

# Genetically Modified Food and the Seven Focus Groups: a Belgian Reflexive Fairy-Tale Through the Precautionary Principle<sup>1</sup>

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## **Abstract**

The scientific progress associated with the globalisation of the economy has a powerful influence on the social transformations of industrial society. For example, nuclear power and genetic engineering are not only technological innovations, but also *political*. However, these political processes – public decision-making - escape all traditional forms of parliamentary democracy. According to U. Beck, this techno-economic development is simultaneously producing its own contradictions and political explosiveness. This political boomerang-effect occurs as the consequence of risks production. Those are called *modern risks* and are considered to be the political motor of the reflexive process of late modernity.

In Beck's case, several questions have to be answered in connection with empirical data. The focus group methodology was deployed as a means of collecting data. This paper examines in details the reactions and opinions of seven groups of Belgian citizens on genetically modified food. The analysis concerns four main dimensions: 1) How do people frame the problematic?; 2) What are their principal preoccupations?; 3) The question of trust; 4) What kind of institutional innovations are possible? Moreover, this analysis shows and underlines the double quality of the focus groups. On the one hand, this technique is very useful to let individuals free in their framing of the problematic which gives a deeper understanding of public perspective. On the other hand, focus groups are also an interesting opportunity to involve citizens in public decision-making processes.

## **INTRODUCTION**

Everyday brings its share of scientific progresses and technological developments.. These human activities could be compared with a powerful juggernaut going through the borders of states. Policy-makers have to cope with those activities which are sometimes producing negative consequences for the health and the environment. Then, how is it possible to manage techno-scientific development with public interest and social legitimacy? This

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delicate question is increased by the identification of a new kind of risks. Those ones are called modern risks<sup>2</sup> which have some special characteristics. Therefore, the main aim of the research is to identify and to assess the institutional processes of expertise working within this specific domain of modern risks presented in the frame of complexity and high uncertainty. Relationships between institutional structures of expertise, public decision-making processes and social acceptability are at the centre of the research.

From an empirical point of view, we chose several case studies such as GMO, climate change, industrial fire, male sterility, asbestos and BSE<sup>3</sup>. We tested among other<sup>4</sup> the focus groups technique to collect data about the social perception of institutional processes of expertise.

In this paper, I would like to present my own contribution to the research about genetic engineering. I am not going to tackle all the issue about GMO case study, but I would like to stress some considerations about GM food and the focus group technique.

First of all, I would like to point out shortly some general reflections on the historical evolution of genetic engineering. Afterwards, I shall present the most interesting results of the focus groups.

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<sup>2</sup> Beck U. (1992).

<sup>3</sup> In other words : mad cow disease.

<sup>4</sup> Such as Delphi, Consensus Conference or individual interviews.

## **D) GENETIC ENGINEERING: OVERVIEW**

### **1. INTRODUCTION**

Today, the world has to face the powerful development and expansion of genetic engineering. It doesn't matter in which country you live, or what you are doing... everybody is involved and it is useless to try to escape this global technological advancement. In fact, the domains of application of this technology are numerous. For example, pharmacological industry, food production, medicine (gene therapy), military industry, chemicals are some activities in which genetic engineering is becoming day after day more and more important. By definition, everything is conceivable or possible using gene technology. Therefore, talking about GMO is quite a very difficult exercise according to the fact that this subject could be analysed from different points of view.

Nevertheless, I would like to propose a general perspective on the elaboration of genetic engineering. I shall distinguish three historical periods to underline the problem of social legitimacy of modern biotechnology<sup>5</sup>. Of course, it is a matter of historical re-construction.

### **2. HISTORICAL PRESENTATION**

#### **1) Laboratory times**

At the very beginning of scientific research on genetic engineering, GM issue was confined within the scientific world. Citizens were not directly or indirectly concerned because questions on genetic engineering were only addressed by science to science. According to the great uncertainty linked to the development of this new scientific domain, scientists were obliged to take possible side effects into account. When the possibility to modify and to master the genetic inheritance by scientists was confirmed in 1974, a moratorium on research was decided by the scientific community. In 1975, hundred and forty specialists in genetic engineering were assembled during the Asilomar's conference. They decided to lift the moratorium and to impose safety conditions on research in genetic engineering. The practical output of this decision was the elaboration of good laboratory practices. Those measures

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<sup>5</sup> In this paper I will use modern biotechnology as synonym of genetic engineering.

were only applied to the scientific sphere without any strong public information. In other words, the laboratory times is characterised by a physical, chemical and political confining of the genetic engineering question to the scientific community.

