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## **Biotechnology Policy: Can France Move from Centralized Decision Making to Citizens' Governance**

Suzanne de Cheveigné  
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*In a traditionally technocratic country such as France, the development of the life sciences provokes a number of new questions both about the consequences of scientific research and about the ways of regulating it. Risks are no longer only material; they are perceived as ethical and social, and citizens are no longer ready to hand over their control to technical experts. In this article, the author discusses this evolution on the basis of interviews and focus group material collected over the past six years in France.*

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## ***Biotechnology Policy***

*Can France Move from Centralized  
Decision Making to Citizens'  
Governance?*

**SUZANNE DE CHEVEIGNÉ**

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*France has a long tradition of centralized technocratic decision making, and the average citizen, until recently, has had little say in biotechnology policy (de Cheveigné et al. 1998). In fact, he or she has heard very little about these techniques. Although they were developed at the beginning of the 1970s, genetically modified organisms (GMOs) began to be widely discussed in French media only in 1996 and 1997.<sup>1</sup> In this article, to discuss a possible evolution of this situation, and before considering the way the French would like to see these techniques controlled and how they would like to take part in this regulation process, I first examine the preoccupations that GMOs arouse among them, questioning the classical analysis in terms of "risk."*

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### *The Approach*

The approach I adopt here could be called an anthropology of science and techniques or, more precisely, an anthropology of their reception, of their appropriation by a given society. In practice, the material I work on is mainly discourse: discourse of the media (remembering that the word is plural—their heterogeneity is an important element), which represent a metaphorical public arena, and discourse of members of the public, in interview situations, discussing representations of problems related to science and technology in general and genetic engineering in particular.

The research described here was carried out in the context of a European project (which also associates American and Canadian colleagues) working since 1995 on social aspects of the development of modern biotechnology: policy, media coverage (both from the beginnings of genetic engineering in the early 1970s), and public perceptions.<sup>2</sup> The latter have been studied both by qualitative methods (individual interviews and focus groups) and through Eurobarometer surveys (in 1996 and 1999). The great richness of this pluridisciplinary and plurimethodological approach should be stressed (not to mention the scope of the international comparison).

### *What Risk?*

To understand the way people elaborate the notion of risk—and it shall be seen that the term needs questioning—associated with genetic engineering, I use the Eurobarometer figures for France. In addition, I also use the answers to an open question included in the Eurobarometer survey in 1996, individual interviews carried out over 1996 and 1997, focus groups run in 1999, and finally a coherent corpus of French media texts over the period.

The Eurobarometer surveys included questions that explicitly mentioned the risk associated with different applications, food or medical for example. The question used here was “Do you agree with the idea that this application presents a risk to society?” The food application being described was “using modern biotechnology in the production of foods, for example to make them higher in protein, last longer or change the taste.” Note that the word *risk* was used in its familiar meaning, synonymous with danger, without any reference to the probability of occurrence that is included in the technical definition of *risk*.

Seventy-four percent of the French sample declared in 1999 that genetically modifying foods was “risky,” 39 percent thought that it was useful, and only 25 percent said that it should be encouraged. Daniel Boy cross-analyzed

the answers to this question.<sup>3</sup> Considering the application risky was only weakly correlated with wanting to encourage it, whereas finding it useful definitely was. Predictably, 82 percent of those who found the application useful and not risky (i.e., good on both counts) and only 3 percent of those who thought it useless and risky (i.e., bad on both counts) encouraged it. If they considered it useless but not risky, only 13 percent of the people questioned encouraged it, but 52 percent of those who thought the contrary, that it was useful but risky, encouraged it. Perceptions of utility clearly have more influence than risk perceptions on the final judgment. In other words, the balance between utility and risk is not, as is often thought, a symmetrical one; on the contrary, the first term outweighs the second.

