

**The Politics of Pork:  
Achieving Inclusive Decision Making Through Public Participation  
in Rural Manitoba**

**by**

**Lindsay Dawn Irwin**

A Thesis submitted to the Faculty of Graduate Studies of  
The University of Manitoba  
in partial fulfilment of the requirements of the degree of

**MASTER OF NATURAL RESOURCES  
MANAGEMENT**

Natural Resources Institute  
University of Manitoba  
Winnipeg, Manitoba R3T 2N2  
March 2009

**THE UNIVERSITY OF MANITOBA  
FACULTY OF GRADUATE STUDIES  
\*\*\*\*\*  
COPYRIGHT PERMISSION**

**The Politics of Pork:  
Achieving Inclusive Decision Making Through the Public Participation in Rural Manitoba**

**BY**

**Lindsay Dawn Irwin**

**A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University of  
Manitoba in partial fulfillment of the requirement of the degree**

**Of**

**MASTER OF NATURAL RESOURCES MANAGEMENT**

**Lindsay Dawn Irwin © 2009**

**Permission has been granted to the University of Manitoba Libraries to lend a copy of this thesis/practicum, to Library and Archives Canada (LAC) to lend a copy of this thesis/practicum, and to LAC's agent (UMI/ProQuest) to microfilm, sell copies and to publish an abstract of this thesis/practicum.**

**This reproduction or copy of this thesis has been made available by authority of the copyright owner solely for the purpose of private study and research, and may only be reproduced and copied as permitted by copyright laws or with express written authorization from the copyright owner.**

## **Abstract**

This study presents research regarding public participation in the review of the environmental sustainability of hog production in Manitoba. The process was initiated following the November 8<sup>th</sup>, 2006, announcement by the Province of Manitoba to place a temporary moratorium on the expansion of the hog industry in the province. With the power granted to him under Section 6(5) of *The Environment Act*, the Minister of Conservation, Stan Struthers, requested that the Clean Environment Commission (CEC) conduct an investigation into the environmental sustainability of hog production in Manitoba. One of the terms of reference necessitated that the CEC's investigation include a public component, namely public hearings.

The CEC, partly in recognition of the controversy surrounding the hog industry, and the consequent reluctance of some participants to speak publicly about it, sought to initiate dialogue with those members of the public that chose not to participate in the CEC hog hearings. Therefore the purpose of the research was to learn the opinions of those Manitobans, who were not inclined to participate in public hearings. In learning about participant opinions on the hog industry, the research also explores how the public participation process might become more inclusive and participatory.

In total, 37 interview participants participated in 29 private interviews. These participants came from numerous areas of the province, and the vast majority were of rural background. A significant level of participation in interviews occurred in the RMs of Lorne and South Norfolk. A total of 58% of participants found the hog industry in Manitoba to be unsustainable as currently operated. Key concerns about the sustainability of the hog industry were water quality, manure management, odour,

communicating with environment officers, biased decision making, and the socioeconomic impacts.

Participants learned about the hog industry largely at the individual scale, and through their experiences living and working in rural areas. In addition newspapers, such as the local paper and the Manitoba Cooperator, were found to be significant sources of information about the industry.

The majority of participants did not participate in the CEC's public hearings process. However, the participants expressed a desire for more communication between the general public and decision makers. They recommended more informal avenues of dialogue and discussion regarding their concerns about the hog industry. Furthermore, participants who were neighbours to hog barns had either burned out in their participation in local hog issues or found the prospect of attending public hearings too intimidating. A great appreciation was relayed by participants for the opportunity to participate in the decision making process through interviews.

## **Acknowledgements**

First and foremost, I would like to thank Dr. John Sinclair for all of his patience and guidance throughout this process. I have learned a lot and feel very lucky to have had such an inspiring and thoughtful advisor.

I would also like to thank committee member Dr. Alan Diduck for persisting with me through the final stages, even while in India and Thailand.

A tremendous thank you to the Clean Environment Commission for funding this research and for initiating the private interviews as part of their investigation. And thanks as well for the special hands-on educational opportunities, such as the visit to the Hutterite Colony to tour the hog barn. In particular, I would like to thank Cathy Johnson for her valuable contributions as a committee member and her insights from the field.

Thanks to Jim Robson for all his support, insightful comments, and suggestions to keep me moving, even when I was losing sight of the finish line. I think it's finally all "done and dusted" and can't thank you enough for all your help in getting there.

Tara Carnochan, thanks for keeping my sense of pig humour alive throughout and reminding me that it is just a thesis after all. Similarly, Corrina Loewen for her elusive gold star reward system and all of its celestial powers! Your humour and friendship are such a precious gift to me and have provided me with much encouragement throughout this process.

Finally thanks to my Mom for patiently reviewing and editing the final product and for putting up with me and my last minute requests! Thanks for burning the midnight oil for me once more.

## Table of Contents

Abstract.....	i
Acknowledgements.....	iii
List of Tables.....	5
List of Figures.....	5
List of Plates.....	5
List of Maps.....	5
1 Introduction.....	6
1.1 Background.....	6
1.2 Manitoba's Hog Industry and Sustainability Issues.....	8
1.3 Research Purpose.....	9
1.4 Research Objectives.....	10
1.5 Methods.....	10
1.6 Organization of Thesis.....	10
2 The Role of Public Participation in Environmental Decision Making.....	11
2.1 The Phenomena of Public Participation.....	11
2.2 Public Hearings.....	19
2.3 The Clean Environment Commission (CEC).....	25
2.3.1 The CEC's Terms of Reference.....	29
2.4 Non-Participation.....	31
2.5 Manitoba's Hog Industry.....	36
2.6 Chapter Summary.....	41
3 Methods.....	42
3.1 Introduction.....	42
3.1.1 Interviews.....	42
3.1.2 Sample.....	43
3.1.3 Design and Key Topics.....	50
3.2 Participant Observation.....	52
3.3 Public Hearings and Private Interviews.....	56
3.4 Data Analysis.....	57
3.5 Threats to Validity.....	58
3.6 Ethical considerations:.....	59
4 The Future Sustainability of the Hog Industry in Manitoba.....	60
4.1 Public Participation in the CEC Hearings vs. Interviews.....	60

4.2	Participant's Views on the Sustainability of the Hog Industry in Manitoba .....	63
4.3	Key Themes.....	64
4.3.1	Water Quality .....	65
4.3.2	Manure Management.....	70
4.3.3	Odour.....	77
4.3.4	Environmental Decision Making on the Hog Industry .....	80
4.3.5	Public Role in Communicating with Environment Officers .....	85
4.3.6	Socioeconomic Impacts .....	87
4.4	Minority Themes.....	90
4.4.1	Water Quantity .....	90
4.4.2	Animal Ethics .....	92
4.4.3	Human Health Impacts.....	93
4.4.4	Greenhouse Gases.....	93
4.4.5	Adequacy of Soil Sampling .....	95
4.4.6	Impact on Fish and Tourism Industries.....	95
4.5	Participant Views on the Environmental Sustainability of the Hog Industry in Manitoba.....	97
4.6	Participant Learning that Informed Opinions on the Hog Industry.....	98
4.6.1	First Hand Experience in Agriculture .....	99
4.6.2	Knowledge of the Natural Sciences.....	100
4.6.3	Word-of-mouth.....	101
4.6.4	Rural Schools.....	101
4.7	Environmental Sustainability & the Future of Livestock Management.....	103
4.7.1	Accounting for Greenhouse Gas Emissions in the Livestock Industry .....	104
4.7.2	Environmentally Sensitive Land Areas are Unsuitable for Livestock.....	105
4.7.3	Alternatives to ILOs are Necessary for Livestock Sustainability.....	106
4.7.4	Dependable Water Resources are Important for Livestock Sustainability .....	107
4.7.5	Trust in Government to Effectively Monitor the Livestock Sector.....	111
4.7.6	Economic Sustainability is a Key Component in Decision Making.....	113
4.7.7	Government Support Programs Aid in Industry Sustainability .....	115
4.7.8	The Socio-Cultural Landscape is Changing: Hutterites, and Politics .....	116
4.7.9	Industry Leadership to Achieve Sustainability in Livestock.....	117
4.7.10	Future Policy Directions .....	119

4.8	Chapter Summary .....	119
5	Non-Participation in the CEC Hearings.....	121
5.1	Introduction.....	121
5.1	Key Reasons for Non-Participation.....	122
5.1.1	Past Experience with Public Fora on the Hog Industry .....	123
5.1.2	Polarized Debate.....	125
5.1.3	Intimidating Forum to Speak in Public .....	125
5.1.4	Not In My Backyard.....	127
5.1.5	The Role of the Clean Environment Commission .....	129
5.2	Other Reasons for Non-Participation.....	132
5.2.1	Elected Officials were Representative of Participant Views .....	132
5.2.2	Timing Issues and Energy Requirements.....	132
5.2.3	Sense of an Inadequate Stake in the Issue .....	133
5.2.4	Sources of Information about the Hearings .....	134
5.3	Participant Recommendations for Overcoming Barriers to Non-Participation .....	136
5.3.1	Unbiased CEC Panel Members.....	137
5.3.2	More Informal Settings for Public Discussion .....	138
5.3.3	Multi-Pronged Approaches to Public Participation.....	139
5.3.4	Improved Notice and Transparency .....	141
5.3.5	Increased Scope of Public Hearings.....	143
5.3.6	Use a Mediator.....	144
5.3.7	Use Language Specific to Different Aspects of the Livestock Sector .....	145
5.3.8	Increased Media Presence at Public Hearings.....	146
5.4	Towards More Inclusive Decision Making & Use of Alternative Tools.....	146
5.5	Chapter Summary .....	149
6	Conclusions and Recommendations.....	151
6.1	Introduction .....	151
6.2	Conclusions .....	152
6.2.1	Perspectives on Environmental Sustainability & the Hog Industry in Manitoba.....	152
6.2.2	Reasons for Non-Participation.....	154
6.2.3	Learning About the Hog Industry.....	156
6.2.4	More Accessible Public Participation.....	157



6.3	The CEC Report 2007.....	158
6.4	Concluding Thoughts .....	160
	Appendix 1: Participant Interview Schedule and Guide .....	172
	Appendix 2: Participant Consent Form for Interview.....	176
	Appendix 3: Public Notice of Opportunity to InterviewAppendix 4: Newspaper Advertisement.....	178
	Appendix 4: Newspaper Advertisement .....	179

### List of Tables

Table 1: Rural-Urban Demographic of Participants .....	46
Table 2: Key themes in Participant Perceptions of the Environmental Sustainability of Hog Production in Manitoba.....	64
Table 3: Minority Themes in Participant Concerns for the Environmental Sustainability of Hog Production in Manitoba.....	90
Table 4: Daily Water Consumption of Hogs .....	91
Table 5: Key Reasons for Non-Participation by Participants .....	123
Table 6: Recommendations on Overcoming Public Participation Barriers .....	137

### List of Figures

Figure 1: Interview Methods Used.....	45
Figure 2: Affiliation of Interview Participants .....	49
Figure 3: How Participants Learned about the Interview Opportunity.....	57
Figure 4: How Participants Learned about the CEC Public Hearings.....	57
Figure 5: Presenter Affiliation* at the 2007 CEC Public Hearings .....	60
Figure 6: A Comparison of Hearing and Interview Participants .....	63
Figure 7: Diversity of Participant Views on the Unsustainability of the Hog Industry.....	98
Figure 8: Learning that Guided Participant Opinions on the Hog Industry .....	99
Figure 9: Net Income per Farm in Manitoba from 1971 to 2005.....	115
Figure 10: Awareness of CEC Hearings amongst Interview Participants.....	122

### List of Plates

Plate 1: CEC Hearing in St. Claude, Manitoba .....	53
Plate 2: Clean Environment Commission's Panel Members: Edwin Yee, Terry Sargent (Chairperson) and Wayne Motheral .....	54
Plate 3: The Clean Environment Commission at Rosebank Colony .....	55
Plate 4: Sow and her Piglets at Rosebank Colony.....	56
Plate 5: Audience at the CEC Hearing in Arborg, Manitoba .....	62
Plate 6: Manitoba Pork Council Presenters at the CEC Hearing in Winnipeg .....	62
Plate 7: Hoop Barn/Biotech Style of Hog Production.....	74
Plate 8: Straw-based Housing of Biotech Hog Operations .....	74

### List of Maps

Map 1: Proportional Representation of Participants According to RM.....	48
Map 2: Concentration of Hog Operations in Manitoba .....	114

## **1 Introduction**

### **1.1 Background**

On November 8<sup>th</sup> 2006, the Premier of Manitoba announced a moratorium on the expansion of the hog industry in the province. This was accomplished through the Livestock Manure and Mortalities Management Regulation which was amended to “temporarily restrict the further growth of pig agricultural operations” until completion of the CEC’s investigation into the hog industry’s sustainability. With the power granted to him under Section 6(5) of *The Environment Act*, Stan Struthers, Manitoba’s Minister of Conservation requested that the Clean Environment Commission (CEC) conduct an investigation into the environmental sustainability of the hog industry in Manitoba, which included a public component, namely public hearings.

In making the decision to call public hearings, Minister Struthers provided further support to the growing trend towards greater involvement of the public in environmental and resource decision making. This call for greater participation began to take shape over twenty years ago when the Brundtland Commission<sup>1</sup> (1987) identified the rights of those directly affected to participate in decision making. Numerous authors have since written about the value of public participation in various environmental and resource-related contexts, such as

---

<sup>1</sup> The Brundtland Commission gets its name from the Chair of the Commission Gro Harlem Brundtland. One of the primary purposes of the Brundtland Commission was to recommend long-term strategies for sustainable development. The report *Our Common Future* (WCED 1987) by the United Nations’ World Commission on Environment and Development defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (p. 43). The WCED elaborates on this definition by describing the concept of ‘needs’ in relation to the world’s poor, to which priority and consideration should first be given.

environmental assessment (EA) (e.g. Sinclair and Diduck 2005; Petts 2001) and forest management (e.g. Parkins and Mitchell 2005) to name but a few.

Some of the rationale for increased public participation includes countering inclinations towards strong government, protection of individual property rights, and the legitimization of overall political processes (Hessing *et al.* 2005). The difficulty of a civil society struggling to comprehend issues of increased scientific complexity and uncertainty is compounded by a decreasing level of consensus as to how natural resources ought to be managed. As a result of these complex issues and divided opinions, there is a need for wider public participation in resource and environmental decision making (Bocking 2004; Parkins and Mitchell 2005). Moreover, the promotion of social learning through public participation engages people in effective forms of democracy, which ought to garner further insight into a range of social and ecological issues, including sustainability (Webler *et al.* 1995; Daniels and Walker 1996; Fitzpatrick and Sinclair 2003).

Despite the need to advance public participation, the various arenas for public engagement, especially hearings, have been predominately led by voices in industry and government (Fitzpatrick and Sinclair 2003). The importance of public participation in environmental and resource management decision making is found in tapping into traditional knowledge (Sinclair *et al.* 2003) while also answering the call for social responsibility through the incorporation of local values (Petts 2003). There are several rationalizations for the absence of broader participation by members of the public. Some of the more prominent include:

process and resource deficiencies, alienating “technocratic” discourse, lack of opportunity for dialogue, insufficient interest or understanding of the issue(s) and delegation of participation to other individuals or groups who are believed to represent their interests (Fitzpatrick and Sinclair 2003; Diduck and Sinclair 2002).

The controversy surrounding contentious issues may also prevent people from wanting to speak publicly, thereby underscoring one of the fundamental problems with public participation, and particularly the public hearings process. Other shortcomings of the hearings relate to the seemingly daunting process, formal setting and alienating dialogue (Fitzpatrick and Sinclair 2003; Diduck and Sinclair 2002; Hessing *et al.* 2005; Kasperson 1986). Furthermore, in interviews carried out by Fitzpatrick and Sinclair (2003) the sentiment that the hearings process fostered feelings of competition, rather than dialogue among participants was also expressed as a drawback. Kasperson (1986) acknowledges that while we are undecided about which public participation techniques work best in what situations, the literature is virtually unanimous in its findings that hearings are an ineffective method for developing meaningful communication with the public.

## **1.2 Manitoba’s Hog Industry and Sustainability Issues**

Agricultural diversification in recent decades has dramatically altered the face of the Manitoba’s livestock industry. In 1990, Manitoba produced approximately 2 million hogs. By 2001, that number had risen dramatically to 6.4 million (Manitoba Trade and Investment 2007) and then in 2007 the hog industry expanded again to produce 8.8 million hogs (CEC 2007). On the national level, Manitoba is known as a major hog producer. It is a province containing only 4%

of the nation's population, and home to 24% of the country's hogs (Manitoba Agriculture 2003). Because so many of the weanlings are exported to markets in the United States, only about 3 million hogs can be found on the land in Manitoba at any given time (CEC 2007). The vast majority of these hogs are destined for international consumption in places such as the USA and the Pacific Rim, with only 8.1% of hogs consumed in the province (MAFRI 2006). In 2006, hogs accounted for about half of Manitoba's total livestock receipts and contributed \$1.8 billion USD in livestock farm receipts (Manitoba Finance 2007). These indicators are testimony to the burgeoning economic success of the hog industry in Manitoba over the past decade.

In recent times, the hog industry has shown signs of slowing down, as evidenced by the buy-out of hogs in the spring of 2008. Some of the triggers for this slow down included the introduction of the Country of Origin Labeling (COOL) legislation in the United States and the increased cost of feed. Despite this leveling off of livestock growth, the hog industry in Manitoba has found itself in the midst of numerous environmental and social concerns. The most commonly raised environmental issues relate to water and air quality, but other attention has been given to issues such as the environmental ethics surrounding the industrial model of pig husbandry.

### **1.3 Research Purpose**

The CEC, partly in recognition of the social controversy around issues in the hog industry, and the consequent reluctance of some participants to speak publicly about it, sought to initiate dialogue with those members of the public that

chose not to participate in the CEC hog hearings. Therefore the purpose of the research was to learn the opinion of those Manitobans, who were not inclined to participate in public hearings. In learning about participant opinions on the hog industry, I hoped to explore how the public participation process might become more inclusive and participatory.

#### **1.4 Research Objectives**

To achieve the above purpose, the following four objectives were pursued:

1. To describe the views of farmers and other interested rural Manitobans concerning the environmental sustainability of the hog industry.
2. To identify why people chose not to participate in public hearings.
3. To explore how people learned about issues surrounding the hog industry.
4. To recommend approaches to making public processes more accessible.

