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The GM Food Debate in The Netherlands, 1999-2002

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Introduction

The Dutch public debate 'Eten en Genen' (Food and Genes) organized in 2001 has been a failure according to most commentators. From the very beginning there was disagreement about the design of the debate. Somewhere half way critical NGOs withdrew their support after battles about an information video to be used and the organization of focus group discussions. The debate and its design as well as the subsequent controversy were inspired by the currently fashionable support among policy makers for a larger role to public participation in decision making about new technologies. As such it is an interesting case to be considered in the STAGE project.[1] The STAGE-project seeks to develop a comparative framework for the analysis of public involvement in scientific and technological innovation. What happened in the Dutch GM food debate? Which issues were at stake to be taken into account in the development and analysis of participatory forms of decision-making about science and technology?

Conceptual framework and considerations.

The STAGE framework distinguishes six types of governance with respect to public participation in decisions about science and technology: They are: discretionary, corporatist, market, educational, deliberative, and agonistic.[2] The typology is based on differences with respect to the perceived function of public participation in technology policies; already institutionalized forms of consultation between the state and established groups in society (churches, unions, employers' organizations); distinctions between state, market and civil society and, finally, whether initiatives from parties and groups are consensus-oriented, agonistic or antagonistic. Each of these distinctions represents a potential crystallization point for political struggle and negotiation. Not surprisingly in most cases key actors tend to disagree about some such distinctions while leaving others untouched. Uncontested distinctions become input for policy making as taken-for-granted assumptions together with the outcomes of fights about other issues. The form of public engagement resulting from struggles about the framing of questions, setting agendas, managing policy domains and mass media can be shown to be dependent upon power relations and power differentials among actors involved.

[1] STAGE is an EU funded network for the analysis of public participation in scientific and technological change. For more information on STAGE see www.stage-research.net

[2] Hagendijk and Kallerud, *Changing Conceptions and Practices of Governance in Science and Technology in Europe: A Framework for Analysis*, Stage working paper no 2, 2003.

The STAGE typology does not imply in itself a normative preference for a one of the models of engagement. It is descriptive and tentative. Yet, it points to more general issues. For example, it immediately raises the question how public engagement and mobilisation relates or should relate to formal democratic decision making by parliaments and decision-making by executive bodies. Should public engagement over technological and scientific issues be focussed on the creation of consensus in the 'subpolitical' realm? Or should it explore 'rational dissent' as a preparation for formal political debate? What role should government play in stimulating debate? Should it be pro-active and intervene in the public realm? Or should it or stay away from the public sphere and civil society to avoid being the recipient of the outcomes from deliberations in the public realm? What is the best way to stimulate civic debate and to involve citizens in decisions that will affect their lives profoundly in years to come? All these questions somehow played a role in the Dutch debate about biotechnology and food. And as we will see these are not just questions that can be reduced to a choice for or against public participation. Nor is it just a matter of choosing the right procedure to organize public participation. Although the procedural arrangements are extremely important and should be analysed from the perspective of political theory, substantive issues and procedural arrangements are deeply intertwined in public controversies about science and technology.

Three decades of empirical studies of science and technology have shown that there is no clear cut distinction between facts and values in everyday life or in and around science as practised. Where the boundary is drawn in a specific situation is itself always context-dependent and situation-specific. It is the outcome of struggles and negotiations to define what is problematic and what is not and where the boundary between the technical, scientific and political should be drawn. It is a hazardous undertaking bordering on the tautological to assume that such struggles and their outcomes can be explained in terms of a priori distinctions between such categories. If such distinctions do figure in debates about specific downstream debates about technological options they usually are best seen as taken-for-granted assumptions shared or not –yet- interrogated by key actors in the process of authoritative framing of political and scientific agendas. Or they are the outcome of 'upstream' battles and decision making about principles incorporated and embodied in downstream technological objects.

Barry uses the notion of 'political machine'[3] to analyse the political or anti-political effects of formal institutional procedures of state agencies as well as informal contestations and public consultations. Regardless of the intentions of the initiators of debates, consensus conferences or other forms of public engagements about genetically modified food or some other technology can also be analysed as a 'political machinery', i.e. in terms of procedures and issues that generate political effects. Barry defines 'political' is an index of the extent to which a problem or object is open to contestation and dissensus.[4] Conversely, 'anti-political' refers to projects and ideologies that seek to narrow down or close the space of contestation. To analyse the various types of governance distinguished in the STAGE typology as 'political machines' invites us to explore where line between the 'political' and the 'anti-political' are drawn and what that amounts to with respect to participation and decision-making. It is an agenda closely related to science and technology studies (STS). The current STS agenda is organized around topics as relation between science and politics, expertise and public participation, regulatory science and the reconceptualization of politics and science as co-evolving domains rather than independent institutional domains with mutually exclusive logics.

A constructivist perspective on science, scientific knowledge and politics pushes one to a conception of democracy that is not just proceduralist but also substantive. If the empirical boundary between the political and the technical (or science) is not fixed but the outcome of ongoing struggles to define what is problematic and what not, one should develop an understanding of politics that is not restricted to formal procedures and formats of political representation. Representations of nature, culture, society and citizens are themselves deeply politically charged if though we forget about that as they become more firmly entrenched and are continually reproduced in a taken-for-granted manner in our everyday lives. To endorse this point of view implies that one has to rethink one's notions of science and nature as well as notions of politics. To investigate the 'political' and the 'anti-political' effects of exercises in public participation allows one to do so in an empirically grounded way.

A related, yet slightly different agenda is implied by Chantal Mouffe's observations about agonistic democracy.[5] At a more general level than Barry, she warns

[3] Andrew Barry, *Political Machines, Governing a Technological Society*. London: Athlone Press, 2001.
[4] Barry, ibid. 205-7, 269.
[5] Chantal Mouffe, *The Paradox of Democracy*. London, Verso, 2000.

against a too restrictive and one-sided conception of deliberative democracy.[6] Mouffe stresses that liberal democracy as we know it today is an uneasy and historical compromise that emerged in the late 18th and early 19th century. It is a historical compromise between heterogeneous and conflicting principles of civil rights and representative democracy vis-à-vis economic liberalism. These principles are antagonistic and the tensions between them can not be settled logically and once and for all. Instead they are at the focus of continuing struggle, conflict and politically unstable compromises.[7] Taking critical distance from proceduralist and deliberative conceptions of democracy associated with Habermas and Rawls, Mouffe suggests a conception of politics and democracy which centres on the agonistic struggles about alternative ways to promote the good life instead of trying to design rules and procedures that would solve the inherent conflict built into liberal democratic capitalism. The index of democracy is for Mouffe the extent to which a political system allows itself to be legitimately challenged by visions and plans to achieve the good life that are alternatives to entrenched and institutionalized approaches and solutions.

Public participation in discussions about science and technology have become of key importance as technological change continuous throughout the 20th and 21st century at an accelerated speed and has become closely intertwined to major societal transformations and the tensions and conflicts related to them. Such participation is necessary both from a principled democratic perspective as well as to prepare populations to work and live the in high-tech, global and dynamic society of tomorrow. Citizens of high tech liberal democracies should be qualified to assess the dilemmas and choices implied in scientific and technological change. Among the immediate questions are the following: How to assess what is at stake in major controversies about technological change? How to assess various forms of technical expertise and their relative merits if it comes to making decisions in one's everyday life and in political choices? When to commit oneself to a particular view and perspective? What does a sensible precautionary stance entail? When to participate actively in public debate and when to abstain? STS and the observations from authors like Barry and Mouffe point to deeper and more substantive questions about the way in which the boundaries between the factual and the political as well as the political and the market are redrawn in the

[6] See also Mark Elam and Margareta Bertilsson. *Consuming, Engaging and Confronting Science: The Emerging Dimensions of Scientific Citizenship.* , STAGE working paper no 1. about deliberative and agonistic formats for public participation.
[7] See Robert Dahl, *On Democracy*, Yale, Yale U.P., 1998 for a similar position.

course of scientific and technological change and deliberately organized public consultations about their implications.