The 1996 Eurobarometer survey provided more information about the notion of risk via an open question, so named in opposition to closed questions whereby one can express only agreement or disagreement with a given statement. Here, the people interviewed could say, in a few sentences and in their own terms, what “comes to mind when you think of modern biotechnology in a wide sense, including genetic engineering?” The question was put near the beginning of the questionnaire, before any concrete applications had been mentioned. Although the answers were short,<sup>4</sup> they provided very interesting material that can be related to the sociodemographics of the respondents. The answers were analyzed with discourse analysis software, Alceste,<sup>5</sup> which calculates the frequencies of co-occurrences of words (reduced to their roots with the help of a dictionary but then treated only as strings of characters). Classes of frequently associated words appear, and the software indicates the answers that use them characteristically. These can then be interpreted in semantic terms.

Among the answers, about 15 percent could not be classified, and one third expressed a lack of knowledge of the subject (“don’t know”s or mistaken answers such as “in vitro fertilization” or “organic food”—the latter is frequent in France, where the usual expression for such foods is *aliments biologiques*, easily confused with *biotechnologie*). Another third of the answers were generally favorable, quoting research and medical or agricultural applications. The remainder, nearly 20 percent, expressed various degrees of worry about biotechnology. These are the answers I consider here.<sup>6</sup>

If one first examines the spontaneous use of the word *risk*, one finds that it is not frequent: 16 occurrences of the word in 1,004 answers. It appears in relatively elaborate answers such as this:

Danger of manipulation. Eugenics. Risk of resuscitating old ghosts like the selection of being having the right to live and others not.

The word *danger* is more frequent (sixty-three occurrences), and as in the above example, no distinction seems to be made between risk and danger. These two words form the heart of one of the Alceste classes, associated with *problem, mad cow, manipulate, bad, happen, world* (as in *Brave New World* by Aldous Huxley), and *artificial*. One sees that perceived risks are associated with food, eugenics, or more abstractly with artificiality—clearly not only material risks. The respondents' statements associated with this class were often evaluative, evoking grand categories such as "humanity," "mankind," or "ethics." The vocabulary is more sophisticated than average, with more subjunctives and more logical operators. More examples follow in which the reader will often note a strong ambivalence, a balance between risk and benefit:

It could create problems later on, too many examples prove it, like mad cow disease.

You could grow food in very cold or very hot places. You could fight famine in the world, but the risk is that it's not natural. We'd end up feeding ourselves on pills.

Progress for science. Improvement of life conditions, for people's health, but with some reserves. Danger of genetic manipulation. Do we measure the impact of these manipulations?

It could be an extraordinary move forward for humanity if it is used intelligently. One could resolve famine in the world. One could also try to manipulate human beings. Big danger.

I think it's extraordinary but dangerous. It's extraordinary to get so close to God but men can have terrible weaknesses, make bad manipulations like in *Brave New World*.

This category was quite small (6 percent),<sup>7</sup> and the answers came from people more educated than the average: 52 percent had university education, against 33 percent in the whole sample. A second class, centered on the word *fear*, expressed a more affective version of the opposition to biotechnology. Contrary to the preceding class, the answers associated came from a less educated population (25 percent had less than 15 years schooling, against 18 percent in the whole sample), an older and more feminine one (58 percent women, instead of the 50 percent expected). It was also larger, composed of about 12 percent of the answers. These responses characteristically used words such as *[ordinary] people, tailor-made babies, children, to create, and monsters*. Personal pronouns are overrepresented, as well as modal verbs such as *to have to* or *be able to*, which reflect a normative discourse. Negations are frequent too. Whereas the "danger" and "risk" responses carried

more argumentation, explicitly opposing risks and benefits according to a utilitarian ethics, the “fear” responses called on affect and emotion and were more coherent with an ethics of veneration of nature. Some examples illustrate this:

It really leaves me worried, it frightens me. Very dangerous, depending on the people who manage the areas. Strong barriers<sup>8</sup> should be put up.

It’s going a little too far. Picking children to order is frightening.

Genetic engineering, that frightens me, the fact of leaving it in the hands of certain persons that could miss-use it. Great barriers are needed. One could make clones, modify the level of thinking of humankind, and make man the slave of certain persons because of their political or financial power. We’ve had so many examples in the past and, alas, the present.

