

CIVIL SOCIETY AND SOCIAL MOVEMENTS IN THE DEBATE ON GENETICALLY MODIFIED ORGANISMS (GMO) IN BRAZIL¹

Sociedad civil y movimientos sociales en el debate acerca de los organismos genéticamente modificados (OGM) en Brasil

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RESUMEN: La sociedad civil y los movimientos sociales han sido actores clave en el debate sobre los organismos genéticamente modificados (OGM) en Brasil; las posiciones involucradas en el debate están representadas por ópticas opuestas: algunas organizaciones están a favor, mientras que otras – en contra del uso y difusión de los OGM, cuestionando las pruebas oficiales de riesgos establecidos por los científicos y los políticos.

El artículo resume el papel de la sociedad civil y los movimientos sociales en el país en los últimos años. Se presentan las percepciones de 15 organizaciones brasileñas relacionadas con los OGM, basado en entrevistas sobre su posición actual frente al tema. Los análisis demuestran que las controversias relativas a los OGM pueden ser consideradas como las discusiones sobre los riesgos; la noción de riesgo varía de acuerdo con la perspectiva de los actores. Incluyen las preocupaciones sobre el medio ambiente, ética, salud y cuestiones socioeconómicas. Los detractores de los transgénicos hacen hincapié en que su uso puede crear una economía de dependencia de los pequeños agricultores, mientras que los partidarios sostienen que los transgénicos son esenciales para la competitividad de la agricultura brasileña. Esta dualidad está más relacionada con el debate convencional sobre el desarrollo rural del país que con la percepción de los nuevos riesgos relacionados con los OGM.

PALABRAS CLAVE: sociedad civil, movimientos sociales, organismos genéticamente modificados (OGM), percepción del riesgo, Brasil.

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ABSTRACT: The civil society and the social movements have been key players in the debate on genetically modified organisms (GMOs) in Brazil, even though they don't present homogeneous positions: some of these organizations are in favor, while others are contrary to the use and dissemination of GMOs, questioning the official designation of risks established by scientists and politicians.

The paper initially summarizes the role of civil society and social movements in the country in the 15 years of disputes about GMOs. Then, it presents the perceptions of 15 Brazilian organizations related to GMOs, based on interviews about their current position on the theme.

The results show that the disputes regarding GMOs can be considered as discussions of risks, and the notion of risk varies according to the perspective of the actors. They include concerns about environmental, ethical, health and socio-economic issues. Organizations against GMOs emphasize that their use could create an economic dependence of small farmers, while those in favor argue that GMOs are essential to the competitiveness of the Brazilian agriculture. This duality is more related to the conventional debate about rural development in the country rather than the perception of new risks introduced by GMOs.

KEYWORDS: civil society, social movements, genetically modified organisms (GMOs), perception of risk, Brazil.

1. INTRODUCTION

The introduction of genetically modified organisms (GMOs), also called transgenic, resulted in a series of disputes in Brazil, involving different agents in the legal, political, economic and social fields. Social movements and civil society organizations are noteworthy in these contentions, with some groups in favor and others against GMOs, challenging governments, farmers and companies to defend their points of view.

The cultivation of many GMO crops is already legally admitted in the country, with the institutionalization of the process of risk analysis and authorization. However, some organizations and social movements still promote campaigns and demonstrations either against or in favor of the established processes, questioning or supporting their achievements.

This article presents the results of a survey with 15 civil society organizations regarding their position on GMOs, including the notions of risk related to them. The organizations interviewed were selected considering their involvement in the dispute over the introduction and dissemination of plant biotechno-

logy in the country (started in 1997). An open-ended questionnaire³ was applied by e-mail to representatives of these organizations, while in three specific cases the contact was personal, at the request of the interviewees.

The institutions that contributed to the survey by e-mail were: Greenpeace⁴, AS-PTA⁵, IDEC⁶, ISER⁷, Green City Association⁸, Movement of Housewives and Consumers of Minas Gerais (MDC/ MG)⁹, Movement of Housewives and Consumers of Rio Grande do Sul (MDCC/ RS)¹⁰, FASE¹¹, Consumers International¹², Land's Rights Organization¹³, CIB¹⁴ and MST¹⁵. The organizations

³ The open-ended questionnaire contained the questions concerning: 1. the current position of the organization regarding GMOs; 2. risks identified by the organization related to GMOs; and 3. the opinion of the organization about the interest and willingness of the population to participate in this discussion.