#### **1.5 Methods**

This study employed qualitative research methods. The research focused on the CEC hearings and the review of the environmental sustainability of hog production in Manitoba. Attempts were made to target members of the public who chose not to participate in the CEC hog hearings. Consistent with qualitative methodology, the primary research instruments were semi-structured interviews and participant observation at the public hearings. A more detailed description of the methods used in this research can be found in Chapter 3.

#### **1.6 Organization of Thesis**

This thesis is organized into six chapters. Following the Introduction, Chapter 2 discusses the concept and evolution of public participation, as well as

the major sustainability issues in Manitoba's hog industry. Chapter 3 details the proposed qualitative research methods and techniques to be employed in the field research and data analysis. Chapter 4 discusses general opinions of interview respondents regarding the future sustainability of hog production in Manitoba. In this chapter, objective one of the research is targeted. Chapter 5 covers why people chose not to participate in the hearings and specifically addresses objective two of the research. Chapter 5 also provides recommendations from participants regarding improved public involvement in environmental governance issues and therefore addresses objective four of the research. Chapter 6 concludes the research thesis by providing an overview of the study. This final chapter draws conclusions and shows how they relate to the objectives of the study, while also providing some recommendations and thoughts on the need for further research.

## **2 The Role of Public Participation in Environmental Decision Making**

### **2.1 *The Phenomena of Public Participation***

Deliberative democracy may be defined as "debate and discussion aimed at producing reasonable, well-informed opinion in which participants are willing to revise preferences in light of discussion, new information, and claims made by fellow participants" (Chambers 2003, p. 309). Deliberative democracy occurs when citizens deliberate to develop sound policy and decision making. This system requires more from the public than the usual forms of representative democracy, where votes are the primary vehicle of public participation. However it shares the common belief in democracy as fair and equal access to participate in decision making. Cohen (1989) defines equal participation as both formal, in



the sense that it is non-hierarchical and everyone can suggest and criticize proposals, and substantive, in that it is not limited by pre-existing norms or resources. Solis (1991:90) defines a democratic society according to:

The extent to which it has two qualities in evidence: The first: how numerous and varied are the interests which are consciously shared? [And second] How full and free is the interplay with other forms of association among various subgroups?

Bocking (2004) says that science must also be presented in a democratic way, in that all interested publics have equal access to information needed to present and defend their positions on an issue. The ultimate goal in deliberative democracy is that citizens reach consensus, meaning that the outcomes are acceptable to all persons committed to the process. Within this broader context of deliberative democracy, begins the discussion of public participation and participation tools in a civil society.

The classic discussion of public participation gained considerable momentum with Arnstein's (1969) article that contained her oft-cited ladder diagramming various degrees of public participation. For Arnstein, citizen participation is equated with citizen power, and her ladder is a systematic way of differentiating between varying degrees of meaningful and effective participation (Dorcey and McDaniels 2001). Arnstein's ladder begins with the lowest form of participation, whereby the problem is perceived to be a need for greater education amongst the public, and therefore steps are taken to better inform the public about an issue. As we move up Arnstein's ladder onto the middle rungs of consultation, or "tokenism", the public is given the opportunity to comment and advise on an issue and be a token part of the decision making process. Public

hearings, which are described as one technique for public participation, are low on the rungs (3-4) according to Dorsey and McDaniels (2001), but they also point out that only by understanding the intent of the agency in charge may the use of these techniques be fairly evaluated as high or low on the rungs of "citizen involvement". The greatest degree of public participation, and found at the highest rungs of her ladder, is a degree of citizen control and partnership whereby the power to plan for and make decisions is left to the discretion of the community (Arnstein 1969).

Arnstein's paper was written in the late-sixties, at a time of great social activism and heightened environmental consciousness. One of the famous catalysts for increased public alarm over health and the environmental impact was the publication of *Silent Spring* in 1962. In this book, Rachel Carson touches on the importance of public involvement in environmental governance:

It is the public that is being asked to assume the risks that the insect controllers calculate. The public must decide whether it wishes to continue on the present road, and it can do so only when in full possession of the facts (Carson 1962: 13).

Following this, a second "burst of innovation" in public participation took place in the 1990s (Dorsey and McDaniels (2001). This 1990s "burst" fell closely on the heels of the Brundtland Report, which called for increased public access to information on the state of the environment and the right of the public to participate in decision making on activities likely to have a significant effect on the environment. As far back as 1985 and at the WCED public hearing in Jakarta, it was stated that:

You don't know the answers nor the solutions, but you could suggest the way to solve many problems...the best way: that is

to include those with direct interests in it. The beneficiaries, as well as the victims of any development issue should be included, should be heard.  
(World Commission on Environment and Development 1987: 62).

Further international attention was given to the link between environmental management and public participation. For example, the United Nations Conference on the Human Environment (1992) produced the Rio Declaration on Environment and Development that contained in its tenth principle: a statement about public participation in environmental decision making. Principle Ten states that:

Environmental issues are best handled with participation of all concerned citizens; at the relevant level...each individual shall have appropriate access to information concerning the environment that is held by public authorities...and activities in their communities, and the opportunity to participate in decision-making processes.

Canadian law followed suit with international trends, and introduced legislation such as the *Canadian Environmental Protection Act (1999)*, which in section 2(1)(e) states that it is the duty of the Government of Canada to "encourage the participation of the people of Canada in the making of decisions that affect the environment". Another important federal legislative authority includes the *Canadian Environmental Assessment Act* that provides for public participation in decisions about new projects deemed to have a significant impact on the environment.

In Manitoba, legislation such as *The Environment Act* and the *Planning Act* both make provisions for public participation in environmental decision making. Many provincial governments have produced guidance materials and

documents that describe aspects of public participation, program design, and implementation. Organizations such as the International Association for Public Participation ([www.iap2.org](http://www.iap2.org)) provide direction for governments and other interested parties on the new and innovative approaches to public participation.

While it has received wider attention in the more recent years (Petts 2003), public participation continues to evolve largely in the context of natural resource and environmental management. The phenomenon of public participation has significant support within academic literature and has been touted as a 'cornerstone' of environmental assessment and wide-area planning (Kidd and Sinclair 2007; Sinclair and Diduck 2005). The spectrum of disciplines and ideologies contributing to the public participation literature is very large and it is not possible to discuss them all here. As such, while acknowledging the wealth of international authorship on the topic, this literature review relies heavily on North American, and often Canadian, perspectives on public participation in natural resource management.

An important aspect of public participation in environmental and resource management decision making is the ability to tap into traditional knowledge (Sinclair *et al.* 2003) while also answering the call for social responsibility through the incorporation of local values (Petts 2003). Local and traditional knowledge has value in widening the scope of perspectives that are incorporated into planning and management (Mitchell 2002; Petts 2003). As pointed out in Webler *et al.* (1995), the incorporation of local knowledge provides "greater competence" in decision making and technical assessments of higher quality (Petts 2003). In a

society faced with increasing scientific complexity and uncertainty (Bocking 2004), in addition to decreasing consensus as to how resources ought to be managed, wider public participation provides stability by spreading out the risk involved in environmental decision making (Parkins and Mitchell 2005).

Kasperson (1986) discusses the liability and societal obligation to communicate about environmental risk, which also supports the idea of public participation as an effective and necessary process in today's culture. Kasperson (1986) goes on to propose that there are fundamental differences between the goals of participation by a public agency versus the goals of the general public. He describes "agency-designed participation efforts" as a means for 'correcting misperception', 'educating the public', 'reducing conflict', 'easing implementation' or 'increasing legitimacy' (Kasperson 1986). Furthermore, the agency in charge of public participation efforts is obligated to do so in order to uphold democratic principles of government, which include public participation in decision making (Webler *et al.* 1995). On the other hand, the public, as described by Kasperson (1986) involves itself out of a desire to gain power in decision making, while also determining acceptable levels of risk. Mitchell (2002) points out that civic engagement in decision making benefits the public by providing a vital sense of ownership over the problem and a vested interest in its solution.

The literature on public participation is often sector or resource specific. For example, civic engagement is discussed by Kidd (2007) and Parkins and Mitchell (2005) as it specifically relates to the forestry sector and forest management issues. A second example of resource-specific literature is public

participation as it relates to flood-management issues and decision making, as discussed by Sinclair *et al.* (2003). Regardless of resource sector, there exists a common rationale for public participation as a valuable means of civic engagement when done in a way that is meaningful to the public.

There are various techniques for public participation. This list, while by no means exhaustive, may include: open houses, comment cards, advertising, public hearings, mediation, role playing, website chat rooms, sharing circles, round tables, workshops, focus groups, technical advisory committees and task forces. These techniques range from more passive to active forms of public participation and will involve both small and large groups. For a comprehensive listing of techniques used in public participation, refer to the International Association for Public Participation website ([www.iap2.org](http://www.iap2.org)). Kidd and Sinclair (2007), describe the use of more passive techniques, such as open houses, public fora, exit questionnaires, and workbooks as preferable by some members of the public or an effective "on-ramp" to more dialogic and active processes (Diduck and Sinclair 1995). Stewart and Sinclair (2005) discuss the significance of using multiple methods of civic engagement because of the wide range of public values and interest levels. In their research, respondents indicated that the public should be consulted at the design stage of the research to learn what form of participation best suits the community's needs (Stewart and Sinclair 2005).

One of the process issues of public participation lies in the need for effective communication between different stakeholders and groups. Communication may be hindered when terms are not clearly defined. For

example, even the term 'public' is defined in many ways throughout various texts and literature. It has been defined by Daneke (1977) as any person who has an interest in or is affected by the result. Furthermore, fair access to participate in the public process means that theoretically anyone should be able to attend, have their opinion heard, engage in discussion through which there exists the potential to influence the outcome (Smith and McDonough 2001).

Another important term related to the research is 'public participation'. The U.S. based National Environmental Justice Advisory Council (2004) describes public participation in accordance with *The National Environmental Policy Act* (1998) and defines it as:

...open, ongoing, two-way communication, both formal and informal, between a facility and an impacted community. The purpose of this interactive communication is to enable both parties to learn about and better understand the views and positions of the other. Public participation provides a means for identifying and gathering diverse opinions, perspectives, ideas, concerns and values. (p.15)

In this research, I define the public in a similar vein as described above, that is to say the 'public' is anyone who is interested in or affected by a project or development's outcome. In order for this public to effectively participate, I believe they must be granted the opportunity for meaningful dialogue with other stakeholders and have some degree of influence over the decision making process.

Other process issues described in public participation literature include, but are not limited to, the so-called 'geography of poverty' whereby representatives in environmental decision making processes are from select

gender, class and ethnic groups (Hessing *et al.* 2005). Hessing *et al.* (2005) argues that there should be some form of economic incentive for the public to involve themselves in this process, and that it may be justified on the basis of common good.

Parkins and Mitchell (2005) detail the differences between public participation in Natural Resources Management and the move towards deliberative democratic processes. They define this evolution to deliberative democratic theory as "debate and discussion aimed at producing reasonable, well-informed opinion in which participants are willing to revise preferences in light of discussion, new information, and claims made by fellow participants" (Chambers 2003: 309). There are several benefits of public participation, including but not limited to accessing local, traditional and alternative opinions on an (environmental) issue (Sinclair *et al.* 2003). In the face of increased scientific complexity and greater uncertainty (Parkins and Mitchell 2005; Bocking 2004), it seems wise to spread out the risk of environmental and resource decision making to include as broad a range of stakeholders as possible.

## **2.2 Public Hearings**

Contrary to opinion in participation literature (Fiorino 1990; Rowe and Frewer 2000), public hearings are one of the lesser used forms of public participation. It is estimated that only 2% of all environmental assessments in Canada include public hearings in the repertoire of techniques used for public participation (Sinclair and Diduck 2005). This is different from the United States,



where the Environmental Protection Agency may convene hundreds of hearings each year (Fiorino 1990).

The purpose of the hearing is to provide a forum for civic engagement with broad representation from stakeholders. Public hearings are regarded in a more favourable light because the panels are meant to represent impartial decision making since they operate at arm's length from governments and proponents (Sinclair and Diduck 2005). Hearings are open to members of the public who wish to actively present their opinions and relevant information, as often defined by scoping hearings. In addition, hearings are open to those wishing to simply observe the proceedings and learn about the issue in a more passive way. Finally, hearings are made open to the media.

One of the advantages of public hearings is that they include the opportunity for financial assistance, as when they are conducted under authority of *The Environment Act*. These funds are open to participants requiring additional resources to hire experts, conduct independent research and generally prepare their case for presentation (Fitzpatrick and Sinclair 2003).

The disadvantages of public hearings appear numerous. They are criticized for being held during daytime working hours which may make it difficult to achieve broad public participation (Rowe and Frewer 2000).

Another disadvantage of the hearings process is that it can be a costly and time consuming process for government and taxpayers (Stewart and Sinclair 2005; Diduck and Mitchell 2003). Although the perception may be that hearings are a quick and simple technique for satisfying public participation requirements,

at a low cost (Smith 1983), the example of the CEC hearings paint a much different picture in Manitoba. In the public hearings on the environmental sustainability of the hog industry, the CEC allocated nearly \$30,000 to support the participation efforts of fourteen individuals and organizations. When the costs of research, travel, accommodations, staffing, administration and delivery are taken into consideration, the costs and resource requirements to conduct public hearings are neither cheap nor simple. In spite of the heavy financial and time requirements, the public is often in favour of using the tool when issues of safety (and natural resources) are at stake (Sinclair *et al.* (2003).

Another disadvantage of hearings is that they may be viewed as an intimidating and adversarial process (Sinclair *et al.* 2003). That is to say that rather than fostering dialogue about potential solutions, the arena of civic engagement is perceived as competitive (Hessing *et al.* 2005; Fitzpatrick and Sinclair 2003). Moreover, the formal setting and discourse has been perceived as alienating (Fitzpatrick and Sinclair 2003; Diduck and Sinclair 2002; Sinclair *et al.* 2003). This absence of opportunity to speak "off the cuff" is the result of the formality of presentation scheduling and predetermined platforms equipped with microphone. A process which is conducted in such a way will only serve to limit the potential for meaningful public dialogue (Hessing *et al.* 2005).

Further shortcomings of the public hearings process include their domination by organized interests, such as the proponent or industry with high economic stakes in decision making (Checkoway and Van Til 1978). This is likely a contributing factor to the criticism that hearings present information that is

overly technical and alienating to the lay public (Fiorino 1990). The knowledge gap between technocratic elite and the lay public makes it difficult for the public to be current and up-to-date on increasingly scientific and complex issues (Hessing *et al.* 2005; Diduck and Sinclair 2002). Hessing *et al.* (2005) argue that this lag in knowledge may be commonly attributed to a lack of awareness on the part of the public, but in other cases it is the direct result of the public being intentionally excluded from the process by industry and government. Stewart and Sinclair (2005) note that the public often simply does not have adequate access to relevant information. Furthermore, it is presumptuous to assume the position of the public as lacking in information any more than the agency responsible. A unidirectional flow of information is a narrow form of communication and incorrectly infers that agencies, such as government, have nothing to learn (Daniels and Walker, 1996).

Other disadvantages of hearings included the way that hearings may be used to defend decision-making rather than as a meaningful tool for allowing the public to participate, the timing in the overall process of the hearings which makes it too late for real input, and the view that hearings are done only as a result of administrative requirements (Fiorino 1990; Beierle 1999).

Additional shortcomings of the hearings process include timing issues. In Rowe and Frewer's (2000) framework for evaluation of public participation techniques, hearings receive a low score on the principle of early involvement of the public. As quoted in Stewart and Sinclair (2005), participation should occur at the "early stages of a project before the lead organization is intellectually or

emotionally committed to the outcome". However, as quoted by participants in the study done by Sinclair *et al.* (2003) the belief is that "decisions will be made behind closed doors and how much weight public opinion gets is questionable" once a project has reached the hearing stage in the overall decision-making process. The Public Interest Law Centre (2007) described similar problems with the Technical Review Committee's (TRC) report, since it is prepared in advance of public meetings and therefore preempts any chance for public input on the normative issues and questions. As quoted by the Public Interest Law Centre (2007: 86) one of their major problems with the TRC process is that the public "has not been allowed to test or challenge the information provided by the applicant, nor is it given an opportunity to submit its own objective scientific evidence or make any representation...the report is critical to the process and yet it is made behind closed doors".

The belief that the information gathered at the public hearings has minimal impact on the final decision (Diduck and Sinclair 2002) may be attributed to the fact that the hearing panel or Chair does not usually have the final say in the decision making process. The panel will make recommendation(s) and provide advice, but the power to make the final decision still rests with the government. This may contribute to the overall feeling that the public has very little impact on the actual decision making and so acts as a barrier to public participation (Diduck and Sinclair 2002).

Hearings may be criticized as being a one-way form of communication since little debate occurs on the issues at hand (Rowe and Frewer 2000). The

public may also be skeptical of the hearings process, and this therefore serves as another shortcoming of the hearings process. This skepticism is rooted in a general absence of follow-up with participants and acknowledgement of how their thoughts were considered in a meaningful way (Smith and McDonough 2001). The perception of secrecy in decision making, as is the case when the public is not informed about how a decision is reached, has been proven to reduce the probability of public support and acceptance of a decision (Smith and McDonough 2001). The study by Sinclair *et al.* (2003) reflects the public desire to be informed in an ongoing matter about the planning process and before a decision is made. Furthermore, respondents have expressed the value in and desirability of being able to trace their input and discover how it was weighed in the decision making process (Stewart and Sinclair 2005). If granted access to such a mechanism, the increased transparency would likely make the overall process more meaningful. To the extent that the hearings are seen as transparent and the government held accountable, the public will place its trust in the process.

From the perspective of social learning, public hearings may also be perceived to be of limited effectiveness in the sense that they cater to only one type of learner. Daniels and Walker (1996: 77) state this in saying: "to the extent that it [public hearing] promotes any learning, it may appeal to conceptualizers but will likely do little for people who need more concrete experience or action". Therefore, in the view of Daniels and Walker (1996), the use of public hearings as a technique for public participation and deliberative democracy, undermines a

key learning assumption--namely that learning involves several distinct modes of thinking.

