VERANSTALTUNGEN

Tagungsberichte/Ankündigungen

The public debate on cloning: international experiences

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Conference report by Rinie van Est and Gert van Dijk, Rathenau Institute

1. Introduction

When the birth of the cloned sheep Dolly became headline news in February 1997, cloning instantly turned into a heated topic for debate all over the world. Almost three years on, it seemed the right moment to collect and share the experiences gained within various countries with this debate on cloning. For this aim the Rathenau Institute, the Dutch parliamentary technology assessment organization, set up a one-day international symposium on November 19, 1999 in Amsterdam, with speakers from three continents and seven different countries: Denmark, Great Britain, Italy, Switzerland, The Netherlands, United States, and South Korea. All speakers were actively involved in organizing the policymaking process and public debate on cloning.

This article provides a summary of the presentations given at the symposium and an analysis of the results. In particular, the relationship between the political and public debate is discussed. It is concluded that in Italy, South Korea and the United States that relationship was weak. The political system in the other four European countries – Great Britain, Switzerland, Denmark and the Netherlands – did pay attention to the public debate. The way in which this was done differed from country to country.

2. The morning session: Switzerland, Denmark, United States and Italy

During the morning session experiences of four countries – Switzerland, the US, Denmark and Italy – with the debate on cloning were compared, in conjunction with the political aspects of the debate.

Switzerland

At the time the birth of Dolly was reported in the media, Switzerland was in the grip of a referendum on biotechnology, which was initiated by environmental activists and animal welfare organizations. The initiative asked for a ban on the creation of transgenic animals, including medical laboratory mice, a ban on releasing genetically manipulated plant species to be planted in the open, and a ban on the patenting of living material. According to *Richard Braun*, Vice-Chairman of the Task Group on Public Perceptions of the European Federation of Biotechnology and Professor Emeritus General Microbiology, Switzerland experienced a small "Dolly dip" as the number of people that thought favorably about genetic modification suddenly decreased around April 1997. The effect was temporary though, and the horror stories in the media rapidly disappeared from the front pages and from the minds of the public. Two main reasons can be found. First, the Swiss constitution already prohibited the reproductive cloning of humans. Second, cloning as an issue became absorbed by the larger debate that was held at the time in the frame of the referendum on biotechnology.

According to Braun, the referendum took the biotechnological world by surprise. "We saw ourselves compelled to get actively involved in the public debate." Scientists took part in public debates, wrote articles, allowed extensive interviewing by a very active Swiss press, and organized two demonstrations in Zurich and Geneva. "The biotechnological world has clearly learned lessons from the referendum," said Braun. "We found out that direct democracy evidently works." Braun held that technology can be submitted to public debate. This demands a certain familiarity with and pro-active attitude of the public towards technology. Braun stressed that the dialogue should be conducted "horizontally", that is "scientist must also listen, take the concerns of people serious, use understandable terminology, actively engage in interviews and forums." Partly as a result of the open and communicative attitude of the scientific world the public trust in scientists strongly increased. This was reflected in the outcome of the referendum. In June 1998, almost two-thirds of the population

voted against the proposed ban on biotechnology.

Denmark

In Denmark, as in most other countries, policy makers were less prepared for the debate on cloning. *Jan Ejlsted*, then Deputy Director of the Danish Board of Technology started his presentation with the statement "Thank God for Dolly", because Dolly triggered the debate on biotechnology. Dolly also exposed the weakness of the political system with respect to anticipating scientific breakthroughs.

In Denmark (as well as Norway) politicians tried hard to take away public unrest as fast as possible. Only three months after Dolly the Danish Board of Technology was asked to organize a parliamentary hearing. Directly after the hearing, the Danish Parliament laid down a number of decisions. A biotech early-warning system was established to prevent the political system from being taken by surprise again by the scientific system. Moreover, research on cloning was severely restricted. While these quick decisions were instrumental in taking away the initial public fears, they did not settle the debate for long. The debate evolved into an overall biotechnological debate, also on transgenic animals. In addition, pragmatism gained ground in the debate as Danish researchers started fighting the restrictive legislation of 1997. Ejlsted is skeptical about the future. "The political system has learned nothing and is not able to present sensible regulation in advance of public agitation. Xenotransplantation might trick the political system in the same way. The logic of the political system makes that likely to happen."