⁴ Independent global organization aiming at the protection of the environment, peace promotion and social justice (see Greenpeace Brazil, available at: <http://www.greenpeace.org/brasil/pt/quemosomos>).

⁵ Non-profit, civil rights association, created in 1983 that works to strengthen family-based agriculture and the promotion of sustainable rural development in Brazil (see: <http://aspta.org.br/quem-somos/>).

⁶ Non-profit consumer rights association, founded in 1987 (see: <http://www.idec.org.br/idec/o-que-e>).

⁷ The Institute of Religious Studies (ISER) is a civil society organization dedicated to the cause of human rights and democracy (see: ISER. Institute of Religious Studies. Available at: www.iser.org.br/).

⁸ Civil society organization, non-profit, non-partisan. It has the objective to protect the environment, human rights and consumer (see: <http://www.cidaverde.org.br/conteudo.asp?cod=1>).

⁹ Civil association of social purpose, non-profit, non-partisan, with the goal of defending the rights of housewives and consumers and preserving the environment (see: <http://www.mdc-mg.com.br/historico.php?sendLinkIn=estatutodomdc&sendPage=apresentacao>).

¹⁰ Civil society movement that aims to represent and protect consumers (see: http://www.donadecasa.org.br/default.php?p_secao=4).

¹¹ Non-governmental, non-profit organization founded in 1961, its current goal is to build a democratic society through sustainable development alternatives (see: www.fase.org.br/_amaz_sust/pagina.php?id=1296).

¹² Worldwide federation of consumer groups (see: <http://www.consumersinternational.org/who-we-are/about-us>).

¹³ The organization seeks to defend and promote human rights through legal advice and communication (see: <http://terradedireitos.org.br/sobre/>).

¹⁴ Non-governmental, non-profit and non-partisan organization (see <http://www.cib.org.br/cibque.php> goal).

¹⁵ Social movement, organized around three main objectives: access to land, land reform and a more equal and fraternal society (see: <http://www.mst.org.br/node/7703>).

that preferred personal meetings with the researcher were IBASE¹⁶, WWF¹⁷ and ANBio¹⁸. Additional information on the subject was also collected from the Internet.

The article presents a brief history of the GMO dispute in Brazil, emphasizing the prominence of non-governmental organizations and social movements. Then, the results of the empirical research are presented, emphasizing the current positioning of organizations in relation to GMOs and their notions of risks related to these products. The main conclusion is that the current discussion remains pretty much “anchored” in the traditional debate on disputing agricultural models in Brazil, in spite of the complexity of the new issues related to the introduction of GMOs.

2. HISTORY

Disputes in relation to the release of GMOs in Brazil began with the first request to import RR soybean (Roundup Ready – glyphosate-resistant), in 1997. At that time, some civil society organizations protested against the authorization, which culminated with the renounce of the representative of the consumers civil organizations in the National Technical Commission on Biosafety (CTNBio). This commission was originally created in 1996, but only regulated in 2005 by the Biosafety Law (Law 11105/2005), with the authority to assess risks and issue authorizations for the cultivation and marketing of organisms derived from biotechnology. However, it has been a constant target of contention, with critics questioning its authority, the capacity of board members, and the representativeness and legitimacy to make such decisions.

These contentions became much more visible and significant after 1998, when Monsanto requested an authorization for the cultivation and marketing of its RR soybean. CTNBio issued a favorable opinion after only two months,

¹⁶ Civil society organization founded in 1981, aiming at the radicalization of democracy and the affirmation of active citizenship (see: <http://www.ibase.br/pt/quem-somos/>).

¹⁷ Brazilian NGO participant of an international network, committed to nature conservation within the Brazilian social and economic context (see: http://www.wwf.org.br/wwf_brasil/-organizacao/).

¹⁸ The National Biosafety Association is a non-profit civil association aiming at the strengthening of biosafety and biosecurity in Brazil (see: <http://www.anbio.org.br/>).

based on a report provided by the company itself, and without recommending a study of environmental impact.

This approval was challenged in court by the Institute of Consumer Defense (IDEC) and Greenpeace, supported by other social organizations, with the justification that more rigorous research should have been done on the impacts of this GMO product, including the assessment of the specific impacts on Brazilian ecosystems.