### **2.3 The Clean Environment Commission (CEC)**

The CEC is the main environmental hearing body in Manitoba, established under Section 6 of *The Environment Act* (1988). Its purpose is to provide a forum for public participation in environmental decision making in Manitoba (CEC Annual Report 2007-08). The stated mandate of the CEC is to "provide an avenue through which the public can participate in decision making processes regarding the environment in Manitoba" (CEC website). Following public consultation and using participation processes such as hearings, mediation and investigation, the CEC is required to make recommendations and provide advice to the Minister of Conservation on various environmental issues. It should be made clear that the CEC panels, as in all jurisdictions in Canada, are not given decision-making authority and therefore their role is largely to provide advice to government decision makers (Sinclair and Diduck in Hanna 2005). That being said, if the Minister does not accept the CEC's recommendations, the Minister must provide written explanation of his or her reasoning, which is then filed in the Public Registry.

As established under Section 6(2), the CEC is headed by a full-time Chairperson, as appointed by the Lieutenant Governor in Council, who shall report to the Minister. In Section 7(5) *The Environment Act* further states that the Commission "shall not hold a hearing unless a hearing panel of at least three members are present (two of whom are members of the Commission)".

Administratively speaking, the Commission is also represented by the Secretary, Administrative Assistant and part-time commissioners. As is often the case, the Chair of the Commission can also assume the role of Chair of the Panel of Commissioners. And as such, the Chairperson facilitates and leads discussion in the public hearings process. The Secretary oversees the overall operation of the CEC. The Panel of Commissioners is selected from a pool of wide-ranging expertise, and appointments to the panel are made by Order-In-Counsel. The role of the panel of commissioners is to listen to public hearing participants' comments and opinions, and cross-examine as they deem fit in order to provide informed advice and opinion to the Minister.

As stated in Section 6(5) of *The Environment Act*, the Commission shall upon request of the Minister:

- a) Provide advice and recommendations to the Minister;
- b) Conduct public hearings or hearings and provide advice and recommendations;
- c) Conduct investigations into specific environmental concerns; and
- d) Act as a mediator between two or more parties to an environmental dispute and report back to the Minister.

The CEC is also required by law, under *The Environment Act* (1988), to submit annual reports to the Minister on the previous year's investigations; reviewed legislation, regulation and policy; participation in public hearings and hearings and any CEC activities around mediation in environmental dispute resolution. *The Environment Act* further establishes the process for which the

CEC may conduct public hearings and meetings. An example of the way in which it does is found in Section 7(1), which states that public notice for "public hearing should be advertised in newspapers, or other media as the commission deems fit". In addition to notifying the public of its intention to hold a public hearing, the notice must include the specific time, date and location.

The CEC is granted unique authority under *The Environment Act*, *Participant Assistance Regulation* to grant monies from the participant assistance fund to those members of the public wishing to present at a hearing. As stated in Section 6 of *The Environment Act*, the public may apply if:

- a) The applicant has clearly demonstrated an interest in the potential physical, social or economic effects of the development;
- b) If the applicant is a group or person, the group has an established record of concern for or has demonstrated a commitment to the interest that it represents;
- c) Representation of the interest that the applicant represents would assist the panel in its investigations of the potential effects of the development and would contribute substantially to the hearing;
- d) The applicant does not have sufficient financial resources to enable it to adequately represent its interest and has identified all other financial support it has applied for or received for the purpose of participating in the assessment of the development;
- e) The applicant has attempted to bring related interests of which it is aware into an umbrella group to represent the related interests at the hearing;



- f) The applicant has a clear proposal for its use of any assistance that it might be given and;
- g) The applicant has appropriate financial controls to ensure that the assistance, if given, is spent for the purposes for which it is given.

As noted in the CEC's *Participant Handbook*, participant funding assistance is an attempt to improve procedural fairness, by recognizing that expert advice and resources to present on an issue weigh heavily in favour of the proponent. As set out in the legislation, eligible expenditures for participants receiving funding include: professional and/or legal advice, salaries of those employed to carry out research and prepare presentation materials, travel and accommodation, relevant presentation information (e.g. maps, reports), information collection and dissemination, accounting and audit services, photocopying, telephone and office supplies, translation services and other items approved by the Minister. Items that are excluded from the participant assistance program are capital expenses, lost income (e.g. to attend hearings), and non-hearing related expenses.

Notice of the public hearing is left to the discretion of the CEC. However, as stated in the CEC *Participants Handbook* the usual method is to use newspapers to advertise upcoming public hearings at a minimum of 14 days (but usually 30 days) in advance of the hearings. In addition, the CEC's website ([www.cecmanitoba.ca](http://www.cecmanitoba.ca)) provides notice through a comprehensive listing of hearings and hearing-related information. Finally, notice of a hearing is given on

the Public Registry, which is found on Manitoba Conservation's website ([www.gov.mb.ca/conservation/envapprovals](http://www.gov.mb.ca/conservation/envapprovals)).

The CEC hearings are sometimes preceded by a pre-hearing or a scoping hearing, as was the case in the review of the environmental sustainability of the hog industry in Manitoba. The scoping hearing intends to establish the framework for acceptable topics under discussion at the public hearings.

As stated in the *CEC Process Guidelines Respecting Public Hearings* the format for public hearings is to be as informal as possible, while still remaining "structured in nature". The public hearings provide opportunity for presentations of no longer than fifteen minutes, unless granted special permission by the commission to provide a longer presentation. The CEC public hearings are transcribed and each presenter is required to acknowledge their oath to tell the truth.

As an alternative to appearing in person, the public may provide written submissions to the CEC, within the stated timeframe.

### **2.3.1 The CEC's Terms of Reference**

The review of the environmental sustainability of hog production in Manitoba was treated as an investigation, which provided the CEC with some discretionary powers. For example, the opportunity to conduct private interviews in this research is one way that the CEC exercised discretion in their investigation.

With respect to the investigation into hog production in Manitoba, the CEC was provided specific terms of reference by the Minister. These were:

1. Review the current environmental protection measures now in place relating to hog production in Manitoba in order to determine their

effectiveness for the purpose of managing hog production in an environmentally sustainable manner.

2. The CEC investigation must include a public component to gain advice and feedback from Manitobans. The public component should be conducted by means of public meetings in the various regions of Manitoba to ensure broad participation from the general public and affected stakeholders.
3. Review the contents of the report prepared by Manitoba Conservation entitled *An Examination of the Environmental Sustainability of the Hog Industry in Manitoba*.
4. Take into account the efforts underway in other jurisdictions to manage hog production in a sustainable manner.
5. As part of its investigation, and based on public feedback, the commission will consider various options and make recommendations in a report to the Minister on any improvements that may be necessary to provide for the environmental sustainability of hog production in Manitoba.

Furthermore, following three scoping meetings in January 2007, it was determined that the scope of the CEC's investigation was to inquire into the impact of the hog production industry on the sustainability of Manitoba's environment, and to also integrate economic, human health, and social factors into its analysis and recommendations. The CEC advised those wishing to make presentations at the public meetings that it was particularly interested in hearing about:

- Nutrient management
- Manure management
- Land use planning and approval
- Groundwater quality
- Groundwater supply
- Surface water quality
- Soil quality
- Odour
- Disease transmission

- Climate change
- Environmental liability
- The approach taken to these issues in other jurisdictions.

The *Guide to Public Participation Clean Environment Commission's Review of the Hog Production Industry Review* is available on the CEC's website ([www.cecmanitoba.ca](http://www.cecmanitoba.ca)).

A point of some contention was the question of whether the CEC would conduct public *meetings* or public *hearings*. The main difference is that public hearings are subject to *The Evidence Act* and therefore involve sworn testimony, cross examination and evidence from experts in addition to the general public. Given the process of sworn testimony, cross examination of presenters and the official manner of the public forum, the CEC's investigation was conducted in such a way that is most accurately described as public hearings and therefore is referred to as such. However, it is worth noting that the CEC Terms of Reference state that "the CEC will conduct public meetings", and thus it could be considered that the CEC went above and beyond their required duty.

#### **2.4 Non-Participation**

Despite good intentions, the public is often the smallest demographic of participant in any given hearing. For example, in Fitzpatrick and Sinclair (2003) the public represented only 10% of all hearing participants. There are significant barriers to public participation and achieving wide-ranging and balanced participation continues to present a major challenge (Robinson *et al.* 2001).

Legislative barriers are just one contributing factor to the lack of participation by the lay public (Petts 2003). The multiple and fragmented

regulatory nature of public participation in natural resource management can make it difficult for meaningful participation to occur if the public is not brought in at the normative stages of planning. An example used by Petts (2003), is the inconsistent participation of the public in planning and pollution prevention regimes. On the one hand, the criteria for determining where a development may occur are left up to government planners. Then at the licensing stage, public participation may be limited by the fact that the public do not agree with the initial criteria as defined by the planners. As previously stated, public participation is regarded as a "cornerstone" to environmental impact assessment. In theory, public participation allows for the inclusion of broad-ranging techniques such as "deliberation, inherent learning, and decision influence through stakeholder and public input" (Petts 2003: 273). In practice, the legislative framework may make it difficult to achieve such progressive goals (Petts 2003). Petts (2003) adds to this discussion by noting the "paternalistic culture of decision authorities", wherein decision makers are uncomfortable with the idea of the public challenging their role as decision maker.

Diduck and Sinclair (2002) have divided the barriers to public participation into two categories: structural and individual. Some of the more structural barriers include what they refer to as "involuntary complexity", which refers to the fast-paced lifestyle that many modern Canadians and North Americans now lead (Sinclair and Diduck 2002). They also cite process deficiencies (access to information, adequate notice) and the technical and often alienating discourse (Sinclair and Diduck 2002; Petts 2003). Emphasis on the technical aspects of a

development and a failure to provide the reasoning or “de-jargonize” the science behind explanations can also be a significant barrier to public participation (Petts 2003). Moreover the time required to absorb complex and technical information is not conducive to public participation techniques such as full-day hearings, but is more amenable to the time inputs afforded by participation in, for example, a citizen advisory committee (Petts 2003).

The major individual barriers to public participation include: the feeling among people that their interests were being represented through a participating agency; insufficient interest from the public in the topic due to the belief that the issue at hand would have no direct impact on them personally; a lack of education regarding a development’s impacts and character traits (although this was found to be less prominent) (Sinclair and Diduck 2002). As noted by Petts (2003), Fitzpatrick and Sinclair (2003); Stewart and Sinclair (2005), Sinclair and Diduck (2002) and others, there is a broad suspicion that public hearings have a foregone conclusion. The idea of foregone conclusion refers to the public belief that planning is already underway and the public hearings are a mere formality.

The actual or perceived scope of a hearing may also discourage broad public participation. The public may be interested in discussing the indirect impacts rather than the direct impacts of a development, but feel that this is not within the scope of participation. Petts (2003) suggests a broad perspective of life-cycle impact, including the direct and indirect costs of a development, while also considering ways to account for cumulative impacts on the environment.

Petts (2003) also highlights the importance of providing access to sites, and the opportunity to monitor and observe operation of a development. In terms of the hog industry, this lack of public access to barns and hog farm sites is a significant barrier to public participation in decision making because of the high degree of uncertainty and limited data to inform the public's assumptions. The access to real-world education experiences in ILOs may either increase the lay public's confidence in their opinions or dispel myths around the operations to improve, and create more meaningful, participation.

Although they may often not be publicly acknowledged, there exist complicated community networks and at times hostile undercurrents regarding resource development on local lands, which can deter people from participating in the hearings. For example, conflict ensued when the large corporate hog facility of Puratone proposed development in the Rural Municipality (RM) of Armstrong, Manitoba in 1993. The proposal was initially accepted and then later rejected under public pressure and finally reaccepted after the company threatened to take legal action against the RM (Novek 2003). However, the public was widely divided over the hog barn construction as evidenced by their protests, picketing, media coverage, and the need for RCMP and security guard intervention. At its most hostile, a hog barn was mysteriously burnt to the ground during construction and at another site, a barn was shot full of holes and its security guard beaten (Novek 2003). This example of a community bitterly divided over the development of local hog operations makes the point that public hearings are not always an amenable option for public participation. Furthermore,

local resource exploitation perpetrated by neighbours and local community members are likely to generate increased controversy and volatility. When voicing opinion on a development, the speaker will mostly likely factor in their desire to coexist peacefully within the local community before choosing to participate. The often tightly-knit fabric of small, local communities may engender feelings of nervousness and fear when speaking out about local resources and their consequent development.

One final reason for non-participation amongst the public, and particularly those interested publics in issues of environmental sustainability and hog production in Manitoba, could be their previous experience and perception of the environmental assessment (EA) process around the Maple Leaf Foods hog processing plant sited in Brandon, Manitoba back in 1999. As discussed by Diduck and Mitchell (2002): "project critics developed a strong cynicism towards public involvement in EA, local and regional governments, and the prospects for deliberative or participatory democracy" (p. 357). This was due partly to the fact that the EA process was disjunct and not comprehensive, as it was divided into two projects (processing plant and wastewater treatment facility) with three stages of assessment (preconstruction, construction, and operation). Furthermore, public controversy was fueled when the Minister did not convene public hearings to discuss the environmental impacts of the project (Diduck and Mitchell 2003).



## **2.5 Manitoba's Hog Industry**

In 2007, there were approximately 8.8 million hogs produced in Manitoba (MAFRI; CEC 2007). About 4 million of these pigs are marketed within weeks of birth and therefore the number of pigs estimated to be in Manitoba at any given time is only 3 million (CEC 2007). Despite the high number of pigs, the number of hog farms in Manitoba has actually been significantly reduced. For example, in 1990, there were 3,150 hog farms and in 2007 there are 1,280 (MAFRI, CEC 2007). Consequently the density of hog production has increased, with 21% of farms representing 78% of the pigs (CEC 2007). Three large companies are responsible for hog production in Manitoba, namely Elite Swine, Hy-Tek, and Puratone. These large companies have helped to establish the three-site model intensive livestock operation (ILO). The typical three-site model is described in the CEC's final report (2007) as:

- Site 1: a sow (breeding) barn of 1,200 – 1,500 sows
- Site 2: four – five nursery barns containing 2,000 – 2,500 weanlings each
- Site 3: three – five grower/finisher barns containing 2,000 pigs each.

Manitoba's growth in hog production has not kept pace with its slaughtering capacity and is one of the reasons for high export of pigs to the United States. In 2006, 4.6 million pigs were slaughtered in Manitoba, the majority of which were Manitoba-born but over a million also originated from Saskatchewan (CEC 2007). The Maple Leaf Foods plant in Brandon is one of the main processing plants in Manitoba and has added a second shift to expand hog slaughter capacity to 90,000/week or 4.68 million/year.

In a presentation made by Manitoba Agriculture and Food and Rural Initiatives in 2007, the industry was described as being comprised of 1,400 active producers that are involved in two main industries: market hogs for slaughter and the production of weanlings for export to the United States. In 2006, Manitoba's hog industry exported 5.4 million hogs (4.1 million weanlings and 1.3 million market hogs). In 2005 and 2006, the demand for Manitoba-pork came from major pork customers in the United States (34%), Japan (28%) and Mexico (17%) (Grier *et al.* 2007).

Hog producer demographics may be approximated as 50% large pig production companies, 30% Hutterite and 20% independent producers (Manitoba Agriculture Food and Rural Initiatives 2007). Manitoba's Hutterite Brethren arrived in Manitoba in 1918 and have largely preserved their communal lifestyle by developing their agricultural skills and living in rural areas (CEC 2007). In Manitoba, 115 colonies raise hogs and their tradition of hog farming has persisted for nearly a century. The average population of a Hutterite colony ranges from 60 to 150 people per colony. Hutterites live a communal lifestyle, sharing all material rewards of their labour, in which farming is often a central part. Although traditional in culture and religion, adoption of modern technology in farming equipment, plus a strong work ethic and labour force has resulted in a tremendously profitable agriculture base for the Hutterite people. Hutterites hold Anabaptist religious beliefs, and came from Switzerland in the Reformation of the 16<sup>th</sup> Century. There were four beliefs that lead to the reformation of the Hutterite Brethren, including the belief that the Bible advocates for the separation of

church and state. As a result, Hutterites do not traditionally vote in mainstream government elections and are known to be suspicious of government (Driedger 2008). It has been noted that although “membership on local councils and boards is discouraged, they may sit on agricultural boards that directly affect their welfare” or recently have been known to vote on local issues that they consider vitally important (Driedger 2008).

The livestock industry is a significant source of employment and income for Manitoba. The livestock industry contributed nearly \$1.8 billion in farm cash receipts to the provincial economy in 2005 (Manitoba Conservation 2006). Agricultural diversification in recent decades has dramatically altered the face of the industry. In 2005, hogs were the largest single source of agricultural market receipts with 29%, drastically up from 14% in 1995 (Manitoba Finance 2005). These percentages are in stark comparison to Manitoba's infamous wheat, which accounted for 25% of agricultural market receipts in 1995, and only 15% in 2004 and 2005 (Manitoba Finance 2005).

Manitoba has traditionally led the way in the prairies predominantly “wheat economy” (Fowke, 1957) of the last century. However, since the mid-1990s, the hog industry has experienced steep growth. This is attributed to declining world grain prices and the loss of Crow benefit (Manitoba Conservation 2006; Tyrchniewicz *et al.* 2000). As noted in Tyrchniewicz *et al.* (2000), the government has played a significant role in the rapid growth of the hog industry by developing programs and incentives that represented a “concerted effort” to expand hog processing capacity in Manitoba. For example, one of the reasons behind the

location of the Maple Leaf processing plant in Brandon was the provincial and municipal subsidies in the range of \$20 million as part of provincial policy to promote the hog industry in Manitoba (Diduck and Mitchell 2003). Other reasons for the rapid growth of the hog industry included the “value added opportunity” of running local grain through livestock, which boosted hog production substantially. Due to an overall trend in Manitoba of migration to urban centres and the loss of traditional farming practices, there was and continues to be push for diversification of agriculture to seek creative and innovative solutions for keeping rural Manitoba alive. The burgeoning expansion of the hog industry is one of the first means of reversing the trend towards rural depopulation, diversifying farming practices and (ideally) has presented a new avenue for sustainable agriculture in Manitoba (Tyrchniewicz *et al.* 2000).

The numerous environmental implications of this quickly expanding industry have, however, resulted in general unease and questioning of the long-term sustainability of the hog industry. According to Manitoba Agriculture Food and Rural Initiatives (2006), the main issues facing the hog industry relate to odour; animal confinement; food safety and health; location of livestock operations, mortalities management, manure management, phosphorous and nitrates in soil and water; and surface water issues. According to Novek (2003) water quality has surpassed odour as the number one concern relating to the hog industry.