However, simultaneously to the development of this new technology, industrial and financial actors were more and more interested into potential applications of biotechnology. This foreshadows the next period. Although GM products don't leave the laboratory, they interest economic and financial worlds.

## **2) Financial times**

About 60% of biotechnology companies were created in the U.S. between 1980 and 1984. The majority of these industries was mainly focused on public health problems - pharmaceutical industry<sup>6</sup> because expectations in terms of profitability were greater than in the foodstuffs domain.

Therefore, pharmaceutical companies developed their own capacities of production and innovation having recourse to genetic engineering. This last one didn't change radically the internal structure of pharmaceutical industry, but gave new tools and techniques to reach its own targets. For example, the human growth hormone shall be produced into some specific bacterium and will not be extracted from human bodies. In this case, genetic engineering could be very useful to avoid transmission of diseases.

The financial feasibility of biotechnology depends on several factors such as the size of the market, the existence of substitution products, the possibility to take out a patent, and last but not least, the social acceptability of those new products. For example, biotechnology is very well accepted for medical or pharmaceutical use, but reveals itself a big problem for human food.

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<sup>6</sup> U.S. Congress, Office of Technology Assessment (1991).

### 3) Marketing times

At that time, scientific innovations are leaving laboratories. Products of biotechnology are matching the whole society. This confrontation is notably working through the mechanisms of the market economy. Indeed, the most important motor of the social exportation of genetic engineering into society is economics. With GM products to be placed on the market, the need of regulation was essential. In Europe (1990), public authorities elaborated some specific laws on the European and national levels. Those political and legal initiatives focused mainly on the confined use of genetically modified micro-organisms and voluntary GMO release into the environment.

The Directive 90/219 on the confined use of genetically modified micro-organisms (laboratory) applies the principles of good laboratory practices. In other words, it is a political confirmation of scientific customs in the domain of modern biotechnology. This regulation concerns GM products within laboratories, well before their contact with the rest of the humanity. The second most important European legal act is the Directive 90/220. It constitutes a common and minimum regulation in Europe about the obligation for the states to conduct preliminary assessments and controls before all kinds of GMO release. This legal condition allows to follow the leaving of GM products outside the laboratory.

These regulations, were founded mainly on the previous economical and scientific approaches on risks. But *market times* implies a different definition of risks. The later is suggested by Ulrich Beck through the concept of modern risks<sup>7</sup>. It does mean that risks identified by genetic engineering are characterised among others by:

- Extensive temporal and spatial dimensions;<sup>8</sup>
- Democratic consequences;<sup>9</sup>

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<sup>7</sup> The concept of modern risk is referring to Ulrich Beck's work on Risk Society. See for example Beck U. (1992) and Beck U. (1999).

<sup>8</sup> Beck U. (1992).

<sup>9</sup> To express this idea, I would like to quote a very famous and powerful formula of Beck: *poverty is hierarchic, smog is democratic*. Nobody can escape the risks because all distinctions of classes, culture and identity don't make sense anymore. Nevertheless, Beck recognises that some categories of people could be able to avoid certain risks because of their social, economical or cultural position. Beck U. (1992).

- Irreversibility;<sup>10</sup>
- Invisibility.<sup>11</sup>

Finally, the *market times* is suggesting a social conflict about risks definition within the domain of genetic engineering. Indeed, this social contest on risks expresses a strong confrontation between technology and society. Through the issue of risks, technological development is questioned on its social and political dimensions. Do people accept this social evolution induced by genetic engineering? Modern risks could be analysed as a story line expressing this rejection of scientific and technological progresses.