I am against. We should leave things as they are. Nature shouldn’t be thwarted, it takes revenge.

Here again, what inspires fear is not just health or environmental risks but also immaterial risks. To go beyond what is said in these short statements made at the beginning of a survey, individual interviews were carried out in 1996 and 1997 and focus groups in 1999, both series questioning people of varied characteristics in terms of gender, educational level and type (science vs. arts), and socioprofessional category. The term *risk* was not introduced by the interviewers into the individual interviews, but the interviewees did use it. It should be remembered that at that time, biotechnology was not yet very present in the media. The risks invoked were not very precise:

[About a delayed-ripening melon described in article submitted to the interviewees] What happens when you eat modified melon for ten years? What about introducing modified genes into a bacteria then into the melon, then into the human body, and if ever there was a possibility of transmission, because, there again. . . . If there’s a risk, it’s obvious that it should not be taken. . . . Because the stakes are economical too. No risk should be taken for economic reasons. Now, that people in their laboratories go on getting money to do research on melons, that’s necessary.

There, that’s the risk. If you play and manipulate enough, it’s certain that you can both make more resistant species but also, because of that, drastically modify nature, I’d say in its original freshness, and that is the risk of these new genetic manipulations—no longer controlling what has been provoked.

In 1999, the focus groups were conducted around questions much closer to the terms of the Eurobarometer surveys. In particular, people were asked to classify nine applications (seven of which had been run in the surveys) according to whether or not they considered them risky and to explain what

they meant by that. Here are some elements of their exchanges in which one sees that the risks mentioned had become more precise:

We put as risky things that can't be controlled or that present an immediate risk to nature or to man. We mainly saw the limits, and the loss of control of a process that can cause deregulation. Beings, monsters or nature without animals. . . . The least obvious [application to classify] was the one that had what I'd call political risks. Those of detecting people with an inheritance, etc. for some collective or political use. Not directly a medical risk.

I had two things in mind, risk for health and risk of modification of an equilibrium in which we don't feel too bad. Something we don't yet know about.

For example, what frightens me is the evolution of a plant in relation to insects that eat it and that this evolution could go towards a modification of the insect that could become even more harmful.

Risk of the application for humans, of life and death and then the risk in terms of running off course.<sup>9</sup> What could be brought on, the consequences. Eugenics, running off course, *Brave New World*. Who can judge?

Once again, one sees that the risks invoked are not just material ones. Indeed, the most realistic environmental risks, such as gene dispersion or health risks such as the development of resistance to antibiotics, were practically never mentioned. At the time the open question or the individual interviews were run (1996 and 1997), the French media had not yet discussed these risks very much. But we found a similar phenomenon in the 1999 focus groups: although the elements evoked were more precise—genetic fingerprinting, animal experiments, social instability—the risks often remained in the realm of political, social, or ethical questions. GMOs were rejected not because of the risk they might present for the environment but because they were seen as the first step toward a *Brave New World*!

### ***What Kind of "Risk Management?"***

These observations led us to question the relevance of the concept of risk as it is usually employed, in a material sense, as a pertinent cognitive category in the formation of public attitudes toward biotechnology, for three reasons that can be summarized. First, according to the Eurobarometer results, perceived risk does not explain attitudes toward the different applications. Second, not many people spontaneously use the term *risk* (or *danger*) and certainly not in the technical sense of a mathematical expectancy that takes into account a probability of occurrence. Third, and no doubt most important, particularly when one wishes to consider the control processes to be set up,

perceived risk is as much moral, political, and social as it is material. That is the reason for this long detour via the analysis of public perceptions: technocratic risk management centered on (a) material risks concerning either health or the environment and (b) a quantitative evaluation of the probability of the latter cannot answer public preoccupations. If the public fears the loss of traditions, discrimination, and eugenics, these risks need more than a technical response.