One way that the province of Manitoba has begun to address the environmental concerns includes the recent announcement of new restrictions on

phosphorous application (Manitoba Conservation 2006). These restrictions are in addition to the former regulation of manure spreading according to nitrogen content (Tyrchniewicz *et al.* 2000). Phosphorous and nitrogen are two nutrients of concern and found in significantly high concentration in hog manure.

Phosphates are of primary concern for their impact on the environment, as they remain in the soil and will not blow off as in the case of nitrogen.

Phosphates are chiefly associated with eutrophication or algal blooms, such as those now seen in both the north and south basins of Lake Winnipeg. New provincial regulations on the application of manure according to phosphate content indicate a greater commitment towards the protection of surface and groundwater. Clearly, water quality is a major issue that must be addressed if the hog industry is to be made sustainable. These issues will be examined in greater detail in Chapter 4.

The Public Interest Law Centre (PILC) (2007) specifically examined legislative jurisdiction over the hog industry in Manitoba and whether the regulatory framework has kept pace with the rapid changes experienced by the hog industry. One conclusion made by the PILC was that there are adequate laws in place to regulate and monitor the hog industry's impact on the environment, however they questioned whether or not government departments were effective in coordinating and administering them (Public Interest Law Centre 2007).

## **2.6 Chapter Summary**

Public participation is a vital component of effective and meaningful environmental decision making. The hog industry has expanded rapidly to become a significant part of Manitoba's rural landscape, and its environmental sustainability has once again come under intense scrutiny by the public. There exist among the public serious environmental and socioeconomic issues related to the industrial scale of hog production in Manitoba. In November of 2006, the Minister of Conservation requested that the CEC conduct public hearings to gather public input regarding the environmental sustainability of hog production in Manitoba. The Premier's office called a temporary moratorium on any expansion in the hog industry pending the completion of the CEC's investigation by amending the Livestock, Manure and Mortalities and Management Regulation

The CEC is the main agency in Manitoba conducting environmental hearings. CEC hearings suffer from many of the same short comings as other techniques for public participation. Many members of the public choose not to participate in public hearings because they do not want to speak out publicly about an issue that is so important to the survival of rural Manitoba. Natural resource management issues are rife with complexity and uncertainty, for example the cumulative impacts of nutrient loading in the Lake Winnipeg Watershed. In order to effectively address these issues, a broad scope of investigation and meaningful participation from the public is necessary.

### **3 Methods**

#### **3.1 Introduction**

This study employed qualitative research methods. This was a qualitative case study of public participation in the CEC public hearings and the moratorium on Manitoba's hog industry. According to Creswell (2003), qualitative research often takes place in the natural setting familiar to the participants and considers issues that are of central importance to them. It is characteristically interactive and involves a commitment to viewing the issue through the eyes of the participant, specifically regarding local norms and/or values, while also recognizing the potential for conflict between different groups (Gibbs 2002). Furthermore, qualitative research is described as "context-bound" with interpretation being based on that particular context or setting (Creswell 1994, 2003; Gibbs 2002). The research techniques and methodology of interviews and participant observation are commonly associated with the qualitative method. In accordance with the above-mentioned characteristics, a qualitative approach is well-suited to the research undertaken in the study.

##### **3.1.1 Interviews**

Interviews were chosen to capture those members of the public who were not inclined to attend public hearings. Similarly, it was assumed that if participants did not attend a hearing, they would also be likely to avoid attending a workshop. The primary advantage of doing interviews is that the researcher meets one-on-one with participants to gather specific in-depth information

pertaining to the research (Creswell, 2003). Furthermore, interviewers have the flexibility to pick up on subtleties in conversation and the advantage of adding or deleting probes as the researcher and participant deem appropriate. Semi-structured interviews were chosen as a research tool because they allow some level of plasticity in wording and question sequence, while also permitting the interviewer to clarify questions as needed (Berg 2004). Additionally, semi-structured interviews are advantageous when interviewing populations with mixed levels of education and understandings of English as may be an issue in this case.

### 3.1.2 **Sample**

This research employed three types of sampling: direct solicitation, snowball and convenience. The first sampling method, direct solicitation, involved interview participants who were recruited by posters in community business and rural offices; the CEC website; local media sources such as radio and newspaper; word-of-mouth; notices posted at public hearings and business cards advertising my phone number and answering service.

A sample of participants for the interviews was obtained using convenience and snowball sampling techniques (Krueger 1988; 95). Employing snowball sampling, respondents were asked to pass along my contact information to their friends and associates in order to gain access to more research participants. A small portion of the interviews were conducted with individuals in attendance at the public hearings. These individuals were targeted

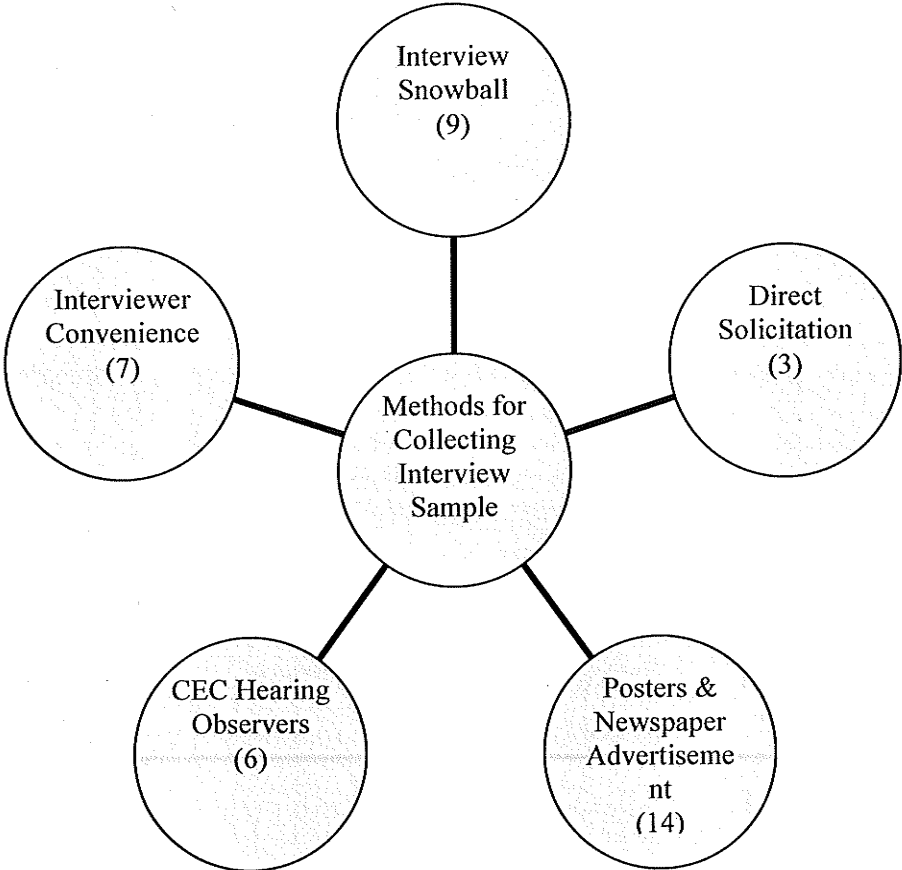


in order to gain information from participants who were present at the public hearings, but remained uninvolved.

It is worth noting that, as demonstrated in Fitzpatrick and Sinclair (2003), the lay public is a small percentage of public hearing participants. Therefore it is necessary to employ different sampling techniques in order to recruit an adequate sample size.

Participants were self-selected, meaning that they initiated contact with me in nearly all cases. Notices describing the opportunity to participate in interviews were posted at local businesses, community centers and municipal offices. In addition, posters and contact information were on display at all Clean Environment Commission (CEC) public hearings and notice of the opportunity to interview was available for viewing on their official website [www.cecmanitoba.ca](http://www.cecmanitoba.ca) (Appendix 2). The same notice was posted on the official website for the Manitoba Pork Council ([www.manitobapork.com](http://www.manitobapork.com)). I was also present for a selection of public hearings across Manitoba, which provided the opportunity to speak with potential interview participants directly. Finally, advertisements were placed in several community newspapers, namely the Steinbach Carillon, Portage Central Plains Herald Leader, Treherne Times and the Manitoba Cooperator (Appendix 3). Interviews were carried out concurrently with the CEC public hearings process. A summary of the methods used to collect interview participants may be found below in Figure 1.

**Figure 1: Interview Methods Used**



Overall, the findings of this research were based on interviews conducted with 37 participants in 29 interviews. Interview participants were chosen based on the fact that they had not yet presented their opinions, either in oral or written form, to the CEC. The majority of interview participants were of rural background (90%) and only 10% from Winnipeg (Table 1).

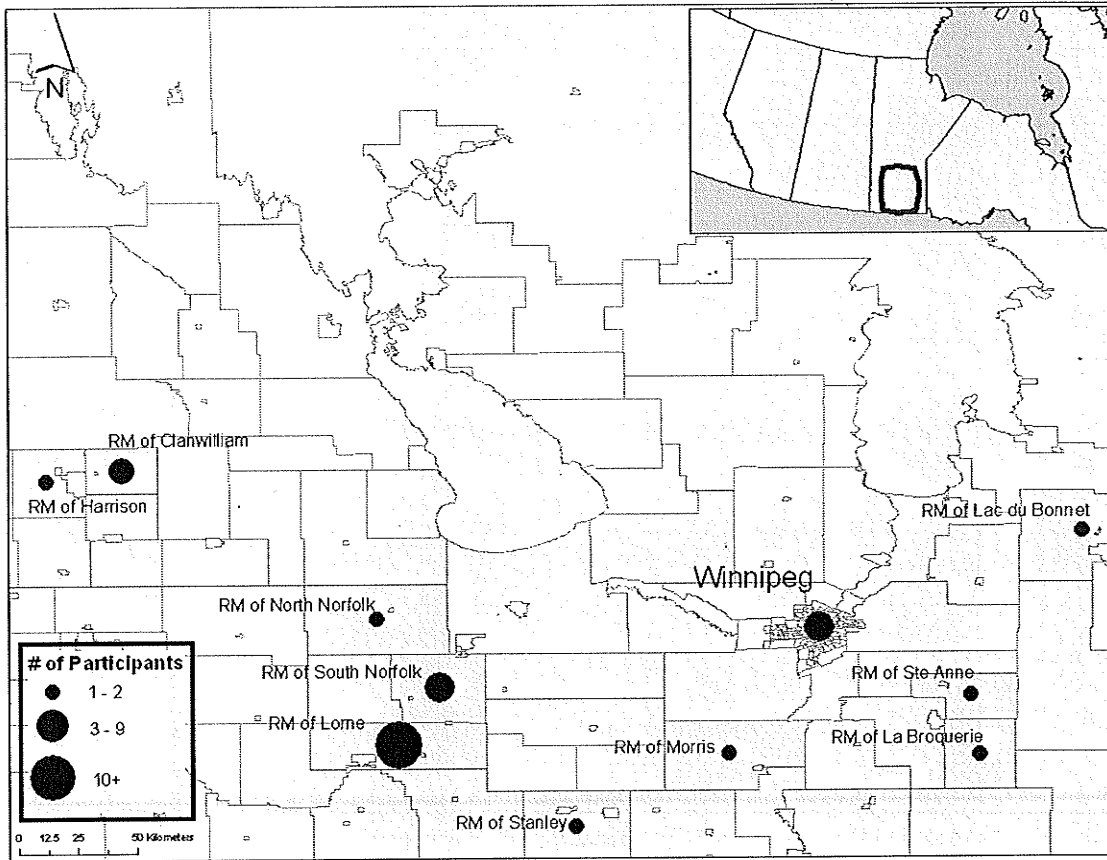
**Table 1: Rural-Urban Demographic of Participants**

Rural	Urban	Rural/Urban
29	3	3

The participants originated from various regions of southern Manitoba, however a proportion of interviews (31%) were found within the Rural Municipality of Lorne (Map 1). Map 1 illustrates the higher response from participants in the RM of Lorne, followed by a strong interest from the RM of South Norfolk, together these RMs represented about half of the interview participants. This could be explained by the unique geographic features of the watershed around Stephenfield, which make it an environmentally sensitive land area. Another possible explanation is that this area is experiencing more recent introductions of ILOs relative to the rest of rural Manitoba, and is therefore more inclined to take action on their concerns. As expressed by the Manitoba Pork Council in their response to the report *Hog Production in Manitoba: Public Perceptions of the Industry's Environmental Sustainability (August 2007)* this area of the province has experienced "recent controversies" and "heated debate". In discussions with local community members it was suggested that it is well known that there are some anti-hog people residing there, in particular those situated around the St. Lupicin, and Cardinal area. There has also been some recent controversy over two colonies buying up a lot of land. For example, a few colonies are thought to be buying up land on the escarpment, which is a sensitive land area.

Furthermore, a few years ago in the RM adjacent to Lorne, the Municipality of Thompson passed a bylaw that only allowed hog farmers to use above-ground storage tanks as opposed to earthen manure storage or lagoons. The problem from the point-of-view of hog farmers is that above-ground storage tanks cost almost twice as much as the lagoon alternative and in some areas it may be quite logical to use earthen manure storage systems. This bylaw has since been overturned (about 5 years ago) because the legislation was changed so that RMs no longer had the authority to decide on the type of manure storage used by hog farmers. Instead this became an item of provincial jurisdiction, and a part of the Department of Conservation's permitting process for the construction of manure management facilities.

### Map 1: Proportional Representation of Participants According to RM



Map Credit: Sonesinh Keobouasone

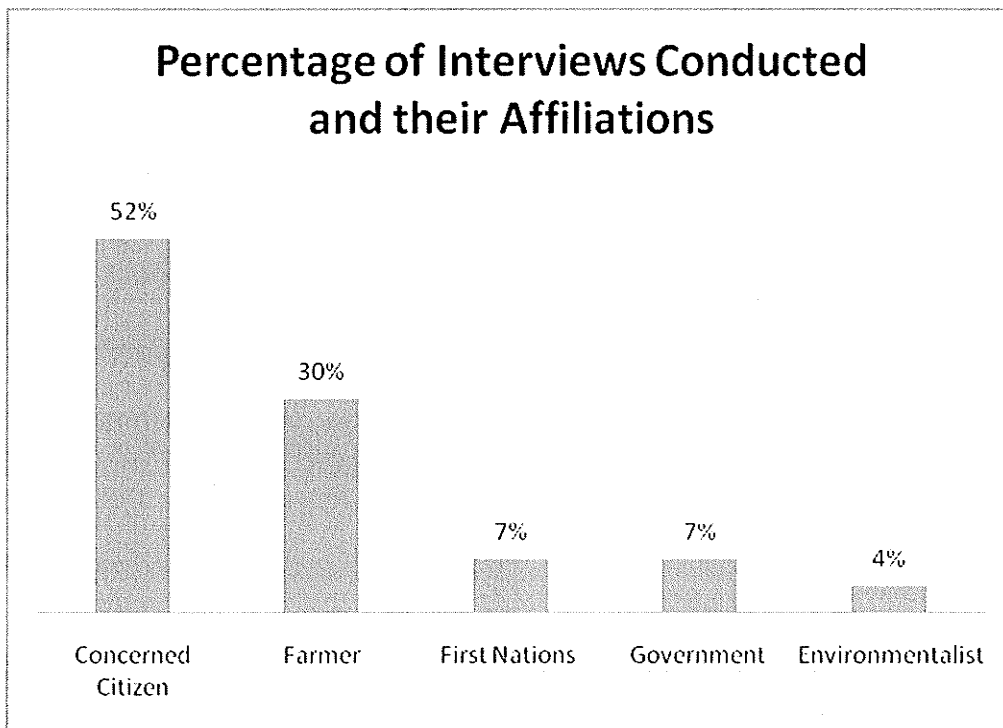
Efforts were made to include communities that may not be aware of the opportunity for public participation in the review of Manitoba's hog industry. This may be a result of cultural and geographical constraints, and as such recruitment for participation from specific groups for a public hearing may be more challenging to disseminate than usual. For example, I also approached the community of Swan Lake First Nation, which is a part of RM of Lorne (and therefore contributed to the rise in participation from this area), and interviews were carried out with members of the band council. At the outset of the research, I thought that Hutterite colonies may also be approached in this way. However after attending the hearings it became clear that this was not necessary as at

least the male counterparts were highly participative in the hearings and as such no Hutterites were approached to be interviewed.

With 52% of participants identifying themselves as primarily “concerned citizens”, the majority of interviewees’ were classified as such. This was followed by 30% of participants described as primarily “farmers”, only one of which was a hog farmer.

Only one participant identified themselves as “environmentalists” (Figure 2). The lone interviewee that identified primarily with this category refutes the misconception that this would be the main demographic interested in participating through the interview setting.

**Figure 2: Affiliation of Interview Participants**



### 3.1.3 Design and Key Topics

In the field work component of this research, I interview 37 people, and conducted 29 formal interviews. Interviews were conducted either over the phone or in person, alone or with a friend, according to the preference of the interview participant(s). Interviews lasted on average approximately one hour, but ranged from 40 minutes to well over two hours. In almost every interview, participants were recorded and the interviews transcribed for analysis in NVivo software. Those interviews that were not recorded were done at the request of the participant (particularly First Nation) and instead notes were made following the interviews. Participants were not compensated in any way for their participation. The aim was to conduct semi-structured interviews with a sampling of non-participants, from both within and outside of the context of CEC public hearings and target those people who do not traditionally participate in the public hearing process.

The majority of interviews were formally scheduled in April through June, 2008 but in a few cases were more spontaneously initiated at the CEC public hearings. In the case of more formal and scheduled interviews, a digital audio recorder was used, but only with the consent of the participant. If I was unable to record the interview, I kept notes on our discussion. As well, the interviews were scheduled at greatest convenience to the participant, in terms of time and place. This necessitated flexibility on the part of the researcher. This refers specifically to the flexibility of conducting interviews in the evening (after work), over the phone, and in many cases, at people's homes where participants felt most comfortable.

Questions in the interview were open-ended and were phrased in as neutral a manner possible in attempt to avoid biasing responses (Appendix 1). As explained in Foddy (2003) the order of the questions may bias response, and the most accepted practice is to begin with the broader and more general questions, before moving on to more specific and sensitive topics. This allowed for the interviewer to develop a rapport with the subject. The questions were open ended and the interviews made as conversational in nature as possible.