The “Campaign for a Transgenic-Free Brazil” was founded in 1999 to mobilize and seek support from other sectors of society against the release of GMOs. This campaign aimed to disseminate ideas and information on the impacts and risks of GMO products and was supported by ACTIONAID BRAZIL, AS-PTA, FASE, Brazilian Forum on Food Security and Nutrition, Greenpeace, IBASE, and IDEC, among other organizations. After that, the topic won a national recognition, and these actors had major gains throughout the process: a lawsuit delayed for five years the commercialization of GM crops, obliged the government to stipulate a standard labeling its use (which does not mean it was enforced), and altered the composition of CTNBio¹⁹.

To counterbalance the manifestations of this group, two organizations were created to support and dissemination of biotechnology: the National Biosafety Association (ANBio) and the Council for Biotechnology Information (CIB). ANBio was created in 1999 by a group of scientists who sought to disseminate information about the advances of biotechnology and its control mechanisms. It organizes events and courses on the subject, keeping agreements with different agencies for research funding. CIB was created in 2001 in order to disseminate technical and scientific information on biotechnology and its benefits, increasing the diffusion theme in society. Both institutions declare themselves non-profit, non-partisan civil organizations. However, they maintain among its members and partners companies and organizations directly related to the production and consumption of GMOs, such as Monsanto, COODETEC, Cargill,

¹⁹ For more information see: Castro, Bianca Scarpeline de (2006), *O processo de institucionalização da soja transgênica no Brasil nos anos de 2003 e 2005: a partir da perspectiva das redes sociais*, Dissertação (Mestrado em Sociologia Rural), Universidade Federal Rural do Rio de Janeiro, Seropédica, Rio de Janeiro; Castro, Bianca Scarpeline de (2012), *Organismos Geneticamente Modificados: as noções de risco na visão de empresas processadoras, organizações não governamentais e consumidores* (Ph.D. thesis) UNICAMP, Campinas.

BASF, Syngenta, the Brazilian Association of Food Industries, and the Brazilian Association of Plant Breeders.

Throughout the period of strife in Brazil, a huge polarization was established between actors in favor and against the technology, and the discussions took place as conflicts of risks. This claim is correct, since the arguments to support different positions related to GMOs are based on notions of risk, whether to accept or reject these organisms. Moreover, these disputes relate to processes that have not yet happened and situations that may occur in the future, but that should guide policies and decisions in the present. There is also difficulty in stipulating a direct line between causes and predicted effects of risks. Both mingle and mix with a number of other situations of risk, so that their establishment depends on scientific and political conflicts²⁰.

Given the importance of the notion of risk in the discussion and understanding that their allocation depends not only on scientific evidence²¹, it is essential to analyze the notions of risks related to GMOs by the actors involved in the dispute. Thus, the research targeted not only the scientific discourse delivered, but also the worldview of those involved and the characteristics and broader economic policies associated with the issue.

3. INTERVIEWS

In the interviews, four attitudes were found in relation to the overall positioning of the organizations on GMOs:

1. Organizations against the use of GMOs;
2. Organizations that were originally against the diffusion of plant biotechnology but withdrew this issue from action agenda;
3. Organizations that have questions about how to act in relation to technology;
4. Organizations favorable to the spread of GMOs.

²⁰ Beck, Ulrich (2006), *La sociedad del riesgo: hacia una nueva modernidad*, Paidós, Barcelona.

²¹ Douglas, Mary (1996), *La aceptabilidad del riesgo según las ciencias sociales*, Paidós, Barcelona; Beck, Ulrich (2006), *La sociedad del riesgo: hacia una nueva modernidad*, op. cit.

For organizations opposing the legalization and use of GMOs, regardless of agronomic characteristics or variety, these food products should not be cultivated and consumed.

One example is the position taken by AS-PTA. Deeply involved in the discussion about the GMO in the country, its representative provided the following testimony:

The AS-PTA is against the use of GMO seeds in agriculture, because 1) the technology is not necessary, 2) the experience increasingly reinforces that coexistence is impossible and thus the diversity of native seeds, organic and conventional is exposed to contamination and its consequences; 3) increases market concentration and oligopoly on the seeds markets; 4) increases the use of herbicides and resistance and the development of insect pests; 5) the farmer is dependent on a technology package that forces seed purchases for many years; 6) causes already confirmed environmental risks and others that are unpredictable²².

