CIELAP BRIEF ON **BIOTECHNOLOGY**

Involving the Public in the Canadian Biotechnology Policy Process

CANADIAN INSTITUTE FOR ENVIRONMENTAL LAW AND POLICY

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Involving the Public in the Biotechnology Policy Process in Canada

Research Report INI 444

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1.0 Introduction:

Biotechnology is a rapidly growing industry in Canada. In the past 20 years, genetic modification technologies have been developed by the agricultural industry and government-sponsored research for application to a wide range of crop species.[1] The technology is defined by the Canadian Federal government as, "the application of science and engineering in the direct or indirect use of living organisms or parts or products of living organisms in their natural or modified forms."[2] In this paper we will be critically analysing the possibilities for public participation in the debate surrounding biotechnology in Canada, focusing specifically on the ability of public participation to direct or influence the direction of policy.

Throughout this paper we will be referring to biotechnology as it relates to the food supply, as genetically modified (GM) foods, food products, seeds, and feeds. We refer to these products, interchangeably, as GM or 'novel' foods.

1.1 History of the Debate:

Humans have been changing and altering the expression of genetic characteristics of plants and animals for centuries.[3] However, in the last quarter century there has been a transition from the traditional altering of genetic characterization to include new processes of genetic modification based on the increased knowledge and understanding of molecular biology, genetics and biochemistry.[4] What is new about the latest techniques in genetic engineering is that the technology allows scientists to displace genes from one species into another. This technology allows that a selected gene from one species be introduced into the DNA of another, such as "genes from a flower moved to a soybean, or genes from microorganisms … into plants."[5] These genes are usually selected for their ability to increase a crop's resistance to herbicides, viruses, and pests, and also for their ability to lengthen the shelf life of the treated crop.[6]

Today, the debate behind this science is both complex and controversial. The technology has the potential to benefit society in the creation of products and services that could save lives through disease prevention, food security, and hazardous waste remediation.[7] In

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[1] Nuffield Council on Bioethics, (2001) *Genetically Modifies Crops: The Ethical and Social Issues*, http://www.nuffieldbioethics.org, 20, [12 Dec 2002].
[2] Canadian Environmental Protection Act, CBS Taskforce, (1998b) *Renewal of the Canadian Biotechnology Strategy: Roundtable Consultation Document*, Prepared by the Canadian Biotechnology Strategy Taskforce Feburary 1998, Ottawa: Industry Canada, 3.
[3] The City of Toronto, Staff Report, (April 2001) *Toronto Public Health Technical Report for Consultation: Genetically Engineered Foods*, 3.
[4] Ibid., 3.
[5] Ibid.
[6] Maarten Chrispeels and David Sadava, (2003) *Plants, Genes, and Crop Biotechnolgy*, Missisauga: Jones and Bartlett, pgs. 531-533.
[7] Biotech Industry Organization, (2003) http://www.bio.org, [7 Mar 2003].

addition, the impact of biotechnology developments have the potential to cause adverse effects to food security, biodiversity, and human health in Canada. Therefore, biotechnology holds both the potential for positive and negative effects. One area in which this tension is especially prevalent is in the production and consumption of genetically modified (GM) food. This cost-benefit and/or risk-benefit trade-off relation has polarized the debate on biotechnology and the genetic modification of the food supply in Canada. This issue remains divided between both those actors that are sceptical that the Canadian regulatory systems can regulate the uncertain science of the biotechnology and GM foods industry and those who maintain their confidence in the Canadian regulatory system and its ability to effectively regulate the supply and increase of the science of GM foods and biotechnology in Canada. In order to decrease the polarization of the debate there needs to be more consideration of justice and beneficence regarding the harms and benefits GM foods and biotechnology could reap within Canadian society.[8]

1.2 Role of Canadian Government

The role of the Canadian Federal Government is to monitor the purpose, use and regulation of biotechnology by developing the necessary policy and legislation. As documented by the Ontario Public Health Association (OPHA), "the 'vision' of the federal government regarding biotechnology is stated on the Industry Canada website: 'To enhance the quality of life of Canadians in terms of health, safety, the environment and social and economic development by positioning Canada as a responsible world leader in biotechnology'."[9] The Canadian federal government created the Canadian Biotechnology Advisory Committee (CBAC), which is housed in Industry Canada, as a mechanism and a tool to enhance public participation in the regulatory decision-making process concerning biotechnology and its commercialization.[10] CBAC is also a government response to the many actors that are concerned about the lack of democratization of the regulatory process and the current governance structure in Canada.[11]

1.3 Role of Non Governmental Organizations:

Greenpeace, Friends of the Earth, the Council of Canadians, the Sierra Club of Canada, the Canadian Institute for Environmental Law and Policy (CIELAP), the Canadian

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[8] Canadian Biotechnology Advisory Committee (CBAC), (August 2002) *Improving the Regulation of Genetically Modified Foods and Other Novel Foods in Canada*, Recommendations,), http://cbac-cccb.ca/epic/internet/incbac-cccb.nsf/vwGeneratedInterE/ah00186e.html#sec2c, [12 Dec 2002].
[9] OPHA, (November 2001), *Protecting our Food Supply: Public Health Implications of Food Biotechnology: A Position Paper for the Ontario Public Health Association*, 7.
[10] Angela Morris, (2003) *Democratizing (Bio)technology?: The Canadian Biotechnology Advisory Committee's Consultation Process on the Regulation of Genetically Modified Foods in* Canada, Masters Dissertation, Graduate Department of Geography and Institute for Environmental Studies, University of Toronto, pg.34.
[11] Ibid., 34.

Environment Law Association (CELA), and Rural Advancement Foundation International (RAFI) are the main NGOs involved in the biotechnology debate in Canada.[12] Though diverse in their roles and niches within the policy community, these groups reflect a range of concerns about biotechnology, including human safety, risks and the negative environmental impacts.[13] Some of these concerns are geared towards the regulatory process and the testing of products of biotechnology, "the assessment and approvals procedures for these, their commercial development and use, and the existence and nature of any subsequent monitoring for unintended effects."[14] For example, CIELAP, CELA, RAFI, and the Sierra Club of Canada have focused more on disseminating information to the public, performing research on biotechnology and its affects, and providing legal aid to parties involved in the debate. Other groups have launched lobbying campaigns, organized petitions, and successfully drawn adequate media coverage to the issue.[15] For example, Greenpeace, the Council of Canadians, and the Canadian Health Coalition are currently pressuring the federal government to recognize the "structural failures of the existing regulatory systems," through national lobbying campaigns[16] All three pressure for an immediate moratorium on all GM foods, including the development of mandatory labelling, while others urge for a more cautious adoption of the technology into the Canadian society.[17] Despite their differences and approaches, these NGOs work with the public to increase their knowledge and awareness of biotechnology issues and raise the debate in Canada.

1.4. Introduction to the Canadian Institute for Environmental Law and Policy (CIELAP):

Since 1985, CIELAP has focused its efforts on elevating the level of public debate surrounding the deficiencies in both the science and regulation of biotechnology and GM foods. In March of 2002, they produced *The Citizen's Guide to Biotechnology*, to aid them in engaging the public in the larger debate in Canada. CIELAP is also focused on communicating the potential risks and promoting the equal distribution of the emerging benefits of such practices. They hold a belief that there is an inherent uncertainty in the technology applied to most GM foods that should be communicated to the public to provide citizens with the resources to make informed choices and to reach their own conclusions about biotechnology and GM foods.[18]

The guide discusses the concept of biotechnology, including its current trends and practices, the potential benefits and risks accompanying the technology, the laws and

[12] Angela Morris et al., (2002) "Eating Spinach: Knowing what's Good for you: CBAC, Biotechnology and the Public Participation Debate," Graduate Department of Geography and Institute for Environmental Studies, University of Toronto University of Toronto: Toronto, pg. 26.
[13] Ibid., 25.
[14] Ibid., 26.
[15] Ibid.
[16] Ibid., 26-27.
[17] Ibid., 27.
[18] CIELAP, (March 2002) *A Citizen's Guide to Biotechnology*.

regulations concerning GM foods, and a framework for participation in the debate and public involvement at a citizens' level.