### 3. CONCLUSION

In conclusion, I identified three periods from the beginning of the genetic engineering adventure to its contemporary situation. In fact, those different eras are very interlinked and the distinctions between the three periods are not so obvious. But this theoretical exercise is useful to underline how the general problem of this new technology was taken into account by our industrial societies through the concept of risk. The development of modern biotechnology was most of the time within scientific and economic worlds<sup>12</sup> without any contact with the rest of society. Genetic engineering only met the whole society when it was placed on the global market. Therefore, modern biotechnology was imposed to citizens / consumers through the commercialisation process. Every period is characterised by a dominating definition of risks. The *laboratory times* definition of risks focused on safety and risks for human health and the environment. So, the question of genetic engineering was mainly translated in terms of scientific risk assessment. The period after could be defined by a strong economical approach of risks. Eventually, the *market times* is characterised by modern risks which I described before. However, this technology implies not only scientific considerations, but political, ideological and ethical dimensions as well.

From this overview on biotechnology, I would like to go further in the analysis of the interaction between technological development and social legitimacy. What people think

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<sup>10</sup> According to Ewald, irreversibility occurs when the nature or substance of nature is definitively changed. See Ewald F. (1996).

<sup>11</sup> Modern risks are not accessible to human senses. For example, it is impossible to hear, to touch, to see, to smell or to taste radioactivity and genetic modifications., see Beck U. (1992).

<sup>12</sup> Characterized by a dominant scientific or economical approach on risks.

about GM food ? Do they trust the current procedures of public decision ? What could we do to improve the institutional framework in charge of GM food to be placed on the market ?

## **II) THE SEVEN BELGIAN FOCUS GROUPS ON GM FOOD**

### **1. INTRODUCTION**

The question of food varies with ages and places depending on human societies. This essential human activity could be considered as a very interesting barometer of society values. What and how people usually eat are very interesting clues about their relationships to nature, money, human being etc... in other words, relations to food could be useful to identify some lifestyles and values of human society. Today, our relationships to food are changing very deeply considering the development of genetic engineering. GM food overrun shops and impose upon consumer's meals. This new food - sometimes called Frankenstein-food - is becoming an inescapable part of reality which citizens have to cope with. My empirical research tried to analyse more precisely this confrontation between modern biotechnology and society in the field of food.

I used qualitative focus group methods to collect information about citizens and GM food because this qualitative tool seemed to me the most interesting to reach my goal, according to the great complexity, uncertainty and diversity of modern biotechnology. First of all I would like to recall some main characteristics about this specific technique of group interview. Firstly focus group works with a limited number of participants - in my study this number varies between three and twelve persons. The number of participants must be big enough to stimulate interactions and discussions and not too large to avoid scarcely controllable group debates<sup>13</sup>. Secondly, the mode of questioning is quite open. In fact, the moderator suggested only general themes from which people started to discuss. Therefore, the framework is not constraining and people are free in their analysis of the themes. The main target of this technique is to facilitate the collect of information on the social opinions over the problem concerned.

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<sup>13</sup> Morgan D. (1993).

We have organised seven focus groups on the basis of quantitative studies such as Eurobarometer 46.1<sup>14</sup> on biotechnology and other focus groups used in the same field<sup>15</sup>. The following groups were organised<sup>16</sup> :

- Two groups were young people in their last year of secondary school.
- Two groups were active women members of political association.
- One group were active men with a strong scientific background (engineers).
- One group were parents with very young children (babies).
- One group were Organic/Green consumers from a specific shop of Organic products.

If those groups are quite different, their own characteristics didn't express essential differences during interviews. Therefore, I am not going to stress on every opinion expressed by the groups, but I am going to underline some general and interesting findings.

First of all, I would like to describe the advantages and limits of the focus groups technique. Secondly, I will present the main results of the experiment, and eventually I will conclude by saying few words on the pertinence of the technique used and its further development.

## **2. FOCUS GROUPS AS TECHNIQUE**

### **1) Introduction**

During the last couple of years, focus groups technique was very used within the domain of social sciences, especially on risk perception issue<sup>17</sup>. In fact, focus groups technique is a matter of practice and empirical research. All scientific literature on this technique has to be implemented and modified according to every case study. Nevertheless, some guidelines could be identified. In this chapter, I would like to present the main advantages and limits of this qualitative technique of social research. Thus, it will be possible to build a critical reflection on the technique itself and to assess its use within the scientific field.

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<sup>14</sup> Eurobaromètre 46.1 (1996), European Commission.

<sup>15</sup> Grove-white R., Macnaghten P., Mayer S., Wynne B. (1997).