FASE is also against the release of transgenic and considers that the adoption of the Precautionary Principle²³, established in international agreements “as an ethical principle and as an alternative in the face of so many uncertainties and risks of science²⁴” is strategic to the country. In a response sent by e-mail, it was emphasized that:

FASE remains against the release of GMOs. (...) It is important to remember that an important aspect related to the regulation of GMOs in Brazil with respect to patent rights in developing new seed varieties. (...) The growing control of a few companies on the agrifood chain denies food sovereignty and has been implicated as a factor that hinders the reaction to the trend of rising food prices²⁵.

IBASE is another organization opposing GMOs, understanding that this technology is part of a “neoliberalism in agriculture²⁶”. The Director-General said that the organization is not against biotechnology but against GMOs that have been developed so far – “that only benefit the multinationals”. Furthermore, he questioned the ethics of using genetic engineering plant (which directly

²² The AS-PTA questionnaire was answered by e-mail by Nívia Silva, a member of the National Coordination of MST, by e-mail, on March 16, 2012.

²³ The Precautionary Principle, established by Agenda 21, states that in the absence of concrete scientific evidence on the impacts of substances and organisms in the environment, States parties should take measures against environmental degradation. In the case of GMOs that may mean a moratorium on its introduction.

²⁴ Maria Emilia L. Pacheco, Director of the National Sustainable and Democratic Amazon FASE. Information sent by e-mail on February 9, 2012.

²⁵ *Idem*.

²⁶ Candido Grzybowski, Director General of IBASE in an interview held on March 9, 2012.

affects the core of life) and declared himself totally contrary to patenting, which expropriates traditional populations - increasing their resistance to accepting GMOs.

IDEC is also an entity contrary to the dissemination of GMOs due to its insecurity:

IDEC is against²⁷ (...) disagrees with the procedures for the release of GMOs in Brazil, without the development of appropriate regulations for health safety, environment and labeling of these products²⁸.

A spokesperson for the IDEC reported that the organization continues to follow the theme and its related aspects, such as pesticides, environmental impacts and labeling.

MST is part of this group of organizations opposed to the cultivation and marketing of GMOs. Replying the questionnaire by e-mail, a member of MST gave the following statement:

The movement is against genetically modified organisms because:

a) Biotechnology is part of the hegemonic model of the Brazilian countryside called agribusiness. That has its foundation in the productivist paradigm, (...) creating opportunities to incorporate increasingly agriculture for technical basis for the industrial inputs, and subsequently through transgenic biotechnology.

b) This model represents the homogenization of the agricultural production process, with decrease of varieties (patented by transnational companies), large-scale production of one product, intensive soil use and synthetic chemicals. It is the crystallization of a vision of the need for new technologies (...); actually these processes are consecutive cycles of innovations to keep the accumulation of capital;

c) Because of the implications for the environment and human health²⁹.

It is also necessary to highlight the position of the Land's Rights Organization. It has promoted lawsuits against CTNBio and against the legalization of certain transgenic varieties. In a statement sent by email, the organization's legal advisory said the Brazilian legislation itself considers GM crops "a potentially hazardous activity"³⁰, thus requiring the submission of risk assessments and respecting the precautionary principle.

²⁷ Testimony of Flavia Büchli, Press Officer of IDEC, sent by email, on February 29, 2012.

²⁸ Testimony of Arlette Rodriguez, spokeswoman for the IDEC, sent by e-mail, on February 28, 2012.

²⁹ The questionnaire was answered by e-mail, Nívia Silva, a member of the National MST on March 16, 2012.

³⁰ Ana Carolina de Almeida Brolo, Legal Advisor of the organization, in a statement sent by e-mail, on March 23, 2012.

Another group of non-governmental organizations withdrew this issue from their official agenda. The representative of the Green City Association said they are not working with “this demand”³¹. The same situation occurred in the Movement of Housewives and Consumers of Rio Grande do Sul (MDCC / RS), which for more than ten years served in campaigns alerting the public about the dangers of GMOs. However, in the questionnaire, they considered that this is a “lost fight” and that “unfortunately, there is no hope that the framework can be reversed”³².

