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# Stimulating authentic community involvement in biotechnology policy in Australia

Renato Schibeci and Jeffrey Harwood

This paper analyzes community involvement in biotechnology policy in Australia. Specifically, we examine the Gene Technology Act 2000 that governs gene technology in Australia and the roles of the Office of the Gene Technology Regulator and the Gene Technology Community Consultative Committee. We contend that the institutions that underpin biotechnology policy serve to hamper community involvement and reinforce a cognitive deficit model of community involvement. Finally, we propose how the situation could be turned around so that interested citizens can participate in authentic community involvement in biotechnology policy in Australia.

## 1. Introduction

The idea that community involvement can stimulate trust in government and contribute to more effective public policy has been a cornerstone of studies of the public understanding of science over the past decade. Traditionally, policymakers have held that ordinary members of the community need more information to remedy their lack of understanding, that is, their “deficit” (Wynne, 1991), and that it is the responsibility of scientists and policymakers to rectify this “ignorance.” Recent studies have shown, however, that many people now realize that scientific issues are often clouded in uncertainty and value judgments; hence, they distrust policy research that privileges scientific knowledge at the expense of their local knowledge and values (Bush et al., 2001; Fischer, 2002; Gutteling et al., 2006; Jasanoff, 1997; Macoubrie, 2006; Poortinga et al., 2004; Rowe et al., 2006; Shaw, 2002; Taylor-Gooby, 2006).

This has stimulated the use of focus groups, citizens’ juries, consensus conferences and the like—what are broadly termed deliberative inclusionary processes (DIPs)—in a variety of contexts. In their study of the UK National Consensus Conference on Plant Technology, Joss and Durant (1995: 202) found that it succeeded in stimulating “dialogue between laypeople and experts.” Moreover, Einsiedel et al. (2001: 94) concluded that the consensus model that originated in the United States and was adapted by the Danish Board of Technology is transferable to other political environments—in this case, to Canada and Australia. However, Irwin (2001) repeatedly observed in the case of the Public Consultation on Developments in the Biosciences that the deficit model could prevail in cases where the organizers seek to impart knowledge, rather than create a mutual understanding between the participants. In her analysis of the New Zealand consensus conference on plant biotechnology, Govern (2003: 436–7) noted that if consensus conferences are not properly organized, they can effectively exclude views contrary to the prevailing paradigm. Despite these mixed findings and difficulties in

establishing an agreed basis for the evaluation of DIPs (Rowe et al., 2005), DIPs continue to be applied to tackle issues in science and technology throughout the world because of their potential to stimulate mutual understanding between “experts” and “lay publics” and legitimize public policy.

The culture of Australian science and technology policy appears to be underpinned by a cognitive deficit model. This is evident in Parsons’ (2001) discussion of the Parliamentary Information Program initiated by the Australian government funded Commonwealth Scientific and Industrial Research Organisation (CSIRO). As the program was intended to generate a continuing mutual dialogue between scientists and politicians, it was not entirely congruent with the cognitive deficit model. Nevertheless, there is little indication that the community has a serious role to play in addressing policy problems. Instead, the CSIRO is presented as an agency concerned more with transferring knowledge to politicians than engaging in a two-way dialogue with the community. Parsons (2001: 306–7) explained that the CSIRO provided “a multifaceted program of information delivery to politicians,” which includes customized packages e-mailed to all politicians that can be used for policy formulation, speeches, press releases and to help deal with queries from the public. At Parliament House, “national science briefings” are held that show “how science can provide solutions to many problems facing Australians and Australian industry” (Parsons, 2001: 307).

In their study of Australian biotechnology policy, Dietrich and Schibeci (2003: 386–7) found that the cognitive deficit model prevailed amongst biotechnology policymakers in particular. Indeed, the lead agency, Biotechnology Australia (1999, 2001), used public opinion surveys to legitimate government policy and reinforce the construction of “the public” as consumers with a “cognitive deficit.” Furthermore, Dietrich and Schibeci argued that the authors and proponents of these surveys mistakenly assume a unified public and ignore the local knowledge possessed by “the public.” To stimulate community involvement in biotechnology policy, they suggested activities for the Australian government regulatory agency, the Office of the Gene Technology Regulator (OGTR) and its subcommittee, the Gene Technology Community Consultative Committee (GTCCC), which they assumed would become a “conduit of public opinion and participation” (Dietrich and Schibeci, 2003: 397).