United States

Philip Bereano, professor of Technical Communication and a founding member of the Council for Responsible Genetics, was even more critical about the current and future situation in the United States. Within the American discussion the issues are modification, patents, factory-like production of organs, and uniformity versus diversification. Although there is a powerful opposition from the side of the religious fundamentalists, and ninety percent of the people in the United States declares itself to be against the cloning of human beings, there is

little public debate on cloning. Bereano held that in general the American public debate around science and technology is fragmented or non-existent. "We do not have a public debate on any technology, like you do in Europe." Despite high stakes and public dislike "the united front of science, technology and business just goes on." Bereano thought it to be typical for the lack of debate in the United States that the National Bio-ethical Commission did not come out with a common point of view and only on pragmatic grounds pleaded for a moratorium on the cloning of human beings.

Bereano analyzed that there is strong resentment against government regulation and the belief in free enterprise and technological progress is dominant. As a result of this and the fact that there is no legal prohibition in force "it is perfectly possible that tomorrow you will read in the newspaper that a human being has been cloned in the US." An important effect of the new biotechnology on American culture is, according to Bereano, "genetic essentialism". This is the reductionist approach, which posits that genetic makeup determines the essence of a human and that the person's life is largely a playing out of a genetic script, minimizing environmental and cultural influences. The discussion on the cloning of people is not only about the production of replicas but about, via cloning, the makings of better human beings or better body parts. Thus, a website has recently appeared on which a business offers the ova from top models for sale. "Eugenetics, that's what it's all about," said Bereano.

Italy

In Italy, the publicity around Dolly revitalized the political discussion on the research of embryos younger than two weeks, which had been held in Parliament the year before. This finally brought the issue into the media. The way in which the debate was conducted was strongly determined by the long-standing polarization in Italian society between the religious world (the Vatican) and the secular world as to the possible interventions in human life, said *Agnes Allansdottir*, lecturer in Social Psychology and Communication at the University of Sienna. For the first ten days after Dolly, the Italian media were polarized between the secular press and the newspapers more oriented towards the Vati-

can. Whereas the former wrote on the scientific achievement and the usefulness of cloning, the latter wrote in terms of "Brave New world" and "Playing God". Allansdottir's media analysis revealed that the media coverage on cloning was embedded in the already existing fear of new technology in general. This fear is fed by a total lack of trust in the government's ability to regulate and monitor science and technology plus a complete lack of trust in scientific institutions. Because of this, the public is convinced that as soon as the cloning of human beings becomes technically possible, it will occur.

With respect to politics, the Italian Minister of Public Health announced a temporary ban on all types of cloning in 1998, which is still in force. The latest version of legislation contained a total ban on (reproductive and non-reproductive) human cloning. Despite of many ethical aspects the public's voice was absent within this debate. Neither the government nor NGO's have tried to fill this gap.

3. The afternoon session: Great Britain, the Netherlands, South Korea, and United States

In the afternoon, the presentations and discussions were aimed at describing and comparing the different ways in which the general public was involved in the debate. Four cases were presented: Great Britain, the Netherlands, South Korea, and United States.

Great Britain

After Dolly, the Human Genetics Advisory Commission (HGAC/HFEA) published a consultation document on cloning. In response to this, the Wellcome Trust decided, in the spring of 1998, to carry out an investigation into public opinion on cloning. From a public opinion poll in March 1997, it was shown that 72% of the population was in favor of a ban (except for research) on the cloning of human beings. The Wellcome Trust wanted to know why people were opposed. The Project Manager for Public Consultations of the Wellcome Trust, *Ian Muchamore*, argued that the results showed that "Dolly was the trigger for a broader debate on biotechnology and genetic intervention". The initial reaction of the focus groups can be characterized by quoting the terms "Nazi science"

and "photocopied individuals". He cautioned that these cultural references should not be taken too literally. "People use them as a kind of short-hand, as a way of saying 'I don't like it'". The most surprising finding was the concern about the social effects of cloning. The interviewees expressed concern chiefly for the wellbeing of the clone, of the psychological effect of having to go through life as a genetically identical person. Also the fact that reproductive cloning does not require sexual intercourse was found horrifying.