Greenpeace is another organization that stated that GMOs are no longer part of its agenda. Although traditionally involved in the dispute and promoting media actions lawsuits against the entry of these organisms in Brazil, the testimony of the Director of the organization's campaigns was categorical:

Greenpeace in Brazil currently prioritizes the Amazon and Energy agendas. Because of this, we are no longer watching *pari passu* the agenda of transgenic³³.

However, on Greenpeace's website, it is still possible to find anti-GMO positions, emphasizing the risks generated by this technology that relate to biodiversity, genetic heritage and consumers, as well as the freedom of farmers.

Consumers International (CI) is another important organization that, since 2010, is no more working with GM foods “in an active way”. Nevertheless, according to information provided by the person in charge of projects for Latin America and the Caribbean, all activities related to GMOs in the organization are performed by Michael Hansen, an expert on the subject³⁴.

The fact that some organizations (such as Greenpeace and CI) remain opposed to the spread of GMOs but no longer invest resources in contention occurs not only because this discussion seems “lost”, as argued by the president of the MDCC/RS. Another probable cause for such retreat may be the limitation of action of these organizations, which in recent years have lost members and international financing - the fragile situation of non-governmental organizations was mentioned by representatives of IBASE, ASPTA and ANBio.

³¹ The questionnaire was answered Association Green City by Sir Paul Shale, President of the Association, on July 19, 2011 by email.

³² Testimony received by email Edy Maria Mussoi, President of MDCC / RS, 01 March 2012.

³³ Contact with Mr. Sergio Leitão, director of campaigns for Greenpeace, was conducted by e-mail, on January 11, 2012.

³⁴ Luis Flores, in charge of projects for Latin America and the Caribbean of Consumers International, in a statement by e-mail, received on March 16, 2012.

In addition, those organizations may prefer to turn to topics more in vogue. In this case, at the “Rio +20” (United Nations Conference on Sustainable Development, held in Rio de Janeiro in 2012), the themes that seem to be most prominent are the preservation of the environment and “green economy”³⁵. These latter issues currently seem to mobilize the media and society, generating visibility for organizations which involved with them, as well as resources, funding, and social support.

Among different attitudes of the organizations surveyed regarding GMOs, there are also those who do not have a clearly defined stance. Among these organizations are the Institute of Religious Studies (ISER), WWF, and the Movement of Housewives and Consumers of Minas Gerais (MG-MDC).

The latter, on information provided by e-mail, said:

Our difficulty in forming a judgment on the subject is very large, since there are favorable opinions and contrary opinions³⁶.

ISER “has no institutional position on the subject”³⁷, according to its executive secretary.

WWF Brazil has no defined stance on GMOs, according to the Agriculture and Environment coordinator³⁸. The WWF International network is favorable to the Precautionary Principle, but in Brazil the organization considered better to maintain a more neutral position and partnership with farmers, so that their main goal – reducing deforestation – can be achieved. Thus, for the organization, it is more interesting that soy (whether transgenic or conventional) is produced with the least possible deforestation (which would be secured by a “green certification”) than criticizing the use of biotechnology.

However, in different European countries (such as Germany and Switzerland), where resistance to GMOs is high, inquiries were made about the support offered by the organization for this production in Brazil. Thus, given the importance of the funding provided by the European countries, WWF is review-

³⁵ The concept of green economy focuses primarily on the intersection between environment and economy (Rio +20, *Conferencia das Nações Unidas sobre Desenvolvimento Sustentável*, <http://www.rio20.info/2012/economia-verde>, accessed march 2012).

³⁶ The questionnaire was answered by Lucia Pacific and Darcy Mattos, respectively President and Director of Events MDC-MG, on March 9, 2012.

³⁷ An e-mail response was sent from ISER by Rita Maria Villela, Secretary of the Organization, on February 1, 2012.

³⁸ Interview with Cassio Franco Moreira, Agriculture and Environment coordinator, on March 3, 2012, in Campinas-SP.

wing its actions on the subject. For the interviewees, to review the organization's attitudes about GMOs is needed because the Precautionary Principle is inconsistent with promoting "sustainable soy" if it is genetically modified. Thus, the organization might stop supporting production that does not extend deforestation, but uses GM soy.

In our survey, the organizations that position themselves favorably to the diffusion of plant biotechnology were ANBio and CIB.