<sup>16</sup> All of them were stemming from the province of Liège in Belgium (french part).

<sup>17</sup> For example, see *Centre for the Study of Environmental Change (CSEC), Public perception of risks associated with major accident hazards* (1998), Health and Safety Executive, Contract research report 194/1998, Lancaster University.



## 2) Definition

Focus groups could be defined as a specific sort of group interview<sup>18</sup>. At the very beginning focus groups were used in the marketing field and were applied during the second world war to American soldiers<sup>19</sup>. Afterwards, focus groups became an useful technique within the domain of public policy assessment<sup>20</sup>.

More precisely, Goldman defines focus groups technique in terms of *Group Depth Interview*<sup>21</sup>. A *group* suggests a determined number of people who have some particular features in common from the point of view of the researcher. It does not necessarily mean that the group has to exist previously to the focus group meeting. *Depth* implies a collect of information going beyond the simple face to face interview. Interactions taking place within the group are considered as the most interesting dimensions of focus groups technique. The *interview* insists on the function of the moderator during the sessions and underlines that groups are used to reach qualitative information. Thus we are confronted to a kind of instrumental approach using groups of people to answer questions. Focus means that the group interview is limited to a certain number of issues<sup>22</sup>.

## 3) Characteristics of focus groups

### *Principle of interaction*

The group is a small social organisation in which people are able to interact and to exchange opinions with each other. In comparison with face to face interviews or opinions surveys, the researcher has a very interesting technique to understanding public opinion within a context of interactions and relationships. Human beings are social animals and they are the most of the times embedded into group(s). According to Krueger<sup>23</sup> :

*It would be difficult to find a human being who has not been in a group ; indeed most of us are repeatedly confronted with a plethora of groups.*

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<sup>18</sup> Group interview is among others characterised by different kinds of interviews such as brainstorming, Delphi Group or Natural and Formal Field Interview. See, Frey H. J. & Fontana A. (1993), *The Group Interview in Social Research*, in Morgan D. (Ed), *Successful Focus Groups*.

<sup>19</sup> Merton R., Fiske M. & Kendall P. (1990), p. xvi.

<sup>20</sup> Stewart D. & Shamdasani P. (1990), page 10.

<sup>21</sup> Goldman E. (1962), pp. 61-68.

<sup>22</sup> Stewart D. & Shamdasani P. (1990), page 10.

<sup>23</sup> Krueger R. (1994), p.5.

During focus groups discussions, participants are expressing themselves about the issue as member of the group. Focus groups technique suggests that human being perception of the world is mainly build on its relationships with others and with its environment<sup>24</sup>. Generally speaking, this characteristic of mutual influence between participants is defined in terms of *communication*<sup>25</sup>. This last one designates all mutual processes of influence which are working when people are meeting each other.

### ***The specific task of focus groups***

All groups of human beings have got their own goals. Some have to find new ideas, to provide information or to take a decision<sup>26</sup>. Such as the other kinds of groups, focus groups technique has got its own aim which is to make the interaction possible between participants and to collect information on the issue.

To be successful, the group has to be aware of its mission : providing information on the issue. This clear identification of the aim is very important for the confidence and the dynamics of the group. People have to be convinced that they have something interesting to say.

Using this kind of technique to collect data, we recognised the pertinence of citizens points of view and opinions even on scientific and technical issues. Focus groups should not be considered only as technique to study social perception, but also as *full knowledge*.

Eventually, focus groups should not be constrained to decide something or to reach consensus.<sup>27</sup>. Nevertheless, it does not mean that moderator is not allowed to make clear a difficult point during the discussion.

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<sup>24</sup> Krueger R. (1994), pp.10-11.

<sup>25</sup> Albrecht T., Johnson G. & Walther J. (1993), Understanding Communication Processes in Focus Groups, *in* Morgan D. (Editor), *Successful Focus Groups*.

<sup>26</sup> Krueger R. (1994).

<sup>27</sup> Krueger R. (1994), p.6.

### ***Focus groups composition***

Focus group composition is maybe one of the most important feature to guarantee the success of the experiment. First of all, *focus groups maker* has to identify the characteristics he wants to study through its research. From this starting point, the researcher is able to call for groups creation. Some qualitative or quantitative studies could provide useful information about this essential step of the technique. So from the point of view of the research, every focus group should be homogeneous.