The notion of 'scientific citizenship' has been coined by Irwin (2001) to address the changing conceptions about the public and new ideas about the public involvement of citizens. Now that a deficit view of citizens is no longer considered adequate or appropriate what is the alternative that is emerging as a part of the new policies to engage, educate and mobilize the public? The formats of engagement or 'machineries' construed to enhance participation imply particular answers to the question just raised. They help to define not only what is or may be problematic about technology but also conceptions of scientific citizenship. For the purposes of STAGE it is important to explore what conceptions of citizenship are implied in various examples of public engagement and how this is again related to the actual political space and its structuration. Irwin[8] has pointed out that it does not make much sense to discuss whether the forms of participation are a form of 'politics of usual' or genuinely new forms of enhanced democracy. Instead, as Irwin argues, we have to explore the nature of shifting representations of scientific governance and the assumptions about expertise, science and citizenship that are at their core. Indeed, it is not helpful to simply juxtapose a cynical, Machiavellian perspective on new forms of public engagements and their optimistic endorsement as genuine attempts to address the needs and concerns of ordinary citizens. The Dutch GM food controversy provides an excellent demonstration how politics 'old' and 'new' mix in attempts to address or to manage public unrest and uncertainty as a part of policy making. It shows how the new conceptions of citizenship throw up important questions about the form and legitimacy of various representations of the public. But on top of that and closely related are questions about scientific expertise and the representation of knowledge and (un)certainty in the public realm.

Politics as usual

Parliament

The initiative for the broad public debate about biotechnology and food came from the Dutch parliament's lower house in the summer of 1999. Toward the end of the 1990s biotech had become a topic of world-wide public concern and contestation and as a

[8] Alan Irwin, 'The politics of Talk. Coming to terms with the new scientific governance'. *Social Studies of Science*, forthcoming.

result it moved towards the centre court of Dutch politics.[9] Major topics in the parliamentary debate in 1999 were the uncertainty in society with respect to the risks involved, the importance of food safety, the ethical aspects, the consequences for agriculture in its various forms and the freedom of consumers (labelling). At the end parliament adopted a motion to initiate a broad public debate about biotechnology.[10] Parliament also wanted advice on the desirability and acceptability of biotech applications. A committee independent vis-à-vis stakeholder groups and the government would have to organize this debate and to come up with the advice requested.

The request for a public debate was the outcome of wider parliamentary negotiations about biotechnology policy in 1999. A coalition consisting of the left wing red and green parties and representatives of the orthodox religious parties put on the parliamentary agenda a series of radical motions geared to steer away from applying biotechnology in agriculture and food or to ask for control mechanisms. These initiatives generally failed to collect a majority of the votes.[11] This was for example the fate of a motion arguing that EU-countries should decide independently whether they wanted to be GMO-free. A proposal to support the EU moratorium initiated by five EU member states was also rejected. In response to these proposals in parliament the government argued that European policies were required in these matters and that a moratorium would not be appropriate as current regulations were sufficient to prevent unsafe products from entering the market. A motion suggesting less stringent environmental and health safety conditions for third world countries was savaged by Minister Pronk (social democrat) who argued this would turn citizens of such countries into lesser people than us.

The main positive outcome from the debates was the initiative to organize a broad public debate. It was only accepted, however, once the opposition's proposal for such a debate had been semantically neutralized. Suggestive anti-GM phrases in the initial proposal were adjusted or balanced with more positive phrases in the course of parliamentary deliberation. The motion as adopted stressed the potential value of

[9] From the early 1990s onwards there had been isolated instances of environmentalist attacks om experimental GMO plots. Later on there were various initiatives to discuss the implications of biotechnology both by NGOs, industry and semi-governmental institutions like the Rathenau Institute. The Rathenau Institute is the government funded, yet independent Dutch technology assessment institute. See www.rathenau.nl.

[10] Motie Van Ardenne – Van der Hoeven c.s. *Handelingen Tweede Kamer der Staten-Generaal*, 26407 nr. 8.

[11] The following is based on Handelingen Tweede Kamer , TK 96-5584-5591; ibid 96-5629-5630

biotechnology alongside references to public concerns and anxieties. Public confidence about the new technology might grow as the consequences of clarifying uncertainties and establishing the potential benefits of GM food are added to more sceptical arguments. [this sentence doesn't work – see my suggested additions]Apart from the orthodox liberals who did not see the need for a broad public debate, the rephrased motion was supported by the entire lower house.

Stakeholders

In the second half of 1999 and 2000 nothing much was heard about the parliamentary initiative to have a broad public debate. The government was finalizing its long awaited integral white paper on biotechnology (Integrale Nota Biotechnologie) and the ministries involved were struggling about responsibilities and coordination. To explore in the mean time how one might organize a balanced and productive public debate, the government asked a consulting agency ('Schuttelaar & Partners') to give advice about the design of the debate and the roles to be accorded to stakeholder organizations. The agency was to work with people related to some major NGOs to explore this and organized a number of round table meetings with stakeholder groups in February 2000 to do so.

According to participants in these round table discussions the goal should not be to achieve consensus about gentechnology[12] in food production. Rather, the debate should explore the various arguments and assess the evidence cited in support. The general public should be encouraged to learn about the technology and the arguments for and against. The consultancy agency concluded in its report that there was general support (draagvlak) for a broad social debate among the various NGOs, interest groups and industry.[13] Stakeholder groups showed themselves keen to participate. They all welcomed the possibility to explain their points of view to the public at large. In its final report the consultants qualified this enthusiasm, however. They note that stakeholders welcomed the debate but were not particularly eager to listen to one another: 'Is is not entirely clear whether parties are willing to go beyond exchanging information about

[12] To distinguish the use of genetically modification organisms and plants in agriculture and food from other applications of biotechnology the term 'gentechnology' was adopted to demarcate the technologies to be debated.

[13] Projectgroep Maatschappelijk Debat Biotechnologie en Voeding, *Resultaten verkennende fase maatschappelijk debat gentechnologie en voedselproductie*. (Schuttelaar Report), Den Haag mimeographed, 27 October 2000.

their positions and to reconsider their views against the arguments provided by others.'[14]

In their recommendations Schuttelaar & Partners proposed to distinguish between a debate between stakeholder groups and the general public debate. The discussions among stakeholders would precede and prepare the public debate as such. Scenarios and perspectives for future development were to be drawn up on the basis of the stakeholder debates. In these stakeholder discussions it should be elaborated how facts, norms and values are related to one another and how they inform positions adopted and argumentative chains. Subsequently, the actual public debate would follow, organized around these visions and scenarios and encouraging the general public to form their own views and opinions either in favour or against applications of gentechnology.[15]

According to Schuttelaar &Partners the debate should also involve politicians, but not at the early stages of the debate. Representatives of political parties should be brought into the debate towards the end.[16] The government as such should adopt a position of 'active listening'. By implication the transition between the public debate and the political debate is treated as fluid in the Schuttelaar report. Civil society and the political system are treated as co-extensive.

Government

The Schuttelaar report and the round table meetings did not particularly impress the civil servants at the ministries charged with the elaboration of the debate's design. For them the round table discussions and the subsequent report once again illustrated the stalemate that had emerged between industry and critical NGOs. They feared the debate would become yet another ritual public replay of stakeholder groups shouting at one another from well-entrenched positions if the recommendations by Schuttelaar were

[14] Ibid. p.6.