The President of ANBio emphasized that the issue of GMO legalization is economic, and prohibition could generate a lot of damage to domestic agriculture, responsible for the country's socioeconomic stability³⁹.

In the same way, the executive director of CIB said, by email, that the organization supports the use of this technology:

This position is backed by over 15 years of safe use of GMOs in food and feed and based on several scientific studies showing that genetically modified plants are as or safer than their conventional varieties. The CIB supports the use of biotechnology not only in food, but its application for protection of human health and industrial processes⁴⁰.

For these latter organizations, the fact that GMOs are already in the market "for over 15 years" justifies their need and authorization. The prohibition of these organisms could harm Brazilian development, and the risks of not using GMOs are much larger than using them.

Four main dimensions can be identified as the concepts of risk, namely, the risks to human and animal health, environmental risks, socioeconomic risks, and ethical risks. While some organizations presented detailed explanations, others only briefly mentioned this concern. It should be noted that each of the organizations indicated risks associated with their topics of expertise – for example, environmental organizations described environmental risks – but, in general, did not fail to mention others.

All organizations, except for CIB, WWF, ISER and MDCMG, referred to the risks to human and animal health. However, it was possible to identify organizations that deal more generally, pointing out risks to food security and sovereignty (as Consumers International, FASE, IBASE), while others were much

³⁹ Leila Oda, President and Executive Director of ANBio, in an interview held on March 21, 2012.

⁴⁰ Statement Adriana Brondani, Executive Director of the Council for Biotechnology Information (CIB), in a document sent by e-mail on March 28, 2012.

more specific with the issue, highlighting, for example, the possibility of potentiation of the effects of toxic substances occurring naturally in plants which have genetic material handled, the increase of food allergy; the possibility of causing bacterial antibiotic resistance through the use of marker genes in the construction of the GMO, among others⁴¹.

Although the notions of security and food sovereignty are directly related to health and nutritional risks of food, they also relate to environmental, political and economic problems. As shown by Maluf (2007), when organizations refer to these notions, they are bringing up a series of perspective in addition to the concern that involves health risks. Both notions address the sustainability of the food system, the cultural maintenance of rural communities, access to land and to international trade. These notions allude to the country's right to define their own food system as imperative for development with social justice.

Environmental risks associated with these organisms were among the concerns cited by responding organizations, including those related to genetic contamination, such as the cross between transgenic and native species. This situation could lead to biodiversity losses, either by standardizing the cultivars or reduction of animal and insect pollinators. Other dangers pointed out were the creation of sterile seeds, and the emergence of new species unwanted and unplanned. The organizations that emphasized these risks were: Greenpeace⁴², AS-PTA, MST, IDEC⁴³, WWF, FASE, IBASE and Consumers International.

Risks associated with pesticide use were still referred to. There is an impasse if GMOs require more or fewer applications of pesticides than conventional plants, with important environmental, sanitary and/or economic consequences. In general, organizations opposed to GM crops claim they require larger quantities of pesticides. On the other hand, the view that these organisms can use smaller amounts of pesticides is remembered by representatives ANBio, CIB and WWF.

Specifically about the socioeconomic risks pointed out by interviewed organizations, it is possible to highlight the following:

⁴¹ Lazzarine, Marilena (2006), *Alimentos Transgênicos: a posição do IDEC 13 de jan. 2006*, <http://terradedireitos.org.br/linhas/biodiversidade/alimentos-transgenicos-a-posicao-do-idec-2/> (accessed jan. 2012).

⁴² Greenpeace, (2006), *Transgênicos: a verdade sobre o mito*, http://www.greenpeace.org/brasil/Global/brasil/report/2007/8/greenpeacebr_060329_transgenicos_cartilha_mito_port_v1.pdf, p. 17 (accessed fev. 2012).

5. Risks to small farmers, especially in regard to the dependence of farmers on the company that owns the technology, both in the use of the technology package, and the legal restriction that the farmer faces by being prevented from saving seeds for a future crop.
6. The difficulty of maintaining the coexistence of different types of crops, harming farmers with an interest in investing in different productions;
7. The market dominance by a few seed companies through patents;
8. Stimulus to monoculture and land concentration;
9. The expropriation of traditional knowledge, which could accelerate the loss of native seeds.