This homogeneous feature is not necessary reinforcing the coherence of the group. For example, if a group is composed only composed of women, so, the group dynamics is not necessarily satisfied.

According to the objectives of the research, groups could be both previously constituted or not. When the group is created for the experiment, the researcher avoids some problems linked to the history of a pre-constituted group such as conflicts between people or hierarchy. Thus, when people don't know each other, freedom of speech is greater and inhibition is reduced. Nevertheless, in this case, group dynamics could be difficult to realise because participants are also assessing each other.

Nonetheless, a pre-constituted group could be a very interesting experiment in terms of interactions and group dynamics, because people are used to be gathered. Moreover in everyday life, people have not only interactions with strangers. But, people behave most of the time in routinized spheres.<sup>28</sup>

Focus group literature suggests that quality of the experiment is better when people keep a sort of anonymity<sup>29</sup>. One suggests that familiarity and proximity could perturb the group dynamic. According to D. Stewart<sup>30</sup>, this problem has to be relativized and should not impeach the realisation of the experiment. Eventually, organising focus groups with only strangers implies strict and difficult rules for the research<sup>31</sup>.

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<sup>28</sup> Berger P. & Luckman T. (1966).

<sup>29</sup> Smith J. M. (1972).

<sup>30</sup> Stewart D. & Shamdasani P. (1990), p.35.

<sup>31</sup> Morgan David L. (Editor) (1993), p.6.

To deal with this general problem of group dynamics, members of the group have to share some specific personal characteristics which could create a common world of interests. A great compatibility, produces by definition less anxiety and provides more satisfaction. This observation suggests that people are selective in their modes of expression, because people feel more comfortable with unknown persons who are sharing some similar views of the world or characteristics<sup>32</sup>.

Composition of the groups has to avoid people who seem more and better informed than the other participants of the experiment<sup>33</sup>.

In the same way, physical or sartorial features of participants could facilitate or inhibit interactions within the group. Nevertheless, those characteristics are out of control for the moderator. One can just hope that the moderator will be able, despite the appearances, to go further within the group dynamic.

According to the scientific literature and empirical research, size of focus groups varies from 3 to 12 persons.

#### **4) When are focus groups interesting ?**

Focus groups technique is quite interesting when one could observe a gap between several categories of actors. Firstly, this technique is a very good way to help people or actors without political power – concerning the future of society - to express themselves. So traditional modes of political expression are not always open to these weak actors, and focus groups could be considered as a tool to involve those actors. Secondly, decision takers – from both public and private spheres – could collect information about opinions and perception of the other actors. It does mean that focus groups are also a very interesting tool available for the professional sphere to understand better the complexity and the diversity of the world.

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<sup>32</sup> Jourard S. (1964), p.15.

<sup>33</sup> Krueger R. (1994), p.14.

## 5) Advantages and limits of the focus group technique

### *Introduction*

Every technique of investigation presents advantages and limitations. The identification of those features is not exhaustive, but could be very useful to researchers when they have to choose and to implement a technique such as focus groups<sup>34</sup>.

### *Advantages*

- 1) Information comes from social interaction

Focus groups provide qualitative data produced by interaction between participants. This feature could be considered as an advantage because opinions and reactions are very close to the real conditions of public perception of the world, because human beings need interactions to build their own opinions and ideas.<sup>35</sup>

- 2) Imagination favoured

Group interview such as focus groups allow participants to be free when they are communicating. This freedom facilitates imagination and new ideas or concepts. Interactions within the group are more interesting than the sum of individual's opinions. The system or the group is greater than the components.

- 3) Priority to participant's understanding

During focus groups discussions, participants are not strongly embedded within the issue proposed by the researcher. One of the most interesting point is to let people frame the theme as they like.

- 4) Diversity of use and diversity of themes

First of all, focus groups could be used at every step of a research - identification phase of the issue, data collect phase and analysis phase -. Moreover, focus groups are quiet open to all kinds of issue, even sensible ones. So this technique is very flexible<sup>36</sup>.

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<sup>34</sup> Advantages and limits are taken from the following books : Morgan D. (Editor) (1993); Krueger R. (1994); Stewart D. & Shamdasani P. (1990).