During the focus groups, the interviewees were asked about the possibility of regulating biotechnology. They often spoke of “ethical” control, a frame of analysis that has developed over the past twenty years, in phase with the creation of all sorts of ethical committees.<sup>10</sup> Perhaps more interesting and certainly a sign of a more recent evolution in France, a number of people demanded that these committees be a place of debate and of public debate. It should be noted that contrary to this wish, the French National Ethics Committee does not publish the content of its discussions but only a consensual final opinion. The elements of the debate, in particular the moral foundations of the arguments used, are not explained, although they could be very useful in the social learning process necessary in face of the developments of the new life sciences. As one of the participants said, “I can only build my own ethics in discussion and dialogue with others.”

Some examples of the demand for public discussion and public participation in ethical (or other) committees follow. The reader will note the worry that many people express, people who do not think themselves capable of taking part in the debate:

I believe we need to think not about the technique but mostly about ethics. We should be as many people as possible. And, above all, not scientists. Simply because they are not . . . Their point of view is interesting but they have stakes in the game. Citizens must be able to check what is happening at all levels of society. . . . If the ethical committee is made up of old fuddy-duddies, 120 years old all of them—plus a representative of the pharmaceuticals groups, don’t forget, they have a lot of medicine to sell . . .

What is important is that there should be ordinary people [in the ethics committee], that it shouldn’t be cut off from the public anyhow. The general public should have access to those discussions, even if the general public is incapable of formulating an enlightened opinion on the techniques because they obviously don’t have the knowledge that is reserved to a few individuals. The discussion must be open to all. . . . Besides, in face of ethical problems, we are all equal, we all have the same level of knowledge.

I think there should be an ethics committee on: “Is it good or not to transfer genes? Is it good to modify Nature? What are the possible excesses? What can these technologies bring us?” So this ethical committee would be formed of less specialized people, not specialists of a particular field, who would try to

develop more general ideas. Ideally, it should be me. But in practice, it's not possible, because I think there are things that are beyond us, both in the field of biology and in that of politics. . . . So ideally, it should be people like me, I think, but in practice . . . . If it's not scientists, it should be philosophers.

I think that what they do [in ethics committees] should be explained, and to as wide a population as possible, to get rid of this sort of unsoundable mystery that makes one wonder what goes on behind. It should be as clear as possible, objectives should be determined and the process should be explained.

In the face of what is perceived as a complex, multifaceted risk, one observes a real, if still somewhat tentative and unsure, demand for a strengthening of public debate about biotechnology. Of course, such an evolution concerns not only this subject but also all scientific activity (Boy and de Cheveigné 2000). It was in this context that a citizen's conference—the local version of a consensus conference—was held on the subject of food applications of gene technology.

### *A New Form of Public Debate?*

The citizen's conference that took place in the spring and summer of 1998 originally appeared as a new episode in the long and chaotic story about the regulation of transgenic corn in France and in Europe. In December 1996, the European Commission had authorized the firm Ciba-Geigy (now Novartis) to sell transgenic corn seed. On 14 February 1997, the then right-wing French government forbade the planting of genetically modified corn in France in application of the precautionary principle. In April of the same year, the European parliament voted the suspension of the sale of transgenic corn. In November 1997, the French government (left wing since May 1997) authorized the cultivation of Novartis's transgenic corn (but forbade that of canola and of beetroot). In December 1997, another firm, Pau-Euralis, asked to be allowed to grow a new variety of transgenic corn, but the minister of environment then declared that no new transgenic plants would be authorized until a public debate had occurred. Finally, in February 1998, a citizen's conference was announced.

The setting up of the conference closely followed the Danish model, except that the fifteen panel members were selected by a survey institute to represent the sociodemographic diversity of the population.<sup>11</sup> Two preparatory weekends were followed by a public hearing. The panel's advice was very balanced, recommending precautionary measures, the development of public research, and the widening of the composition of control committees, but it did not ask for a moratorium.