Muchamore also encountered a very low public trust in government. Even if there is regulation, "there is little faith that research is not still being conducted behind closed doors." Muchamore remarked that the opinion of the public should not be taken as being absolute. "Ideas may change after a while. Louise Brown, the first IVF-born baby, and the first heart transplant were also welcomed with skepticism and distrust. So the question is what the significance is of public opinion when concrete applications are still far away."

The Netherlands

In comparison to Denmark, a more cautious approach was taken in the Netherlands. Parliament expressed the need for a societal debate on cloning. In response to this the Ministry of Health, Welfare and Sports asked the Rathenau Institute – the Dutch parliamentary technology assessment organization – to organize such a debate, perhaps hoping that the debate might lead to consensus. *Koos van der Bruggen*, program coordinator for Biomedical Technology at the Rathenau Institute, explained that a hearing was set up in the parliament building to define the agenda for the public debate. From the hearing a number of conclusions were drawn. The hearing showed that cloning becomes important only in combination with genetic modification. Although cloning of adult human beings triggers the imagination it is an unrealistic option for the foreseeable future. Some scientists see non-reproductive cloning of human embryos as a possibility to achieve better results in reproduction and transplantation technologies. The cloning of animals for the production of medicine could be interesting. In animal husbandry there are still a lot of questions about the usefulness of cloning.

In the following phase of the project, the debate was deepened and broadened. Separate meetings were organized on the various applications of cloning and two special meetings were organized on the religious and political aspects of cloning. To represent the public a citizen's panel of twenty people had been formed before the hearing. The mission of this panel was to form an informed opinion on cloning. Further, several regional debates were organized and a survey was held that showed that people are more positive about (the application of) cloning when they have more knowledge of the facts.¹

The public debate did not lead to straight answers. On the contrary, it demonstrated over and over that the various participants in the debate – for example, scientists, industrialists, patients, animal protectionists, citizens – all maintained different problem definitions. To politicians the debate made clear the full complexity of the issue at hand. The debate also showed that there are deep-rooted and widely felt objections to cloning in general, which should be recognizably included in decision-making on cloning.

South Korea

Whereas in Italy and Great-Britain public trust in the scientific system is very low, the trust in the scientific community in South Korea is very high. Science and technology are seen as the main means to become a modern and prosperous nation. As a result, *Hwan-Suk Kim*, Director of the Council for Democracy in Science & Technology and Associate Professor at the Kookmin University in Seoul, states that "it is very unusual that scientific and technological developments become a controversial issue in South Korea". Nuclear power, the electronic citizens' card and cloning are the exceptions to this rule. Since the news of Dolly, cloning has quickly become a popular and controversial issue among the Korean public because of its implications in respect to human cloning.

In an attempt to give the voice of the citizen a place in the political debate, the Korean National Commission for UNESCO initiated a consensus conference on cloning, which took place from 10 to 13 September 1999 at the Yonsei University in Seoul. The public panel found that human individual cloning should be

strictly forbidden, while animal cloning can be permitted under proper monitoring and regulation. The most controversial issue was that of human embryo cloning. Some scientists argued that the cloning of embryos within two weeks after fertilization could offer a medical breakthrough. The citizens' panel rejected this argument and held that human life begins from the moment of fertilization. It argued that better alternatives to cloning technology must first be actively explored.

Kim noticed a relevant shift in the public debate, "from the rather sensational, but superficial, issue of cloned human beings to the deeper and complex issue of human-embryo cloning." He thinks that this shows that "the consensus conference has the ability to enhance social debate on science and technology from a simple to a more mature dimension." Kim does not expect that Korean politics will impose strict regulation on such important high technology as cloning. But, under pressure from the public unease, the government is preparing a draft of the general guidelines on the ethics and safety of biotechnology. Moreover, the National Congress will examine a new bill on the prohibition of human cloning. Kim concluded, "if it gets that far, it would be the first time ever in Korean science policy that ordinary citizens have participated in the process of policy making".