In this paper, we continue Dietrich and Schibeci’s work by analyzing the structural factors that might help or hinder community involvement in Australian biotechnology policy. First, we examined the work of the OGTR and its supporting committees—the Gene Technology Technical Advisory Committee, the Gene Technology Ethics Committee and the Gene Technology Community Consultative Committee—to determine whether there were any legislative requirements to involve the community. Second, we tracked the work of the committee given the task of reviewing the *Gene Technology Act 2000*. Third, we examined the review of the operations of the Office of the Gene Technology Regulator by the Australian National Audit Office.

We contend that the failure (or inability) of government agencies to stimulate authentic community involvement in gene technology is due, at least in some part, to institutional design. In the words of Goodin (1996: 13), “What people want to do, and what they can do, depends importantly on what organizational technology is available or can be made readily available to them for giving effect to the individual and collective volitions.” That is, institutions, such as Parliament, committees, public hearings, citizen juries, and the formal and informal rules that govern participation in these institutions, matter because they affect the way that people perceive themselves, their relative position in the political arena and their opportunities to affect political and policy outputs. This is not to deny the possibility of

individual free will to act politically; rather, institutions and their associated “rules of the game” can reinforce predispositions and self-images of people as consumers of information, rather than as active citizens.

Hence, we begin this article by setting out the institutional framework for gene technology policy in Australia. The *Gene Technology Act 2000* established the OGTR as the agency primarily responsible for regulating gene technology and the GTCCC as the committee responsible for community involvement. In the third part, we explain how the *Act* consigns the GTCCC to a minor role compared with the Gene Technology Technical Advisory Committee, contend that the OGTR has shown little interest in community involvement and argue that the GTCCC has been constrained by operating procedures that prevent it from acting to further community involvement. In the fourth part of the article, we highlight this disinterest in community involvement by critically reviewing a public hearing that was held in Perth, in October 2005, as part of the review of the *Gene Technology Act 2000*. In the fifth part, we summarize the findings of the audit conducted by the Australian National Audit Office in 2004–5 to show how institutional design, notably the *Gene Technology Act 2000*, not only affects how the management of the OGTR is audited, but also limits the attention paid to community involvement in biotechnology. Finally, we present a series of amendments to the institutional framework that, if adopted, would likely stimulate community involvement in Australian biotechnology policy and legitimize the government’s policies.

## 2. The institutional framework of Australian gene technology policy

With regard to providing the requisite “organizational technology” for authentic community involvement, the institutional framework of Australian gene technology policy is generally ambiguous and open to interpretation. As explained below, the *Gene Technology Act 2000* established the OGTR and three advisory committees, and detailed their respective functions. The *Act* does not explicitly limit or prohibit community involvement; however, it can be interpreted such that the Gene Technology Regulator does not have to seriously encourage or consider inputs from the community.

In Australia, the *Gene Technology Act 2000* (Commonwealth of Australia, 2000) and its supporting document, the *Gene Technology Regulations 2001* (Commonwealth of Australia, 2001), provide the institutional basis for gene technology policy. It established the Gene Technology Ministerial Council to “issue policy principles, policy guidelines and codes of practice” (Commonwealth of Australia, 2001: 3). The *Act* also established the Office of the Gene Technology Regulator (OGTR) to regulate gene technology in Australia, the Gene Technology Technical Advisory Committee to provide scientific and technical advice to the Ministerial Council and the Regulator, the Gene Technology Ethics Committee to provide advice on ethical issues concerned with gene technology, policy principles and codes of conduct, and the Gene Technology Community Consultative Committee (GTCCC) to provide advice to the Regulator and Ministerial Council on “matters of general concern,” policy principles and codes of conduct.

In keeping with the requirements of Section 27 of the *Act*, the OGTR has established means with which to keep the community informed about its activities and invite comments from the community. These means include establishing the OGTR website (<http://www.ogtr.gov.au>), where visitors can obtain information about the institutional framework, the OGTR, the Gene Technology Ministerial Council and the gene technology advisory committees, monitoring and compliance, and applications for release of genetically modified

(GM) organisms. From this website, visitors can also download organizational policies, legislation, fact sheets, media releases and forms for making applications under the *Act*. Interested parties can access a list of all GM organisms and products that have been cleared for use, obtain communiqués of committee meetings and subscribe to a client register to receive e-mailed updates of OGTR activities. There is also provision for the community to make submissions regarding the formulation of risk assessment and risk management plans for the release of GM organisms and products. The OGTR also invites comments in advertisements placed in the national newspaper, *The Australian*, regional newspapers and the *Commonwealth Government Notices Gazette*. A minimum of 30 days is allowed for feedback.