Topics for interview questions revolved around issues regarding the sustainability of the hog industry. This included key issues such as animal husbandry, manure management, the local environment, socioeconomic concerns, the adequacy of the livestock planning and approval process and enforcement. In some cases, such as where the answers related to issues of environmental sustainability, questions included prompts in order to address objective 1 of the research (learning public views about how to make the hog industry more environmentally sustainable). In addition, topics such as personal justification for non-participation in the public hearing process, sources of information that informed participant opinions on the hog industry, and participatory tools for greater incorporation of a broader public in the hearing process were also raised at the interviews.

In an attempt to become more sensitive to interpretations of the questions and gauge respondent answers, the questions were "pre-tested" in a mock interview. This provided some critical insight into ways that the questions might be improved or rephrased.



In terms of questions and social research, one of the concerns in interviews is that respondents do not always back up their words with actions (Foddy 2003). That is to say, suggestions gleaned from interviews, regarding methods for improving public participation in the public hearing process may be implemented with still no marked rise in participation. Foddy (2003) explains this inconsistency between behaviour and opinion by suggesting it demonstrates a participant's lack of understanding of the issue and/or ineffectual questioning on the part of the interviewer. In an attempt to be as clear as possible, and because there was substantial variation in the way that respondents interpreted a question (Foddy 2003), I asked what may have seemed like the same question again, but using different approaches. Similarly, attempts were made to check the meanings of participant responses and clarify words that may seem technical or open to interpretation. The pre-testing of questions in the mock interview further assisted to avoid this pitfall.

### **3.2 Participant Observation**

Research began in rural Manitoba, through participant observation at a number of the seventeen public hearings scheduled to occur in rural communities across south-central Manitoba in March and April, 2007. In addition to the scoping meetings held in January 2007, I attended ten of the CEC public hearings, including those in Arborg, Morden, Portage la Prairie, St. Claude, Virden, Killarney, Brandon, Winnipeg, Steinbach, and Hamiota. The hearings provided the opportunity for research through participant observation and first-hand learning about the CEC's public participation process (Plate 1, 2).

**Plate 1: CEC Hearing in St. Claude, Manitoba**



Photo Credit: Clean Environment Commission

**Plate 2: Clean Environment Commission's Panel Members: Edwin Yee, Terry Sargent (Chairperson) and Wayne Motheral**



Photo Credit: Clean Environment Commission

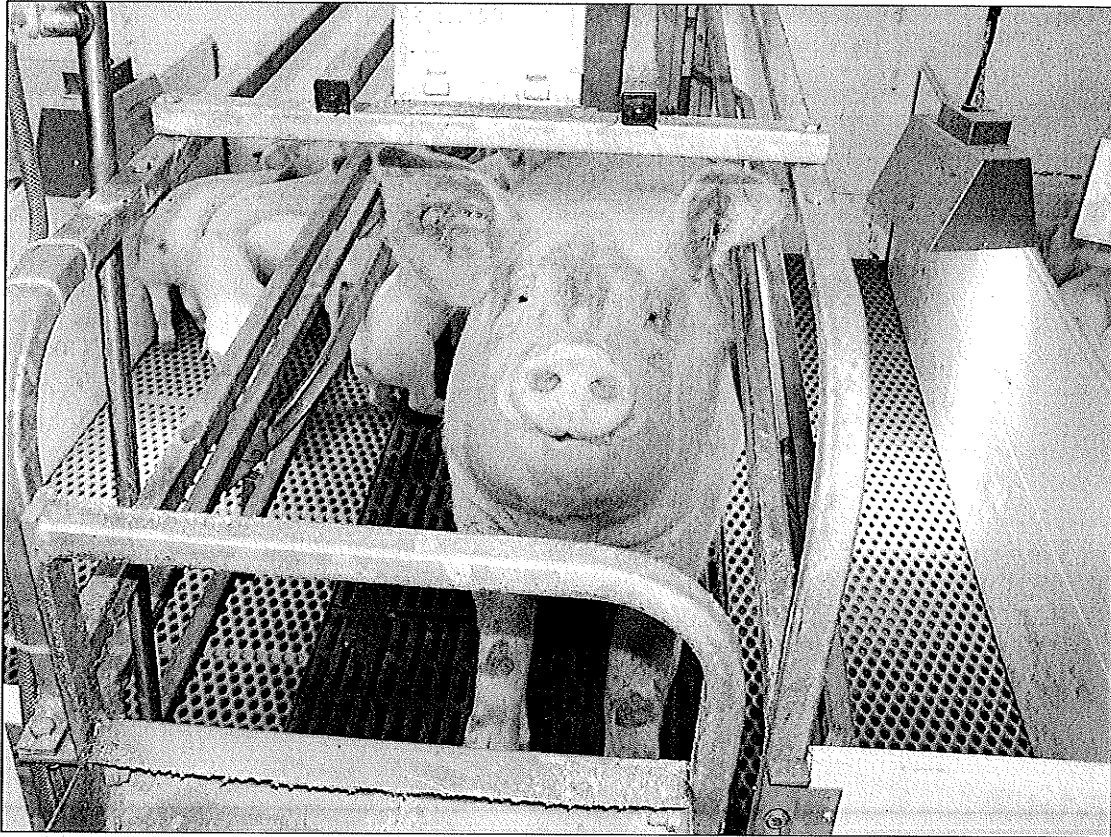
The public hearing offered the opportunity to assess who speaks in a given community, their opinions and insights about the issue of sustainability of hog production in Manitoba. Most importantly, I had the opportunity to: observe who actively participated and also gain access to those who chose not to present at the hearing. The persons, who attended and observed the public hearing, are participants in the sense that they became better informed on the issues and as a result of this may be more likely to share their opinions in the future. The assumption is that those in attendance may be more willing to participate in a one-on-one interview if it was perceived to have some bearing on the decision-making process.

A final opportunity for research on the study topic presented itself as a visit to a medium-sized Hutterite farm near Miami, Manitoba named Rosebank Colony on May 23, 2007. This presented a valuable opportunity for experiential learning about the living conditions of pigs and condition under which Manitoba pork is raised. The visit was coordinated and initiated through the Clean Environment Commission as part of their investigation in to the environmental sustainability of the hog industry (Plate 3).

**Plate 3: The Clean Environment Commission at Rosebank Colony (L-R: Hog Boss, Henry Maendel; Wayne Motherall; Terry Sargent and Edwin Yee)**



**Plate 4: Sow and her Piglets at Rosebank Colony**

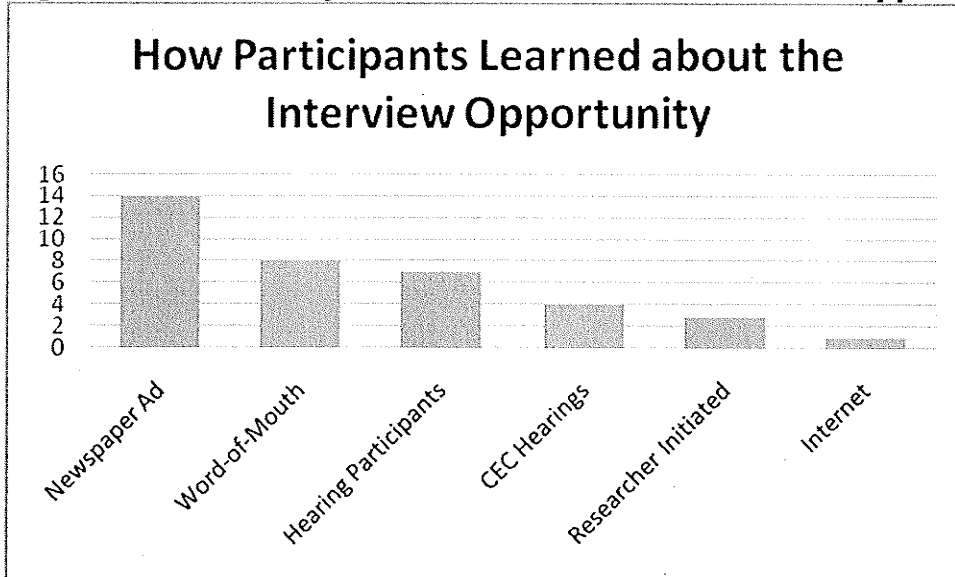


### **3.3 Public Hearings and Private Interviews**

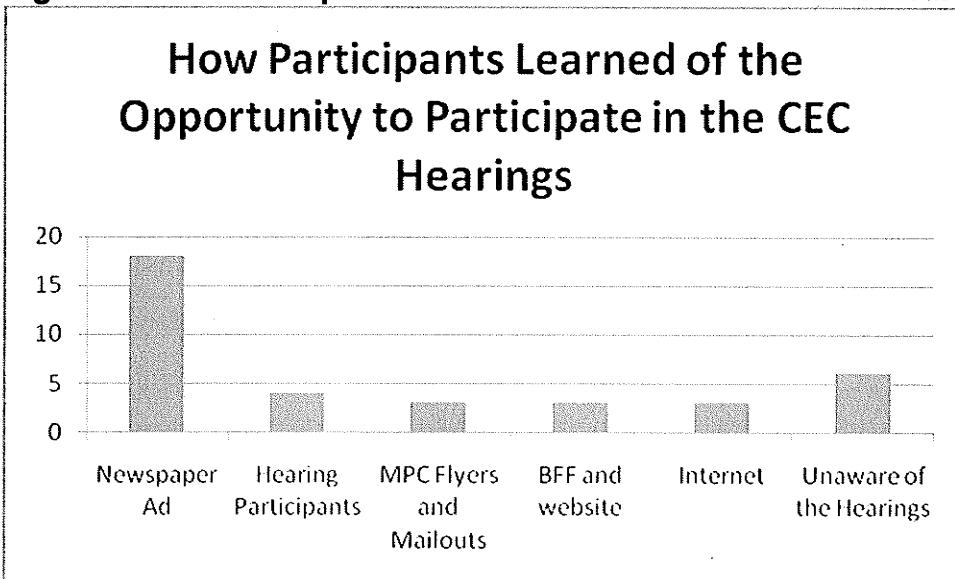
Interestingly enough, when participants were asked about how they learned about the opportunity to interview and attend the CEC public hearings, the most common responses were again word-of-mouth and newspapers. In the case of the interviews, participants relied more heavily upon word-of-mouth (52%), but newspaper advertisements also provided an important source of notice (31%) (Figure 3). In the case of the CEC public hearings, participants learned about this opportunity firstly from newspapers (54%) and then the second most common method was word-of-mouth (17%), which was mostly information from people who had presented at the hearings (Figure 4). In the case of participants who were employed by government, they were well aware of

the CEC hearings through their relationships with organizations such as the Association of Manitoba Municipalities (AMM) and their newsletters.

**Figure 3: How Participants Learned about the Interview Opportunity**



**Figure 4: How Participants Learned about the CEC Public Hearings**



### **3.4 Data Analysis**

Analogous with qualitative research, the data analysis were conducted simultaneously with data collection and report writing (Creswell 1993, Merriam 1998).

Data were organized into file folders, where a file was opened for each interview participant. This file included contact information, transcriptions of the interview (if applicable), and relevant background information relating to the informant. Furthermore, data was organized using a field book to record important points and comments from the interview and public hearing process.

Data were reviewed, categories of opinions generated and themes noted all of which were then consolidated for coding purposes. The qualitative data software QSR Nvivo aided in the organization of this data and formalizing the coding system. QSR Nvivo was chosen because of its ability to undertake a fine-grained and intensive analysis of the data, whereby tools such as coding, sorting and text retrieval of data may be rapidly employed (Gibbs 2002). Nvivo software also has the ability to show links and develop concept diagrams which offer an exploratory approach to analysis (Gibbs 2002). In summary, NVivo was selected because of its unique design for qualitative research which allows the data to be coded, themes identified and for memos to be attached to the interview data.

After the data was consolidated and an accurate picture of the research was at hand, the results were presented in written form and also maps, tables, and figures.

### **3.5 Threats to Validity**

Upon completion of the field work and interviews, a report was submitted to the CEC for review at the end of August, 2007. This report was made available online and I emailed all participants to request feedback on the results. No problems were made apparent by the participants and the general impression of

the report and interview process seemed positive. The data from this report were compiled with information and other research commissioned by the CEC for use in their final report recommending action and providing advice to the Minister of Conservation on the environmental sustainability of hog production in Manitoba.

Furthermore, the data underwent triangulation among different sources of information. In this case, triangulation of data refers to verification through use of interviews, participant observation and literature review, whereby the different forms of data were compared.

### **3.6 *Ethical considerations:***

Issues of confidentiality and identity were bypassed with the use of pseudonyms and numbers throughout the research. Furthermore, participants were asked to provide written consent in the case of a formal interview, where the information was recorded. At minimum, verbal consent was given in the case of a more impromptu interview or informal conversation. All audio and written data were kept in a locked location and interviews were destroyed at the conclusion of the research. No private information was divulged except with written permission of the participant.

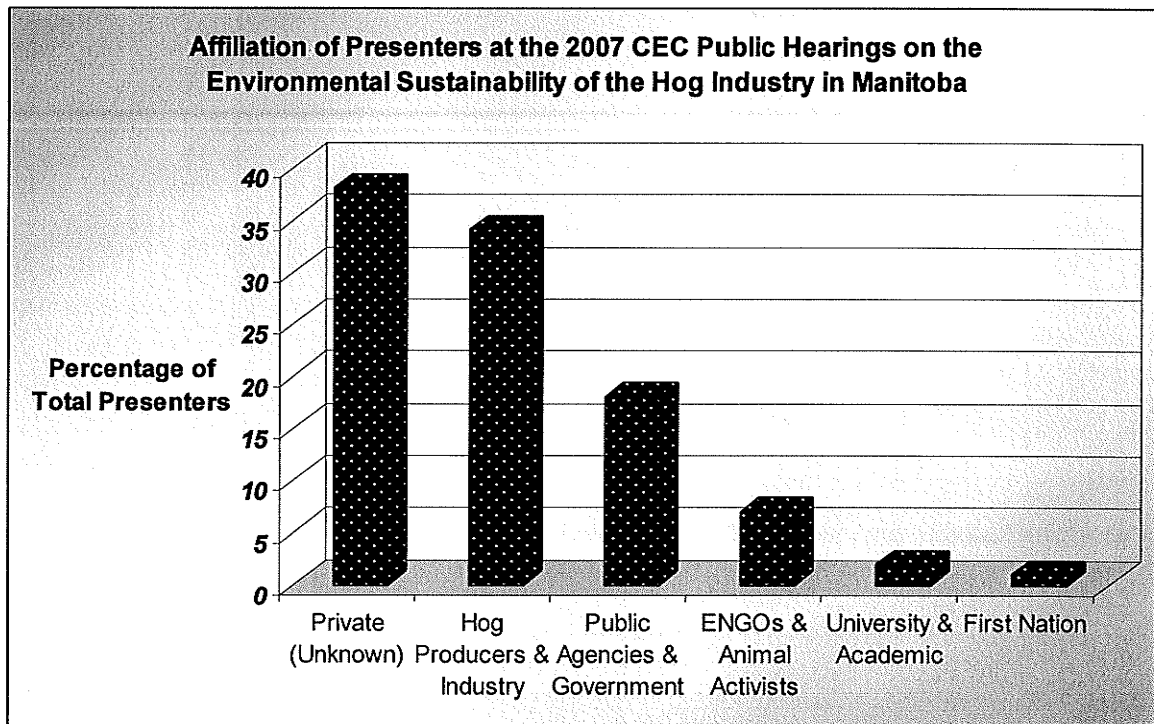


## 4 The Future Sustainability of the Hog Industry in Manitoba

### 4.1 Public Participation in the CEC Hearings vs. Interviews

In addition to three pre-hearing scoping sessions, the CEC held seventeen hearings across most of southern and central Manitoba, with a total of 194 presentations and 50 written submissions received regarding the hog industry ([www.cecmanitoba.ca](http://www.cecmanitoba.ca)). A significant percentage (34%) of hearing participants were clearly affiliated with industry or were themselves hog producers (Figure 5). A common audience at the CEC hearings included members of the Manitoba Pork Council and hog producers (Plates 1 and 5).

**Figure 5: Presenter Affiliation\* at the 2007 CEC Public Hearings**



\*Figures based on data extracted from CEC final report, December 2007

Figure 5 shows a visual representation of the six types of hearing participants identified as making presentations to the CEC. These categories were:

1. *Industry/Hog Producers:* These people have direct financial stake in the continued growth of the hog industry in Manitoba. They are less likely to be supportive of the moratorium because their economic well-being depends on a continued supply of meat and meat products or some support to the production of meat through feed, infrastructure, transport, and building services to the hog industry. Examples of participants from this category include, but are not limited to, the Manitoba Pork Council, Maple Leaf, Cargill Ltd., Puratone, Penner Farm Services, Hytek, New Rosedale Colony, Porkchop Enterprises Ltd. and Steve's Livestock Transport.
2. *Environmental and other Non-Governmental Organizations:* These people tend to be activists, lobbyists, animal welfare groups, and concerned citizens. This category tends to be representative of those members of the public who are in favour of a moratorium on the hog industry in Manitoba. Examples of participants from this category include, Beyond Factory Farming Coalition, Winnipeg Humane Society, Animals' Angels, HogWatch Manitoba, Concerned Citizens of Grosse Isle and the Wolfe Creek Conservation Group.
3. *Public Agencies, Associations, and Government:* Examples of presentation made from this category came from members of Watershed Associations, Rural Municipalities, Chamber of Commerce, Public Interest Law Centre, Deerwood Soil and Water Association and Keystone Agricultural Producers.
4. *University and Academic participants:* Academic presentation was made by representatives of the University of Winnipeg and Brandon University
5. *First Nation:* Only one member of a First Nation community was affiliated with this category and he represented Keeseekoowenin Ojibway Nation.
6. *Private (unknown participants).*

**Plate 5: Audience at the CEC Hearing in Arborg, Manitoba**



Photo Credit: Clean Environment Commission

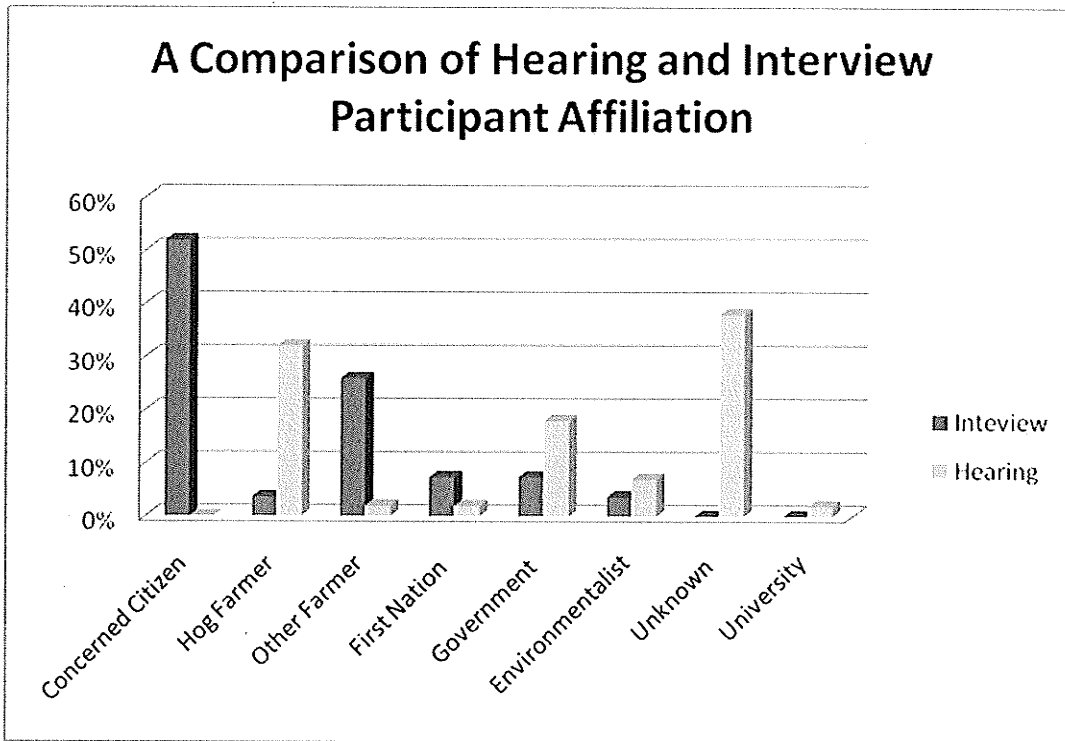
**Plate 6: Manitoba Pork Council Presenters at the CEC Hearing in Winnipeg**



Photo Credit: Clean Environment Commission

Referring to the CEC's list of registered presenters and their affiliation, and then comparing this list to the types of people interviewed, it seems that there were more opinions gathered by people outside of the hog industry (Figure 6). For example, 52% of interview participants identified themselves mostly as concerned citizens and almost all reported having no affiliation to the hog industry. The very near absence of hog affiliation by interview participants may be perceived as a sample more representative of the general public when compared to the perspectives heard at public hearings.