United States

As Bereano stated, the public debate in America around science and technology is severely fragmented. The Dialogue of Science, Ethics and Religion program (DoSER) of the Association for the Advancement of Science (AAAS) represents such a fragment. *Audrey Chapman*, Director of DoSER, mentioned as main goals of the program, which started in 1995: the involvement of the religious community in the ethical and theological questions of science and technology and the encouragement of the religious community to form an opinion on subjects like modern biotechnology. Within the framework of DoSER such subjects were approached as genetic patenting; human cloning; germ-line intervention; genetic discrimination; stemcell and embryo breeding and behavioral genetics. It seems typical for the American

situation that until now DoSER has no guaranteed budget.

In spite of the support of religious organizations it often proved difficult to interest the religious public in meetings. Chapman further found it remarkable that "there was no sign of the expected dichotomy between science on the one hand and the religious community on the other. Both show great diversity in their perspectives." On the basis of experiences to date, Chapman has noted a number of lessons from the debate activities. For one, there is a need to develop several instruments to bridge the gap between the various disciplines. It is also important to provide a solid scientific-technological information base for all the participants in the debate, including the scientists. It also appears problematic to apply traditional theological concepts to scientific inventions. Religious scholars have not yet sufficiently thought through the new developments. For instance, a great number of well-known concepts, like the respect for human rights, are expressed on a very abstract level. This makes it very difficult to apply, for instance, the notion of stewardship to the new gene technology.

4. Conclusion

The announcement of the birth of Dolly via the popular press led to media hype, and to public and political debate all over the world. The characteristics of the initial debates in the various countries look very similar. The press depicted a strongly polarized discourse. On the one hand, the message was put forward that important scientific progress had been made which has the potential to solve a number of human and societal problems. Other articles expressed uneasiness with the new findings and their possible implications. Strong populist images, like "Nazi science" or "Brave New World", were often used to stress discomfort about the possible negative social effects of the new technology.

As Muchamore suggests, it is important to put the use of such cultural references into a proper perspective. It would be a big mistake to disregard these projections of fears as being naive or misguided. It seems partly right to connect such language with public ignorance and unfamiliarity with science. Nevertheless, the use of strong popular dystopian images

reflects the distrust in the democratic steering capacity of the government with respect to science and technology as well as a lack of trust in the scientific community. Besides this, these negative cultural symbols have the unique power to provoke and evoke public debate. They seem to form the seeds of open, critical democratic debate. In that sense, we should not be afraid of them, but use them for the better.

From that perspective, Jan Ejlsted, said "Thank God for Dolly." A fierce and intelligent debate is necessary to define and keep track of the ethical borders of modern technology. Dolly not just led to a discussion on human cloning. In some countries it eventually transformed into a wider debate on biotechnology, which is still going on. The Dolly event shows it to be unwise to ignore the initial public outcries. The task is to go beyond the populist and symbolic character of the initial debate and leave the trenches to start an open and critical debate. How to stimulate and organize a more profound and sophisticated debate around science and technology? How to encourage politicians to take notice of the public debate? The experiences with the public debate on cloning indicate that across countries the appreciation for public debate and the relationship between the public debate and the political system widely differs. In Italy, South Korea and the United States the link between the public and political sphere was very weak. In contrast, in Switzerland, Denmark, Great Britain and the Netherlands public opinion and debate was valued, and attempts were made to open up science and politics to new forms of public engagement and public scrutiny.

Bereano remarked that the public debate around science and technology is fragmented or non-existent. In America laissez-faire liberalism is dominant. In this ideological climate, politicians willingly refuse to take democratic control over technology. Consequently, responsibility is handed over to large corporations and small innovative firms and – although a considerable number of people are opposed to cloning – the public is sidelined in the name of progress. Attempts to stimulate the public debate are ill funded and NGO's that strike notes of warning are marginalized. According to Allansdottir, the voice of the public was also totally absent in Italian politics. In South Korea, high trust in

science has so far prevented a public debate on this matter. Organizing a consensus conference on cloning can be seen as a brave attempt to both stimulate societal debate as well as to give it a proper place within the political decision-making process. Dolly created a window of opportunity for the people who wanted to stand up for a proper societal debate on science and technology.