CIELAP is concerned with the lack of public discourse in policy decision-making in biotechnology and also the failure to acknowledge the precautionary principle in the formation of regulatory mechanisms.[19] These concerns are rooted in a cleavage between the public level of debate and the policy actors at the federal level, where the public have little opportunity to inform or participate in the decisions being made. Without public involvement in policy formation, the policy community renders itself less transparent and less representative of civic concern for the environmental and human health effects of biotechnology. For these reasons, new methods of public engagement and policy formation need to be explored and applied to the emerging regulation of biotechnology in Canada

[19] Ibid., 35.

2.0 Purpose and Problem Statement

At the turn of the twentieth century, technology had already become so deeply integrated in everyday life, it has proven capable of greatly influencing human interaction within society and with the environment. As this ability to influence daily life increases, there have been steady demands to give citizens a correspondingly larger power over the development and application of such technologies.[20] This power can be fostered and realized through public participation in the decision making process and will be briefly discussed in section 5.0.

Biotechnology has a limitless appearance, as it has the potential to lead to applications that go against the public "moral sensibility," and as such the public must be involved in directing the development and application of this technology.[21] Furthermore, the benefits arising from the application of biotechnology must not be unequally distributed, and to ensure against this possibility, the public must also be involved at an early stage in the policy process.

In Canada, the creation of CBAC and the development of a National Biotechnology Strategy without extensive public consultation and engagement strategies could serve to make participation at this stage in the debate more difficult. As such, more innovative and creative methods for engaging the public in the debate from various policy positions, involving as many constituents as possible must be explored.

In this research, the following questions will be explored to provide new directions for public engagement in Canada:

- What are the barriers to effective involving the public in biotechnology policy formation in Canada?
- What are the strategies for public engagement that could best promotes open, meaningful biotechnology dialogue in Canada?
- What can be done to help implement these strategies in Canada? What can we learn from international efforts to engage the public?

[20] R.E. Sclove (1995), *Democracy and Technology*, Guilford Press: New York.
[21] William Leiss and Michael Tyshenko, (2002) "Some Aspects of the 'New Biotechnology' and Its Regulation in Canada," In Deborah L. VanNijnatten and Robert Boardman (eds.) *Canadian Environmental Policy: Context and Cases*, New York: Oxford Press, 336.

3.0 **Rationale and Focus**

Public participation, has many definitions, but it can be generally regarded as the expansion of citizen engagement and interaction in the processes of legislative decision-making.[22] Recently there has been a "deliberative turn" towards the increase of citizen participation in science and technology decision making as a means to "expand the breadth of knowledge and perspectives involved in scientific decision-making beyond that of traditional 'experts'."[23] Public involvement in decision-making process also has been initiated to legitimize policy decisions and foster accountability in government.[24] There is also a recognition of the need to increase "public health policy development and education (for both professionals and consumers)" with the expansion of the biotechnology industry.[25] An example of this is the creation of the Canadian Biotechnology Advisory Committee to introduce the ethical, social, economic, environmental and health issues related to the science of biotechnology.[26] In gathering this information, public input is vital to determine the future development of biotechnologies, as many of these issues are normative.[27] Many members of both industry, government, and non-government organizations (NGOs), "all agree that there is a need for meaningful dialogue between the extremes of opinion on the value of the technology, so that we can move forward. The question remains as to how to best achieve it."[28]

These are some of the fundamental reasons why public participation is important in Canada:[29]

- It is a democratic right to be involved in a public policy process
- It maintains "political equity", in that it would "level the playing field
- It increased public input in decision-making spheres, reducing "value judgements" (as experts do not have the moral authority to make all necessary value judgements)

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[22] Angela Morris, (2003) *Democratizing (Bio)technology?: The Canadian Biotechnology Advisory Committee's Consultation Process on the Regulation of Genetically Modified Foods in* Canada, Masters Dissertation, Graduate Department of Geography and Institute for Environmental Studies, University of Toronto, 5.
[23] Ibid.
[24] John Dryzek, (2000) *Deliberative Democracy: Liberals, critics, contestations*, New York: Oxford University Press, 4.
[25] OPHA, (November 2001), *Protecting our Food Supply: Public Health Implications of Food Biotechnology: A Position Paper for the Ontario Public Health Association*, 6.
[26] Angela Morris, (2003) *Democratizing (Bio)technology?: The Canadian Biotechnology Advisory Committee's Consultation Process on the Regulation of Genetically Modified Foods in* Canada, Masters Dissertation, Graduate Department of Geography and Institute for Environmental Studies, University of Toronto, 6.
[27] Ibid.
[28] Peter McCann (Feb. 2003), "CBAC Acceptability Spectrum Concept," *AgBiotech Bulletin*, 5.
[29] Angela Morris et al., (2002) "Eating Spinach: Knowing what's Good for you: CBAC, Biotechnology and the Public Participation Debate," Graduate Department of Geography and Institute for Environmental Studies, University of Toronto University of Toronto: Toronto, pg. 8.

- It allows access to unique and key local knowledge that is useful and arguably necessary within decision-making processes
- It produces and creates better policy outcomes (better being defined as *better for society*)
- It increase public support, thus making issues more politically viable

The focus of this research is to provide CIELAP with a comprehensive survey of initiatives to engage the public in open discussion on biotechnology, domestic and international. The report will also assess the barriers to increasing communication and dialogue between the policy community and public opinion, review current strategies for public participation, and determine what lessons can be learned from these experiences. Effectively, this report will serve to aid CIELAP in its efforts to further the biotechnology debate in Canada.

4.0 Methodology

The following criteria were used in evaluating what participatory mechanisms and processes were to be considered *effective*. The following evaluative criteria were drawn from Rowe and Frewer's discussion on public participation, and a further discussion on *effective* public participation can be found in section 5.0.

Table 4.1 *Effective* Public Participation includes:[30]

Criteria	Reasoning for criteria: What it affords *effective* public participation
Representation	• Participants must be representative of the whole population • Must include lay-persons, not only administrators, industry, and experts • Must involve All communities and constituencies
Independence	• Mechanism should be supported and sponsored by an arm's length body, separate from political influence • Objectives of the process should be made public • A facilitator, not a member of the arm's length sponsoring body, should be chosen to provide technical and interactive support • Sponsors must be willing to relinquish some degree of control throughout the process, from process design to end decisions • Participation of sponsors should be analyzed to thoroughly determine the motivation of the process
Timing of Involvement	• Participants should be involved in the preliminary stages of agenda-setting • Participation must serve to challenge underlying assumptions instead of simply legitimizing outcomes • Sponsor must be willing to allow participants to redefine and redirect the objectives and goals of the process • Goals for process must be flexible and explicit
Influence	• The outcome of the process must be perceived as capable of influencing policy formation • Must foster trust between administrators and participants that input will be received and incorporated • Sponsor must be willing to accept various outcomes as a result of deliberations
Transparency	• All aspects of the process and decisions must be transparent to the public • Selective criteria for participants, and the chosen participatory mechanism should be made explicit to allow final decisions to be transparent

[30] G. Rowe & L.J. Frewer, (2000), "Public Participation Methods: A Framework for Evaluation," *Science, Technology and Human Values*, 25:1.

Regarding the scope of the research, it was decided that analysis would be limited to only include strategies that involve the public in the biotechnology debate, not those used in similar policy debates over environmental and health issues. Though there are useful strategies to be borrowed from different policy sectors, due to the nature of public concerns over biotechnology and the specific issues within the debate, it was determined that 'transfer' of participation mechanisms from other sectors was outside the scope of this research.[31] Issues and concerns surrounding biotechnology often are of a highly technical nature and might require efforts to inform the public prior to engaging them, more so than would be required for other issues in different policy sectors. Furthermore, biotechnology issues have a specific salience in Canadian society, registering as a security threat to some while others remain barely aware of the ongoing debate, and as such, it might prove more difficult to engage those that are unaware and hold little personal interest in the debate. Lastly, some concerns over biotechnology are of a moral, ethical, or religious nature, and though this might make more people aware of the issues involved or incite public interest, it is markedly different from most other issues in other policy sectors and other technologies. Issues such as abortion and reproductive technologies also have similar moral, ethical, and religious dimensions, but these issues are not perceived to be in the same environmental and human health context as biotechnology. As such, the discussed strategies will be limited to those used within the specific context of biotechnology, whether they be from domestic experience or abroad.

The decision was also made to include international efforts to engage the public in biotechnology issues, despite the fact that the cultural, political, and economic context surrounding these strategies is different from the Canadian context. This was decided because the factors that these countries found especially important throughout their efforts, the elements they found they were lacking in their strategy, and the observations they made throughout the deliberation processes can all remain quite useful in the development a Canadian strategy for public engagement. In other words, they can serve as 'lessons learned' throughout CIELAP's efforts to engage the Canadian public in biotechnology.

