



Biotechnology and social learning: An empirical analysis of the Dutch Animal Biotechnology Act

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A B S T R A C T

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Animal biotechnology raises moral dilemmas that require collective decisions concerning permitted use of technology. The technological and ethical complexity of biotechnology makes such collective decisions difficult and the lack of shared understanding of the moral implications demands social learning. The Minister for Agriculture in the Netherlands has created a legislative arrangement to enable collective learning about animal biotechnology. Has this legislation been successful? We conclude that initially the legislation succeeded in creating an arena for debate and collective learning, but soon learning in this arena was hindered by the legal nature of the arena. Our evaluation demonstrates that little substantive learning has taken place: standpoints have become fixed and antagonists continue to dispute one another in legal discourse. Though legal discourse may be suitable for dealing with conflicts, it seems to hinder social learning.

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1. Introduction

Animal biotechnology provides enormous potential benefits for the economy, health care, and the environment, but leads to practices that present risks to both people and animals [1,2]. Proponents of the application of animal biotechnology are found primarily at universities and companies; opponents of the application of biotechnology are primarily found among animal protectionists and religious groups. Materialistic values, focusing on the economic advantages of technology, are opposed to post-material values which emphasize the potential damage to people and environment [3]. Complex and controversial technologies, such as animal biotechnology [3–5], raise both administrative and normative questions [6]. This paper focuses on the administrative questions and focuses on social learning about the application of biotechnology.

The complexity of biotechnology makes a public debate about them difficult since the scientific, social, and normative issues are closely interwoven in a *post-normal science discourse* [7,8]. The traditional distinction between science and politics no longer applies to the issues that are raised by the new technologies. These developments require new ways to explore the borders between science and politics and allow debate between scientists and representatives of other interest groups [9,10]. Creating a legislative arrangement wherein (temporary) regulation of technologies occurs together with an attempt to establish greater clarity about technology seems a promising strategy. This strategy is based on a communicative approach to law and regulations, whereby norms are openly elaborated upon in a dialogue among legal, political, and social partners [23]. According to Witteveen and Van Klink [11], a communicative approach corresponds to the following situation: (1) the legislator has unsatisfactory knowledge about a technically complicated subject matter and is therefore unable to identify

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detailed rules; (2) the material to be regulated does not allow itself to be presented in general terms because of its conceptual complexity; and (3) the material is from an ideological perspective emotionally charged. In such a situation, the government can create a “communicative framework” from within which possible solutions to social problems can be sought.

The Dutch government has created such a communicative framework to regulate animal biotechnology. Since 1989, animal biotechnology has become a highly politicized matter that has been discussed on numerous occasions in the parliament. Through changes to the Animal Health and Welfare legislation, the Dutch Parliament initiated the possibility to assess the permits for adopting biotechnological methods on animals on a case-by-case basis. In 1997, this possibility was made effective through a regulation entitled the Animal Biotechnology Act (ABA). The ABA was not only created to provide a legal-administrative resolution to conflicts. An important motivation for the legislation was also that it could contribute to social learning processes. In the description of the decision it was explained that the arrangement must clarify and strengthen the moral position of animals with respect to the emerging biotechnology. It was to provide an early signaling, formulation, and assessment of problematic developments. In addition, the assessment material was to enable the confrontation of existing opinions in our plural society and promote public discussion about them.

The ABA became effective in 1997 and was evaluated in 2005. In this article, we use the evaluation findings to assess the following question: Has the ABA successfully promoted social learning? The answer to this question is not only relevant to the application of animal biotechnological methods, but also for other new technologies. The ABA is a good example of an attempt to create an arrangement for social learning about a complex and controversial technology. If the arrangement works well, then it may also be applicable to other issues.

2. Animal Biotechnology Act

The ABA became effective in April 1997. From that moment, it was forbidden to change the genetic material of animals or apply biotechnological techniques to animals or their embryos, unless permission was given by the Minister of Agriculture.¹ How does this regulatory arrangement function? Universities or companies request a permit from the Minister of Agriculture. The minister then refers this application to a committee of experts which she has appointed to give advice. This committee, the Animal Biotechnology Committee, makes a decision for advice according to a majority vote. On the basis of the committee's advice the Minister then prepares a preliminary decision outlining the decision.

The Minister's preliminary decision is made available for public scrutiny and opponents can express their objections in writing. This procedure is announced via the national media. A public hearing, chaired by the administrative secretary of the expert advice committee, may also be held when there is sufficient interest. It is required that at least one of the committee members is present for the hearing and the applicant of the permit is also invited to debate his or her application. When the public hearing has been held and/or written objections have been received, the Minister will then request the expert committee to prepare a second recommendation. The committee must then respond to existing objections and where appropriate prepare a new recommendation. On the basis of this advice, the Minister then makes a final decision with regard to the permit.

The ABA articulates a number of conditions concerning the central position granted to the committee in this procedure. Among the most important conditions is the requirement that the committee consist of nine members which must represent expertise in the areas of ethics, ethology, social science, medical or animal biotechnology, animal testing, animal health or zoo technique, and the humane medical sciences. The meetings of the committee are not open to the public, but administrators from concerned ministries are able to attend the meetings as spectators. Each year the committee prepares a written report for the minister describing their activities. This annual report is sent to the Dutch Parliament.

How does the implementation of this arrangement occur in practice? The implementation of the ABA requires interaction between both applicants of permits as well as opponents. The applicants of permits are primarily university researchers who emphasize that the application of this technology promotes fundamental academic research. These researchers are primarily active in the fields of bio-medical research and animal health. The number of applicants from within the business world is more limited. The opponents of the use of animal biotechnology are primarily interest groups mobilized for the protection of animals such as the Anti Animal Testing and Animal Protection groups. These opponents reject the claim that experiments are necessary and emphasize that other methods can be used to obtain and develop knowledge. The number of participants present at the public hearings has been limited (from 10 to 20 in the beginning to less than 10 more recently). The participants have primarily been the groups already identified above, together with a limited number of individual citizens.

As a consequence of the limited attendance to the public hearings, the Dutch Minister for Agriculture proposed in 2000 that the procedure for permits be changed and that the public hearings be suspended. His proposal to Parliament included that the existing procedure be replaced by a half yearly discussion meeting in which the granted permits, and the policy decisions supporting them, could be debated in a more general way. This proposal did not pass through Parliament. There have, as yet, been no changes made to the application procedures, but four discussion meetings took place in the period from 2002 to 2004. The goal of these meetings was to expand public participation in the debates about the ethical acceptability of

¹ The Animal Biotechnology Act applies only to generating genetically modified animals in The Netherlands and requires a permit. Other legislation applies to the import of genetically modified organisms and their application to imported animals. Alternatively there is also legislation regarding animal testing and experiments upon genetically modified animals.

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