The political system in the other four European countries – Switzerland, Denmark, Great Britain and the Netherlands – did pay attention to the public debate. The way in which this was done clearly differed from country to country. The Swiss biotechnology debate in the frame of the referendum came to include cloning. Pro-active policy making and a (by that time) mature public debate created a smooth landing of the cloning issue. Besides Switzerland, no other country was prepared for the public unrest created by the Dolly event. In response to the public agitation the governments in Great Britain consulted interest groups on the cloning issue. The Wellcome Trust contributed to this consultation by generating information about the public's opinion on cloning. In Denmark a parliamentary hearing was organized after which some quick decisions were made. It seems as if Danish politicians saw the public unrest as a public indictment of the political system. To take away the blame they speeded up the decision-making process. But in doing so, they shortened the period of reflection. As a result, the public debate was not given a proper place within the political debate. The complaints about regulation afterwards seem to plead for a longer debating period before actual decisions are made. In the Netherlands politicians called for a period of reflection for the general public and decision-makers to come to their senses and make up their minds in order to reach well-considered decisions. In contrast to the Danish hearing that closed the debate, the Dutch hearing started a wider public debate and set the agenda for the public discussion. So after selecting the issues a period of reflection followed. While the Danes were making quick decisions as if they were responding to a crisis, the Dutch parliamentarians marked time and awaited the results of the public debate.

In summary, the British government consulted interest groups by means of questionnaires. In Denmark, parliamentarians interrogated experts and interest groups during a public hearing on the basis of which decisions were made. This procedure has not been perceived within Danish society as an unqualified success. Parliamentarians have not come up with sustainable and widely accepted solutions and decisions. A point in case here is the installation of a biotechnology early warning system to avoid the political system from being taken by surprise again. Switzerland was the only country that was prepared for the cloning discussion. This was accidentally so, and more important, it was prepared because some grassroots organizations had initiated a referendum. The public debate had prepared politicians, scientists and citizens for a debate on cloning. The societal debate thus functioned as an efficient and sensitive early warning system.

It can be concluded that while the political system in Italy, South Korea and the United States ignored the informative potential of a societal debate, the British and Danish political system did not ignore this, but failed to fully make use of it. In Switzerland and the Netherlands the societal debate was utilized more fully. In both countries the debate was institutionalized. In Switzerland the debate was carried out in the frame of the referendum on biotechnology, in the Netherlands by means of public funds. A second characteristic of these two debates was their longevity. Time is needed to create a critical and informative public sphere around politics. Politicians from their side have the public responsibility to seriously take account of that discursive public sphere.

Anmerkung

- ¹ The Rathenau Institute has produced three English publications on its societal debate on cloning. *"Clones and cloning: the Dutch debate"* gives a good overview of the activities organized by the Rathenau Institute. *"Cloning surrounded by concern: conclusions of the societal debate"* is a translated version of the Rathenau Institute's report to parliament. *"The Citizens Panel on cloning seeks boundaries: final declaration"* contains the standpoints of the Citizen's panel on cloning. These publications can be ordered without charge by contacting Heidi Boer (h.boer@rathenau.knaw.nl); or contact

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Biometrische Identifikationssysteme