[31] Personal Interview, Angela Morris, 18 Mar 2003.

5.0 Discussion on Public Participation

Although definitions for *public participation* vary greatly, these interpretations affect concepts of governance and ideas of who should be included in decision making processes. As Renn et al notes, to conceptualize the term *public* as a singular and homogenous group is misleading, as it can include highly heterogeneous and diverse perspectives.[32] These differences in opinions, values, and positions within the 'public' can result in a multitude of expressions of *public interest*, none being wholly representative of the constituting members. The concept of *participation* is oftentimes defined to include all methods of including the public in decision making, regardless of the timing of the public involvement in the process or the degree to which the public is actually allowed to participate in directing the process rather than simply legitimizing its ends. Whereas public consultation involves informing citizens and gathering public input on an issue, public participation moves beyond this form of public involvement to actually administering some of the decision making authority to the public, such as voting. The ideal of a fully involved and engaged public throughout the development of a biotechnology policy is a more complex arrangement, involving not only efforts on the government's behalf to involve the public but also something to motivate or inspire the public's interest to initiate action. As such, this paper focuses instead on strategies that increase opportunities for both public consultation and public participation in the biotechnology policy process, due to the current state of the Canadian debate and CIELAP's specific role in the policy process.

The International Association of Public Participation's (IAPP) "Spectrum of Public Participation" defines different definitions, degrees, and forms of public participation, finding that there are in fact, many different outcomes possible through utilizing a public participation strategy.[33] The spectrum distinguishes between varying degrees of engagement, ranging from informational or awareness-building tactics, to mechanisms for informing decisions of public concerns and thoughts, all the way through to strategies that give the public more authority in the shaping of decisions and the determination of their end results. This linear organization helps to conceptualize participation in terms of what it affords its participants and what their role is throughout the participatory venture: to inform, consult, involve, collaborate, or empower. Many of the participatory mechanisms and tools discussed in this report are analyzed within this spectrum, from efforts to inform the public about GM issues to efforts to foster deliberation and delegate decision-making authority to the public.

Another treatment of participation is Arnstein's "Ladder of Citizen Participation," which is similar to that of the IAPP and equates effective participation as that which empowers

[32] O. Renn, T. Webler, & P. Wiedermann, P. (1995), "A Need for Discourse on Citizen Participation: Objectives and Structure of the Book," in *Fairness and Competence in Citizen Participation: Evaluating Models for Environmental Dsicourse*, Dordrecht: Holland Kluwer.
[33] "The IAP2 Public Participation Spectrum," International Association for Public Participation, www.iap2.org, [18 Mar 2003].

the public.[34] Arnstein differentiates the least effective methods of engaging the public as those that are facilitated through manipulative relations between the public and the state, where participation is merely to legitimize decisions that have already been made, whereas the most effective methods allot the citizens a certain degree of control over the outcomes of decisions and delegate powers to the public. Though of a lesser effectiveness in fostering empowerment among the public, the strategies of participation that focus on simply informing the public and consulting them can prove useful at particular stages in decision making processes and they can also be combined with other participatory tools to form a more effective approach to fostering public participation.[35]

All these analyses of public participation hold within them a normative framework for determining *good* ventures or *effectiveness*. One interpretation of a "real and authentic" participatory process by King et al. includes, "deep and continuous in administrative processes with the potential for all involved to have an effect on the situation."[36] Also advocated by King is the early involvement of the public in the stage of problem definition and the creation of objectives through to the decision making stage. For, if participation occurs too late in the decision making process, it becomes less effective in empowering the citizens and creating polarized opinions between the experts and the public.[37] The following table is drawn from King's treatment of 'authentic' participation, as it will be used throughout the report: [38]

Table 5.1 Comparison of Authentic and Unauthentic Participation

Characteristics of Process	Unauthentic	Authentic
Interaction style	Conflictual	Collaborative
Time of participation	After agenda and decisions are made	Before any agenda is set or decisions made
Administration's role	As manager or expert	As governor or collaborative facilitator
Administrational skills required	Technical and managerial skills	Interpersonal and facilitation skills
Role of citizen (compared to administrator or experts)	Participant (not equal)	Partner (equal)
Skills necessary for Citizens	None	Participation and discourse skills, strong sense of civics
Dynamics of communication	Mistrust	Trust
Administrative process	Static, opaque, closed	Dynamic, transparent, open
Citizen output	Buy-in (offering opinions and	Design (developing shape and

[34] S.R. Arnstein, (1969), "A Ladder of Citizen Participation," *Journal of the American Institute of Planners* 35.
[35] H.J. Dorcey, T. McDaniels (2000), "Great Expectations, Mixed Results" Trends in Citizen Involvement in Canadian Environmental Governance," Parson, E.A. (ed.) *Governing the Environment*, Toronto: University of Toronto.
[36] C.S. King, K.M. Felty, & B.O. Susel, B.O. (1998) "The Question of Participation: Towards Authentic Public Particpation in Public Administration," *Public Administration Review*, 58:4, p. 320.
[37] Ibid.
[38] Ibid.

	perspectives)	form of process and results)
Time in decision	Short, perceived as "easy," but often requires numerous re-adjustments	Longer, and oftentimes more difficult, but requires less readjustments
How decisions are reached	By administrative or political processes, possibly including consultation with the public	Through discourse between equal partners, where all have an opportunity to influence outcomes

As discussed previously, the different rationales for including the public in decision making processes, especially for issues surrounding biotechnology, can hold very different goals and objectives. These goals and objectives can shape the outcome of the participatory process, effectively inhibiting empowerment or facilitating it.[39] The growing scepticism of consumers over GM foods has been linked to the general lack of trust in government: in its ability to govern effectively and its receptiveness to the people.[40] It is precisely this lack of trust in governing structures, fostered by a lack of transparency and accountability, that demands public participation in the formation of policy on biotechnologies. Drawing on the previous discussion of participation, successful enterprises incorporating the public into the formation of biotechnology policy must involve the public early on and use the appropriate mix of participation tools to engage the public for each stage of the process. Furthermore, these deliberative processes must include a diverse representation of the many divergent public interests. Lastly, the initial goals and objectives, especially those of the bodies administering the participatory processes, must be driven by the empowerment of the people through a deliberative *process*, not to reach an *outcome* that legitimizes decisions that have effectively already been made.

[39] Angela Morris et al., (2002) "Eating Spinach: Knowing what's Good for you: CBAC, Biotechnology and the Public Participation Debate," Graduate Department of Geography and Institute for Environmental Studies, University of Toronto: Toronto, 7.

[40] McMullum, C. (2000), "Food biotechnology in the new millennium: Promises, realities and challenges," *Journal of the American Dietetic Association*, 100:11, p. 1311.

6.0 Barriers to Effective Public Participation in Biotechnology Policy Formation in Canada

Fundamentally, the debate on biotechnology is fuelled by the fact that the debate itself is polarized to the extent that compromises are increasingly difficult to establish. This is a communication and 'opinions' barrier that creates a divide between the supporters of the benefits of the technology and the constituents that are opposed to the technology due to the negative impacts the science might induce to the environment or human health. In other words, this is a debate for or against the concept of precaution. This divide creates a lack of communication between the two groups of actors that could be more open to compromise with the necessary means or tools to achieve negotiation. It can be argued that there are short-term economic benefits that override the potential unforeseeable and unscientifically proven, long-term negative consequences of applied biotechnology. Dryzek (2000) argues that governments are limited in their ability to exercise authentic democracy by their need to promoted economic growth through technological development.[41] These constraints include those of a state geared towards and driven by economic imperatives via unconstrained economic growth.[42] Thus, arranging a negotiation between polarized opponents in the Canadian political context is impeded by economic agendas, which create a barrier to increasing dialogue, discussion and compromise.