<sup>35</sup> Sink D. W. (1991), pp.197-204.

<sup>36</sup> Stewart D. & Shamdasani P. (1990).

- 5) Accessible results

Analysis of focus groups discussions give clear and easy results. This accessibility is a very interesting feature for decision takers.

### *Limits*

- 1) Limited generalisation

Focus groups are not representative of the all society. Therefore, if researcher wants to find some information about opinions of all citizens, focus groups technique is not appropriate to reach this aim. The main objective of this technique is to point out opinions and perceptions of the world and it is not to have universal information.

- 2) Side effects of interactions

Sometimes, focus groups discussions could be biased because personal characteristics such as aggressivity, leadership, shyness or user-friendly.

- 3) Problems of summary and analysis

Questions asked during focus groups are open and participants stand free. Nevertheless, this freedom implies diversity of answers which is quiet difficult to summarise.

Moreover, information is not easy to analyse because interactions take place within specific contexts.

- 4) Control of the groups

In comparison with a face to face interview, the moderator of the focus group is not mastering strongly the experiment. Two reasons explain this point. Firstly, when people are asked on the issue, the freedom they use do not facilitate the control of the discussion. Secondly, the number of participants do not allow the moderator to integrate all remarks and opinions during the session.

- 5) Moderator

To be successful, focus groups need the help of professional moderators because their role is central. Moderators have to create the group dynamic, they have to preserve freedom of participants and they have to keep in mind the aim of the research.

- 6) Unpredictability

It is not possible to predict what kind of interactions for every group. Groups could be lethargic, excited, passionate, indifferent, etc.. This uncertainty makes delicate the preparation of focus groups. Eventually, the temporary nature of the focus groups limits the control of factors such as age, sex, profession, religion, income, etc..<sup>37</sup>.

### **3. FINDINGS**

Firstly, I would like to present in this section the main reactions and fears about GM food. Secondly, I am going to identify some actors of the issue. Thirdly, we will see some remarks about the GM food procedure. Finally, I am going to put forward some institutional propositions about GM food.

#### **1) Reactions about GM food**

##### ***GM technology and Nature***

Repeatedly, GM food was interpreted as a menace for the environment. The concept of Nature was used to mark out a specific entity to be protected against human activities such as modern biotechnology. If sometimes Nature produces a lot of damages (Tornado, flood etc.), those ones are quite well accepted in comparison to problems produced by human behaviour. In a general way, people agreed to the fact that human beings have to stop fighting Nature to start to protect it. For example, this protection could be organised to avoid problems such as the proliferation of rabbits in Australia. In this case, man changed Nature such as a sorcerer's apprentice. The most important environmental problem associated to GM food is the risk of loss of bio-diversity.

##### ***Human food and public health***

Genetic innovations in food production worry participants in terms of public health as well. This anxiety is mainly the result of the BSE crisis. Because food is essential and unavoidable, everybody is concerned. This is why participants were suspicious about genetic modifications of food despite the fact that any problem has been revealed until now. Again, people referred to BSE crisis to stress on the great temporal dimension of public health risks.

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<sup>37</sup> Stewart D. & Shamdasani P. (1990), p.34.

### ***Dimensions of uncertainty***

All the focus groups underlined the problem of scientific uncertainty about GM risks. Modern biotechnology is not the only issue characterised by a high level of uncertainty. From the participants' point of view, uncertainty characterises industrial food domain as well. Of course, people gave the example of BSE crisis.

For the participants, this uncertainty could be managed if one takes time to analyse and control the technology. Therefore, precautionary principle is mobilised to deal with great uncertainty and ignorance. This last one defines the state of knowledge when *we don't know that we don't know*. For the participants, it doesn't mean that we have to stop research on biotechnology, but we have to know a little bit more about it before commercialisation.

### ***Information about modern biotechnology***

Generally speaking, all focus groups agreed on the lack of adapted information on biotechnology. Information problem could be identified on three levels. Firstly, when consumers are buying goods the quality of the information is inadequate about genetic modification. Secondly, general knowledge on genetic engineering is quite poor and needs to be taken seriously. Educational initiatives have to be organised to improve the basic understanding of citizens and to bring together scientists and society. Thirdly, information is also lacking for decision-making processes. People pointed out their ignorance about the functioning of institutional procedures about genetic engineering and food quality control. Some participants were able to design American institutions such as FDA or EPA, but they couldn't name the Belgian administration in charge of GM food.