Formally, the institutional framework of Australian gene technology policy permits the community to participate in policy formulation by requiring the OGTR to provide information to the community and enabling the community to make submissions on applications for the release of GM organisms and products. Furthermore, the GTCCC has been established to give voice to the respective “interested publics.” Ostensibly, at least, the institutional framework provides some scope for community involvement in biotechnology policy.

### 3. The Australian government Regulator and community involvement

While the formal institutional framework provides scope for community involvement, the extent of involvement has been limited by the interpretation of the *Gene Technology Act 2000*. The implications of the institutional framework for community involvement have gradually become clearer: interested Australian citizens are effectively excluded from participating in gene technology policy and treated as consumers of information, rather than as active citizens capable of deliberating and contributing to public policy. In this third part of the article, we present four institutional factors that undermine community involvement.

First, Schibeci et al. (2006) found that the influence of the GTCCC and the Gene Technology Ethics Committee over biotechnology policy appears to be minimal compared with that exerted by the Gene Technology Technical Advisory Committee. The Regulator explicitly stated that advice would be or was sought from the Gene Technology Technical Advisory Committee, but did not say whether the GTCCC and Gene Technology Ethics Committee would be asked to contribute (OGTR, 2001, 2002a). While the *Act* states that the Regulator *must* consult with the Gene Technology Technical Advisory Committee on all matters pertaining to the risk assessment and risk management, it does not forbid the Regulator from consulting with the GTCCC and the Gene Technology Ethics Committee on these matters.

Second, further evidence of the low priority accorded the GTCCC is the length of time it has taken to renew the membership of the Committee. In accordance with the *GTCCC Operating Procedures* (OGTR, 2002b: 19), the appointments of the Committee members expired after three years in October 2004. At the time of writing this article in March 2006, however, no appointments to the GTCCC had been announced.

Third, the OGTR has continued to engage the community in a top-down manner that is consistent with the “cognitive deficit” model. This has seen the Regulator (OGTR, 2003) dismiss opposition to GM products as being based on ignorance. In fact, little evidence can be found that the OGTR is particularly interested in promoting community involvement or that interested members of the community can actually influence policy outputs.

Fourth, the GTCCC website also does little to stimulate dialogue between the community, the Committee and its secretariat (<http://www.ogtr.gov.au/committee/gtccc.htm>). As the

primary interface between the GTCCC and the community, it is reasonable to expect its website to be inviting and informative. Instead, the website originally described the role of the Committee, identified and provided details about the Chair of the Committee and the other members, and provided links to the Committee's communiqués. There was no substantive material published on the site about how the community may become involved in biotechnology policy. Specifically, there was no online discussion forum to which people could post queries or discuss issues with Committee members, no list of forthcoming public meetings that people could attend nor work produced by the GTCCC (other than the communiqués). For example, it could have published the draft of its public consultation framework and elicited feedback.

#### 4. Review of the *Gene Technology Act 2000*

In May 2005, the Gene Technology Ministerial Council (Department of Health and Ageing, 2005c) announced a review of the *Gene Technology Act 2000* as required by Section 194 of the *Act*. An independent (from the OGTR) panel of three was selected by the Gene Technology Ministerial Council to review the *Act*. This review is considering the scope of the *Act* (especially whether it should explicitly address the economic and social impacts of gene technology), determining whether the *Act* is achieving its aims, investigating the regulatory burden, examining the interface with other regulatory systems in Australia, considering the effect of changing circumstances and, if necessary, will recommend changes to the legislation (Department of Health and Ageing, 2005b). Over three hundred submissions were received and used to formulate discussion questions for the public hearings throughout the country (Department of Health and Ageing, 2005c). A series of hearings were held in Canberra, Clare Valley, Adelaide, Perth, Brisbane, Townsville, Narrabri, Sydney, Melbourne, Horsham, Hobart and Darwin from October to December 2005.