According to Rod MacRae of Pollution Probe, regulators want the commercialization of biotechnology products quickly for economic reasons, thus they keep technology regulations away from public. He further discuss that the parliamentary system in Canada demands no public participation in any debate, therefore even if there was a parliamentary debate on biotechnology there are no means to facilitate public input into this process.[43] In this critique, the Canadian governmental system is designed to keep people out and this is an essential barrier to increasing public participation in Canada. MacRae criticizes the regulatory system in Canadian as having no tools to get citizens involved in decision-making.[44]

Connie Uetrecht of the Toronto Public Health Unit also emphasizes the point that the regulatory process is not transparent and states that is a barrier to increasing citizens' input within the debate on biotechnology in Canada.[45] The fact that most novel food applications are confidential furthers this argument for increased transparency.[46] In addition, MacRae states that in the larger context, public engagement only happens

[41]John Dryzek, (2000) *Deliberative Democracy: Liberals, Critics, Contestations,* New York: Oxford University Press.
[42]Angela Morris et al., (2002) "Eating Spinach: Knowing what's Good for you: CBAC, Biotechnology and the Public Participation Debate," Graduate Department of Geography and Institute for Environmental Studies, University of Toronto University of Toronto: Toronto, pg. 6.
[43] Personal Interview, Rod MacRae, (March 4 2003) Pollution Probe.
[44] Ibid.
[45] Personal Interview, Connie Uetrecht, (March 7 2003) Toronto Public Health Unit.
[46] Ibid.

outside of formal political processes and this is endemic to our way of governing.[47] Furthermore, if public participation is to be facilitated in the Canadian debate on biotechnology then citizens need to be more informed on the issue of GM foods. Uetrecht declares that there are no individuals capable of making personally educated choices because GM foods are not labelled in Canada.[48] This is a barrier to the general understanding of biotechnology and the potential implications of the science on food and the basis of the debate. How can citizens participate if they cannot even differentiate a GM product from a conventionally produced product?

Within the Canadian regulatory process, the issue of Substantial Equivalents taking precedence over other more stringent health tests is often questioned. Substantial Equivalence is a scientific examination of a GM food in comparison to its non-GM counterpart.[49] It is determined if the molecular, compositional, and nutritional characteristics of the novel food is similar to the organic comparison. However, the "relationship between genetics, chemical composition, and toxicological and ecological risks are largely unknown."[50] This is a regulatory barrier to effective public participation if the process of novel food selection is inherently unrepresentative for determining environmental or human health risks.

In establishing barriers to citizen engagement, Uetrecht argues that there is insufficient information on biotechnology made available to the public.[51] For example, there are no peer-reviewed articles on the science based aspects of biotechnology; there are no post-market monitoring or studies undertaken nor published studies on the "positive" effects of pesticide use reduction due to the introduction of pesticide-tolerant crops. She claims that the biotechnology industry is not a transparent scientific practice and remains too confidential to facilitate effective engagement with Canadian citizens.

In regards to the science behind biotechnology, MacRae argues that fundamentally, our current scientific understanding contains a significant dose of ecological illiteracy. In general, he states that scientific data contains an unholistic view of the world that is narrowly focused much like a "blinkered horse."[52] For example, studies performed by the biotechnology industry only focus on cell-by-cell functions, overlooking a whole plant's interaction with its environment. What are the implications of a scientific process that is questionable?[53] This is a "root" barrier to developing an equal understanding of biotechnology across all sectors and actors in Canada. Uetrecht furthers this point by suggesting that herbicide-tolerant GM crops have the potential to cause insect resistance and morphing. This aspect of insect relation to GM crop is not widely understood, discussed or established. She questions the validity of this technology in the light of so

[47] Personal Interview, Rod MacRae, (March 4 2003) Pollution Probe
[48] Personal Interview, Connie Uetrecht, (March 7 2003) Toronto Public Health Unit.
[49] Rod MacRae, (June, 26 2003) "Mixed Messages: Canada's domestic regulatory system for GEOs contradicts basic principles underlying the Cartagena Protocol on Biosafety," CIELAP: Toronto, 8.
[50] Ibid., 8.
[51] Personal Interview, Connie Uetrecht, (March 7 2003) Toronto Public Health Unit.
[52] Personal Interview, Rod MacRae, (March 4 2003) Pollution Probe.
[53] Ibid.

many unknowns.[54] In regards to barriers to public engagement, if the basis of the technology is so uncertain and the "answers" do not exist is it possible to facilitate a debate with citizens grappling to understand a technology that is so vaguely established?

Peter McCann of Ag-West Biotech Inc., suggests that the main barriers to increasing public engagement is that, on average, citizens have short attention spans related to modern media structures, which make it increasingly difficult to relay concepts of biotechnology which are primarily highly scientific.[55] He mentions that lots of time and effort would need to be made available and these resources are expensive. Effort must be consistent overtime and including one on one information secessions.[56] Ag-West attempts to facilitate public engagement by creating innovative ways of transferring the scientific dimensions of biotechnology into comprehensive forms of information.

It can also be argued that existing assumptions concerning the role of Canadian citizens create barriers to progressive public participatory processes. For example,

> "It is being increasingly realized that the lack of consumer acceptance of genetically engineered food often stems from a lack of trust in government to be able to regulate effectively. Often public concerns have been attributed to the public's ignorance or misunderstanding of science, this argument providing the justification for public information rather than participation".[57]

In contrast, Peter McCann argues that the public is capable of further understanding of the issues surrounding biotechnology: they are cautiously accepting, but they are more prone to understand the benefits. McCann argues that Canadians maintain their confidence in the system because the Canadian regulatory process has proven itself and is used and known around the world as an effective way of getting products to the market for social and economic reasons.[58]

[54] Personal Interview, Connie Uetrecht, (March 7 2003) Toronto Public Health Unit.
[55] Personal Interview, Peter McCann, (March 7 2003) President of Ag-West Biotech Inc.
[56] Ibid.
[57] Angela Morris et al., (2002) "Eating Spinach: Knowing what's Good for you: CBAC, Biotechnology and the Public Participation Debate," Graduate Department of Geography and Institute for Environmental Studies University of Toronto: Toronto, pg. 8-9
[58] Personal Interview, Peter McCann, (March 7 2003) President of Ag-West Biotech Inc.

7.0 A Review of Public Participation strategies: perspectives from Canada and abroad

The following section will analyze the efforts undertaken, both domestically and internationally, to facilitate effective public participation in the debate and issues surrounding biotechnology.

Domestic strategies were analyzed from different members in the policy community surrounding biotechnology in Canada; Greenpeace's public knowledge campaigns on GM foods; the University of Calgary's Consensus Conference, "Designer Genes at the Dinner Table," and the CBAC's Acceptability Spectrum pilot projects on biotechnology.

International strategies were analyzed in their ability to facilitate public engagement in biotechnology issues, with special reference to the 'lessons learned' from their experiences that prove helpful when applied to a Canadian context. The international examples to be discussed are as follows:

- Australia: First Australian Consensus Conference (1999)
- New Zealand: The Royal Commission's Public Consultations and Public Inquiry process (2000)
- United Kingdom: The recently initiated GM Public Debate Process (2002-2003)

These countries were selected for the insight their experience afforded the development of a Canadian engagement strategy and for their (relatively) similar political structure and method of governance. Their efforts will be discussed in section 7.2.

7.1 What has been done Domestically?

These domestic efforts comprise those that were able to most meaningfully engage the public within the domestic debate surrounding GM organisms, foods, and food products. The differences in the perspectives, goals, and objectives of the facilitating organization, and the affect this held on the resulting degree and manner of public participation will be critically discussed. These domestic efforts will be discussed in reference to how CIELAP can utilize their experiences in furthering the domestic biotechnology debate currently in Canada.