Reinforcing the importance of the arguments in socioeconomic position against GMOs, it is possible to highlight the interviews with representatives of the MST, FASE and IBASE stating that the resistance is not against the technology itself, but towards the patent model, the market concentration and the dependence on this technology.

On the other hand, those who favor GMOs point out that there are also socioeconomic risks in the case of prohibition. The ANBio representative stressed that legal uncertainty about the legality of transgenic resulted in “brain drain” and delays in scientific research on the subject, including those that could be developed to address the specific problems of Brazilian farmers. This situation has generated considerable economic losses to agriculture and to the national research and development system.

In addition, the risks of an ethical nature were highlighted. The testimony of an IBASE representative summarizes the positioning of organizations on the topic:

Agriculture, food and life cannot be a business. These funds are used for the survival of human life on earth and should be treated with broad interests and values that make profits of some⁴⁴.

Santos⁴⁵ states that biotechnology transforms biodiversity in commodities merchandise. In the understanding of the author, this transformation occurs when the preservation of “life” is taken from calculations of costs and benefits.

⁴³ Lazzarine, Marilena (2006), *Alimentos Transgênicos: a posição do IDEC*, op. cit.

⁴⁴ Interview with Candido Grzybowski, on March 9, 2012.

⁴⁵ Santos, Laymert Garcia (2003), *Politizar as novas tecnologias: o impacto sócio-técnico da informação digital e genética*, Editora 34, São Paulo.

Biotechnology would be a threat to biodiversity because it dismisses its priceless intrinsic value, to transform it into a manageable set of codes that can be engendered, lost or preserved in accordance with the market needs.

Organizations and social movements that defend the environment and the rights of farmers seem to consider that biodiversity has a value in itself and cannot be manipulated to obtain profit, regardless of the risks and benefits it can generate. The greatest risk in this case would be the very loss of biodiversity and the control of “life” for a few companies. Thus, the use of plant biotechnology for the purpose of obtaining economic gains would be unethical.

Four testimonies were in deep contrast to the others: the WWF, the MDC / MG, CIB and ANBio.

The ANBio representative stressed that the discussion about risks is much more a facade to hide disputes between large companies by the market than by their importance indeed. On the other hand, she emphasized that no developments in genetic engineering creates greater risks for Brazil, as falling behind in the race for scientific and technological development and international trade.

The WWF representative disagrees about the major socioeconomic arguments used against GMOs (the promotion of monoculture and land concentration). For him, the concentration of land and monoculture exist independently of plant biotechnology, and it might even stimulate this process, but not be considered its cause.

The MDC / MG noted that many benefits, and the risks or harm caused by GMOs, even today, are unpredictable, although these products are already consumed in the market.

Also, with regard to the dissonant voices, the Executive Director of the CIB stressed that there is no risk associated with the use of GMOs⁴⁶. Rather, they are as or safer than conventional organisms, since undergone a series of tests on their ability to reduce the use of chemical pesticides.

⁴⁶ Information obtained from Adriana Brondani by e-mail, on March 28, 2012.

5. FINAL THOUGHTS

In the survey it was observed that the interviewed organizations have different positions and notions of risks related to GMOs. These notions to some extent reflect scientific research that analyze the technology, but also refer to the worldview of respondents.

Beck⁴⁷ underpins this perspective, highlighting that risks have a calculable, measurable and objective dimension that is beyond control and, sometimes, even beyond observation of the citizen. However, the risks would still have a social dimension, in which they are recognized, processed and reproduced. This last dimension is anchored in the transmission of knowledge and dissemination of lifestyles, where personal relationships are very important.

Douglas⁴⁸ emphasizes more the social and cultural risks, pointing out that they can be seen as collections of meanings, logic and beliefs consistent with the material phenomenon. Risks are constantly constructed and negotiated as part of a network of social interaction. In this sense, the interactions and social status of each of the organizations involved in the dispute related to GMOs affect their attitude and understanding of the risks.

It was seen that organizations opposed to GMOs argue that its use creates health, environmental, ethical, and especially, socioeconomic risks, with the potential of this technology to foster large estates, monoculture, and farmers' dependence on technology packages developed by transnational corporations, among others.

Socioeconomic risks as arguments against GMOs are not used exclusively by non-governmental organizations and social movements in Brazil. But they seem to overpower the other risks associated with technology, even by organizations that are not related to the rural movements (consumer associations, environmental, housewives, etc.).