The citizen's conference was a totally new phenomenon to the traditional French regulatory system, one that would seem to answer the demand for public debate that I have discussed above. For once, "ordinary people" were not in the usual inferior position of listening to the explanations scientists thought they should have. On the contrary, they were on the rostrum, leading the debate, demanding answers, in control of the situation because they had been formally invested with an official mission. The usual conditions of the exchange were reversed, and the content was quite new. Unfortunately, the event had little echo, either in the press or in the political sphere. None of the main newspapers gave the public conference first-page treatment.<sup>12</sup> As a comparison, it received less coverage (measured in numbers of articles, surface, or presence on the first page) than the clone Dolly in February 1997, the decoding of the human genome in April 2000, or the trial in June 2000 of the activist José Bové for having "taken down" a McDonald's restaurant in Millau in protest against American trade restrictions on French foods. One cause of this relatively low coverage was the fact that at the same moment France was hosting—and winning—soccer's World Cup: the citizen's conference no doubt had less "news value." But the other explanation, less circumstantial, was the profound ambivalence of the government, of the parliament, and of part of the media in the face of this new regulatory object, which did not have a very clear place in the democratic process.

Even if the media coverage was not very intense, the press was generally favorable toward what was seen as a new element of public debate. Nevertheless, the recommendations produced by the panel were received diversely. Generally speaking, the popular newspapers, *Le Parisien* in particular, were more convinced than the elite press, which showed a certain degree of skepticism toward the activity of the citizens. Now, considering that less educated people—who constitute a large part of the readership of popular newspapers—often express their powerlessness in the face of science (de Cheveigné 1997), this new situation whereby ordinarily ignorant citizens were in control was symbolically important. *Le Parisien* seemed to understand this better than the elite papers. It is unfortunate that the experiment in public debate that the citizen's conference represented should have had so little echo.<sup>13</sup> Nor did it did not leave strong memories: none of the people we questioned in 1999 about possible regulation processes mentioned the conference.

In the face of a biotechnology risk that the French population often perceives as a political, social, and economic one, new modes of dialogue with policymakers are necessary. Many people call for them, be it in a somewhat confused way. New forms of social appropriation of scientific knowledge are slowly being elaborated, for instance, by patient or environmentalist groups. Citizen's conferences could also play a role. But the resistance to change on

the part of a French technocratic tradition, centered on material risk, remains strong.

### Notes

1. For a detailed history, see de Cheveigné, Boy, and Galloux (2002).
2. For details see J. Durant, M. Bauer, and G. Gaskell (Eds.), *Biotechnology in the public sphere: A European sourcebook*, Science Museum, London, 1998 and G. Gaskell and M. Bauer (dir.), *Biotechnology 1996-2000: The years of controversy*, Science Museum, London, 2001. Research funded by the European Commission Research concerted actions "Biotechnology and the European Public," "European Debates on Biotechnology: Dimensions of Public Concern," and the 5th Framework project "Life Sciences and European Society" coordinated by George Gaskell (London School of Economics). Research was also funded by CNRS, INRA and DGAL-Ministère de l'Agriculture.
3. For the complete results, see de Cheveigné, Boy, and Galloux (2002).
4. They were also somewhat abbreviated on being written down. The examples given show that the meaning nevertheless remains quite clear.
5. CNRS and Image (Toulouse, France).
6. For an analysis of all the results, see de Cheveigné, Boy, and Galloux (2002). For a European comparison, see Wagner et al. (2002).
7. Such answers may have been more frequently unclassified because of the wide variety of their vocabulary.
8. In French, *garde-fous* literally means "barriers for mad people."
9. *Dériver* in French. This term, along with *déraper*, to skid, is among the most frequently used to describe the immaterial risks of biotechnology. The terms are more easily used metaphorically than their English counterparts.
10. For a critical discussion of the institutionalization of ethics, see Galloux et al. (2002).
11. In this sense, the sample was representative of the population, but it was, of course, too small to be statistically significant. This point will cause some confusion in the commentaries on the conference.
12. Except *Le Monde*, which mentioned it in a small insert referring to an article in the inside pages.
13. A second consensus conference took place in February 2002 on climate change. It was even more confidential.

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