7.1.1 "The Greenpeace Shoppers Guide"

Greenpeace has recently produced a catalogue of GM foods or foods with GM counterparts that are currently on the market and sold in grocery stores across Canada. The guide is called "The Greenpeace Shoppers Guide," and it is made available free of

charge across Canada. Greenpeace takes a rigid stance on "the unpredictable nature of the genetic engineering process and our inability to control GM organisms in our environment and food."[59] They are concerned about the inadequacy and ineffectiveness of the Canadian governments novel food approval process. Greenpeace states that 95% of Canadians support mandatory labelling of GM products and that citizens should have a right to know. However, the Canadian government and food industries continue to refuse to label GM products. This guide will provide citizens with the capability to make informed choices. The guide consists of a collection of information in which citizens can make personal, informed choices about GM foods. Rod MacRae, from Pollution Probe called this Greenpeace strategy an "outcry" against the market release of GM products without adequate testing or labelling.[60] For, in the short-term, it is the public and the consumers that can make informed choices and pressure regulators to take and make decisions outside of themselves.[61]

7.1.2 University of Calgary and the Consensus Conference

Biotechnology has been identified by the Canadian government as the technology that will advance Canada in the global market. In a policy context, this technology needs to be "effectively" developed, regulated, and managed in Canada. The Calgary CC was developed just as current policy attention and increased public awareness on biotechnology was becoming a topic of ongoing interest and concern.[62] The University of Calgary's Consensus Conference (CC) was a public participation mechanism that brings together conflicting views on food biotechnology. The Calgary Conference was held on March 5-7, 1999. The purpose was to initiate public participation and bring together the polarized opinions on biotechnology and food.[63] The CC consisted of a panel of 15 lay citizens that set an agenda to hold a discussion with a panel of selected experts on issues they feel are integral into influencing the direction of the biotechnology of food in Canada.[64] Panel participants were selected by a submission of a one-page letter of introduction and interest in the topic in response to advertisements in papers requesting citizens with interest.[65] Any citizens affiliated with an interest or advocacy group, biotechnology industry, or if they are an associated organization they could not participate.[66] The citizen panel was briefed on the issue of biotechnology and the complexities and controversies surrounding the applied technology and the science.[67]

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[59] Greenpeace International, "GE Wheat Campaign," www.greenpeace.ca, [2 April 2003].
[60] Personal Interview, Rod MacRae, (March 4 2003) Pollution Probe.
[61] Ibid.
[62] Ibid.
[63] Food Biotech Citizen's Conference: "Designer Genes at the Dinner Table," (March 5-7 1999) The Calgary Conference: Food Biotechnology Citizen Conference, www.uclagary.ca/~pubconf/index.html, [2 Feb 2003].
[64] Ibid.
[65] Ibid.
[66] Ibid.
[67] Ibid.

The citizens were then allowed to shortlist the experts for the panel discussion.[68] The expert panel was established to represent essential opposing viewpoints that would be raised during the conference to effectively express the professional debates that arise when discussing biotechnology.[69] An advisory/planning committee was established to facilitate the conference and the citizen panel. The committee had the overall responsibility of designing the rules of the process in a democratic, fair, and transparent manner.[70] The panel generated a report that was presented at the conference and forwarded to seven federal ministries that influence Canadian biotechnology policy.[71] The conference itself was open to the public and the media.[72]

Whether these conferences are able to truly remain representative of public opinion is a contentious issue. Peter McCann of Ag-West Biotech Inc. Canada raises the criticism that a CC is useful because it engages citizens, but is not useful as a definitive policy tool. He goes on to explain that these conferences are expensive, estimating the Calgary Conference at costing approximately "$100 000."[73] However, it is arguable that there are experts and politicians who have the resources and the time to develop agendas and arrange public debates on technology.[74] The question is if this is expensive for public involvement?

Can a Consensus Conference make a difference? A CC represents a forum in which citizens can state their opinions and there voices can be heard. According to Ida-Elisabeth Anderson and Birgit Jaeger authors of *Danish Participatory Models Scenarios Workshops and Consensus Conferences: Towards more Democratic Decision-Making*, the answer is yes.[75] The most important aspect of the CC is that the collaborative knowledge generated is given to politicians, experts and society. The knowledge contains the thoughts and ideas from ordinary citizens, raising public self-confidence in their ability to make a difference.[76] However, "no matter how good or democratic the contributions that consensus conferences give to decision-makers, they are no use, if the development or application of new technology is not an object of political decision-making, but designed and decided on far away from both the public and the politicians".[77] The success of a CC still depends on the policy-makers and their willingness to listen to the public's proposals and address the results. Citizen panels and CCs have the strength and the ability to legitimize technological decision-making processes.[78]

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[68] Ibid.
[69] Ibid.
[70] Ibid.
[71] Ibid
[72] Ibid.
[73] Personal Interview, Peter McCann (March 7 2003).
[74] Ida-Elisabeth Anderson and Birgit Jaeger, "Danish Participatory Models Scenarios Workshops and Consensus Conferences: Towards more Democratic Decision-Making," *The Pantaneto Forum*, issues 6, (April 2002): 5, http://www.pantaneto.co.uk/issue6/andersonjaeger.htm, [15 Mar 2003].
[75] Ibid., 5.
[76] Ibid.
[77] Ibid., 12.
[78] Ibid., 13.

Rod MacRae, Food Policy Analyst**,** voices his opinion on the CC, stating that it will work in a context where government will pay attention to the results and take them seriously.[79] It would have to be used as a political heat strategy rather than a tool for change, and it would have to highlight the deficiencies within the current system and add recommendations for change.

7.1.3 Canadian Biotechnology Advisory Committee and the Acceptability Spectrum Concept

The Acceptability Spectrum concept (AS), was created by the Canadian Biotechnology Advisory Committee (CBAC) to facilitate the dialogue between polarized positions within the biotechnology debate.[80] CBAC was established in 1998 and subject to advise the Biotechnology Ministerial Coordinating Committee (BMCC) on the ethical, social, economic, environmental and health issues that are related to the scientific and technological aspects of biotechnology.[81] Thus, the AS concept was established in August of 2002 in order to increase dialogue between the "supporters and opponents of the use of GMO technology in foods and feeds."[82] The AS consists of four categories: acceptable; acceptable with certain conditions; not acceptable until more is known or certain standards are met; or not acceptable under any circumstance.[83] Food categorized as unacceptable at the present time is subject to a moratorium, while foods that are unacceptable at any time are banned unconditionally (see the figure below).

Figure 7.1: Acceptability Spectrum[84]

Acceptable	**Acceptable with conditions**	**Unacceptable at the present time (Moratorium)**	**Unacceptable at any time (banned)**

As of February 2003, the GM food AS Concept is currently being tried as a pilot study. An Exploratory Committee consisting of private sector members, non-governmental organizations, government, and industry association members was established to oversee the AS pilot project.[85] CBAC feels that the AS concept will provide a forum in which to categorize foods, groups of foods and products that will allow for further discussion on their use in Canada. As certain standards are met due to changing societal perceptions and intelligence, the categorized items can be moved around within the four sections of

[79] Personal Interview, Rod MacRae, (Mar. 4, 03).
[80] Peter McCann, (Feb. 2003) "CBAC Acceptability Spectrum Concept," *AgBiotech Bulletin*, 4.
[81] Industry Canada, (1998) "CBAC Mandate," http://www.cbac-cccb.ca/english/mandate.aro, [24 Feb 2003].
[82] Peter McCann, (Feb. 2003) "CBAC Acceptability Spectrum Concept," *AgBiotech Bulletin*, 4.
[83] Ibid.
[84] Ibid.
[85] Ibid.

the AS.[86] CBAC feels that the AS approach can be manipulated into a grid that includes "health and environmental safety, social considerations, ethical considerations, and broader societal considerations."[87] (See figure 7.2).

Figure 7.2: AS Regulatory Grid[88]

	Health and Environmental Safety	Social Considerations	Ethical Considerations	Broader Societal Considerations
Acceptable				
Acceptable with conditions				
Not acceptable until more is known or certain standards are met (Moratorium)				
Not acceptable under any circumstance (banned)				

Many research scientists are critical of the concept of the AS because they feel that "it moves away from the principle of science as the only basis for regulation and approval of novel plants, and brings in considerations of socio-economics, ethics, and other societal issues."[89] The biotech industry constituents believe that the AS concept should be considered simply as a public participation and dialogue tool to enhance policy direction and not to be used as a tool for regulating GM foods. Other concerns raised by the biotech industry sector is that this concept should be used in the context of solely socio-economic issues as opposed to "environmental or food safety, which are fully addressed in the existing regulatory process."[90] Rod MacRae, Food Policy Analyst, argues that the AS is not adequate as a tool for increasing public dialogue on issues of biotechnology in Canada. He strongly feels that a system that enhances public participation needs to start at the beginning of the debate, asking the roots questions: Where did the problem

[86] Ibid.
[87] Ibid.
[88] Ibid., 5.
[89] Ibid.
[90] Ibid.

commence? What is the array of possibilities and solutions and what are the approaches that will advance Canada towards these approaches? MacRae states that the AS approach will lead to the conclusion that biotechnology is a short-term solution, a simple commercial opportunity that it is not a permanent solution to any issues facing Canada and the world.