[15] Ibid. p. 20. This particular set-up bore resemblances to the public debate on nuclear energy organized in the 1980s. See Hagendijk and Terpstra, 'Technology, Risk and Democracy: The Dutch Nuclear Energy Debate (1981-1984). Amsterdam, STAGE working paper, 2004.Especially in hindsight many felt that the nuclear energy debate had been hi-jacked by the opponents. A similar feeling existed with respect to the ICT debate organized around 1980 which was considered to have been captured by industry and science. On the latter debate, see Wouters, 'You cannot uninvent it' – the Dutch debate about the chip in the early nineteeneighties. Amsterdam, STAGE working paper, 2004.

[16] Agricultural and industrial groups suggested in the Round Table discussions organized by Schuttelaar & Partners that the political parties would formulate provisional positions at the outset of the debate. People related to civic groups opposed this as this would suggest that the debate was a marketing exercise to present political decisions already made back stage. See Projectgroep etc. op.cit. note 13.

adopted. Previous experiences with broad public debates initiated on behalf of the government had made them wary of such ritualistic debates.[17] In such a debate ordinary citizens would be passive spectators at best. Some of these civil servants were well familiar with and inspired by STS literature and convinced of lay people's ability to engage in rational public debate about their concerns with respect to science and technology.[18] For them the debate should encourage ordinary citizens to engage with the issues and to actively participate and form their own opinions. On top of this, they held that it would not make sense in political terms to start a highly principled debate whether the Dutch should accept biotechnology or not. Agricultural biotechnology had already developed to a stage at which it was irreversible and it would not go away if the Dutch would say 'no' to it. What should be clarified instead was under what conditions particular types of applications would be acceptable (or not). To focus the debate on that question would be politically more relevant. Beyond that such a phrasing of the key question would also help to achieve two other goals. Firstly, it would focus the debate in a way that would make it more easily accessible for ordinary citizens. Secondly, such a debate would put pressure on the NGOs and industry to leave their trenches in favour of a more pragmatic approach.

The alternative plan developed at the ministries therefore focussed on the conditions for acceptability or rejection of GM food products and agricultural applications. The government, political parties and stakeholder organizations should support the debate, but they should not play a prominent role. It was considered to be of the utmost importance that capture by any of these parties would be avoided in organizing the debate.[19] As many people from the general public as possible should take part. Subsidies for events to be organized by civic groups and organizations were to be made available, a special campaign should target schools, advertisements would be put in newspapers, special high exposure public events would be organized and opinion surveys were to be organized. The overall organizational responsibility, however,

[17] Interview G. 19 December 2002.
[18] For the views among STS scholars about lay participation at that time see Brian; Bruce Lewenstein, Wynne, 'Public Understanding of Science', in Sheila Jasanoff et al. (eds.), *Handbook of Science and Technology Studies* , Thousand Oaks, Sage, 1995, 361–388; 'Science and the Media', idem., 343–360; and Jane Gregory and Steve Miller, *Science in Public Communication, Culture, and Credibility* (New York: Plenum, 1998). Meinolf Dierkes and Claudia von Grote (eds.), *Between Understanding and Trust: The Public, Science and Technology*. Amsterdam, Harwood Academic Publishers, 2000).
[19] Interview G. 19-12-2002.

should be put in the hands of a committee of independent citizens neither related to critical NGOs or industry.

These plans were accepted by the coordinating Minister, L.J. Brinkhorst (liberal democrat, Agriculture, Nature Conservancy and Fisheries), and by the government at large. They are presented in the governments' Integrale Nota Biotechnologie (Integral Whitepaper on Biotechnology, INB) published in September 2000.[20] This document summarizes the government's comprehensive view on biotechnology across the entire health, agriculture, food, and etcetera. With respect to agricultural and food applications the government expects that biotechnology could lead to advances recognizable and beneficial to consumers. A special committee on Biotechnology and Food is to organize the public debate requested. The central issue for the government is to establish whether what is technically possible is also desirable and ethically acceptable for the public. Another goal is to establish whether such applications are safe. The central question to be discussed in the debate should be whether and under what conditions applications of biotechnology in food production would be acceptable.

As for its own role the government is convinced it should not play a prominent role in the debate. It is optimistic but cautious about biotechnology and wishes to avoid the impression that it steers the debate in the direction of a particular outcome. Both the government and parliament should stay at arms length from the debate. Public discussions should be an input for the political decision making that would follow later on. The committee of independent citizens should be at the helm of the debate, the government's role should be to facilitate and support the debate. A second, less explicitly stated task for the organizers would be to enlist support from stakeholders while at the same time preventing them capturing the debate.

Interestingly no parliamentary discussion was organized with respect to the 'Integral White paper on Biotechnology between late 1999 and spring 2002. The public controversy that flared up in 2001 about the design of the debate was not picked up by members of parliament. Apart from the committee to organize the public debate, parliament established its own internal multi-party committee to prepare its own debate at the beginning of 2002. The public debate was supposed to be concluded before that date.

[20] *Integrale Nota Biotechnologie*, The Hague 28 September 2000.

The Temporary Committee on Biotechnology and Food (also known as the Committee Terlouw, after its chair) was installed in January 2001. [21] The members were 'independent citizens' with expertise in the various areas of concern. Three members have an academic background (university professors), one is a fiction writer, and another one is linked to an agricultural youth association. There is one member connected to the Society for the Protection of Birds and also one from industry. Except for two members, they all have advanced academic degrees.[22] The Committee was chaired by Dr. Jan Terlouw, liberal democrat, former Minister of Economic Affairs, former provincial governor, and well-known as chair or member of a whole range of governmental and non-governmental advisory committees. He is one of the founding members of the centrist liberal Democratic Party D66. As such he is a political ally of both Brinkhorst (Ministry of Agriculture, Nature Conservancy and Fisheries) and Els Borst (Minister for Public Health). In the formal decision by Brinkhorst appointing the Committee two goals are distinguished:

a. To provide the public with adequate information about opinions and points of view as they exist in society with respect to biotechnology and food;
b. To offer various parties involved and the public the possibility to participate in a structured debate and to exchange points of view and opinions with respect to the question under which boundary conditions applications of modern biotechnology might be acceptable.

Critical NGO's were disappointed about the way the debate would be structured. They had the idea it would give them little space for manoeuvre. They objected to the central question: "Under what conditions are genetically modified food products acceptable to the public?" To phrase the question this way meant de debate would be focused on a particular technology that is supposed to relieve problems with food that are not themselves properly discussed on their own. NGOs also held alternative approaches should be considered at an equal footing alongside biotechnological approaches. Yet, NGOs decide to adopt a positive stance and to hang in. They would try to influence the debate to match their views and concerns.

Terlouw and his committee were well aware of the strategy adopted of the NGOs. In an early interview, Terlouw pointed out he would resist attempts to hijack the debate:

[21] Letter from the Minister of Agriculture, Nature Conservancy and Fisheries to the Lower House (Tweede Kamer) of the Estates General, The Hague, 12 January 2001.
[22] Letter from the Minister of Agriculture, Nature Conservancy and Fisheries to the Second Chambers of the Estates General, The Hague, 12 january 2001.

> "…I would like to keep it out of the sphere of the believers. On the one hand there are those who are convinced it will be beneficial to people and on the other hand there is Greenpeace, certain that it will lead us to the world's destruction. Such people never convince one another. Those in between, they are what it's all about."[23]

The manoeuvring and fights between the Committee and the NGOs over substance and organization of the debate would become the major defining characteristic of subsequent events.

Framing debate

In March 2001 the Committee presented its plan.[24] The committee acknowledges that debates have been going on in society between various parties already for some time. It says it wants to latch on to these debates, but the committee adds that it wants to do so with a special focus on the public at large. It wants to accentuate the general public (to give the debate a *'publieksaccent').* The committee says it is especially interested in the arguments that ordinary people use with respect to specific applications and how these relate to one another.

The goal of the debate should not so much be to establish a public consensus, but it should explore the arguments for and against as members of the general public entertain them.

