflict between farmers and technical experts from seed companies was clearly evident to authors; each blaming the other for growing problem of weed resistance to glyphosate. Chapter 4 identifies trajectory of GM debate in India and highlights factors leading to ongoing resistance to GM crops in the country, culminating in 2013 ten-year moratorium. The authors find a general sense of optimism among wider scientific establishments and central government towards GM crop technologies with a few voices raising concerns about its techno- economic and ecological implications. Civil societies are observed to be spearheading articulation for these concerns in the Indian case. On Indian public responses, the authors noted urban public projection of negative views on GM crops and foods, reflecting mistrust in the government and local authorities in providing a reliable regulatory system for production of GM crops.

The Last Chapter of Part I compares responses to GM crops in Mexico, Brazil and India. A pattern of overlaps but on important specificities was observed in the chapter. Across three nations, the author indicated that the national regulatory bodies and technical committees setup to regulate GM crops, even though they included representatives from leading public universities and research institutes and were situated within a complex network of variously configured inter-ministerial responsibilities and obligation, had not provided 'authoritative governance' in terms of taking decision, developed through transparent deliberations. In terms of explaining different trajectories that GM crops has taken in these countries, the author identifies different factors to be relevant in structuring controversy viz. the perceived authority of the regulatory agencies, the cultural resonance of the crops in question, the level of intensity of protest movements, the extent to which GM can become a represented symbol of wider struggle, and the degree of sustained effort by institutional actors to engage the

public. Comparing the laboratory ethnographies, the research culture of the laboratories across the three sites was observed lacking in two of the core dimensions of a responsible governance framework - 'reflexivity' and 'inclusiveness'.

The second part of the book opens up debate on the governance of GM crops through a set of commentaries spread across 11 chapters (chapter number 6-16). Chapter 6 reflects on the GMFuturos study as a valuable attempt in widening debate on crop genetic engineering technology moving away from risks to impacts on people's livelihoods, societal values and sanctity of traditions. The next chapter compares cases of Mexico, Brazil and India with those of China, taking into account the specificities of China's dynamic governance context. Chapter 8 justifies narratives on the adoption of GM crops in 'rising power' settings to test, using an innovative combination of social science research methods. The idea of 'stewardship' is put forward as an integral element of the framework of responsible innovation. Chapter 9 develops a non- reductionist account of GM crop technologies emphasizing on multiple ways in which GM crops are enmeshed in culture and societal aspiration. The commentary in Chapter 10 draws lessons on the need to frame public responses within their political-economic contexts, and demonstrates how a biotechnological vision of further industrializing European agriculture was promoted as an overall solution to the problem of European competitiveness. The science of genetic modification is contextualized in Chapter 11 and the role of theology as offering narrative resources to reconfigure the governance debate on GM crops is reflected in Chapter 12. Further, Chapter 13 contextualizes findings of the GMFuturos study within a broader narrative of disconnect between agricultural science and everyday food practices. Chapter 14 reflects on the power of context and the threat to fundamental values in determining responses to risks; highlighting need for longitudinal studies and potentials of emerging policy frameworks of responsible innovation. Chapter 15 deliberates on the institutional rigidities and impediments in the Indian agricultural science and technology system that continues to resist learning against possibility of more responsive and deliberative alternatives. The commentary in Chapter 16 emphasizes on the use of focus groups in helping open- up new kind of debate, deliberation and participation.

Drawing on the insights from the eleven commentaries, the last chapter of the book discusses on the application of a responsible innovation framework to the governance of GM crops as a pathway to sustainable agriculture and as a response to current institutional void. It is argued that responsible innovation framework is needed to move beyond sterile arguments of being proponents or opponents of the technology or confining merely to issues pertaining to risks and benefits of the technology.

This book departs from a dominant science-centric and techno-centric view of the crop genetic engineering, which vests too much autonomy and power to the physical technology itself as the driving force of technology diffusion, ignoring social contexts, the relevant social groups and the institutional factors involved and which enable (or constrain) innovation. Technology evolution and innovation is generally too complex to be adequately understood from a context independent perspective. This edited but integrated volume provides a novel comparative analysis on the social, cultural and political factors explaining why controversy surrounding GM crops has taken a variety of forms in different national settings. This book encourages richly textured descriptions and analysis of the relevant contexts at play in development and deployment of GM crops in a wide variety of different agro-ecosystems and countries. It gives readers concerns about public controversies surrounding emerging technologies, and the occasion to think about better governance of technological change. On the narrower side, more can be done to reflect on and revise agricultural biotechnology governance in the wake of a new wave of genomic tools and products (beyond GM crops), which would supposedly revolutionize biotechnology by allowing easy, cheap, precise and predictable genetic modification. Further, as a potentially valuable avenue for additional probing, an exploration of the ambit of regulatory frameworks and the existing definition of GM organisms would highlight the uncertainty that exists with respect to these new genomic tools and products and techniques. This would help stimulate further debate and action towards improved form of governance, particularly, as future emerging genomic tools and products continue to unfold.

– **Manish Anand**
Fellow
The Energy and Resources Institute (TERI)
Email: manand@teri.res.in