**Figure 6: A Comparison of Hearing and Interview Participants**



**4.2 Participant's Views on the Sustainability of the Hog Industry in Manitoba**

The findings regarding the future sustainability of the hog industry in Manitoba are described in terms of key and minority themes (Table 2). Key themes in the data relate to the issues raised most often by participants, with a

majority (at least 75%) of concerned participants raising the issue on their own accord and without prompting. Minority themes related to those concerns that were raised by a minority of participants (less than 25%), but contained important points meaningful to the participant. Quotes from participants are used to exemplify the views of all respondents for both key and minority themes.

**Table 2: Key themes in Participant Perceptions of the Environmental Sustainability of Hog Production in Manitoba**

<b>Key Themes</b>
1. Impact on Water Quality
2. Manure Management
3. Odour
4. Biased Decision Making
5. Public Role in Communicating with Environment Officers
6. Socioeconomic Impact

### **4.3 Key Themes**

The major concerns expressed by the interviewees related to water and manure management, specifically manure nutrient impact on surrounding water sources. The other key concern related to public policy issues in the hog industry. Consequently, there was a sense of inadequate monitoring and enforcement of existing regulations, difficulties in communicating with environment officers, mistrust of political leaders, and the decision making process at the local level.

#### 4.3.1 Water Quality

Most participants expressed concerns regarding the consequences of ILOs on water quality. This concern often related to the potential contamination of local aquifers, surrounding lakes, rivers, creeks and streams through run-off from manure spread fields. Specific concerns were related to those ILOs found along the floodplains of the Red River Valley, and their indirect impact on Lake Winnipeg. They brought up issues of fish kills in local waterways and the relatively recent appearance of algae blooms. They further linked these alarming environmental indicators to a detrimental impact on Manitoba's fisheries and tourism industry. Participants noted that water supplies are sensitive to contamination through nutrient run-off from intensive agriculture under many circumstances. These included:

- the springtime (or other times of year when the water table is high);
- during extreme weather events;
- when the soil is already saturated and/or over-enriched with nutrients;
- where soil is characteristically porous;
- And where manure containment and management systems are inadequate.

*Because these [pig barns] are close to the Red River, I couldn't help but think as soon as Lake Winnipeg started getting all these algae problems and we started having all these pig barns go up, I couldn't help but think there is a tie here.  
(Interview Participant #10)*

*If they're giving approval to these [hog] operations, we'd like the environmental impact to be minimal, in terms of phosphorous load going into Lake Winnipeg and contamination of aquifers and water supplies--that's 55 years I've been going there [Lake Winnipeg].  
(Interview Participant #19)*

*A decommissioned waste lagoon contains contaminated residues from the sludge and studies have shown that nitrogen levels are up to thirteen times higher and phosphorous up to forty-five times higher...Then these nitrates filtrate into the groundwater where they can be a source of aquifer contamination--especially if there's sand and gravel down there. And of course if there's any kind of flooding issue...There have been lots of examples in the States where there's been spring flooding and lagoons have actually been flooded and there's actually been a major influx of contamination into waterways...and with being on the floodway, basically along the Red River--and a lot of them are--I think that's a major threat.*

(Interview Participant #24)

Some participants expressed concern for well contamination and recounted their experience with home water test results revealing a presence of *Escherichia coli* (*E. coli*) and other coliform in their drinking water supply. As noted by participants, scientific data and studies specific to industry impact on water are lacking and results in a sense of uncertainty regarding sources of groundwater contamination.

*I have concerns about the water quality in the well. We don't drink the water [instead] I haul it from town for drinking purposes. Where we are specifically? No, I don't have hog barn concerns with it--but there are concerns. You mentioned the word density. There is too much density and improper application of waste product and this is a concern in terms of detriment to water...Our water was tested a year ago, the nitrates are still up and there were coliforms...as I said we only brush our teeth with it. Well I do--my wife doesn't.*

(Interview Participant #7)

*Every time we've had to shock. There has never been *E. coli*, but there have always been bacteria. So we shock the well, we chlorinate it, don't use it for 24 hours, and let it go through the whole system and test it again two weeks later. The first time I'm thinking it took two or three rounds before we actually had it drinkable again.*

*And this testing is done annually?*

*Should be done yeah, should be--we haven't.*

(Interview Participant #5)

#### **4.3.1.1 Water Quality Recommendations # 1 - 6:**

Participants identified a wide range of measures that could be implemented to protect water quality, especially the water around ILOs. These measures are discussed below.

##### ***Recommendation #1: Ban Winter Spreading of Manure, Regardless of Operation's Size***

Currently, operations with less than 300 animal units are permitted to spread in the winter, but after a lengthy phase-in period this practice will be banned (ban comes into effect late 2013). Due to the great risk of loss of nutrients to waterways from winter spreading of manure, it was recommended that this practice be discontinued immediately.

*I'd say for one thing they should not allow winter spreading of manure and that occurs at the one barn northwest from here. They don't have a large lagoon so they have to empty their pit on the snow in the winter. Because of the topography here, if it's spread on snow, it's going to melt with the snow, and it's going to get into channels that drain into streams and rivers in the area  
(Interview Participant #15)*

##### ***Recommendation #2: Public Meetings on Water Treatment***

Concerns over water quality are not limited to those inhabitants of the countryside, as people living in the rural towns are also noticing changes to their quality of drinking water. This participant elicits her concerns by saying that it is an arduous task to try and elicit information on the standards for and quality of drinking water, as well as the methods used in its treatment. She says that public hearings might be one technique to building public confidence in the drinking water.

*I find in the last five years or so, the water--it's so chemical and so chloriney. It goes through my mind, what are they trying to kill here? Are they getting some really bad water readings and then over-treating?...That worries me yeah--*



*because you're totally at their mercy--like we never have public hearings about our water.*

(Interview Participant #19)

***Recommendation #3: Sampling at the Field Level to Better Understand the Sources of Nutrient Over-enrichment in Waterways***

Of course, whether the changes being observed in drinking water quality can be attributed to the hog industry, especially when they are somewhat geographically removed from the barns themselves, is a point of contention. The participant below points out that to remove the uncertainty associated with the source of nutrient over-enrichment of waterways water sampling and testing would have to be taken at the field level. That is to say that the cumulative effects of multiple sources of nutrients in the Lake Winnipeg watershed raise questions about the direct contribution of nutrients from the hog industry. In order to prove the hog industry is a significant source of nutrient overload we have to test for nitrogen and phosphorous at the field level.

*You can look at the monitoring stations in the Red River and see a very slow increase in nitrogen and phosphorous over time, but whether that nitrogen source is coming from a hog operation or grain operation or from cattle operations or from the natural environment or from municipal sewage lagoons...I have not seen information that would give you that breakdown. And until you can do that, I think it is very hard to say that the hog industry, from an environmental sustainability approach is sustainable. I don't think you can make that determination. It may be true, but I haven't seen any numbers to say it is or it isn't happening.*

(Interview Participant #18)

***Recommendation #4: Planning at the Watershed Level***

A broader recommendation for improving water quality included the management and planning for watersheds at the watershed level. One participant noted that his watershed was divided into at least two Conservation

Districts, which results in a fragmented understanding of the watershed activities and their environmental impact.

**Recommendation #5: Designation of Environmentally-Sensitive Lands as Off-Limits to Livestock**

Several participants thought it valuable to designate environmentally sensitive land<sup>2</sup> areas as strictly off-limits for hog operation development. Past experiences with hog operations being proposed on what participants deemed as inappropriate land has lead to the sentiment that extra measures need to be taken to protect environmentally sensitive lands due to their potential for aquifer contamination. An example of this was the proposal for an ILO atop the aquifer which supplies drinking water for approximately 2000 people in both the town and First Nation community of Swan Lake.

*That's where I think the environmental hearings have to make some stipulation--if it's close to an aquifer or if such and such is not satisfactory within the soils, there's nothing that can go there. Water has become too much of an issue, within the environmental context, to be endangering any of it. [Therefore] the risk has to be almost zero. (Interview Participant #4)*

**Recommendation # 6: Greater Monitoring and Stricter Enforcement of Water Regulations**

To address the aforementioned water quality concerns, many interview participants recommended greater and more extensive enforcement of existing regulations and stricter penalties for offenders. Monitoring of the hog industry that is restricted to complaints made by neighbours and the general public is insufficient to ensure the environmental sustainability of the hog industry.

---

<sup>2</sup> As defined in *The Planning Act* "sensitive land" includes: (a) land that is susceptible to flooding, permafrost, erosion or that has unstable slopes or poor drainage; (b) areas of special significance for animal, bird or plant life, including wetlands, forest and nesting areas; and (c) land on which any development is likely to harm ecological diversity.

*We tried to deal with them [Conservation] on the water issue and it's all complaint-driven. They won't go in [to inspect] unless someone phones them up and says their next door neighbour's sewage is going into the lake. There's no inspection going on, no monitoring people...there needs to be way more intervention. The province has got to pay people to go in and they need to give their Conservation people in the Department way more backup, more people and guts behind them to make people tow-the-line because [otherwise] people aren't going to do it.*

(Interview Participant #6)

*There was a barn built about 3 miles west of here right on the bank of the Roseisle Creek and he, I believe, has been fined a couple of times like \$300 or something for discharging waste in the bank adjacent to the stream. I find that pathetic. That was the first offense. He might have been charged \$500 for the second offense, but my feeling is that the first fine should be \$10,000 and the second should be \$20,000 or \$30,000 so that they don't do it ever.*

(Interview Participant #15)

#### **4.3.2 Manure Management**

Waste management concerns in the hog industry often related to the handling of liquid manure and the earthen lagoons that are used for manure storage. Participants were wary of the use of earthen lagoons for liquid manure storage due to the perceived difficulty in detecting leakage. Participants pointed out that the testing of these liners for leaks is insufficient, and in many cases not properly monitored.

*Some of these have to be somewhat confidential so I won't mention any names, but I know of some of the hog operations that are there that existed before these reviews came on that are not regulated and there are some overflows too. It gets full and you can't empty it and it flows away and ends up in the river.*

(Interview Participant #20)

Many of the interview participants also expressed the concern that there is not enough spread acreage for the amount of liquid manure that these intensive hog operations are producing. Participants involved in farming indicated that they had been approached by hog farmers in need of land to spread their manure, but

preferred to not deal with the hog industry in this regard due to problems with weeds and other concerns with the composition of the waste product. At the same time, participants expressed concern that due to the financial constraints of transporting hog manure, it may not be feasible for hog farmers to move it any significant distance. Thus, hog farmers are limited to spreading on the farmland within the vicinity of their barns. As a result, participants expressed concern that hog farmers may not have adequate spread acreage and overload the soil with nutrients and/or find other undesirable methods of disposal as a result.

*The phosphorous issue and regulations--it's going to be a real problem here in La Broquerie because they don't have enough spread acres. When that regulation comes in they're going to have to look to alternatives to what they're doing right now.*

(Interview Participant #13)

A few participants noted that incorporation of manure by hog farmers was not happening in their area. Instead they observed that some hog farmers were still using traditional broadcast methods and big manure sprayers. The odour associated with broadcasting manure caused participants to express a clear preference for the injection of manure directly into the soil.

*And as much as people might like to think that they're incorporating the manure right into the soil, it just doesn't happen. There's nobody that does it--everybody's spraying on top of the soil.*

(Interview Participant #13)

#### **4.3.2.1 Manure Management Recommendations # 1 - 7:**

##### **Recommendation #1: Use Bio-filtration Systems**

Some of the recommendations that were made for improving the management of manure in the hog industry included integration of bio-filtration systems and better engineered manure containment systems, eliminating the

practice of “grandfathering” older-style hog barns, and the provision of incentives for those operations implementing environmentally sustainable practices.

*Also the wetland option too, to process some of the liquid manure. This is another good alternative, increased use of bio-filtration systems...And just providing provincial incentives to look at more environmentally sustainable operations.*

(Interview Participant #24)

### **Recommendation #2: Add Calcium to the Soil**

A unique recommendation for the mitigation of problems associated with nutrient over-enrichment in soils included the stabilization of phosphorous through the addition of calcium.

*...you can't get rid of phosphorous, but I think what you can do is you can stabilize it. And compost will do that--stabilize it so that it doesn't run off and end up in Lake Winnipeg. Because the farmers here and the Ag. Reps. as well, are worried that it's going to bring up their soil pH which is already fairly high-- but not critically high. They are scared so nobody uses calcium and yet it's one of the most important soil elements, because it opens up the soil. It does the same basic work that composting organic matter would do. So my suggestion is that somebody looks into this matter and to start using calcium again. I know that organic farmers are using calcium and most of the time are using calcium sulphite (which is gypsum), and this is something that we have here in Manitoba quite a bit. Also [with gypsum] being a cat-ion, it would add a little more holding capacity to the phosphorous so that it doesn't run off. And then it [the phosphorous] is being used up the way it should be--absorbed by plants.*

(Interview Participant #13)

### **Recommendation #3: Use Dry/Wet Separation Technology**

Furthermore, the usage of dry/wet separation technology was expressed as an important component to the sustainable management of manure because of its efficiency in reducing the odour and sheer volume of spreadable waste.

When speaking with a participant who is in the business of providing on-farm composting services, he relayed the trend that more people than last year preferred to spread their manure as compost rather than in the liquid manure

state. In his quote below, he explains why he thinks farmers are showing an increased interest in composting manure.

*For many reasons, the most obvious one is that it reduces your volume [of manure] by 60%. Anyone that can add or subtract can understand that's a bonus for their farm [to have less volume of waste]. And that's not even counting how much of a better product it is and how much you're adding to your soil in the process. If you're trying to compost stuff from the lagoon, then you would have to find some way of taking the water, or the liquid out. I know it's being done in the States. I talked to two farmers that do that and according to this farmer, he used to need 800 acres to spread his liquid manure onto the land and now it takes only 238 acres. So it makes a big difference.*

(Interview Participant #13)

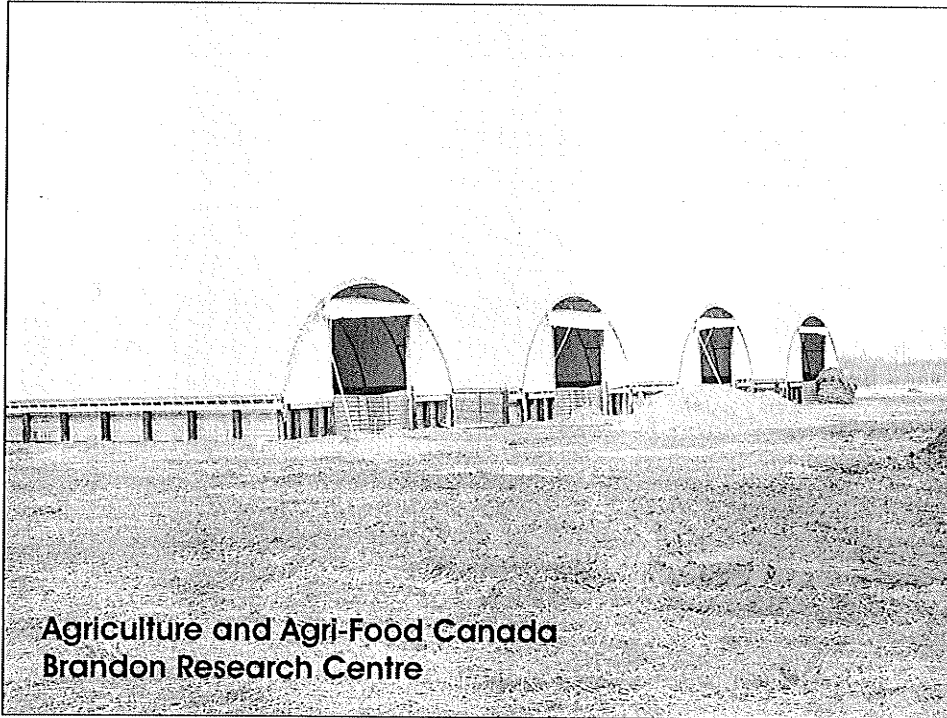
*The large manure operations, in both dairy and hogs, have enough cash flow that they can afford the type of equipment...with the separators to separate out manure and dry it out--they can afford this. It makes for a very nice contained system, where none of the manure escapes the farm... you can keep the manure on the farm and inject it. So I think that works very well and in that regard I like them [ILOs].*

(Interview Participant #14)

#### **Recommendation #4: Increase Use of Biotech Facilities**

Many interview participants identified biotechs, also known as a hoop barn style of hog production, to be a preferable option to the conventional large hog barns or ILO. Biotechs were defined as straw-based housing systems where the animals are group housed, and allowed greater movement than in a conventional slated-floor facility (Plate 4). In biotech facilities, the manure is windrowed and made into compost.