With respect to the organization of the debate the Committee does not want to promote discussion meetings in 'small smoky backrooms'. To do so would not be very attractive for the general public. Instead the Committee plans to organize a systematic focus group experiment involving a representative selection of citizens. Around these focus group meetings other activities accessible for members of the general public will be organized: special events at schools, an interactive website, advertisements, highly visible national meetings and support for a wide range of debates in highly visible public centres. Combined with one another the various types of activities are presented as resembling the structure of an onion. The focus group debates will be at the heart of the debate (the first shell). A second 'shell' will be made up of the activities in meeting centres and schools supported by the committee. A third shell will be formed by public opinion

[23] Interview with Jan Terlouw , deVolkskrant, 23 February 2001. Our translation.
[24] Plan van Aanpak Debat Eten en Genen, Maart 2001.

surveys, advertisements in newspapers and mass media and a special insert for a consumer magazine distributed by the major supermarket chain, Albert Heijn.[25]

In all activities a number of real and imaginary examples of biotech applications in food and agriculture will be put at the centre. For each of these 'products' a provisional balance sheet of pro's and con's was to be drawn up in advance to start of the discussions about benefits, risks, und certainties and conditions of admissibility. To draw up these balance sheets the Committee would consult stakeholder groups. To support all the activities a 'toolbox' would be prepared with an information video, descriptions of the exemplary applications, instructions for the debate organizers, questionnaires and general information.[26]

In May and June 2001 the plans for the debate were elaborated in exchanges with stakeholder organizations. In the meantime organizations contracted to implement the debate went ahead as fast as possible. The Committee had to be ready with its final report in January 2002. In prolonged exchanges with stakeholder groups some extra examples of biotech applications were added, to make the whole set more balanced. It was also decided to organize a special event (Voices from the South) to involve people from Third World Countries through Internet.[27]

Drawing up balance sheets with arguments for and against applications in collaboration with stakeholders proved a difficult process. Long and complicated exchanges inside the committee and with its support staff as well as with the stakeholder groups ensued. According to insiders the choices were not made in a very systematic fashion.[28] In any case the committee never gave an account of how and why particular examples were chosen. The examples chosen would also figure prominently in the information video that was being produced in May and early June.

In June 2001 a public 'kick off meeting' (*startmanifestatie*) was organized. The various NGOs presented their points of view and materials at an information market, the video film was presented and a public discussion around four key statements was

[25] At a later stage NGOs would attack the committee via the media that the content of the flyer to be inserted had been the subject of negotiations with Ahold. The committee denies that there has been any negotiation. The exchanges referred to had been about the description of technical aspects of GM food products and their implications only.
[26] To allow the committee to organize everything a number of organizations in science communication, consumer communication and survey research would do the actual work.
[27] This was done in response to criticism from NGOs and politicians especially concerned about food problems and starvation in the Third World.
[28] Interview V, 17 december 2002.

organized. The meeting was supposed to offer the 150 panellists the possibility to meet with one another and to elicit mass media attention for the debate. [29] Although only a part of the focus group participants attended the event was well covered in the media as the videotape led to fierce debate between the makers of the video, the chair of the Committee and NGO representatives.[30] NGO representatives maintained that the video was a straightforward piece of propaganda in support of biotechnology. Terlouw acknowledged that the video was biased and got involved in a public row with the producer, former parliamentary reporter Ton Planken on the spot. The video had to be remade according to the Committee to give a more balanced account of the issues, risks and opportunities.[31]

The revised documentary was produced during the summer. As it became available for review at the end of the summer NGOs rejected it once again. They argued it was still strongly biased in favour of biotechnology. The NGOs accused the Committee and the makers of the videotape that they had apparently ignored the critique mounted against the previous version of the video. Their objections focussed once again on the lack of attention for environmental friendly alternatives for biotechnology. Another major objection concerned the negative consequences for animal welfare as a result of augmented testing. On behalf of a number of NGOs the representative of Greenpeace asked Terlouw to withdraw the video and to remove it from the toolbox. They once again asked to reframe the debate. Alongside their objections to the videotape and the framing of the debate, the NGOs also demanded that the upcoming focus group meetings would be open to the press. Initially it had been the plan to do so, but subsequently the committee had decided against that as the presence of media reporters might distort the free and voluntary exchange of arguments.

The Committee turned down the demands of the critical NGOs. Subsequently fifteen critical NGOs announced that they would no longer support or take part in the debate organized by Terlouw c.s.[32] Instead; they would themselves organize an

[29] See Flankerend Onderzoek *In de Marge van het publieke debat Eten en Genen.* Universiteit Twente, December 2001.
[30] See Kees de Vre *Trouw*, 26 June 2001, page 7; Hans van Maanen *Het Parool*, 29 June 2001, page 4-5. *deVolkskrant*, 26 June 2001, page 3. Mariane Heselmans, *NRC Handelsblad*, 26 June 2001, p.3
[31] Apart from some juicy reporting about this conflict mass media reactions to the kick off meeting were skeptical. “Too little, too late,” is the overriding tune. See f.e. Rik Nijland, ‘Uitgekouwde genen’ *deVolkskrant*, 23 June 2001. See also Flankerend Onderzoek, op.cit. note 29.
[32] *NRC Handelsblad*, 29 September 2001.

alternative debate. The committee said it deplored the departure of the fifteen NGOs, but it would continue with its plans and procedures nevertheless.

Videotaped citizenship

The contested videotape seeks to provide a balanced introduction of the issues at the core of the debate and the arguments for and against. It is the most comprehensive single display showing what participants in the debate are supposed to reflect upon and in what terms. One might also say that the video implies a demonstration what is expected from citizens deliberating about technological change, i.e. what scientific citizenship amounts to for the producers of the video and the organizers of the debate.

The tape starts with an introduction in which the general issues are introduced and the basics of gentechnology are explained using an animation video. Subsequently the video has the following six sections:

- The sustainable tomato
- To protect the potato against fungus
- Pesticide-resistant corn
- Cholesterol-reducing milk
- Safe food with biotech
- Golden rice

In five of these sections a particular envisaged or real application of gentechnology is presented. A separate section is devoted to issues of risk and safety more generally. Each section in the video has roughly the same format. Sections starts with images of real life situations like people in the supermarket, farmers working in the field, cows, plants, researchers in laboratories, dark coloured children crying for food, green housing complexes, and activist campaigning. The voice-over tells us about some food related problem and says new genetic technologies might help according to experts. At the back images are shown of researchers supposedly working on the new technology. The envisaged agricultural product is presented. Against this ‘real life’ a background pop-up window opens up on the screen. It shows us experts who talk to us and address the issue thrown up by the voice-over. Subsequently the voice-over may continue with further questions, arguments and comments. These are either addressed at the expert in

view or raised more generally. New pop-up windows splash on the screen and other experts show up that seem to respond to preceding expert or to the voice-over. Cleverly edited, the video suggests that a real conversation is going on moderated by the voice over. The spectator is treated as being part of that debate. The voice-over acts as the spectators' representative. The general public is implied in the video, but present in the background imagery and as represented by NGO-experts and voice-over. Nowhere in the video are members of the general public themselves actively speaking to the audience. The voice-over acts as mediator between experts and is the representative of the public vis-à-vis the experts par excellence. The voice-over frequently uses the generic 'we' implying 'us' as consumers, viewers, and decision-makers. It demonstrates and exemplifies that 'we' are able to raise questions and to make intelligent comments. It is not the voice of an altogether hardly informed ignorant person, but somebody who has heard and read about the issues and is critical to arguments from experts on either side. Interested and smart without being an expert itself. In reminds us of the ideal ordinary citizen in biotech society, a display of what scientific citizenship amounts to.