It is also argued that due to the fact that CBAC is not an independent body facilitating this consultation process that the AS is flawed from the start.[91] Furthermore, the rationale used to it is questionable the rationale used in of designing a participatory process. For example, Greenpeace and the Council of Canadians organized a boycott of further CBAC consultations.[92] The main objective of the two NGOs was to bring to light that fact that CBAC was using consultations as a means of manipulating the public into accepting biotechnology rather than increasing public participation to strengthen the debate.[93]

[91] Angela Morris et al., (2002) "Eating Spinach: Knowing what's Good for you: CBAC, Biotechnology and the Public Participation Debate," Graduate Department of Geography and Institute for Environmental Studies University of Toronto, University of Toronto: Toronto, pg. 15-16.
[92] Angela Morris, (2003) *Democratizing (Bio)technology?: The Canadian Biotechnology Advisory Committee's Consultation Process on the Regulation of Genetically Modified Foods in* Canada, Masters Dissertation, Graduate Department of Geography and Institute for Environmental Studies, University of Toronto, 26.
[93] Ibid.

7.2 International Strategies for Involving the Public in the Biotechnology Debate

The international strategies to be discussed all hold particular elements common to their processes, such as the timing of participation, the deliberative strategy used, and the role of the citizens, while they also have distinct characteristics that make them stand out upon comparison. When possible, direct recommendations to CIELAP in furthering the level of the Canadian biotechnology debate will be made in accordance with the experiences of these international strategies. These recommendations will be further discussed and treated in section 9.1.

7.2.1 First Australian Consensus Conference (1999)

In 1999, the First Australian Consensus Conference on Gene Technology was held during a few weekends in March, in the capitol city, Canberra and was initiated by the Australian Consumers' Association (ACA).[94] Parties involved included a "lay panel" comprised of the public who developed questions to put to a selected group of experts. The "lay panel" was chosen by posting a classified ad in local newspapers across Australia six months prior to the conference requesting "citizen participation in national science research project which will affect us all."[95] Fourteen people were chosen from various localities, ages, occupations, and backgrounds. As the method of the selection of participants greatly affects the ability of the mechanism to be representative of Australian citizens as a whole, a market research company was hired to perform the recruiting and selection of the participants.[96]

After selection of the panel was determined, participants were briefed on the issue and then given the responsibility of framing questions to ask a panel of selected experts. The "lay panel" was supported by a Steering Committee and was also given the specific support of a Facilitator, whose role was to initiate and facilitate discussion and interaction between the experts and the participants.[97] Their panel then produced a report resulting from their deliberation, made publicly available, in which it recommended key actions on behalf of both government and industry.[98] The conference process and report have both been available through the Australian Museum website and the conference proceedings were covered by the Australian Broadcasting Corporation.

In 1999, the Australian Museum appointed P.J. Dawson & Associates to perform an evaluation of the *effectiveness* of the Australian Gene Technology Consensus Conference, finding that the, "Consensus Conference is clearly an appropriate tool of

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[94] Australian Broadcasting Corporation, (1999) "Food For Thought," Australia: ABC, http://www.abc.net.au/science/slab/consconf/default.htm, [2 Feb 2003].
[95] Ibid.
[96] Ibid.
[97] Peter Dawson, (May 31 1999)"First Australian Consensus Conference March 10-12 1999, Evaluation Report: Phase 1," CSIRO, http://genetech.csiro.au/eval_rep.htm, [15 Mar 2003].
[98] Australian Broadcasting Corporation, "Food For Thought," Australia, ABC: 1999, http://www.abc.net.au/science/slab/consconf/default.htm.

participatory democracy for introduction to this country."[99] The rationale for their decision rested in the following elements:[100]

- The ability of the host institution (ACA) to remain impartial
- The "broad representation" of interests standing on the Steering Committee
- The commitment and organisation of the Steering Committee, "which gave credibility to this social and political experience in the Australian context
- The specific skills of the Facilitator chosen
    - The Steering Board, after much deliberation, chose a more *interactive* candidate for the role of Facilitator, instead of a more *neutral* candidate
    - This element proved indispensable in the development of the panel's discussions and overall quality of the deliberation
- The skills of the writers and publicists in producing the report
- The level of commitment in the participants

Following these conclusions, the evaluators made several recommendations regarding future conferences. These recommendations include many specific, mechanical aspects of the conference process, and as such, they are quite useful in the development of a National Canadian Consensus Conference. The recommendations are as follows:[101]

- That there be more administrational support for the conference: a Project Manager position, more writers and publicists, a full year for organization of the conference, a smaller Steering Committee with a few sub-committees dedicated to specific tasks with more specialized technical expertise necessary
- That the committee organize a list of possible speakers to aid in the lay panels' decisions
- That the Steering Committee and lay panel schedule more formal meetings to explain the importance and value of the conference, "to impress upon the lay panel that they are engaged in an important enterprise and that their views will be seriously considered"
- That the selection of the Facilitator be given much thought and deliberation: *interaction over neutrality?*
- That the time of the lay panel be managed more efficiently: not working during nights, keeping the scope of the enterprise reasonable, and providing writers and technical support

This evaluation is only the first of two stages of evaluations, the second of which will deal with the potential influence the panel's recommendations hold in the development of government policy.[102] Stage two evaluations have yet to be completed.

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[99] Peter Dawson, (May 31 1999)"First Australian Consensus Conference March 10-12 1999, Evaluation Report: Phase 1," CSIRO, http://genetech.csiro.au/eval_rep.htm, [15 Mar 2003], 2.
[100] Ibid.
[101] Ibid., 3-7.
[102] Ibid. 7.

Since the conference, the Australian government has approached the issues of biotechnology by developing a National Biotechnology Strategy in July of 2000 and an independent advisory board, the Australian Biotechnology Advisory Council (ABAC) in March of 2001.[103] The mandate of the Advisory Council included the development of a comprehensive biotechnology strategy for the government of Australia by gathering input from a wide range of organizations and individuals through a public consultation process.[104]

[103] National Biotechnology Strategy for Australia,(2000) http://www.biotechnology.gov.au/, [15 Mar 2003].
[104] Ibid.

7.2.2 New Zealand: The Royal Commission's Public Consultations and Public Inquiry Process (2000)

In May of 2000, the government of New Zealand established the Royal Commission on Genetic Modification to perform a public inquiry on issues surrounding biotechnology and present a report of their findings to the governor general.[105] The mandate of the commission was to report on strategies available to the New Zealand government, advising the government on policy development and regulations. The Commission developed an extensive public consultation process, wherein a range of different stakeholders were involved. Consultations were held for the following groups, in the stated format:[106]

- Regional (25) and National (1) *Hui*, or gatherings, and workshops (25) specifically for the Maori peoples
- A National Forum for New Zealand Youths
- Regional and National public meetings and workshops for members of the general public

The method of public consultation was premised on allowing people to "express clearly their views, including ethical, cultural, environmental, and scientific perspectives," on genetic modification, domestically and nationally.[107]

Throughout the process, special emphasis was given to engaging and consulting with the Maori (New Zealand's indigenous peoples) in a "manner that specifically provides for their needs," and *maraes* (or Maori gathering houses) were often used for regional *hui* (gathering) locations.[108] The meetings were conducted bilingually, in both English and the language native to the Maori. and workshops were held to discuss the issues and questions surrounding genetic modification. Throughout these workshops, previously developed questions were used to initiate discussion, but the members of the public were allowed both written and spoken submissions, where their questions could be heard.[109]

Also included in the public consultation process was the perspective of New Zealand's youths on biotechnology. A one day Youth Forum was developed where applicants would submit a written comment on biotechnology issues in New Zealand and 20 candidates across the country were chosen to participate.[110] These participants then attended a one-day forum in the capitol city of Wellington, to discuss the future of

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[105] Royal Commission on Genetic Modification, (2000) "Introduction," 1, www.gmcommission.govt.nz/intro/warrant_eng..html, [13 Mar 2003].
[106] Ibid., 2.
[107] Ibid., 3.
[108] Royal Commission on Genetic Modification, (2000) "Public Consultation," 1, www.gmcommission.govt.nz/media/publicmeetings.html, [13 Mar 2003].
[109] Ibid.
[110] Royal Commission on Genetic Modification, "Youth Forum Attendees Announced," (News Release Feb 16 2001), http://www.gmcommission.govt.nz/media/16Feb_youthforum_announced.html, [20 Mar, 2003].

genetically modified organisms in New Zealand. The input from these discussions was incorporated into the Commissions report.