The public hearing in Perth was held at the Duxton Hotel in Perth on 27 October 2005, and was attended by one of the authors. It was also attended by 23 stakeholders and community members (Department of Health and Ageing, 2006: 115–6), two of the three members of the review panel and a secretariat member supporting the panel. The meeting was first addressed by the Chair of the review panel, who set out the purpose of the review, and the agenda and guidelines for the hearing.

Following this initial overview, three speakers from government and industry addressed the audience. There were no speakers from environmental or consumer groups, hence, the views put were fairly narrow in scope and set the theme for the very limited discussion that followed. The first speaker was a representative from the OGTR secretariat, who simply outlined the institutional framework for gene technology in Australia. The second speaker was a representative from an industry group, the Combined Bulk Handling Group. This speaker claimed ambivalence towards the introduction of GM organisms and products, and was prepared to let individual farmers and the market decide whether the move into GM crops should proceed. As far as the purity of non-GM crops was concerned, the speaker claimed that the Combined Bulk Handling Group could guarantee the purity of the product once it entered its internal supply chain. The third speaker from the Network of Concerned Farmers (<http://www.non-gm-farmers.com/>) was somewhat skeptical of the claims made by the previous speaker, especially those concerned with the possibility of contamination of non-GM crops. The speaker was particularly concerned that liability for maintaining the purity of the product resided with the farmer of non-GM products, not

with those producing what the law regards as a contaminant, that is, the GM crop transferred from one field to another.

The floor was then opened up to get feedback on points raised in the submissions; however, there was little discussion. One reason may be the relatively small number of people who attended the hearing. This may be due, in part, to confusion over when the hearing was to be held. The Department of Health and Ageing (2005a) website stated that the hearing was to be held from 1 to 3 p.m. In fact, it was held between 10 a.m. and noon. While subscribers to the OGTR's notification list were aware of the correct time, people who consulted the Department's website may have turned up at the later time. The website was amended soon after one of the authors notified the Department of the error.

The Chair also did little to stimulate discussion. In most cases, the Chair respectfully thanked participants for their comments, asked if anyone had anything further to add and, if not, moved on to the next point. Furthermore, there was little indication that the OGTR secretariat or the review panel members were taking extensive notes of the proceedings. When asked after the hearing about whether there were minutes taken of the hearing, the Chair responded that they take occasional notes, if they hear something that they find interesting.

It is also possible that potential discussion by the lay public was quashed by the dominance of stakeholders with specific interests over ordinary community. Carson and Martin (2002: 106) have noted that "vested interests" can be a problem when choosing advisory panels for citizens' juries and it was evident that these groups were determined to make their claims heard at this meeting. This is unfortunate, as some of these stakeholders had already had an opportunity to speak privately to the review panel the previous day.

The site where the forum was held might also have shaken the confidence of those members of the community who attended. The exclusive Duxton Hotel is centrally located in the city and likely convenient for most of the stakeholders. Such a venue is not, however, the most conducive for stimulating discussion among lay members of the community. Such surroundings can be forbidding and not conducive to open discussion. Certainly, only two members of the community who did not identify an affiliation felt sufficiently confident to speak.

Our analysis of the *Gene Technology Act 2000* and its application by the OGTR and the Commonwealth Department of Health and Ageing has focused on community involvement in gene technology policy. It is not intended to bring into question the competencies of the agency and department in applying the *Act* as it stands. Instead, it seeks to explain how the content of the *Act*, a particular reading of the *Act* and attitudes towards community involvement have effectively excluded community members (as distinct from stakeholders with vested interests) from participating in biotechnology policy.

## 5. Review of the Regulator by the Australian National Audit Office

The impact of the institutional design on community involvement in biotechnology was particularly evident in the audit of the OGTR undertaken by the Australian National Audit Office (ANAO) in 2004–5. In its final report, the ANAO (2005: 28) stated that the OGTR was audited for four reasons. First, an audit was warranted because the OGTR plays a key role with respect to "public health and environmental matters." Second, the OGTR had not been previously audited. Third, an audit was a necessary response to the public interest in gene technology, "particularly over field trials of genetically modified (GM) agricultural crops." Fourth, the audit was expected to contribute to the statutory review of the gene technology regulatory framework that was due to commence in mid-2005.