### ***Social utility of GM food***

For all the groups, the question of social utility of GM food was raised. People were pointing out that environmental and public health risks are greater than the benefits expected for society at large. Obviously, biotechnology companies are the first beneficiary of the development of GM food despite the discourse about fight against starvation in the world. Participants stressed out that the most important motivation of GM food production is



economic profitability. Nevertheless, a different situation arises with food genetically modified for nutritional improvements. In this case, consumers are direct beneficiary as well. The question of social utility of modern biotechnology applied to food is indeed a political question about technological development.

On the other hand, genetic engineering in medicine or pharmaceutical production is very well accepted by people. Again, in this case, risks are taken into consideration to strong benefits in terms of public health.

### ***GM food and economic dimensions***

Repeatedly, economic dimensions or implications of GM food were underlined by all focus group discussions. People were very anxious about economic power of actors such as multinational companies of biotechnology. This economic power implies political domination on farmers, consumers and politicians.

### **2) About some actors of genetic engineering issue**

People were asked to identify the main actors within the issue of GM food. Public authorities and biotechnology industry made up the starting point of the discussion. After this first step, people were asked to describe what should be the role of every one of the identified actors. This question is very interesting to point out the issue of trust among the different groups involved in the GM food case.

### ***Citizens***

Generally speaking, focus groups discussions emphasised the key-position of citizens. Those one are the first concerned about GM food because they are consumers as well. According to potential risks associated with genetic engineering, general public has to be considered as an absolutely unavoidable actor. Nevertheless, from focus groups discussions two different perspectives could be drawn on collective action. On the one hand, if one considers population as consumers, public decision is the result of every individual behaviour. In this case, everybody is in charge of its own life and has the choice through the question : to buy or not to buy ? Therefore, the public decision-making process is spread over the market place.

In those circumstances, consumers need clear information. Nevertheless, participants of focus groups underlined the limited freedom of consumers who are confronted to everyday contingencies. Reflection and critical point of view are not always possible on the market place.

On the other hand, general public was also defined in terms of citizenship. It does mean that people have to integrate the society discussion about GM food, and if the case arises, people could get involved in the decision-making process. To participate in the discussion, several possibilities were considered such as consensus conferences or focus groups. For the participation in the decision-making process, referendum was proposed. Nonetheless, participants were aware of tensions between direct participation and parliamentary democracy.

### *Public authorities*

Public authorities are defined very broadly by participants. There were no strong distinctions between administration and politicians. People were quite disappointed about public authorities in terms of independence and competencies. Nevertheless, public authorities are the most trusted in comparison to industry or green organisations. People expect a lot of those public actors because they are in charge of public good. Again, two perspectives could be proposed on the role of those actors. Firstly, public authorities assume only information flow between the different stakeholders. Secondly, public authorities are more involved in the issue of GM food and are part of the decision-making process.

### *Scientists*

Scientists were taken in consideration as well. According to participants, scientists have got a moral obligation to be involved in the issue of GM food. Scientists have to inform and to teach society about their work. They are the only ones able to provide high quality information. Nevertheless, confidence in their competence is counterbalanced by questions of independence and scientific controversy.

### **3) Institutional processes of expertise**

People were asked to analyse and to criticise the Belgian institutional processes of expertise in the domain of GMO to be placed on the market. Prior to the discussion, we presented a short explanation on the principles of the institutional procedure. We didn't want to go too far into the detail about the legal framework in order to stimulate reactions.

#### ***Space and time***

For the participants, issues such as GM food have to be integrated into very special institutional procedures. Those ones should take into account a large scale of space and time. This particular characteristic is essential to assess seriously negative consequences of GM technology. Without a such long term procedure, people see themselves as guinea-pig for biotechnology industry. Nevertheless, participants were aware that even with time zero-risk is not possible. From a spatial point of view, the current procedure is quite satisfactory because it is working on both national and European level.