The rest of the public consultation process consisted of numerous regional and national public meetings, in informal and formal settings and receiving both written and spoken submissions to the Commission. The purpose for these meetings, however, was declared as being, "not to hear submissions but rather to allow the Commission access to the views and opinions on genetic modification of a wide cross-section of New Zealanders."[111] The meetings consisted of workshops to introduce some of the issues surrounding biotechnology, followed by the communication of questions or concerns of the public on the discussed issues. The meetings were open to all citizens.

[111] Royal Commission on Genetic Modification, (2000) "Public Consultation," 1, www.gmcommission.govt.nz/media/publicmeetings.html, [13 Mar 2003].

7.2.3 United Kingdom (U.K.): The GM Public Debate Process (currently underway)

The U.K. approached the issues surrounding biotechnology by establishing the Agriculture and Environment Biotechnology Commission (AEBC) to provide the government and administration with "strategic advice on developments in biotechnology and their implications for agriculture and the environment."[112] Their mandate included provisions for analyzing the social and ethical issues surrounding biotechnology, in an effort to better advise the U.K. government on its policy development. The AEBC reports directly to the Department of Trade and Industry, liasing with relevant agencies under the department. In an effort to inform and engage the public on issues surrounding biotechnology, a series of public debates were initiated in 2002 to help to "inform the Government's policy-making on GM, including its policy on the cultivation of GM crops,"[113] and the AEBC was involved with this process since its inception.

Despite its involvement, the debates are not run through the AEBC, but rather they are lead by an independent Steering Board, "at arm's length" from the government, that is responsible for supporting and managing the public consultations, along with developing the objectives for the process. [114] The debate has begun preliminary planning stages and the main public meetings will begin to take place during in May of 2003. This process marks the first ever national attempt to initiate public discussion on the introduction of a new technology and use this input to feed back into the policy formation concerning that technology.[115] As a conclusion to these series of debates, the Steering Board will compile a report for public release in September, 2003. As an indicator of the influence of the public consultations, the Government has committed to producing a "written response to the Steering Board's report," to indicate "what [they] have learned from the debate when making future policy announcements."[116] Whether the public's concerns and questions will be adequately addressed and treated will be analyzed at a later date.

According to the minutes from the Steering Board's March 20th, 2003 meeting, the debate program will consist primarily of "three tiers of engagement with the public."[117] The first tier of engagement is to include six meetings, at both national and regional levels, to provide the necessary deliberation and stimulate the public debate at the local level. This is to be followed by meetings that will be organized by County Councils and other designated partners, at which the steering board will supply it's "toolkit," a facilitator,

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[112] Department of Trade and industry, "Biotechnology Regulatory Atlas," www.dti.gov.uk/ibioatlas/texta3.html, [28 Mar 2003].
[113] GM Public Debate, "Statement by the Secretary of State for Environment, Food and Rural Affairs," (March 24th, 2003) www.gmpublicdebate.org.uk/latest/letters08.asp, [26 Mar 2003].
[114] Ibid.
[115] GM Public Debate, Press Release February 26th, 2003, http://www.gmpublicdebate.org.uk/press/press_26022003.htm, [29 Feb 2003]
[116] Ibid.
[117] GM Public Debate, Minutes for Meeting on March 20th, 2003 www.gmpublicdebate.org.uk, [22 Mar 2003].

and other needed support. The last tier of the public engagement strategy will involve public meetings run by both local networks and voluntary organizations, where the steering board will also develop and provide "toolkits" for these events.

The toolkit proposed for use in the public debates includes "a range of both high and low tech elements to help facilitate local debate," such as, an interactive website with interactive software that are linked to a "discussion forum run by a national broadcaster," a CD-ROM for use at the first tier meetings (versions of the material provided through the internet and software will also be made available through paper and video mediums). There has been debate within the steering board over the need to avoid relying too heavily on the CD-ROM to effectively facilitate deliberation on the debate:

> "But there should be no illusions about the great deal of work there remained to do to develop the programme, in particular the creation of the different deliberative tools in the toolkit: the relationship between the CD-ROM and the video; their use in meetings to stimulate deliberative debate; and the overall format of the first-tier meetings."

The final report produced by the Steering Board will be either simply delivered to the Government, fed into a series of national consensus conferences, or communication with the Government via the AEBC on "possible ways forward in the light of the report."[118]

[118] GM Public Debate, Minutes of First Meeting on September 13th, 2002, http://www.gmpublicdebate.org.uk/minutes/minutes_20020913.htm, [Feb 21 2003].

8.0 Analysis of Research Findings

This section will evaluate and compare the previously discussed case studies use King's treatment of authentic and unauthentic participation strategies. We will expand upon the differences and the similarities of the regarded public strategies for raising the debate on biotechnology in Canada.

8.1 Greenpeace and Acceptability Spectrum Concept

Elements of Process	Greenpeace Campaign	Acceptability Spectrum
Interaction style	Conflictual	Collaborative
Time of participation	After GM foods were approved with no provisions for labelling	In the middle of the debate on GM foods, but after commercialization has already been accepted
Administration's role	As a public informer and director of campaign	As collaborative facilitator
Administrational skills required	Facilitation and coordination skills	Interpersonal and facilitation skills
Role of citizen/ group	Participant (not equal to administrator)	Partner (equal)
Skills necessary for Citizens/ groups	Communicative skills and a strong sense of civics	Participation and discourse skills, strong sense of civics
Dynamics of communication	Mistrust of government	Mistrust
Administrative process	Transparent, open, and inclusive of citizens' needs	Dynamic, transparent, open
Citizen/ group output	Citizen's indirectly voiced opinions to government	Diverse groups explored a multi-perspective approach to the approval of novel foods
Time in decision	N/A*	Long: a decision has not yet been reached
How decisions are reached	N/A*	Through discourse between equal partners, where all will have an opportunity to influence outcomes

*The Greenpeace strategy was comparatively different to the other participation strategies reviewed, as it was a campaign to raise public awareness not reach decisions.

In comparison to King's chart on authentic participation, the strategy used by Greenpeace is inadequate as a participation mechanism. This strategy is a mixture of both an authentic and an unauthentic reaction to the approvals process. It was unauthentic because it was not established prior to any decisions relating to the approvals process. It was authentic because it was designed with a strong sense of civics in a transparent and open administrative process. The Greenpeace Shoppers Guide will allow citizens to make

their own personal choices which is an attempt to establish citizen output through empowerment and is in response to the mistrust of existing government structures.

The AS concept would be an authentic process if properly timed in the approvals process of novel foods. The process must be open and transparent and collaborative of a diverse range of participants to be effectively an authentic process. It is inauthentic due to the dynamic of mistrust because the process is positioned far ahead in the debate. Working as the main facilitator, the Exploratory Committee could play an authentic administrative role, however, it is crucial to the authenticity of the process to meet all the goals as provided in King's chart.

8.2 University of Calgary Consensus Conference and The First National Australian Consensus Conference

Elements of Process	U of Calgary CC	Australian National CC
Interaction style	Collaborative	Collaborative
Time of participation	After commercialization began	After application of biotech in Australia, but prior to development of NBS and ABAC
Administration's role	As facilitator of discussion	As collaborative facilitator
Administrational skills required	Interpersonal and facilitation skills	Interpersonal and facilitation skills
Role of citizen/ group	Partner (equal)	Partner (equal)
Skills necessary for Citizens/ groups	Discourse skills and strong sense of civics (non-expert participant only)	Participation and discourse skills, strong sense of civics
Dynamics of communication	The panel trusted that the outcome of the CC would be influential	There was a lack of trust concerning the government
Administrative process	Transparent, open, and inclusive of citizens' needs	Preliminary stages of the process were not open to the public, but the later stages were
Citizen/ group output	Diverse citizens gathered to facilitate a debate and extrapolate a report on the findings of the CC	The lay panel generated a report based a discussion with a group of selected experts
Time in decision	Longer, and oftentimes more difficult, but requires less readjustments	Longer, and oftentimes more difficult, but requires less readjustments
How decisions are reached	Through discourse between equal partners, where all will have an opportunity to influence outcomes	Through discourse between equal partners, where all will have an opportunity to influence outcomes

The University of Calgary's CC was authentic in its process. However, it was unauthentic in its timing. The process should have been developed earlier on in the biotechnology debate before any decisions had been made. In the future, other CCs need to be aware of

the timing of the process. This process must not be used to legitimize decisions that have already been made. The process itself is collaborative, transparent, open, citizen shaped, and incorporates a strong sense of civics. The process also includes a chance to influence incomes by delivering the information generated by the conference to influential people of importance in the debate. For future CCs, a detailed response should be requested from all persons who received a report generated from a CC. This development is a step towards forming a more inclusive and interactive decision making process.