The experts presented in the video are scientists, regulators or representatives of stakeholder groups like industry, farmer organizations or NGOs. Expert-representatives of the Consumer Association and from Greenpeace take part on behalf of NGOs. The format of turn-taking between experts used in the video suggests a balanced, objective and fair account. If one counts the time opponents and proponents appear in the video each group is allotted more or less the same amount of time. Tests carried out with the final version of the video on behalf of the critical NGOs concluded that the video is assessed as 'balanced' by 50% of the audience. Others find the video unbalanced.[33] Quantitative assessments are of limited value in establishing that the video is balanced. The amount of time spend on those arguing pro- and those against may be balanced but the number of positive commentators is considerably larger than the outspoken opponent from Greenpeace who is on his own. Much more is at stake. The narrative order and the ways in which various positions and arguments are staged are of especial importance for the balance. One should not just measure time, but should also look at the structure of sections and at how specific issues are linked to wider contexts and

[33] 'Smaakt biotech naar meer? Beoordeling van de voorlichtingsvideo van de commissie terlouw a.h.v. groepsgesprekken.(Does Biotech taste for more? Assessment of the information video from the Terlouw Committee base on group discussions. Commisioned by the Greenpeace Foundation Amsterdam, The Hague, 27 September 2001, management summary.

broader arguments. And one has to take into consideration the emotionally challenging visual images backing up claims in favour of genetechnology in support of developing countries.

The narrative point of the overall story depends of course on the way in which images, voice-over and pop-up expert commentaries are combined and related to one another. Apart from the ways in which expert commentary is combined the single most important way to frame the narrative is the ordering of and space allotted to specific topics and themes. An issue may be mentioned at some point, but given no further consideration, or ignored altogether. This suggests that this is actually a topic of little importance on the overall agenda. So, the question 'Aren't we playing God?' is raised at the very beginning of the videotape in a passage that seeks to mobilize the audience. The voice-over fires a number of questions at the audience in crescendo. At the same time these are projected on the screen. Such a combination of images and spoken texts is known and conventionally used for attention arousal. Subsequently, the question 'Aren't we playing God' is neither repeated nor addressed in the documentary. Apart from raising the question just cited, the video is completely silent about religious objections. In contrast with this, issues of consumer choice, the features of the new product, environmental safety and labelling are constantly reappearing. The obvious implication is that the latter issues are supposed to be at the centre of the implied citizen's mind, while the religious issue is considered to be of special interest to that public. And indeed this seems to be supported by the results from public opinion surveys held. Yet, to organize and structure the video this way reinforces rather than questions a particular framing of relevant questions (not) to be asked.

To illustrate how the narrative format of the video works, let us have a look at the part on the sustainable tomato. It starts with visuals of the product. The tomatoes look red, fresh and tasty. The voice-over points out how important tomatoes actually are as ingredients in our diets. Subsequently, it raises a key problem with tomatoes: they rot easily and quick. Wouldn't it be nice to have a tomato that is more long-lasting? Well, we can make such tomatoes. Actually, it has been done with tomatoes used for the production of tomato puree. One Professor Grierson from Nottingham University who has been involved in making this modification explains how. But - as the voice over explains - there are problems and threats to be considered. The possibility to grow sustainable tomatoes might for example have a negative effect on the Dutch sector of greenhouse tomato growers. An expert representing the tomato growers is optimistic

about such issues, provided the technology is sufficiently tested, safe and environmental friendly. NGO's, however, are sceptical and generally against this application, explains Professor Grierson, whose innovative puree was taken from the shelves in the UK in response to environmentalist pressure. The section ends with the voice-over reference to the issue of uncertainty about long term consequences. A point that will be taken up in the next section of the videotape.

Representatives of the Consumers Association and Greenpeace are presented in the videotape as precautionary skeptics and as opponents of genetic modification. They also argue in favor of consumer choice and the necessity to label products. Industrial representatives (whether researchers or executives) point to the quality and value of the new products and argue that there are no serious risks involved. Regulatory experts observe that for the moment the tests at hand are reliable and adequate. Although comments from regulators are more cautious they give qualified support to the claims by pro-biotech parties. Representatives of academic science are more inclined to criticize overblown promises and expectations alongside their explanations of technical matters. In some cases academics provide implicit support to the arguments associated with critical NGOs.

Apart from the relative frequency with which issues are presented the configuration of the scientific citizen is also affected by what is left out or treated marginally. 'Organic alternatives' get little attention. They are certainly not treated on an equal level with the biotechnological products as demanded by the critical NGOs. This is in line with the goals of the debate as seen by the Committee. Organic alternatives are discussed though in connection with the phytophora resistant potato. In this part an organic farmer filmed on his farm land (no pop-up window in this case) and explains why he grows organic potatoes. He points out that organic potatoes require less spraying with chemicals. The volume of his yield is considerably less compared to farming with an inorganic regime, but he has a healthy and environmental product. The voice-over finishes off this section against a background of images shown of the organic farmers land. It says that here we see an alternative, but ask subsequently: "is there sufficient acreage available? And: Are we willing to pay a higher price?"

Apart from the non-exposed religious concerns other issues are ignored as well. Regulatory regimes for example are not presented in any detail. The structure of political decision-making and the ways in which future decisions are tied by

international agreements and European legislation are also left out. From a perspective on eliciting consumers' opinions about specific products this may be understandable, but if one looks at the video in terms of citizenship it is a remarkable way of construing citizenship. The insistence of the voice-over that the debate is about what 'we' want squares oddly with the complete absence of a consideration what citizens might do to get what they want or to be protected from what they don't want.

Animal integrity and welfare are also only dealt with marginally. Instead more attention is given to the possibility and feasibility of a GM free food chain. To have a GM-free chain is mentioned several times as desirable. Pleas for such an arrangement are not opposed by any of the experts and commentators. But at no point is there an elaborated consideration of what such a GM free track in food production would entail. Once again one might argue this is understandable given a focus on individual end products, but it is odd from a citizenship-perspective.

Implicitly, market liberalism is at the back of comments about the economic feasibility of a GM-free chain as well as other issues. No mention is made of the possibility of subsidies or protective economic or fiscal intervention is made with respect to organic farming. Apparently, governmental interventions should be limited to consumer freedom (= labelling), safety and environmental protection. The liberal market arrangement should not be otherwise affected and certainly not one-sidedly on behalf of the state and civic society.[34]

Ideas about markets and economic dependency also come up in discussions about the increasing dependency of farmers on the seed industry feared by parts of the public.

The issue of economic dependency pops-up more systematically in the discussion about 'golden rice'. Various speakers on behalf of the interests of poor countries come out in favour of GM food. Inserted commentary by the director of Syngenta Inc. and by Professor Rabbinge (ex-director of the International Rice Institute) tells us that industry has made proper arrangements to allow Third World farmers to use the modified seeds to produce their own food. This form of market intervention for non-economic purposes is only discussed in relation to Third World countries. Here the need for enhanced food production justifies some restrictions on principles of economic liberalism. Industry itself - Syngenta- has come up with arrangements to introduce and

[34] In the debates in the Lower House about a GM free food chain the government had insisted that its job is restricted to providing a labelling system and that the rest is up to the market and the consumers. Market inference is to be avoided at all costs. See Handelingen, Tweede Kamer, 1 juli 1999, 96-5591

control such measures. The Golden Rice arrangement Syngenta wants to implement is presented as a self-imposed measure, as a demonstration of modern corporate social responsibility.

Gentechnology: principles, black boxed technology and risk.

Scientific citizenship is about politics and morality as these are nowadays closely intertwined with science and technology. In the video science is presented in various forms: as basic science, as black-boxed technology, as the source of expert views about the use or nonsensical nature of particular products and about risk and uncertainty. Looking at the backgrounds of the experts that take part and the sort of issues discussed a restricted number of disciplines are represented: biology, biochemistry, genetics, veterinary science, nutrition and other parts of the agricultural sciences are present. No experts from the social sciences are included, although some experts from outside academia discuss economic and regulatory issues. The humanities are also absent. No theologian shows up to address the question 'Aren't we playing God?'