#### ***Some actors are missing***

Considering the current procedure, participants pointed out that some categories of actors were missing or not taken into account. In this manner, green and consumers organisations were mentioned. In fact, citizens, green movements or consumers are not involved in the legal framework. Except direct action such as boycott or demonstration, those actors haven't any procedural tools to express themselves about GM food. Nonetheless, questions were also raised about the willingness of citizens to be involved in such procedures and their availability.

#### ***Scientific administration : guarantee of trust***

The current legal framework is characterised by a strong scientific administration for risks identification, risks assessment and risks management. The collegial functioning of this scientific administration was very well perceived by people to cope with the problem of independence of expertise. This last one is quite difficult to manage considering economic

and political power of biotechnology industry. Moreover, scientific panel facilitates self control and exchange of points of view.

#### **4) Institutional implications**

Focus groups discussions about the legal framework on release of GM products have taught us several things about institutional innovations in the domain of GM food.

- ***A more adapted information***

In terms of general information on biotechnology, public authorities should be more involved. So called objective or neutral information about genetic engineering is very difficult to provide. Indeed, particular groups such as green movements or industries of biotechnology are actually monopolising diffusion of information. Therefore, people identified scientific administration as the more trusted actor to inform citizens about the issue. To realise this mission, experiments such as focus groups, round table or consensus conferences were suggested. Moreover, a specific labelling has to be organised for GM food. This question is a very important point to keep consumers free on the market.

- ***Reinforced scientific administration***

Generally speaking, people have faith in scientific administration in terms of protection of general interest. Nonetheless, to meet citizen's opinion, this administration should improve its own information about itself and about biotechnology. Public authority (scientific administration) have to assert itself as central actor within the issue of genetic engineering.

- ***Institutional procedure of expertise***

Scientific expertise is composed of different experiences such as academic research or background in industry. So scientific expertise is produced in a specific environment. To deal with this difficult feature of expertise, people suggested a collegial and an interdisciplinary functioning of expertise within the institutional framework. In this case, interdisciplinary means opening the system to other kind of knowledge such as everyday life knowledge. Interactions between different perceptions of the world could be a very useful

tool to improve the quality of expertise and therefore the quality of decision-making processes. This idea implies the creation of specific areas of discussion and debate. In this respect, Danish consensus conferences could be an interesting way to assimilate a vast number of different points of view.

• *Lay knowledge revisited*

Usually citizens opinions and lay knowledge are considered as irrational and even more hysterical. But as I described previously, focus groups discussions on GM food issue revealed a quite complex and complete point of view. Moreover, according to Brian Wynne<sup>38</sup>, in specific cases, non scientific knowledge could be very useful to complete scientific approach. Therefore, one has to integrate this new conception of relationships between scientific expertise and everyday life experiences. In this way, public decision-making processes will be more able to take into account plurality of society. In other words, public perception on GM food issue should be considered such as scientific expertise.

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<sup>38</sup> Wynne B. (1996).

## CONCLUSION

Through the GM food case study, I meet the complex issue of interactions between technological development and society. Genetic engineering revealed itself as a modern risk, according to the Beck's definition. Today, negative consequences of this new technology are still unknown. But the nature of the potential damages is so threatening that society is not able to cope with its traditional approach anymore. Others points of view have to complete scientific perspective on technological development. This new instrument is called precautionary principle. From our focus groups' discussions point of view, precautionary principle adds a social question to the scientific debate. This social question must be asked when potential risks are higher than social benefits. Precautionary principle doesn't mean stop everything, but imposes social and political discussion about technological development. It means that industrial societies have to go beyond their own traditional models to re-integrate scientific innovations within society. In other words, precautionary principle gives to technological and economic development a social dimension.

Moreover, focus groups discussions have taught us that citizens or lay people were able to cope with extremely complex scientific issues such as genetic engineering. If participants were aware of their own technical and scientific ignorance about this new technology, they were able to point out the social, economic, political and ethical considerations of the issue.

Eventually, focus groups produced a story line - a specific sort of fairy-tale - about GM food and society. This perception of the world explains the role of the precautionary principle to fight risks in great uncertainty situation, and asks for a political - *democratic?* - perspective on technological development. The final question is: how is it possible that this fairy-tale becomes reality? An answer could be the use of focus groups as permanent tool of communication between society and public decision-makers.

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