**Plate 7: Hoop Barn/Biotech Style of Hog Production**



**Plate 8: Straw-based Housing of Biotech Hog Operations**



*I would really prefer--seeing the operation needs to be fairly big--they could go with biotechs and use straw, and then at least you can compost the manure. It stabilizes the nutrients and reduces runoff, fertilizes your soils, and is a healthier way.*

(Interview Participant #13)

*A very smart man runs the [local] biotech operation and he seems to be able to make a dollar at it. I like that concept [of a biotech]. I like it better than the factory farms...I think they [biotechs] are healthier for the animals and healthier for the environment. And meat is meat, but the quality of meat is also important. If the animal is healthy, then the quality of the meat will be better and so the consumption of that particular pork would be improved. But mainly waste management and the care of the animal are improved dramatically. From a clean air aspect, its better too. I mean I've been around the biotechs and the smell is not there. It's a pretty different situation.*

(Interview Participant #7)

In addition to these perceived advantages of biotech operations, many interview participants indicated a preference for them on the basis of animal ethics and welfare.

*I like those [biotechs] better. I think the pigs are happier in them. My main problem with the large liquid barn is actually a welfare concern. We toured a couple and I just don't like to see the sows in a gestation stall, I mean they spend their whole lives in a crate. It's a very unnatural situation. I think they would be happier in a free ranging hoop structure and I think it would sell better from an animal welfare standpoint. I'm not sure it's much different environmentally from a water quality standpoint or a nutrient management standpoint, but certainly the animal welfare side would be better.*

(Interview Participant #18)

Despite the general favouring of biotech operations which utilize more dry manure handling techniques over the conventional liquid-manure barns, some concern for proper manure management persisted, albeit in a more limited sense.

*The only thing with the biotechs is sometimes you wonder with the management of the manure, is it as good? Because I know with the bigger ones [barns] you have everything in one big tank. Whereas a lot of times with the biotechs, you're just piling it into a pile and you move it when you feel like it--when it's composted. But what is happening with the pile? There's no protection there. A lot of cases*



*they're just piling it up and if they're leaving it to compost. When it's raining, is it not increasing the nitrate flow?*

(Interview Participant #4)

Countering this concern was the recommendation from a participant to take better advantage of the funding offered to farmers through the Environmental Farm Plan. In this case, the Plan would be a source of funding for a well-built on-farm composting site.

*He told me that he's been composting for 40 years and he says there's been a lot of work done in the States in regards to seeing if there's any leaching into the ground and they've never had any problems with it. Are you familiar with the Environmental Farm Plan? Well in there, there's money available for farmers to build exactly a site for compost. And that would require an engineer to hire and find out according to soil conditions, how to construct an impermeable layer where you would use it as a permanent composting site.*

(Interview Participant #13)

#### **Recommendation #6: Use Above-Ground Manure Storage**

Some participants recommended the use of above ground manure storage tanks due to the more ready detection of leaks or flaws in the storage system.

#### **Recommendation #7: Manure Monitoring & Enforcement**

To address the abovementioned concerns with respect to manure management in the hog industry in a broader sense, tighter monitoring and enforcement by the province was again recommended by many of the participants. It was pointed out that the environment officers may not be well trained or adequately qualified to assess the environmental impact of the ILOs.

*Enforcement is a big concern with the Conservation people...the majority of them didn't go into conservation to check up on hog barns, they were put there for wildlife, not for tame livestock. I think a lot of the people that do the checks, some of them aren't trained well enough...if you've never been on a farm or you don't know what you're looking for, how are you going to find it? With more people*

*going into the cities and things like that, they're getting away from the farming end of it so we're not in touch with the farming community anymore in a sense. [Enforcement officers should] Talk to the people around these barns and see what they think.*

(Interview Participant #1)

Adding to this point, participants again supported the idea that the financial penalty of breaking the law needs to outweigh the cost of regulatory compliance,

*Another problem that I've got is the fines are so low. For example a few of the [ILO.s] have just been spreading it [manure] at will. And I can't remember what their fine was, \$5000 or \$10,000 or something like that, but if you look at what it would cost them to handle it properly it was more...So that's the cheaper way to go.*

(Interview Participant #5)

#### **4.3.3 Odour**

In general, people believed that today's odour issues are less than in the past due to the more prevalent use of injection methods, rather than broadcast, and thus the direct incorporation of waste into the soil. However, many participants relayed their distaste and took issue with the air quality around the hog barns. The main concern expressed was the impact on quality of life for rural neighbours to hog operations. Participants described how they had planned to retire in the rural areas where they had fond memories from their youth, but as a result of the widespread occurrence of ILOs from the hog industry they had made alternate plans for retirement. A few participants were impacted so greatly by the air quality around their homes that they were forced into relocating. Others expressed their frustration by the loss in property value when they tried to sell their home and move away from the hog barns. Therefore, a number of

participants maintain odour is of significant concern, as captured in the following comments.

*“You can’t open your windows. Neighbours of ours...[the air] would be good and they’d go to bed, but during the night all of a sudden they’d wake up and they were damned near choked to death with the smell...the conservation people come back the next day and sure the smell was all gone. But that’s what I say—you’ve got to live here...and then you understand what the problems are.”*  
(Interview Participant #1)

*It can wake me up from a sound sleep at night if the wind changes direction and I have my window open. In the summer, many times we can’t keep the windows open and lots of times, I can’t sit outside in my yard depending on the direction of the wind. So if that closest big barn is a mile and a quarter and I can’t walk out my door without gasping when the odour hits me, it’s a problem because I’m not the closest resident to that barn. We decided to retire here before that barn was built. It just doesn’t seem right that somebody could impact our life that way. What do we get out of it? Just the smell.*  
(Interview Participant #11)

#### **4.3.3.1 Manure Management Recommendations # 1 - 2:**

##### ***Recommendation #1: Owners Live On-Site***

Several participants linked the issue of heavy odour to farm ownership of ILOs. The belief was that if investors had more of a connection with the local community, they would be more considerate of their neighbours, and perhaps some of the odour issues might be mitigated or even avoided. In addition, if the owners themselves were living and breathing the same air and drinking the same water then it was easier to put up with the issues around ILOs. Furthermore, participants expressed that this would help a hog barn owner gain credibility and trust within the local community. Therefore the recommendation was made by several interviewees, that barn owners live within close proximity to their hog operation.

*The small one [hog barn] close to us, the owner lives in that yard and does make some reasonable attempts to recognize the impact of some of the activities of that barn on the people who live in the area. He'll try not to spread manure or do any transfer when the wind is from the south because he knows there's that house, and that house--and us that it's going to impact. He tries to be a decent neighbour. Whereas the guy that owns the really big operation who lives another 2 ½ miles that way, well it has no impact on his daily life other than the money he takes in from it... he's not smelling it and he's not even there to run it. He does not even smell it during the day. He hires people to run it. I'd like to see some kind of rule that if a person builds a barn, and if they're going to continue building them, then the owner has to live there. I think things would be a little different then.*

(Interview Participant #11)

This recommendation was echoed by one participant who saw his application to build a barn away from his main farm site denied by the municipality and shunned by the community.

*Another reason [for me to build the new barn] away and on another quarter section...if some day I wanted to sell the unit, I could sell it off and still keep farming. [However] that wasn't accepted very well [at the public meetings] either--just the fact that it wasn't on my yard.*

(Interview Participant #9)

### **Recommendation #2: Odour Monitoring**

Once again, interview participants emphasized the need for greater monitoring and enforcement of regulations to better manage odour from the hog industry. They suggested that enforcement officers come out at different times of day, including early morning and later at night, and not call prior to arriving for an inspection.

*He promised the municipality twice. It's in the minutes of the municipality meetings [minutes] ...when he was asking for permission to build the barns--that he would cover his lagoon. And here we are and it's still not covered. I believe he's been ordered to cover it too...but it's not been covered. There's no enforcement at all. Now this is picking on one particular barn, but that's basically because it's the one that impacts our life.*

(Interview Participant #11)

Another interview participant recommended that farmers be required to notify the appropriate authorities when they begin spreading manure, as a method for improving industry compliance and monitoring.

*You can't burn a fire here without phoning and if you do you are fined. If this [hog issue] is something important and that's polluting and making those algae blooms then it's something that would be very simple to do. They [enforcement officers] might check on them, they might not. But if you're going to inject manure that day, you phone and tell them what you're doing. If they're doing it properly they have nothing to worry about, right?*

(Interview Participant #12)

#### **4.3.4 Environmental Decision Making on the Hog Industry**

A main concern, as expressed by participants, was the feeling that decision making around the hog industry was biased in favour of the hog industry. Participants expressed their frustration and anger that their municipality was not at arm's length to the industry. Participants felt that municipal councillors unfairly sided in favour of the development of hog barns in their area. For example, councillors might be friends with or themselves an investor in a local ILO. They further stated that the provincial departments of Agriculture and Intergovernmental Affairs, in combination with their municipality, viewed hog developments primarily from an economic, as opposed to sustainability perspective.

*Mr. [councillor] said that if they would've rejected the [hog barn proposal] they would have been facing a law suit. There wasn't a whole lot that could be said or done to rebuke it. Money was doing the talking.*

(Interview Participant #5)

*I think our municipality itself is not upbeat to all the issues. They're afraid to have bad feelings [in the community] so they just let everything come in. Let them come in, let them come in, let them come in! I think those are the individuals that are in there right now.*

(Interview Participant #1)

*[The farmer] He crossed our land to dump them in the creek! We saw all these dead pigs floating in the creek. And when we saw them, we contacted the municipal councillor and all he told him [the farmer] to do was cover them up.*  
(Interview Participant #23)

#### **4.3.4.1 Environmental Governance Recommendations # 1 - 2:**

##### ***Recommendation #1: Environmental Decision Making at the Provincial Level***

Despite the acknowledged problems with the technical review process (see Section 4.3.4.2) some participants recommended that the province take a more active role in decision-making and regulation of the hog industry in rural communities. Rural municipalities were generally regarded by participants as “not up to speed” on the environmental impact of the hog industry and therefore felt strongly that these kinds of decisions need to be made at more senior levels of government. Essentially the role of the provincial authority was viewed as important to provide the necessary unbiased perspective on the issues and decisions being made regarding barn approvals.

*There has to be, in my opinion, a larger body making these decisions for the betterment of all. And I look to the provincial government for that, rather than small municipalities, where maybe a couple of the councillors are involved in the hog business, or under pressure from neighbours. You know with politicians, the closer you are to people that elect you, the more difficult the job is because you're dealing on a day-to-day basis with things that a provincial and certainly a federal politician wouldn't even conceive of.*  
(Interview Participant #7)

In order for the province to be an effective leader in controlling the monitoring and enforcement of industry regulations, there needs to be clear separation of industry and public institutions, such as universities and the Inter-Governmental Affairs department. In order to accomplish this, the government

needs to take an objective look at proposals for hog barns, ensure the integrity of academic research in its universities, and promote respectful communities.

*Because our NDP government has been the push behind the hog barn and Maple Leaf. I mean the tax dollars used to run the Maple Leaf Plant is terrible and Inter-Governmental Affairs, they've always been the push behind these hog barns coming in... even though the government has put a temporary ban on the construction of hog barns they're still in the hog business, as far as I'm concerned.*

(Interview Participant #6)

*The government encouraged about 15-20 years ago that the industry should get involved more in the research part, but of course if you're going to do research on something you have to have some vested interest in it. So right now it's just turned the other way, and instead of having a system whereby you have a university do the research on it, you have a university doing research with a bias for the big company. For example, several years ago, Monsanto put in \$10 000 for the Round-Up Ready wheat research and the government of Manitoba put in one million dollars. While that \$1 million is a freebie for Monsanto it doesn't help the consumer, because he's not getting an independent study from it. I think we're seeing a lot of that, and I don't think it's fair to the public.*

(Interview Participant #13)

### **Recommendation #2: Citizen Deliberation on Hog Proposals**

A few participants recommended that those people directly impacted by the building of a hog barn should be the ones who decide on a hog proposal.

*Draw a circle about 25 miles around that barn and let the people north and south decide on whether the barn should go there. They're the ones being affected and having the value of their properties lowered.*

(Interview Participant # 12)

#### **4.3.4.2 The Political Behaviour of Hutterites and its Impact on Decision Making**

In Manitoba hog industry officials have prompted Hutterites to enter the realm of politics and decision making. A few participants, namely in the RMs of Lorne and South Norfolk, were disturbed by the move of local politicians to actively "motivate" voting by local Hutterite colonies. The reason for their concern

is the large number of voters within Hutterite colonies that could make it more difficult to elect officials who represent their interests in promoting environmentally sustainable forms of livestock development.

*They [election candidates] approach the colonies by saying, you know if you vote for these guys that they're anti-hog operation [in the RM]. So therefore they [the Hutterites] started going out [to elections]. So you tell me if there isn't a conflict of interest? It has definitely changed the political process because they now control the elections and we've seen this for three elections in a row now, where the Hutterites have gone out to vote—[even though] they say it's against their principles to get involved, but the council is predominantly pushing the hog industry. Councillors and the Reeve have approached them to say, you know the other guys are opposed to hog production...but the other guys [candidates] are not opposed to the hog production, they just want some controls and some limits. (Interview Participant #23)*

This concern was validated when speaking with a local government officer who provided the specific example of Skyview Colony, Rosebank Colony and Miami Colony uniting to vote out a non – hog friendly election candidate for the municipal election in the RM of Thompson. Interestingly enough, these three colonies banded together despite the fact that Skyview Colony is of a different leut<sup>3</sup> than the other two. The voting power wielded by these three colonies is just one example of the significant sway the hog industry is having over the political process in rural Manitoba.

#### **4.3.4.3 The Technical Review Aspect of Decision Making in the Hog Industry**

One of the important stages in the approval of hog operations is the technical review of a proposed ILO. During this stage, experts in such areas as water stewardship, soil conservation, agriculture, and engineering are involved in

---

<sup>3</sup> In the late 19<sup>th</sup> Century, when Hutterites moved to the New World, they divided into three colonies, also known as leuts, The three leuts were Schmiedeleut, Dariusleut, and Lehrerleut.



the review of the local environment and its suitability for the proposed hog barn. However, as described below, participants identified concerns with the process of achieving a proper technical review of ILOs. The issues with the technical review stage, as relayed by participants, included:

- It was treated as a mere formality;
- It was difficult to obtain a copy of the technical review report;
- When the report was reviewed there were obvious mistakes found. For example, the absence of waterways on provincial maps and the description of water flowing in the wrong direction.
- A member of the Swan Lake First Nation pointed out that his community was not even considered during the technical review process. He was very upset with this oversight by provincial authorities.

It was the opinion of participants that the technical review process was mired by a lack of adequate and objective resources dedicated to the review task.

*I cannot think of a single hog barn application permit that has been stopped because of a technical review. I've had large hog producers talk to me about technical reviews and they say it's just a formality. It's just a thing where you fill out your form, you get your technical review, and the municipality gets the technical review and says, 'Oh, it's passed the technical review rubber stamp'. (Interview Participant #25)*

*The work that needs to be done has to be done by people that look at it fairly and make an objective comment on it. Because in one of the technical reviews, and this was done on this hog barn, the soils person--who's trying to sell it...He's saying it's a class 5 or 6 [soil type], ...because of certain conditions he was recommending it get moved up to a 2 or 3. Therefore there wasn't a problem with them going ahead with the barn. And then you look at the agrologist's report saying that the topsoil was very thin and then it got into a shale-gravelly substructure, which would put the aquifer at extreme risk. Those two [reports] just*

*don't match. And they both work for the province. And they both should be working for the people and the farmer.*

(Interview Participant #4)

*They did make a lot of mistakes in my technical review...they made huge mistakes on where the water was flowing from the site I had picked to build the barn, to which direction the water was flowing and to which watershed [it was located in]--They didn't even get that right! I can see how the public has no confidence in the regulation process when there are mistakes like that going on.*

(Interview Participant #9)

#### **4.3.5 Public Role in Communicating with Environment Officers**

In making enquiries or raising concerns regarding the hog industry, several interview participants expressed difficulty in knowing who to contact and spending inordinate amounts of time on the phone being shuffled from one authority to another.

*Who do you even phone? It's a rat chase. This person directs you to that person, this person to that person. Really there's nobody—it's frustrating in and of itself that you have an issue but can't even find the person to complain to*

(Interview Participant #5)

#### **4.3.5.1 Livestock Communication Recommendations # 1 - 2:**

##### ***Recommendation #1: Toll Free Number***

Participants advised greater effort be made to communicate with the public about how to access information on the hog industry, specifically the rules and regulations. Similar to a recommendation made by a least one presenter at the CEC hearings, interview participants suggested that a 1-800 TIP line be implemented. This would be a meaningful way to provide access to hog information for the average citizen. Moreover, it may act as a means of community-based monitoring of the hog industry. Community-based monitoring

can accomplish many basic needs, including regulation enforcement and observing changes in systems (Moyer *et al.* 2008).

*That's something that I would recommend, that there be some kind of formal follow-up, 1-800 number so if you had a complaint, that you could have it looked into. And that would be an anonymous way of doing things too. You know, in the case of any intimidation factor.*

(Interview Participant #19)

*The guy [government representative of the hog industry] was surprised like, how did you get my number? How did you find my number? That's why I was talking about the 1-800 number, where people know that's where you phone and the person who answers expects to hear that type of complaint.*

(Interview Participant #25)

### **Recommendation #2: Improve Communication between the Public and Livestock Environment Officers and Follow-Up on Public Concerns**

When a participant was questioned as to how he felt complaints against industry regulations were currently being enforced, he replied that it was primarily by telephone. Unfortunately this participant had a difficult time tracking down someone to speak with regarding hog manure and disposal via the phone. Another problem is the characteristically reactive (as opposed to proactive monitoring) of this complaint-based system, of the system, and the lack of follow-up with those citizens who made the initial complaint.