**Abschluss-symposium zum BSI-Projekt
BIOIS, Darmstadt, 9. Februar 2000**

Tagungsbericht von Ulrich Riehm, ITAS

Wenn die Zahl der PINs und Passwörter auf 5, 10 oder gar über 20 steigt, wird offensichtlich, dass diese Systeme der Zugangskontrolle an Geldautomaten, beim Online-Banking, an Computern, bei (kostenpflichtigen) Datenbanken etc. an ihre Grenzen stoßen. Es ist eine sicherheitstechnische Fiktion anzunehmen, dass der Einzelne solche Schlüsselwörter nur in seinem Gedächtnis speichern könne. Davon gehen allerdings alle einschlägigen Haftungsregelungen aus – zu Lasten der Nutzerinnen und Nutzer. Abhilfe könnten zwei alternative Verfahren bieten: einerseits Chipkarten, die im exklusiven Besitz des Berechtigten die Zugangsschlüssel für die fraglichen Anwendungsfälle enthalten; andererseits biometrische Verfahren, Verfahren also, die auf einmaligen, körpereigenen Merkmalen der jeweiligen Person beruhen. Mit der zweiten Variante hat sich ein Symposium beschäftigt, zu dem das Bundesamt für Sicherheit in der Informationstechnik (BSI), konkret seine Abteilung "Technikfolgenabschätzung", eingeladen hatte. Tagungsort war das Fraunhofer-Institut für Graphische Datenverarbeitung (IGD) in Darmstadt, das Hauptauftragnehmer des BSI-Projekts "Vergleichende Untersuchung biometrischer Identifikationssysteme – BIOIS" war. Einen Unterauftrag über die Nutzerakzeptanz und die weitergehenden Technikfolgen bearbeitete das Wissenschaftliche Institut für Kommunikationsdienste (WIK). Zu erwähnen ist noch, dass das BSI dieses Projekt in Zusammenarbeit mit dem Bundeskriminalamt (BKA) initiiert hatte.

Rund 100 Teilnehmern aus Wirtschaft, Wissenschaft und Politik wurde ein dreigeteiltes Programm präsentiert. Zunächst gab es zwei informative und einführende Vorträge von *Mark Lockie*, Editor des Newsletters BTT (Biometric Technology Today, bei Elsevier), und *Calum Bunney*, Berater bei International Biometric & Authentication Consulting Ltd.. Danach wurden die Ergebnisse der beiden BIOIS-Teilprojekte, die "TU" (Technische Untersuchung) des IGD durch *Henning Daum* und die "TA" (Technikfolgenabschätzung) des WIK durch *Annette Hillebrand*, präsentiert. Zum Abschluss diskutierte ein Podium unter Leitung von *Franz Büllingen* (WIK) die Frage "Kann die Biometrie halten, was sie verspricht?". Teilnehmer dieser Diskussion waren *Astrid Albrecht* von der Arbeitsgemeinschaft der Verbraucherverbände (AGV), *Marco Breitenstein* von der secunet AG, *Christoph Busch* vom Fraunhofer-IGD, *Marit Köhntopp* vom Landesdatenschutzbeauftragten Schleswig-Holstein, *Walter Landvogt* von der Bundesdruckerei und *Frank Lohmeier* von der R+V Allgemeine Versicherung AG.

Im Folgenden soll eine knappe Zusammenfassung der wesentlichen Aussagen und Einschätzungen gegeben werden, ohne im Detail auf die einzelnen Beiträge einzugehen. Abschließend wird die Tagung als Veranstaltung zur Technikfolgenabschätzung kritisch kommentiert.

Die Biometrie-Industrie ist mit 200 Entwicklern und Anbietern von Systemen weltweit noch relativ klein und werde, nicht nur zu ihrem Nutzen, teilweise schön geredet. Zweifelsohne seien die Zuwachsraten beeindruckend und alle stimmten darin überein, dass in den kommenden Jahren eine Diffusion in neue Einsatzfelder zu erwarten sei. Der Trend gehe zum Massen- und Konsumentenmarkt, während bisher in erster Linie Biometrie-Verfahren in geschäftlichen Kontexten eingesetzt wurden. Als ein eher kurioses Beispiel für das Vordringen in den Massenmarkt wurde ein Tagebuch für Mädchen genannt, das als Sicherung vor unerlaubtem Öffnen Spracherkennung einsetze, und das in den USA bereits vertrieben werde.

Es gibt eine Reihe von Technologievarianten, die – mehr oder weniger ausgereift – zum Einsatz kommen. Nach einem "survey" von "Biometric Technology Today" (Stand