At the start of the video, biotechnology as such is presented as black-boxed technology; build on solid and incontestable principles. As soon as the visual imagery of everyday life situations flows over the screen, the voice-over starts:

> "Each form of life …is made up by cells. What we do not realize all the time is that most of our food therefore also consists of cells …and therefore we eat genetic material every day….
> We have been breeding horses and plants …for thousands of years. And now we can even make plants or animals with new characteristics or lacking existing ones by making changes in the cell…
> …
> Because we now know at what place in the cell particular characteristics lie we can take them out and transport them to a stem cell of a complete different plant or the egg cell of a completely different animal…This is genetic manipulation or modification….Nature cannot do this..."

As these words are spoken, an animation video starts to explain the technique of genetic modification. Helix type strings in two colours (yellow and blue) are shown floating in empty space. Slices split off spontaneously from the strings and glue together with yet other pieces to form new helix structures. But these pieces linking up with one another always have identical colours. After some seconds pairs of scissors appear on the screen. They cut a piece out of a blue string and it is inserted into the yellow string. Subsequently the bi-coloured spiral starts to multiply itself suggesting the reproduction

of the so modified genetic material. The technique is shown in complete isolation. Nothing suggesting proteins is around in the animation. The scissors and the genes will do the fundamental trick. Click-click and there you go! It is an imagery of cutting and pasting.. Not a single moment of doubt is suggested with respect to the fundamental technology involved. The 'realism' of the animation lies in how the video aligns the animation with images from the world of the farm and the supermarket and their products as well as pictures of laboratories. The genetic scissors are presented as the uncontested basis for the applications the debate about food and genes is about.

The applications to be discussed are genetically modified products. As yet there are few, but there are many more to come. White coated scientist, Professor Grier from Nottingham University pops up and explains:

> "We've just seen the first five or ten gm-products .In the next twenty years I think we are going to see thousands, some of them will have only modest improvements, but some will actually transform agriculture. They will reduce chemical inputs, they will improve the healthy eating and the components of their diet, and they will get more and better food to poor people."

The voice-over steps in to raise sceptical questions: "It may be safe now, but what to expect if developments go further?' A quick series of typed questions splashes on the screen spoken at the same time by the voiced-over: 'Aren't we playing God', 'what about the danger that the new rape will drive out the original natural breeds?', 'Is it safe?' 'Aren't the farmers becoming over dependent on industry?', 'Are the various agencies and the Food Agency in control?' Upon the last question about regulatory agencies, a pop-up window opens and an expert appears. The caption reads "Dr. J van der Wiel, Health Council." She speaks relatively slowly and radiates solidity:

> "In Europe we have a very solid system to assess the safety of biotechnologically modified crops. On specific points there may still be some debate …but as a whole it is reliable"

The nuanced phrasing ("On specific points there still is debate, but…") will be reassuring for citizens who vis-à-vis specialists that tell us not to worry at all. This expert knows not to promise too much. Spokespersons in The Netherlands have learned from previous food scandals and agricultural crises never to say that things are perfectly

safe or entirely under control. The current public relations mantra for government with respect to safety seems to be 'things are safe, but absolute safety does not exist.' [35]

Representatives of industry may be less interested in regulatory nuance with respect to risk. As the video continues a representative of industry shows up in yet another pop-up window and argues that the technique is perfectly safe. Drs[36] Sijbesma looks into the camera confidently and says:

> "You know exactly what you are doing …which piece of DNA you take and you know exactly where you insert it. In this respect modern biotechnological techniques are very precise …and safe, and focused …"

The previous expert Van der Wiel is associated with regulatory science[37] or mode II science.[38] According to the subtitling Sijbesma is related to the chemical industrial giant DSM and entrepreneur. In line with the image of industrial representatives he wears a suit and a tie. His self-confident rhetoric retroactively accentuates Van der Wiel's cautious formulations.

After these two experts have told us not to worry, the prototypical sceptical academic enters the scene, not burdened by regulatory responsibility or the stock market. Contrary to Drs Sijbesma, and the others this academic expert, professor J. van Damme (Netherlands Institute for Ecological Research), does not look straight into the camera. Unlike Professor Grier, who is filmed inside in a laboratory and with a lab coat, Van Damme is filmed outside in the field wearing a shirt without a tie. He talks pensively. This is the voice of uncertainty:

> "An organism consists of many genes… for humans about thirty thousand have been counted …and these together form an individual. How these genes cooperate we do not yet understand at all…We hardly know how many genes we have, let alone that you could insert a gene in an alien gene in such a tightly interconnected context and predict how the development of that gene would fit in the development of that organism."

[35] When at the start of the UK Foot and Mouth Disease Crises minister Brinkhorst initially said that this would not happen in The Netherlands in an interview. He retracted that statement the next morning in favour of a statement stressing that risks can never be entirely excluded. #

[36] The degree of 'drs' was the lowest academic degree in the old Dutch higher education system overhauled in 2002. People with a drs title have not completed a PhD.

[37] See Sheila Jasanoff, *The Fifth Branch; Science Advisors as Policymakers* . Cambridge, MA, Harvard University Press, 1990.

[38] Michael Gibbons et.al. *The New Production of Knowledge; The Dynamics of Science and Research in Contemporary Societies* , London, Sage, 1994.

The voice-over concludes the general introduction[39] and summarizes: The uncertainty may not be a feature of all applications of genetic modification, but it is associated with many such applications. The implication is clear: the scientific citizen should be cautious but proceed on a case by case basis. On to the sustainable tomato, the first example to be discussed next.

The use of specific products as examples takes the viewers away from general statements about the technology as such and general questions about safety and environmental impact. These are issues to be dealt with at a much more specific level, seems to be the message. The feasibility and acceptability of products as well as the technical adequacy with respect to a particular problem are now topics for discussion. Most of the time such discussions are presented as specific and referring to particular sorts of applications. We are looking at Mode II science. In the sections dealing with specific examples science becomes the source of specific expertise on the criteria with respect to health, environmental safety and freedom of choice by consumers. Deeply felt moral commitments are implicitly redefined in these sections as a matter of respect for such individual freedom of choice or the well-being of the animal. How to avoid cross-pollination? How important is it to introduce adequate labelling techniques. With respect to both, science should come up with the relevant regulatory evidence. The video itself does not do that, however, it posits the issues and occasionally introduces scientists who claim that something can be done or who are sceptical whether an application makes sense or that particular risks can be avoided.

In a special section about food safety regulatory experts argues that there have been no complaints and the safety regulation is generally functioning satisfactorily. If products are unsafe or in cases of doubts products should not and will not be allowed. Greenpeace is sceptical but indirectly accused of not knowing what it says. The Consumer Associations once again pleads for consumer choice. But beyond such generalities no specific discussion about what is done to guarantee safety and to investigate environmental effects is presented.

Social scientific understanding and expert economic commentary surfaces in some parts of the video. Especially when it comes to starvation and golden rice for the

[39] The suggestion that the voice-over intends to close the section comes from a minor shift in the speed and a higher pitch in what is said.

the third world.[40] Here the question of economic and social organization gets some prominence. The expert Hardon, from an organization called the Gene Bank, points out that he does not expect golden rice to work as promised. He point to technical reasons for this - the amount of intake needed to achieve an effect would be enormous - but apart from that he points to social and economic mechanisms which will operate against such rice being consumed by those who need the added qualities the most. In this part of the video Syngenta's proposal to allow farmers to keep part of the yield for re-planting is presented as an ethical and humane diversion from what should be the norm in fully developed markets: free enterprise.

