

Chapter 64

Opportunities and Challenges in Socially Inclusive Innovation: The Case of Genetically Modified Corn in the Philippines

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ABSTRACT

This chapter analyzes the opportunities and challenges for modern biotechnology, particularly Genetically Modified (GM) corn, in addressing social inclusion to ensure its equitable outcomes or impacts. It examines the policy environment in which GM corn was introduced and the related socioeconomic concerns. The study reveals that in the Philippines there is no institutionalized mechanism yet to determine if GM corn promotion policies and strategies conform to the social inclusion context of biotechnology. Governance of the GM technology and the interplay of the innovation system intermediaries hindered the full realization and application of social inclusion principles. Interventions to monitor socio-economic impact, knowledge transfer and interaction, and credit support delivery are needed for a more socially inclusive innovation. There should be a continuous interactive learning among various stakeholders to have evidence-based information on the technology.

INTRODUCTION

Modern biotechnology application and the development of genetically modified crops is an option that developing countries are considering to meet food needs, reduce poverty, and enhance environmental sustainability. Modern biotechnology employs molecular techniques to identify, select and modify DNA sequences for a specific genetic trait (e.g., insect resistance) from a donor organism (microorganism, plant or animal), and transfer the sequence to the recipient organism so that it expresses this trait (WHO, 2005).

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Modern biotechnology use has drawn interests due to the potential risks for society particularly in areas of health and environment. As such, this scientific activity has been subject to international agreements and more stringent regulatory considerations. The Philippines is one of the countries that have adopted the use of biotechnology as a means to attain food security and poverty alleviation goals. It setup institutional regulatory mechanisms and has approved the commercial propagation of GM corn. As of February 2013, five GM corn transformation events have been approved for propagation, four with single and one with combined traits (BPI, 2013). GM corn manifests the following traits: insect resistance (*Bt*); herbicide tolerance (HT); and stacked trait (ST) meaning combined insect resistance and herbicide tolerance traits. However, there has not been an established mechanism to assess how modern biotechnology products have generated socio-economic benefits and contributed to the food security and poverty alleviation goals or how it has improved the livelihood of people, aside from sporadic research-based efforts (e.g., Yorobe et al., 2004,; Gonzales et al., 2009).

Poverty is defined as the lack of economic resources and is an important cause of social exclusion because the lack of those resources prevents participation. Poverty is directly linked to social inclusion, a process by which societies combat poverty and social exclusion (UN, 2010).

Social inclusion is an approach that allows for genuine inputs into the development of products and policies, and ensures equitable outcomes or impacts from them. Public engagement is one of the processes that allows for increased social inclusion as it seeks to achieve increased information flow and knowledge exchange as well as increase overall technological literacy. Deliberative engagement processes allow for improved public input to policy, research and product development, to reduce apprehensions, and achieve results that better suit public needs (AON, 2008).

This chapter examines the social inclusion context of GM corn, the first modern agricultural biotechnology product approved for commercial propagation in the Philippines. The chapter also discusses the policy environment in the introduction of GM corn as well as the opportunities and challenges in addressing social inclusion to ensure its equitable outcomes or impacts. This is anchored on the hypothesis that the policies and processes involved in the diffusion and regulation of the GM corn are consistent with the social inclusion principles of deliberative, inclusive, substantial and consequential. If there are constraints to social inclusion, what policies and strategies can be instituted to make innovation socially inclusive?

BACKGROUND

Innovation is a social process and this can only happen when people connect to share problems, opportunities, and learning. Anyone can innovate, but practically no one can innovate alone (Lafley and Charan, 2008). The system of innovation approach is a way of analysing innovations' character, their causes and how they affect economic growth and development in the learning economy (Johnson & Segura-Bonilla, 2001). This approach adopts the idea that interactive learning and innovation processes are driving and forming growth and development (Lundvall, 1992; Nelson, 1993).

Increasing rates of learning and innovation, however, may lead not only to increasing productivity and income but also to increasing polarisation in terms of incomes and employment (Johnson & Segura-Bonilla, 2001). Inequality within societies can actually be caused by a variety of factors. The production system plays a central role in inequitable income distribution, particularly if redistributive policies are weak. Technological progress and innovation also have implications for the distribution of income (OECD 2012). This may therefore lead to the social exclusion of some sectors.

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