While the ANAO (2005: 20) was generally satisfied that the OGTR was managed effectively and efficiently and that the sector was being regulated in accordance with the *Gene Technology Act 2000*, the ANAO (2005: 101) expressed concern that the OGTR took so long to report to Parliament. Although the OGTR is not required to release its quarterly reports by a particular time, the ANAO noted that they “are not usually published until at least the end of the following quarter.” Hence, even in terms of alleviating cognitive deficit, the OGTR had not provided the community with information as quickly as it ought.

The ANAO paid little attention, however, to the OGTR’s performance in promoting community involvement in biotechnology and, instead, followed accepted auditing practice and concerned itself primarily with the systems and procedures established by the OGTR to manage the assessment of applications and compliance with its orders. Nevertheless, the ANAO (2005: 29) implicitly acknowledged that it could assess other “selected aspects” of the work undertaken by the OGTR and determine whether these were managed “efficiently and effectively.” In other words, it could also have commented on the management and performance of the three committees, including the GTCCC. For example, it might have noted that while a communiqué of each GTCCC is supposed to be available to the lay public on the OGTR website “within 48 hours &...; where possible” (OGTR, 2002b: 8), these usually became available just before the following meeting. Instead, the report mentions the GTCCC fleetingly with respect to its formal functions.

## 6. Looking ahead: reviewing the *Gene Technology Act 2000*

As we explained above, an independent review of the operation of the *Gene Technology Act 2000* and of the OGTR began in mid-2005. If the independent review panel is interested in achieving the authentic community involvement in gene technology policy which is permitted in the *Act*, then it needs to establish appropriate mechanisms. The design of these mechanisms needs to provide clear and precise instructions that require the OGTR, the GTCCC and the Gene Technology Ethics Committee to engage with the wider community and “interested publics.” In this section, we make five recommendations that will enhance genuine community involvement in Australian biotechnology policy.

### *Adopt a broader concept of risk*

A broader concept of risk needs to be adopted to accommodate the broad range of interests and concerns within the community. Currently, the concept of risk in the *Act* is narrowly interpreted to pertain *solely* to matters pertaining to health and safety of people and the environment. In fact, Section 51 of the *Act* (Commonwealth of Australia, 2000) states that

- (1) In preparing the risk assessment in relation to the dealings proposed to be authorised by the licence, the Regulator must take into account the following:
  - (a) the risks posed by those dealings, including any risks to the health and safety of people or risks to the environment, having regard to the matters mentioned in paragraphs 49(2)(a) to (f).

There is nothing in the section that precludes the Regulator from adopting a broader concept of risk to include, for example, economic issues. The *Act* simply states that the Regulator’s assessments must *include* risks associated with human health and safety and the environment. It may also *include* other risks. If these other risks are precluded from the Regulator’s

assessments, then many people in the community are effectively excluded from participating in gene technology policy. Thus, we recommend that the *Act* be revised to incorporate an explicit statement that the Regulator *must* take into account social and economic risks.

### *Institute gene technology committees of equal standing*

To facilitate genuine community involvement, the *Gene Technology Act 2000* needs to be amended so that the GTCCC and Gene Technology Ethics Committee have the same standing as the Gene Technology Technical Advisory Committee. A statutory requirement would require the Regulator to consult with the GTCCC and Gene Technology Ethics Committee on each application for a license to release GM organisms and products into the environment, as well as for approval for research operations in contained environments. This would also be necessary for a thorough assessment of the risks associated with applications. Although members of the Gene Technology Technical Advisory Committee are well qualified to assess technical risks, they may be less able to address social and economic risks.

While some may not support the likely delay of approval of applications, it may actually reduce general political opposition to GM organisms and products and the time spent seeking the support of political leaders. This is evidenced, for example, by the current moratoria on the open release of GM canola in all Australian states. It has undoubtedly delayed the development of the GM canola industry in Australia much more than could any ethics or community-oriented committee. Moreover, the Regulator would only be obliged to consider the recommendations of the Gene Technology Ethics Committee and the GTCCC and justify reasons for accepting or rejecting these recommendations. The Regulator would retain responsibility for the final decision, as is now the case.

### *Embrace disagreement and conflict*

The operating procedures of the respective committees must be relaxed to allow members to communicate with the wider community about committee matters. This is not to say that committee members should betray confidences: rather that people should be made aware that the committee members represent a wide range of views, that views similar to their own are being expressed in committee meetings, that there are differences of opinions, and that the committees are not rubber stamps for government policy.