Niemeyer⁴⁹, analyzing the social campaign undertaken by Via Campesina against GMO seeds, inferred that, having incorporated the issue of GMOs, linking them to culture, health, consumption and biodiversity, that organization has created an opportunity for groups consumers, environmentalists,

⁴⁷ Beck, Ulrich (2006), *La sociedad del riesgo: hacia una nueva modernidad*, op. cit.

⁴⁸ Douglas, Mary (1996), *La aceptabilidad del riesgo...*, op. cit.

⁴⁹ Niemeyer, Carolina Burle de (2009), *Soberania alimentar: a resposta camponesa à agricultura transgênica*, Congresso Brasileiro de Sociologia, 14, Anais, Rio de Janeiro/.

scientists and naturalists from around the world, not directly interested in the peasant problem, to feel empathy to their causes and come to join this and other of their campaigns.

It is believed that a situation similar to that reported by Niemeyer⁵⁰ has occurred with non-governmental organizations and social movements that were involved in the discussion about GMOs in Brazil. Even if the dispute has been officially opened by organizations of environmental protection and consumer protection, it was quickly embraced by other organizations that have brought concerns to the broader agenda of risks associated with GMOs, generating a network of relationships and interactions, expanding the dialogue, negotiation and exchange between its members.

Due to the transversal theme, there was an approximation of the rural and urban movements in Brazil, not only contributing to rural issues and problems better known to urban population, and vice versa, but also showing that they are related in many different ways.

It is considered, however, that the greater coordination and organization of rural movements, as well as their historical “fights” in the specific parts of the country, induced the absorption of these themes by urban organizations, which began to relate the rejection of GMOs with the fight against poverty, hunger and disease, the resistance against the exclusion of small farmers and dependence of agricultural inputs supplied by transnational companies and the defense of a diversified food production, using smaller amounts of pesticides and so on. Hence, there was the absorption of the notions of risks related to the socioeconomic problems of rural organizations in urban Brazil, due to the strengthening of the social relations among them. On the other hand, these mostly urban organizations took advantage of the mobilization and representation of rural movements to give legitimacy to their actions and claims, encouraging the media and bringing the discussion to a wider audience. It is believed, therefore, that campaigning against plant biotechnology proved to be an important opportunity to build partnerships between different non-governmental organizations and social movements.

Nevertheless, one cannot ignore the position of the organizations that are neutral or favorable to the use of GMOs in Brazil. The pro-GMO organizations interviewed include companies that develop the technology, which, howe-

⁵⁰ *Idem.*

ver, does not take away the validity of their position, mainly because they are not the only civil society initiatives that support this technology. A number of agricultural cooperatives, as well as some research groups, support this attitude and believe that GMOs reduce the environmental and health risks of agriculture, because they require less agrichemical applications and labor in the fields. In addition, there would be scientific and economic risks by not releasing them: if GMOs were not legalized, domestic agriculture could not compete in the world market and Brazilian scientists would stay behind in the technological race.

The case of “neutral” organizations, such as WWF, exemplifies the difficulty of civil society organizations that works on environmental issues to maintain a more distant, less conflictive stance on GMOs.

In summary, non-governmental organizations in favor of GMOs identified different risks of not legalizing them and the perverse consequences to the international competitiveness of the Brazilian agriculture and the development of national capabilities in science and research on these issues. On the other hand, organizations opposed to GMOs emphasized the socioeconomic risks of authorizing them, related to the maintenance of family farming in the countryside and the expropriation of their knowledge and mode of production.

This collision appears to refer to traditional disputes existing in rural areas in the country, between the prevalence of one of the two agricultural models: monoculture in large properties or small family farming. Maybe the emphasis on these issues has reduced the risk perception of urban consumers who, in general, do not feel threatened by risks related to GMOs⁵¹. It is also possible that this difficulty to raise awareness of urban consumers about the issue may have been responsible for, among other reasons mentioned above, the retreat of some non-governmental organizations originally involved in the dispute.

In other words, the current discussion of the notions of risks related to GMOs remains pretty much “anchored” in the traditional debate on disputing agricultural models in Brazil, in spite of the complexity of the new issues and agents related to the introduction of these new technologies.

⁵¹ Castro, Biancca Scarpeline de (2012), *Organismos Geneticamente Modificados: as noções de risco na visão...*, op. cit.

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