Expert commentators are also introduced to comment on the feasibility of particular products and on the use of animals. The fact that experts nowadays no longer speak in one voice is abundantly demonstrated in the video. On each topic a selection of expert voices is presented in a form that suggests balance and polite exchange. Everybody speaks in his or her turn from his own pop-up window. Cholesterol free milk, for example, is discussed in technical terms by Dr Urlings from a food safety organization. The argument is: Yes it can be done, technically speaking and he thinks we are at the eve of a whole range of new food products. Other experts pop up and add: If one does want to attack the cholesterol problem it would be better not to look at butter but somewhere else. Cholesterol free milk will only have a small effect on health, there are better alternatives.

Taken together the various ways in technical expertise surfaces in the video seems to fulfil a special role. They display openness and debate, but they also bound and structure the discursive space in which the public debate is supposed to take place. Fundamentally the technology is clear cut. The debate is about specific applications. Safety concerns are appreciated and justified, but safety mechanisms and controls are in place and in the hands of people who do not fool themselves or us about the attainability of safety levels. In accordance with all this, experts deal with pragmatic questions: Is this particular application feasible? What technical criteria should apply if we were to produce and use that product? Does a product make sense economically and for consumers? What are the environmental effects of particular products and how to assess these? Representatives from NGOs point to risks and want demand labelling to

[40] Another example of economic commentary is found in the discussion of organically grown potatoes. See the main text.

safeguard consumer freedom and as a safeguard. Representatives from agriculture and industry are clearly optimistic, but have no problem supporting labelling.

Thanks to the form in which these issues and not others are presented the science presented looks neutral and in many ways it is. Yet, it is mobilized to help frame the questions that are considered relevant by the organizers and to focus and prioritize the debate in particular way. Throughout and at the same time the video also displays a particular view on the expert-laity divide. The public is represented indirectly by the voice-over and indirectly as the masses that populate food markets, supermarkets that figure in the visuals at the background. The experts (scientific and otherwise) figure in pop-up windows and are actively engaged. The science shown in the background is mainly laboratory science populated with female assistants. Most scientific experts are male (apart from Health Council representative Van der Wiel). This gender structure will itself add to the realism of the video.[41]

Focus group discussions

The focus group discussions organized as a part of the debate are another interesting site to study the emergence of 'scientific citizenship'. To equate the conception of citizenship entertained by the organizers of the Dutch debate with the videotape would be incorrect, it might be argued. Much more was going on. Additional information was for example presented to the participants in the focus group meetings about regulatory and safety issues, for example. As described above the videotape did not go into such issues treating them as of secondary importance. In the focus groups participants were supposed to go into detail and to actively participate in the formation of a new form of representing the views of the public.

Unfortunately reliable material on the focus group discussions is scarcely available. Summary reports are been drawn up, but they are selective and abstract from the performative aspects. Videotapes were made of the meetings, but both their visual and audio quality is very low. Nevertheless it is clear from the video that the focus group discussions debates were affected by the controversies about the design of the public debate as such. Critical questions were raised in the meetings about the selection of the participants and the representative character of the selection. Especially the fact

[41] In The Netherlands high ranked female natural scientists are exceptional in academia.

that people were asked in advance what their position was with respect to biotechnology as a part of the selection process caused suspicion. Some panel members indicate that they fear to be manipulated to 'sell' biotechnology to the public.[42] Members of the organizing committee attended a number of the sessions and felt sufficiently provoked to defend their work and to comment critically on the NGOs that walked out.

The six focus groups discussions all worked according to the same protocol. They met twice and in between there was a meeting was organized for all with experts that discussed questions and issues that had come up in the first round of discussions. The participants of the focus groups themselves were not actively involved in the hearing with the experts as it took the form of a questioning of the experts by the organizing committee. The questions were distilled from the first round of meetings, however, and participants were encouraged to attend this panel debate. In the second round of discussions there was a special introduction by a representative of Consumers and Biotechnology (a small not for profit foundation associated with the Consumer Association) about the roles of various parties in food regulation and the relation between the EU and member states.

The discussions in the first round all start with a short introduction about the way in which debates are organized. Introductions are either done by somebody from the organizing committee or by one of the professionals hired to moderate the discussions. Participants are asked to introduce themselves and to tell the other participants about their personal situation with respect to food and consumptive behaviour as well as what they know about biotechnology and the topics discussed. Most participants indicated that they did not read food labels on a regular basis when shopping. Vegans stood out for their knowledge and critical attention to such matters. Participants are also asked about the associations the word biotechnology evoked for them. The resulting image mirrors the positive and negative associations one might find in a survey of sources in the public domain. Subsequently a representative of the Consumers and Biotechnology Foundation gives an introduction outlining the basic principles of genetic modification and food, the traditional breeder techniques and modern biotechnology etcetera. After this the participants decide which examples from the set also presented in the videotape they wish to discuss in the first round.

[42] According to a representative of the organizers the section of the participants had been done in such a way that a 'qualitative image' of the Dutch population would be obtained, not necessarily a 'representative' one. Notes from the second discussion meeting focus group Haarlem.

Remarkably, the golden rice case is chosen in all six groups. Other examples ranking high in the selection by the participants were ‘Cholesterol reducing milk’ and ‘the longlife tomato.’

Looking at the sort of considerations that figured prominently in the discussions environmental safety issues rank high. What are the risks? What would be the advantage of GM products over and above the current use of pesticides and other chemicals? What about organic alternatives. Is the current information provided by the government reliable?

Many participants say they are distrustful with respect to information provided by government and industry. Alternative accounts and stories about environmental risks and safety are raised in the discussions. They capture the attention easily and raise feelings of risk and uncertainty. In some of these discussions moderators from Consumers and Biotechnology intervene to straighten out what is known from empirical research, for example with respect to the use made of agrochemicals in current systems and in cases with GM crops. In general, participants are distrustful with respect to arguments that biotechnology would be more precise than traditional methods of strain improvement.

The impression one gets from these parts of the debates is that participants behave as if they are put behind the driving wheel of agricultural decision-making. This encourages a pragmatic and calculative approach. The concerns and uncertainties discussed are considered in a way that seeks to balance pro’s and con’s of particular choices and to deal with the trustworthiness of information provided as well as the uncertainty of forecasting models and scenarios with respect to long-term effects and indirect consequences.

Discussions of the economic dimensions of biotechnology and agriculture show the participants to be very distrustful of the motives of industry. Industry is perceived as mainly interested in financial gains. There is concern that issues and things are commodified and brought under property regimes that should remain public and constitute a common good. Yet, the discussants do not question the importance of investments by industry in new technology and some argue in terms of the importance to keep the Dutch economy and its agriculture competitive. There should be more attention for the social consequences. The government should guard its independence vis-à-vis industry and communicate more openly about both its own place in the larger system and about uncertainties at play. A similar view is dominant with respect to

science. Scientists are critically referred to in connection to their relations to industry. No critical mention is made of them with respect to the contacts some scientists have with NGOs, which may be interpreted as implicit support for such connections.

The 'golden rice' story is seen by many as a public relations act to seduce the public into accepting biotechnology. Arguments similar to those articulated by Hardon in the information video about the amount one should consume of the golden rice in order to see positive effects are picked up in discussing political and economic aspects. In some cases that argument is cut off by moderators as irrelevant. The golden rice example is especially according to some commentators as it is the only example that does not have to do with luxury problems or the highly problematic consequences of the Western agricultural and food systems.

Ethical issues do not figure prominently in the focus group discussions. Clearly the golden rice issue resonates with ethical issues and so do the limited discussions about modification of animals. The latter is accepted more easily with respect to medical applications. With respect to food critical arguments amount to saying that humans should not burden animals with the consequences of their own dubious food practices. A genetically modified BSE free cow would not be an issue if one would behave more responsibly with respect to animal fodder.

Despite their admitted unconcern about what is on food labels, participants are strongly in favour of GM labelling and choice. To be offered such choices is apparently considered a different matter from what consumers do with information and choice.