To this end, the OGTR and the overseeing Gene Technology Ministerial Council need to accept that disagreement and conflict are integral to policy areas characterized by great uncertainty and risk: this is part and parcel of living in a pluralistic democracy. Attempts to dampen down the social and economic dimensions of gene technology will only serve to heighten current concerns and lead people to question the legitimacy of policy decisions. The cases of air pollution (Bush et al., 2001) and bovine spongiform encephalopathy (Jasanoff, 1997) in the United Kingdom highlight the backlash against governments that ensues if governments endeavor to “cover up” what the community perceives to be the truth. Moreover, such cases reinforce views that governments cannot be trusted and may promote a general hostility towards experts, science and technology.

### *Use the Web effectively*

Although the OGTR uses its website to inform interested publics of forthcoming applications and the regulation of gene technology, it needs to make greater use of the Web to make public its deliberations and those of the committees, as well as encourage community involvement

in biotechnology policy. As explained above, the communiqués of the GTCCC's meetings were not entirely revealing as to why the Committee came to particular conclusions. Furthermore, it is not clear what the Committee actually achieved in the first three years. It is not being suggested that the Committee did nothing or achieved nothing, but it would be more evident if working papers, even drafts, were published on the OGTR website. To these might be added the agenda of all Committee meetings.

Another obvious way to generate community involvement is through a discussion forum. People could submit queries to the OGTR and Committee secretariats, as well as to individual Committee members. They could also engage with other community-minded individuals on gene technology issues. While this would be time consuming for the secretariats and may necessitate the expansion of the OGTR, such a forum could become a hub for information exchange that policymakers could access.

### *Develop a framework of community involvement*

The OGTR must establish a framework to determine the appropriate mechanism for community involvement in each case and evaluate the effectiveness of each exercise. If the Regulator required expert advice on a particularly esoteric technical matter that went beyond even the scope of the Gene Technology Technical Advisory Committee, then it would be more appropriate to establish an expert panel than a citizens' jury. If, on the other hand, there was great uncertainty and conjecture about an issue that had entered the public domain, then a citizens' jury or consensus conference may be more applicable. Research has commenced in this area and the OGTR and the GTCCC would do well to consider this literature (Citizens and Civics Unit, 2003; Rowe and Frewer, 2005, 2004).

It might also be worth considering incorporating into the *Gene Technology Act 2000* a section pertaining specifically to community involvement in decision-making. Here, Norway's *Environmental Information Act* could serve as a template. Section 20 of the *Environmental Information Act* requires government agencies to "make provision" for community involvement in the formulation of environmental plans, legislation and policies and have "real opportunities to influence the decisions that are made" (Ministry of the Environment, 2003). Most importantly, "it shall be clear how the requirements of this provision have been met, and how comments and other input from the public have been evaluated." Many participants and other interested people in the community will remain skeptical until the policy process is fully transparent and they can see why proposals/suggestions have been accepted or rejected. Only then will policy decisions be widely regarded as legitimate.

## **7. Conclusion**

In this article, we returned to the case of community involvement in Australian biotechnology policy assessed earlier by Dietrich and Schibeci (2003) and argued that it has been undermined, at least in part, by institutional design. We described the institutional framework that has been established to regulate gene technology, the legislation on which the framework is based and the roles of the constituent bodies. In particular, the Office of the Gene Technology Regulator (OGTR) and the Gene Technology Community Consultative Committee (GTCCC) were identified as having the most potential to initiate and further community interest and participation in gene technology policy. We then explained how the *Gene Technology Act 2000* relegates the GTCCC and the Gene Technology Ethics Committee and hence, community involvement, to a secondary position behind the Gene Technology Technical Advisory

Committee. We also explained how the GTCCC has been hamstrung by restrictive operating procedures designed to depoliticize biotechnology policy, but also serve to obscure the operations of the Committee. Meanwhile, the OGTR provides considerable material in keeping with the cognitive deficit model and does little to facilitate a dialogue with the community. The general reluctance to involve the community in biotechnology policy was shown to be particularly evident during a public hearing as part of the review of the *Gene Technology Act 2000*. Finally, we proposed a series of changes to the institutional framework that we feel will open up Australian biotechnology policy to the wider community.

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