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Competitiveness versus 'clean and green'? The regulation and governance of GMOs in Australia and the UK

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Abstract

It is increasingly argued that we are entering into a "biotech century", in which biotechnology promises major advances in agricultural productivity. The development of biotechnology is not a straightforward affair, however, and the advent of GMOs has led to public protest and consumer resistance. This paper draws upon a comparative Australian–UK project concerned with the role of regulation and governance in mediating the debates and managing the associated risks. Regulatory responses and the mediation of conflicts by the Australian and UK governments have been shaped by the institutional and policy environments in these two countries. The implications of these public debates and regulatory responses for the capture of competitive opportunities are considered. The fact that the two countries have broadly similar systems of governance and regulation reveals how alike the circumstances are in many respects. But at the same time there are important differences in both the *style* and the *content* of the policy debates. In both the UK and Australia, the respective central governments remain committed to a 'biotechnology future'. Against this background, there is little doubt that the choices about biotechnology will play a defining role in shaping the future of rural places.

Keywords: Agricultural biotechnology; Governance; Regulatory analysis; Rural sustainability

1. Introduction

The development of genetically modified organisms (GMOs) is currently positioned as one of the most significant and contentious societal debates globally. Their significance arises from the perceived economic benefits to regions and nations that can successfully capture competitive advantages in research and development, counterposed by the possible threats to human health, long-term agricultural productivity, the pursuit of other competitive strategies for agriculture (such as organics or GM-free agriculture), and the environment (OECD, 2005). This paper is concerned with the development, social contestation, growth and regulation of the biotechnology sector, specifically GMOs in the form of seeds, crops and foods. Through a comparative study of developments in Australia and the United Kingdom (UK), we examine the interplay between the suggested benefits of adopting and encouraging the new technology and the negative aspects that may also arise, and the attempts that have been made through regulation and governance to mediate the debates and manage the associated risks. As Wright (1993) has argued, this kind of comparative analysis of the development of GMOs helps expose the arbitrary and political nature of decisions as well as the influence of agency operating at various levels, including particularly transnationally. Thus, regulatory responses and the mediation of conflicts by the Australian and UK governments have been shaped by the institutional and policy environments in these two countries, and we are interested in the implications of these public debates and regulatory responses for the capture of

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competitive opportunities. In this manner we hope to contribute to debates within geography on biotechnology and begin to tease out how "different assemblages of state-corporate-science networks construct legitimising platforms for continued biotech development" (Bridge et al., 2003, p. 172) and how local actors respond to these legitimising strategies.

Biotechnology promises major advances in the treatment of genetic disorders and disease, as well as prospective improvements in agricultural productivity in the form both of improved yields and lower costs of production (Foster, 2001). Major players in this biotech century are transnational companies seeking a return on their considerable investments in research and development (Hindmarsh and Lawrence, 2001; McCain, 1995). At the same time, national and regional policy makers regard biotechnology as a key to future economic growth and competitiveness (Bridge et al., 2003), and so the technology has become a "tool in the geopolitical strategies of the major industrial nations" (Hayward, 1998, p. 85). A key area in transgenic modification, and one where biotechnology companies have sought to gain global market advantage, is in the production and sale of genetically modified (GM) seeds and crops. The aim has been to produce crops with durable resistance to herbicides, to major insect pests and to fungal and viral diseases using naturally occurring plant genes (Leaver, 1999), in order, it is claimed, to increase food supply and security.[1] Indeed, the development of transgenic plants has been hailed as the advent of a new "green revolution" in agriculture (Leaver, 1999). It was estimated in 2004 by proponents of agricultural biotechnology that 81 million hectares of biotechnology crops were being grown by more than 8 million farmers in 17 different countries, up from around 68 million hectares in 2003 (Biotechnology Australia, 2005). This compares to an estimated 272 million hectares (672 million acres) of land under cultivation worldwide (Pew Initiative, 2004, n.p.).

The development of the biotechnology sector is not a straightforward affair, however. Opponents point out that of the four GM crops "aggressively introduced on the world market" (canola, cotton, maize and soybeans), "most of these GM crops are concentrated in a few countries", with more than 84% of GM crops being grown in the United States, Argentina and Canada in 2004 (FOEI, 2006, p. 6).[2] Their limited geographic spread, so far, is partly a result of the substantial protest movement and consumer resistance, centred especially in Europe. Critics of biotechnology see claims for its benefits as "greenwashing", designed to allay public disquiet (McMichael and Lawrence, 2001, p. 161–162). The opposition arises out of concerns over the environmental implications of GMOs (e.g., cross-fertilisation with native species) and the prospective risks to human health from the long-term effects of ingesting genetically modified foods (Carman, 2004). Additionally, while the assumption is that local and national competitiveness can be enhanced by capturing the *production* side, and especially its research base, there are issues regarding the *consumers* and *customers*. For example, if consumer resistance persists, and consumers and retailers continue to prefer GM-free products, then the competitiveness of local/regional agricultural networks may be threatened (Crook, 2001; Gray and Lawrence, 2001). Concerns have been particularly strong in the UK and Europe about consumer acceptance of GM crops and foods. Governments in Australia and the UK have sought to address these concerns through the development of regulatory structures and legislation.

New technologies invariably present opportunities for economic competition and growth, as well as presenting a range of risk factors, for example in terms of human health, existing economic enterprises and the environment (Crook, 2001; Norton, 2001). As the discussion above suggests, in the case of GMOs there is a tension between the anticipated opportunities for nations and regions that can effectively capture a proportion of the huge investments in R&D and the prospective benefits in terms of expected increases in productivity, and the risks to people and the environment. The benefits and costs are likely to be distributed unevenly; for example, economic benefits will accrue to transnational firms and the producers who adopt the technology, whereas the primary burden of potential risk will be borne by individuals who consume the products, food and fibre producers who opt for 'GM-free' production,[3] and the environment.

Biotechnology therefore raises questions about how its development should be governed and regulated (Polya, 2001). Broadly, governments have two alternative pathways to contemplate. One is to facilitate research in, and the development of, GMOs, reaping the claimed benefits of high yield, disease resistant crops. The other strategy would acknowledge the widespread consumer resistance, take a precautionary approach to the risks, and promote a 'clean and green' food and fibre system. The challenge in terms of governance and regulation is to decide which pathway to take. Not unexpectedly, governments have attempted to tailor responses that have the appearance of achieving a compromise between these two approaches.

Our particular focus in this paper is upon how the state in Australia and the UK, operating at a range of geographic scales (local, regional, national), is responding to

[1] GM crops of this kind are now referred to as "first generation crops [which] are designed for easier production on the farm"; more recently, crops have been developed with special characteristics, such as increased nutrition ("second generation crops"), and for use in producing pharmaceuticals or for industrial purposes ("third generation crops") (Glover et al., 2005, p. 10).

[2] FOEI (2006, p. 7) also claim that data published by industry sponsored organisations are estimates and in some documented cases "vastly inflated".

[3] These producers run the risk that their crops will be contaminated by GM crops grown or transported in the vicinity of their fields with subsequent potential loss of access to those markets where consumer resistance to GMOs is high.