The panel discussion held after the first round of discussions had a remarkable effect on the second round. Although only part of the participants did attend this debate a number of those who did were shocked by the confrontation with the specialists. The uncertainty and disagreement among specialist seems to be much larger then participants had expected and are found disconcerting. As one of them pointed out:

> "…it appears that even the specialist do not agree about safety and risks associated with these products. I had not expected that. I thought they would more or less agree."[43]

And another participant says to be scared if "…experts cannot give guarantees. This may not be a problem if it is about bikes, but it is if it comes to food issues."

[43] Participant at second discussion meeting in Deventer.

As a result of the discussions with the specialists, but also because of the upheaval about the debate as displayed in the newspapers, many participants have become more critical and cautious about the issues and about the debate. Reportedly, discussions at home and with friends and colleagues have reinforced the uneasiness among the participants. All this surfaces at the beginning of the second round of discussions. Concern is expressed about substantive issues as well as about the organization of the debate and its political function. Isn't it all part of an attempt to manipulate the public? Moderators and members of the organizing committee try to address the concerns. In general they succeed to steer the debate towards the agenda as set, but in cases where a committee member comes out too critical about the NGOs and speaks disapprovingly about people becoming emotional, this is not readily accepted. Discussants point out that people should not be dismissed when they say to be scared by biotechnology: "everybody may say that one finds something scary! To do that is not superficial; to say something like that is relevant.'

Participants demonstrate heightened awareness of both the extent of regulation already in place and the extent to which decision-making in The Netherlands is constrained by international agreements and regulations to which it is committed. This should not come as a surprise as they have been brought up to date in a special introduction just before. They point out, however, that they are surprised about the extent of international regulation and the limited room for manoeuvre in a national context. They argue that the government should be much more open and transparent about these matters.

On this score as well as on some others an analysis of the focus group discussions corrects and complements the image of scientific citizenship displayed in the video. For the focus group discussions it is assumed that participants should know about regulatory issues and should discuss the roles of government and scientists as well as industry and consumers explicitly. Yet, the focus remains on issues of safety and environmental consequences and in a rather pragmatic fashion. In part this is the result of the focus on exemplary products and the attempts of the moderators to keep the exchanges focussed and in line with the agenda set. Participants became at the same time more aware of the uncertainties that preoccupy experts but also wary about the possibility that they are being used to promote a particular agenda. At the end they knew more about biotechnology, but reportedly they had not changed their mind about the use of agricultural biotechnology as such. After the discussions they know more

about uncertainty and risk, but also more about the limited freedom for manoeuvre for governments to act in line with what majorities among the public would prefer. Perhaps that limited room for manoeuvre is an essential part of scientific citizenship as well in contemporary liberal democracies, although one might call it anti-political to say so.

Conclusion

The debate about genetically modified food in The Netherlands in 2001 was as much a debate about the debate as it was a debate about genetically modified food products and their (non)acceptability. This may be true for most debates about science and technology, but it is certainly the case in The Netherlands.[44] The 'Food and Genes' debate was particularly remarkable because of the form of the struggle about the role of critical NGOs in public consultations. The Dutch experience highlights how various representative constructions of the 'the public' are at stake in debates initiated by the government and parliament. 'Scientific citizenship' is associated with new, government initiated forms of public participation with respect to science and technology. As a result there the question what 'scientific citizenship' amounts to is directly related to the assessment of old and new forms of public representation. The organizers of the debate should be credited for the way they have provided a dramatic public display of the tensions between lay participation, governmental consultation and NGO representation of public concerns. Although they can not be credited for having resolved these tensions or establishing a practice that can be recommended, they have pointed out an issue easily ignored in pleas for participation and against the so-called deficit model in which the public is considered too ignorant to participate unless properly educated beforehand.

The Dutch debate and examples of similar debates in other countries show that public participation exercises will probably become a *fifth* form of representation of the public alongside and possibly apart from and in competition with already existing forms. If formal elections for parliaments are the *first* form political representation, activism by mass movements and civic groups constitute a *second* form. Professional mass media constitute a *third* form of public opinion and public opinion surveys are a *fourth* form of representing what the public thinks. Government-initiated exercises of public participation should be added to this list as a *fifth* form. These various representations of the public overlap and interact. They draw upon one another but they are also in competition with one another. In between them a new configuration of of citizenship may be emerging as a result of their interactions. To establish whether that is the case we have to analyse these interactions and the implied civic epistemology: how

[44] See also the other Dutch case studies in the STAGE project, Rob Hagendijk en Arjan Terpstra (2004) op.cit. and Paul Wouters (2004) op. cit.

citizenship and issues are framed and promoted at the level of substantive issues as well as rules for legitimate participation and proper argumentation.

Discussions about public participation in questions of science and technology have often focussed on issues of openness and procedural fairness and the relation between experts and non-experts. Such discussions may be criticized for their neglect of the substantive issues at stake in public debates and how the representation of issues and questions themselves affects the performance of citizenship. In our analysis we documented how substantive questions and procedural ones intermingle continuously. What should be the question, what examples to take, what arguments should be presented, were mixed with questions who should talk, for how long and the costs of which other participants and with what particular deadline in mind. Discussants switch easily between these repertoires.

In terms of Barry's metaphor of the political machine there are particular outcomes and effects. Representatives of the public were confronted with the unavoidability of agricultural biotechnology as well as the ongoing and continuing uncertainty about the technology and the various envisaged consequences. They were instructed that radical and simplistic choices are not part of the political agenda of the majority and that the room for decisions under naively conceived conditions of national sovereignty and independence are not realistic. They were also confronted with issues of choice and consumer freedom under a regime of economic liberalist pragmatism and given to understand that many ethical issues may be or should be rephrased in terms of consumer choice under such a regime and are not a matter of state policy or interventionism. The liberal state is a minimalist state with respect to ethics.

One might say that the form of scientific citizenship exemplified in the debate was one in which issues become explicitly framed in a pragmatic and piecemeal way and in a way in which uncertainty is a prevailing characteristic even among the experts. The pragmatism and uncertainty with respect to science is not matched with a similar openness on the political side, however. With respect to the politic-economic system there seem to be less uncertainty then in many decades before. Economic liberalism and dependency on international agreements are sacrosanct in ways that delimit not just the political domain but also the substantive agenda for debate. NGOs that wish to frame the questions in a more principled way are consistently delegitimated and steered in a direction in which the discussions are about risk assessment and risk management, precaution and consumer freedom i.e. labelling and not about alternative views of

problems and societal conditions that would allow for alternative solutions. Where NGOs have pleaded for more principled approaches they become sidelined and excluded from the debate and their allegiance to democratic principled is questioned.

In terms of the STAGE typology the debate can be seen as a failed attempt to promote liberal democracy. It failed because it started too late and on the basis of premises that might be realistic from a government's bureaucracy perspective but not from the perspective of major critical stakeholders. It also failed because of the fear for capture of the debate by radical NGOs. Or alternatively: It failed because of the NGOs strategy to use the debate to mobilize public opinion while those in charge of the debate wanted to engage with ordinary citizens. In short, in so far as governments and NGOs subscribe to the ideal of public participation and democratic decision-making it is important to find ways to organize that process in ways satisfactory to them and to other parties involved especially civic groups that are closer to the political centre than radical NGOs and yet interested in critical debate. Scientists, universities, civic organizations and representatives of critical (new) media could play important roles in such reflexive exercises.

Democracy is in Chantal Mouffe's agonistic conception best measured by the extent to which a political system can be challenged in the name of alternative solutions that might help to realize widely shared values at lower costs and more efficiently. Measured in those terms the Dutch debate does not score very highly. This means that in so far as we might be tempted to see it as an instance of a newly emerging form of scientific citizenship we have to ask ourselves about the relation between scientific citizenship and the possibility of radical critique. What characteristics should public engagement exercises have in order to be radically democratic, innovative well as critical without becoming too far removed from contemporary realities in the world to have any impact whatsoever?