The First Australian National Consensus Conference facilitated authentic public participation, yet on a small scale and with only limited influence in the policy process. Whether this conference was able to truly remain representative of the many diverse opinions and groups contained within the 'public' is a contentious issue, and critics of the Australian conference have claimed that it was "an expensive way of educating 14 people."[119] Despite these questions of representation, the inherent difficulties in communicating the technical aspects of biotechnology to citizens makes for an impetus to keep participant groups smaller rather than larger, as small groups allows for more comprehensive and concentrated discussion on the issue. Therefore, it is exactly the small size of the panel that facilitates and makes possible clear communication and interaction between experts and the lay people. Furthermore, the general public can benefit from the conference, "because they realize that laypeople *can* make sense of complicated technical issues when given the time and resources to do so."[120]

Though the information throughout the lay panel's hearings were made public, there was not a comparable emphasis placed upon transparency and openness throughout the development and designing of the process, as the preliminary stages of the conference were not open to the public, and instead were limited to members of the Steering Committee.

Regarding the independence of the process from political influence, the fact that the conference was not initiated by the advisory committee (ABAC hadn't been established until 2001), allowed the process a higher degree of independence but a correspondingly lesser ability to influence the government in the development of the National Strategy (released in July of 2000).

These two examples are the most similar of the case studies reviewed, as they are both versions of deliberative decision making under a consensus conference strategy. They differed in the timing of the conference in relation to the development and application of biotechnology in the respective countries and the level of the national debate at the time of the conference. The Australian government had the ability to respond to the results of the conference, as it had not yet developed its national strategy or established its advisory council, though it remains to be seen whether or not these initiatives will eventually address the issues raised by the conference. Generally, both conferences lacked trust that the government would not only review their report, but respond to it, addressing the raised issues effectively.

[119] Ibid.
[120] Ibid.

8.3 New Zealand Public Inquiry and the United Kingdom's Public Debate Process

Elements of Process	New Zealand Public Inquiry	UK Public Debates
Interaction style	Collaborative	Collaborative
Time of participation	Prior to commercialization or introduction of GM organisms into the country	Prior to wide-spread release of GM organisms into environment, but the debate was becoming increasingly polarized
Administration's role	As facilitator of discussion	As a facilitator of discussion
Administrational skills required	Discursive and facilitation skills	Discursive, facilitation and coordinating skills
Role of citizen/ group	Participants in consultation process (not equal)	Participants in public debates (not equal)
Skills necessary for Citizens/ groups	Communicative skills and strong sense of civics	Participation and discourse skills, strong sense of civics
Dynamics of communication	There was a significant degree of trust in the government, that the findings of the inquiry would influence government policy	There is still a lack of trust in the government, that the process might be used to legitimize decisions that have been already made
Administrative process	Transparent, open, and inclusive of citizens' needs	Preliminary stages of planning by the Steering Board were closed to the public, but all other meetings are open
Citizen/ group output	Participants gave their opinions and perspectives on the subject ("buy-in")	Citizen's affected the design f the process and also the outputs: Increased public awareness and participation
Time in decision	Long, but no decisions were reached (consultation only)	Long, but no decisions will be reached(consultation only)
How decisions are reached	Public input was gathered and fed into policy process, but no decisions were made	No decisions will be reached, but public input will occur over a series of debates and open forums

The New Zealand Public Inquiry process fed into the Royal Commission for Genetic Modification, to review the future of biotechnology in the country. There were substantial efforts put into securing the representative element of the public consultations throughout the designing of the process, and as such they provided successful communication mechanisms for a variety of interests, Maori, youths, and other New Zealanders.

Though considerable effort was put into the design of the process, there still remains a serious barrier to effective participation: that the process is driven by the goal of collecting public opinions and views, not relinquishing certain areas of responsibility to the public or incorporating the public in designing the participation process. Notwithstanding, the efforts made by the Commission to include a diverse range of groups, including those traditionally excluded from the policy development process, should be noted.

The Public Debates on genetic modification in the U.K. has taken over a year to plan and remains yet to be completed. Transparency and openness were highlighted as crucial operating principles throughout the planning process, and to facilitate this, most meetings of the Steering Board are open to the public, with those meetings regarding, "commercially sensitive discussions on tenders," to be held in private.[121] The Minutes and Agenda for the meetings are published on the public debate's website (www.gmpublicdebate.org.uk). The Steering board spent a notable amount of time on discussion of the objectives for the public debates, forging a definition that included the dynamic and deliberative aspects of the process. One of the primary objectives was decided to be "information and understanding flowing in two directions as a result of interactions between experts and the public."[122] This aspect allowed for public input in not only the output of the debates, but also in the development of the process.

As a result of the Steering Board's careful consideration of the value of public participation, these processes have been designed to allow for the flexibility that is required for early-stage participation of the public throughout the design process. Furthermore, an interesting example of this was the series of "deliberative focus groups" that were held by an independent research agency throughout the development of the debate structure.[123] These focus groups were held at the preliminary stages of the process to determine the medium for delivering information that the public wants the most, and they have indicated that they will occur again following the series of public debates. These later focus groups will serve the purpose of comparing the results of the debates with those of the preliminary focus group to, "offer in-depth information about people's deliberations on GM issues."[124] Though there were no special provisions made for specific ethnic/cultural or youth groups, this concluding analysis on the representativness of the debates will help to address these aspects lacking in participation.

In comparison, these two examples of public consultation are both uniquely different in their approaches, objectives, and design process. The U.K. public debates were focused on including the public in the design process, by holding focus groups at the preliminary stages of the process, whereas the New Zealand public inquiry was less focused on the issue of process design. The public inquiries were unique in their provisions for marginalized groups, such as the Maori and youths, and in the trust that the public held in the government throughout the process.

[121] Ibid.
[122] Ibid.
[123] Ibid.
[124] Ibid.

9.0 Conclusions: “Lessons Learned”

After analysis of the research findings, we have established some general conclusions. First of all, many have expressed a need for increased precaution in the regulation of biotechnology, in the light of uncertain scientific evidence. To account for this uncertainty, the regulatory system should be more transparent and accountable and applications for novel foods should be made public and less confidential. In the light of potential human health and environmental issues, the biotechnology industry needs to adapt a more open and transparent business strategy, to accommodate to public concern.

Similarly, the political structure in Canada needs to include more routes for public involvement in the biotechnology policy process. This would help to communicate risk and spread public awareness on the issue. To reduce the polarization of the debate, there is a need for more dialogue to reveal directions forward or compromises, or even if these are acceptable. The public must be included in these discussions, and to do this, a strategy for public involvement should be developed and adopted by the federal government. Currently, there are few opportunities for citizens to engage in discussion on the issue, and this is a barrier to increasing the level of debate in Canada.

The Canadian Biotechnology Advisory Council was mandated to take the social, economic, and environmental aspects of biotechnology into consideration, and as such, it should be relatively independent from areas of the government that seek to promote only a few vested interests, such as where it is currently housed, in Industry Canada. In taking these issues into consideration, there needs to be more appreciation for the value of experiential knowledge and other local forms of expertise.

Furthermore, in an effort to mitigate concerns over the risks of GM foods prior to substantial evidence on the issue, there should be a discussion on the mandatory labelling of all products including novel traits, so that consumers can make their own informed decisions.

Drawing from the international experiences reviewed in the research, the primary issues of concern include the need for flexible and dynamic objectives and goals throughout the development of participation processes to allow for effective input of public deliberation. The goals should be equally, if not more, focused on the process of participation than the outcome. A key element in securing the trust of the public throughout discussion is to illicit a commitment from the government that they will respond to the findings of the participation process in a timely and effective manner. This element establishes successful, two-way communication between the government and the public and enhances the authenticity of the process.

To facilitate in garnering public interest for participation endeavours, a ‘toolkit’ could be developed to gather many mediums and resources to aid in initiating a discussion. To determine what medium of presentation the public would prefer for the delivery of the

findings reached in the process, public input is needed, which can be gathered through such mechanisms as focus groups in the preliminary stages of process design.

Throughout the design of a process, the choice of a capable facilitator to initiate discussion and support participants is critical to establishing effective lines of communication. In establishing effective, open communication, the elimination of cultural and generational barriers is crucial to strengthening the discussion.

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