*First of all finding a person to whom you can talk to is very difficult. I found this line in Winkler – manure and animal waste disposal department in Winkler. I finally found the guy with whom to talk to but I found him by – I think I spent a couple hours on the phone phoning Winnipeg and the Government of Manitoba and then they gave me another name and then another name. And accidentally I got the name of the right person to talk to and then phoned up the individual who was doing this. So usually enforcement is by telephone--you complain; the provincial authority talks to the producer and they try to resolve the matter. That's how it's usually done.*

(Interview Participant #24)

A final point made by more than one participant was that the current system for reporting an offender includes fees for its use. This is a definite deterrent to public use.

*Yeah, imagine! You have to pay like \$50 or \$100 and you have to have other people sign if you're going to put in an official complaint! To me, why would you have to pay to report a crime? Basically, what is a crime? It's a broken rule. If I see you assault someone and I report you to the police, why should they charge me \$50 for reporting something?! That's something that I have difficulty with. I don't think it's a deterrent for everybody, but for some people it would be a deterrent. If I smell manure or see manure being spread in winter and I know it's going to cost me \$50 to report and get it investigated--I'm not even going to bother.*

(Interview Participant #25)

#### **4.3.6 Socioeconomic Impacts**

##### **4.3.6.1 Economic Impacts**

One of the goals of expanding the hog industry in Manitoba is rural revitalization, which provides a source of employment and income from spin-off business and industry. Participants commented on the economic benefits of the hog industry which included a market for grain in hog feed, a source of organic fertilizer for fields, and food and job production.

*We will live here [in the country] permanently, unless some health issue comes up. But unless we have industry like hogs, we won't be able to keep those hospitals open...we are slowly dying--The school that I taught at for nearly 30 years went from 136 when I entered to now less than 90...you have to do in the country what you can to remain viable...On the one hand, hogs have created some difficulties and also some employment with it tied to agriculture, which is predominantly the industry in the area...I know directly of 10 people who have jobs in the hogs.*

(Interview Participant #7)

*So there are all kinds of employment and spin-offs in commercial activities. It helps the grain industry. It gives you a good market for grain. In fact, the manure issue...the effluent issue...is in fact a great natural fertilizer, not that we've ever used it directly, but from what I see, any manure from any operation is a great*

*natural organic fertilizer of considerable value given where the price of chemical fertilizers have gone.*

(Interview Participant #8)

However, others expressed concern and provided opinion contrary to the economic benefits espoused by industry. These participants argued that the jobs are low paying and undesirable. Furthermore, neighbouring properties to hog barns have experienced a decrease in property value. There was also concern for the impact of hog operations on local infrastructure, such as roads and wastewater treatment plants.

*It does create jobs and all that but what, \$12/hour jobs? Big deal. What does that do? You can't raise a family on it, or not very well. It drives people out of rural Manitoba. People get fed up with the smell and leave, which is what people in the pig industry want because if there's no one left to complain, then they have it all to themselves.*

(Interview Participant #11)

*When we did move, our house was worth very little value. We lost an awful lot of money. But we just knew we couldn't take it any longer so we up and moved. We did sell but we got very, very little money as to really what it would have been worth had it not been close to a hog operation. I would say we got maybe 60% of the value, if that. Maybe half, I don't know. So we lost an awful lot too. And we did ask the Hutterites if they would buy us out but they refused to do it. We thought that would be the solution and I would have been willing to sell to them for a loss too.*

(Interview Participant #22)

From an economic point of view, participants pointed out that the money made by major investors in hog barns is often taken outside of the community, and not used for the betterment of the local people who live there. Owners do not reside locally to serve as consumers in the community. There was also concern over the costs of environmental clean-up if a hog barn moved out of the community.

*There are not a lot of local people employed in the barns and they don't go to the local CO-OP. They get all their feed in on big trucks. They even have vets hired to do all their own barns, this type of thing. So probably local stuff, they're not buying. My own personal opinion is that there's not much benefit to having them [the industry] around...Your concern on council is that if you had a hog barn come in and they went out of business then you're left with what is basically toxic waste in these lagoons...that was always a big concern--that it would fall on the RM to do that [cleanup] and it would cost hundreds and thousands of dollars to do it.*

(Interview Participant #6)

#### **4.3.6.2 Social Impacts**

Despite the real or perceived economic benefits of the hog industry in rural communities, there was significant concern expressed by participants regarding the manner in which the hog industry has divided communities. As also discussed by Novek (2003) communities may become bitterly divided and violently opposed to the hog barns when they are not involved in the decision making process. Interview participants spoke of incidences where hog farmers were targeted victims of public outrage. Participants relayed examples as to how opposition to the industry has caused them financial and social strife in their rural communities.

*You've got the pro-hog people and the not so pro-hog people. It even gets in the families--we know married people where one spouse is very much against and it creates conflict. We've seen it. You get people working in town who don't speak out because they're afraid of losing their jobs because their employer has told them: 'Don't get involved, these people are customers or clients' or whatever...it divides communities.*

(Interview Participant #11)

*We had a neighbour move; they were so upset by a barn being built near them. He was a Chief of the Fire Department in our local town and he left and he got so mad at the municipality...He moved to a totally different place...they were just devastated by it, the fact that they [barns] were moving in. And no one was listening. It felt like no one was hearing what they were saying.*

(Interview Participant #10)

#### 4.4 Minority Themes

In addition to the key themes, there were six minority themes outlined by participants. These concerns were: water consumption by the hog industry, animal ethics, the human health effects of raising animals in ILO systems, the level of greenhouse gas emissions from the production of hogs, the adequacy of soil sampling from spread acreage, and the negative impact this could have on the fishery and tourism industries (Table 3).

**Table 3: Minority Themes in Participant Concerns for the Environmental Sustainability of Hog Production in Manitoba**

Minority Themes
1. Water Quantity
2. Animal Ethics
3. Human Health Impact
4. Source of Greenhouse Gas Emissions
5. Adequacy of Soil Sampling
6. Negative Impact on Fisheries and Tourism

##### 4.4.1 Water Quantity

Some participants expressed concerns specifically related to water quality and allocation for the hog industry. Water is used in ILOs for drinking for the animals, cleaning of barns, sanitizing equipment and flushing the manure into a storage site, which is most often a lagoon. Table 4 provides data on water consumption by hogs in the livestock sector.

**Table 4: Daily Water Consumption of Hogs**

<b>Hog Type</b>	<b>Number of Hogs</b>	<b>Water Consumption (Litres/Day)</b>
Breeding stock	372,700	9,895,185
Nursery	1,110,800	4,221,040
Grow – Finish	1,436,500	16,807,050
Total	2,920,000	30,923,275

Source: Nyachoti et al. 2007

The general sentiment expressed by participants was that it is unsustainable to have such a large industry heavily reliant on common water supplies.

*The health of the planet, we are mining everything, and we're taking everything for granted...In La Broquerie for one thing there's a lot of cheap land available, but also the water. The amount of water that's available here with the aquifer--it's incredible. We're using 10,000 gallons a day just to wash hog manure. It doesn't make sense.*

(Interview Participant #13)

*If I look back at the way we produced hogs fifty years ago and even now in sort of the biotech operations, the manure is litter-based. You use straw and so on and so forth and you collect the manure more or less in solid form. The large hog operations that we have now are water-based. You have a concrete floor with slats. The hogs defecate over those slats. You wash everything away and everything falls in the pit and you use a liquid to transport the manure. So because of the fact that we've got a water-based production method there are certain ramifications of that and [one of them is that] the water table is going down.*

(Interview Participant #25)

As shown by the preceding quote, a few interviewees expressed concern regarding changes to their aquifers. They believed that the lowered aquifer levels were related to the high volume of water used by the hog industry and expressed how this was having a detrimental effect on their pocketbook, as well as the water supply.



*Four years ago my son set up his trailer here on the north side of my yard, which has a well which has never run dry in maybe 100 years. It ran dry so we had to dig a new well--\$3,000. So basically why did we have to do this? Because we have a hog operation and other large operations nearby that use a lot of water and the water table has gone down, so we had to dig some new wells. Essentially what we're doing is subsidizing the operations. They are doing something to the environment that causes us to have to invest more money to be able to live reasonably ourselves. In other words, for them to be able to make their profits, we have to pay in certain ways.*

(Interview Participant #25)

#### **4.4.2 Animal Ethics**

Participants raised the issue that there was a general lack of ethics in animal husbandry in the hog industry. Their specific concern was that many of these pigs "never see the light of day" and they deserved the right to move around, and even roll in the mud. The adjective "inhumane" was brought up in the context of this discussion and the fact that pigs are both social and intelligent animals was not overlooked. When questioned about their current meat consumption habits, they often reported that they already made a habit of purchasing livestock that was reared under more humane conditions and were willing to pay a higher price for this kind of meat.

*Our own belief with the animals is we don't like to put them on a trailer and send them off to Toronto. We don't feel that's right either, it's too stressful on the animal and that reflects in the meat. That's the thing in these barns – these outfits. There's a fellow we know that trucks little pigs that are twelve days old and he trucks them across the line and he said they figure they're doing good to get 60% down to the barns in the States because that's when they're weaned, when their twelve to thirteen days old. Ours are ten weeks old when they're weaned.*

(Interview Participant #6)

*Pigs are very social animals and I don't think it's morally correct the way we're raising them and because of the way they're being produced. I guess because they're sentient beings and I believe that they need to be given more respect as a living species than what the current operation provides them – the current system rather.*

(Interview Participant #24)

#### 4.4.3 Human Health Impacts

Participants expressed concerns relating to the aggressive use of antibiotics in the hog industry. They wanted the use of antibiotics to be restricted to cases of pig illness, and for them to not be used in the day-to-day operations. More specifically, their concerns related to the overuse of antibiotics and subsequent development of immunity in humans. Other concerns related to the non-therapeutic use of growth promotants and stress hormones found in pork and the ultimate health impact on humans.

*You're like what is the food I'm eating and is the antibiotics I'm eating now going to go into me? Are the antibiotics getting immune? You know, we talk about these super bugs that come from the cattle and the pigs. So that needs to be regulated based on pigs getting sick. You know it would be great if we could perfect methods to give individual pigs medicine once in a while. And if there can be ways of giving medicine individually, that's something that needs to be researched more. Perhaps that's been something that's already been researched by the companies themselves. And perhaps giving the medicine to every pig is a solution that works quickest, but maybe it's not the best. (Interview Participant #10)*

*Research has shown that in those Intensive Livestock Operations, the animals produce higher levels of stress hormones in their bodies and that affects the meat as well. While not detectable by humans, the meat is altered in terms of hormones and that kind of thing, so that can have indirect effects on health. (Interview Participant #24)*

Some participants have observed an increased level of asthma and sickness in neighbours and children living in close proximity to hog barns.

*There's a [health] threat to just the odours that are given off as well. I know some people in Treherne. They are heavy asthmatics and as soon as...there's a pig barn close to the golf course there and they have to leave the golf course. (Interview Participant #5)*

#### 4.4.4 Greenhouse Gases

The United Nations document *Livestock's Long Shadow (FAO 2006)* describes the hog industry as a large source of greenhouse gas emissions

(GHGs). Participants also expressed this concern and particularly in terms of methane.

*Whatever comes off the lagoons, it's still methane and it's still greenhouse gas. To give you an example, I know the stats from the States, they've got 16,000 water treatment plants and from these 16,000 treatment plants, they lose 465,000 tonnes of methane a year. So if you were looking at the amount of lagoons we have here, like one of the Hytek barns where they've got 8,000 sows in it, that's not even counting the weanlings and stuff like that. I mean the amount of manure that comes off of these barns is phenomenal. So I think there's a lot of wasted energy because it's too much work, or it's too costly. It's not going to be costly once the system is established, because they're going to realize this is not bad at all. We can make a profit from this as well.*

(Interview Participant #13)

### **GHG Recommendation #1: Greenhouse Gas Action Plans and Biogas Recovery Systems**

Participants recommended biogas and methane capture systems as a sustainable solution to this problem.

*I would like the environmental commission to look at the possibility of exploring the use of hog manure for production of energy. They do use that in Germany for instance, they use manure to produce methane which they burn and use for heat themselves. We need to have sort of an investment – either the government invest in research at university or the hog commission itself, instead of spending money on advertising and telling us how clean they are, they could invest in research and development.*

(Interview Participant #25)

Participants also thought that all industry should be responsible for developing climate action plans and planning for future reduction of greenhouse gas emissions from their livestock system.

*I think every type of industry, including the hog industry, needs to take action on climate change... They're here, they're using our resources and adding threat [of climate change] to our natural resources. So there should be some onus on them to perhaps provide a report to government, perhaps along with other reporting mechanisms on a greenhouse gas action plan. We're all contributors in some way, shape, or form so they should have to take action as well.*

(Interview Participant #24)

#### 4.4.5 Adequacy of Soil Sampling

Interviewees emphasised the value of our prairie soil and the fact that topsoil is disappearing and its quality degrading. One participant discussed the need for more intensive soil sampling in the hog industry and greater accuracy in the soil samples taken from hog manure spread fields.

*In terms of the variation that exists in soil, the potential for variation is great. The more samples you take the better. Of course the cost also goes up, but therefore the accuracy also goes up and hopefully the chances for inaccuracy go down. I don't think you can ever take enough soil samples, the more you take the better it is.*

(Interview Participant #21)

#### **Soils Recommendation #1: More Sampling and Data Collection from Accredited Labs**

A recommendation to improve soil sample accuracy included the employment of labs which are properly accredited and widely respected amongst the scientific community.

#### 4.4.6 Impact on Fish and Tourism Industries

The concern for the impact on fisheries, and the related jobs were discussed; particularly in relation to the health of Lake Winnipeg. Tourism was noted as an area that could be developed more intensively to create jobs and cash flow in rural areas. Several participants expressed the fact that their cottages and cabins were along Lake Winnipeg, and that beach closures were impacting their quality and quantity of time spent vacationing and enjoying the summer months.

### **Two Other Recommendations from Minority Themes:**

Interviewees had additional recommendations for improving aspects of the hog industry in order to encourage its environmental sustainability that merit consideration.

#### **Recommendation #1: Agricultural Diversification Recommendation:**

A few participants contributed ideas about how the industry might be generally altered to be made more sustainable. The message in these interviews was that a more diverse agricultural industry would also be more environmentally sustainable and suggested that in some instances, it may be necessary to scale back.

*In fact I'd say that adding a hog operation to a very large scale grain operation is probably a good thing rather than a bad thing. It allows you, rather than shipping all the grain out of the country and all that nutrient with it, and then bringing it in from natural gas or phosphate rock or somewhere else, at least with the hog operation you're allowed to recycle some of that on the farm. Close up some of those nutrient cycles. So from a nutrient perspective I think it makes sustainable sense to add a hog operation to a big grain operation.*

(Interview Participant #18)

On the other hand, it was expressed by interviewees with ties to the hog industry that there is a push to grow bigger and become more specialized in order to remain competitive in the market.

*The costs per animal unit<sup>4</sup> to build and to follow all the regulations are just too much to start messing around with 100 or 200 animal units. It just won't work unless there's something really drastic that changes, or possibly organic pigs or something strange like that, but then that's such a high risk again because you'll be venturing into something where there are no benchmarks. Any time you do something out of the ordinary there's probably a 50% chance it's going to fail. You certainly don't want to put too much money into something that's different.*

(Interview Participant #9)

---

<sup>4</sup> "Animal Unit" is defined in the livestock regulations as the number of animals of a particular category of livestock that will excrete 73 kg of total nitrogen in a 12-month period.

## **Recommendation #2: Increased Government Support for Livestock Initiatives**

A final example of a way for the industry to diversify is through increased government support for alternative forms of agriculture, such as organic and in particular small-scale organic farming. Organic farming has been a source of economic development for some rural areas and could offset some of the pressure to rely solely on more industrialized forms of agriculture.

*The province could be doing more for organic farming but again a lot of the certifying agencies are sort of running parallel with the conventional. They're all heading towards export markets instead of local kinds of markets and the province could easily do something like set up – like OPAM is our certifying agency and they need a parallel system set up for the guy that grows just an acre of carrots and sells that locally. Because it's too costly for the family to become certified organic when the same amount of certifying standards apply for the guy with 5,000 acres. You've got to grow a lot of carrots on a half acre to pay for your certification process, so all those guys that were doing a little bit of onions or garlic just aren't doing it anymore – they're not certifying anymore...the government could be helping during the transition [from conventional to organic practices] because a lot of times it can take up to three years*  
(Interview Participant #6)

### **4.5 Participant Views on the Environmental Sustainability of the Hog Industry in Manitoba**

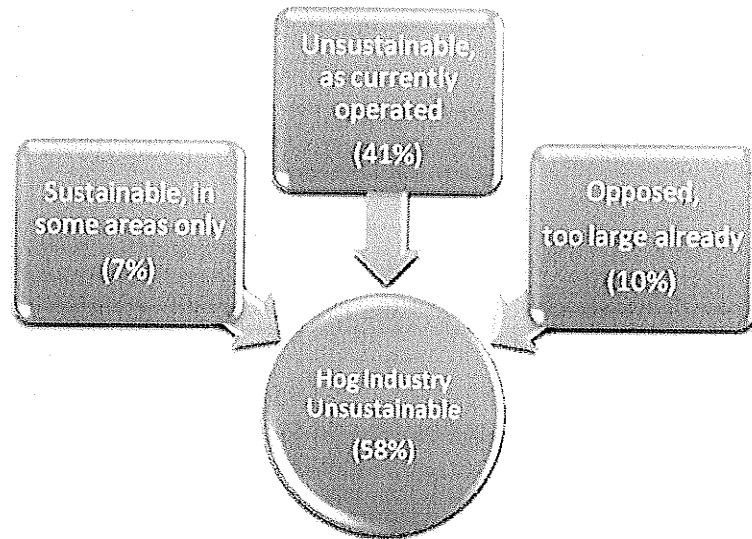
As evident from the preceding discussion, there are wide and diverse perspectives from interview participants on the environmental sustainability of the hog industry. Overall, the perspectives of participants were:

- The hog industry is unsustainable as currently operated (58%)
- Neutral on the question (21%);
- The hog industry is sustainable as currently operated (21%).

With over half of participants viewing the hog industry as unsustainable as currently operated, this was the majority opinion. However participants' views

were diverse even within their opinion of unsustainability in the hog industry, and so these opinions were broken down further to reflect the degree to which they found the industry unsustainable (Figure 7).

**Figure 7: Diversity of Participant Views on the Unsustainability of the Hog Industry**



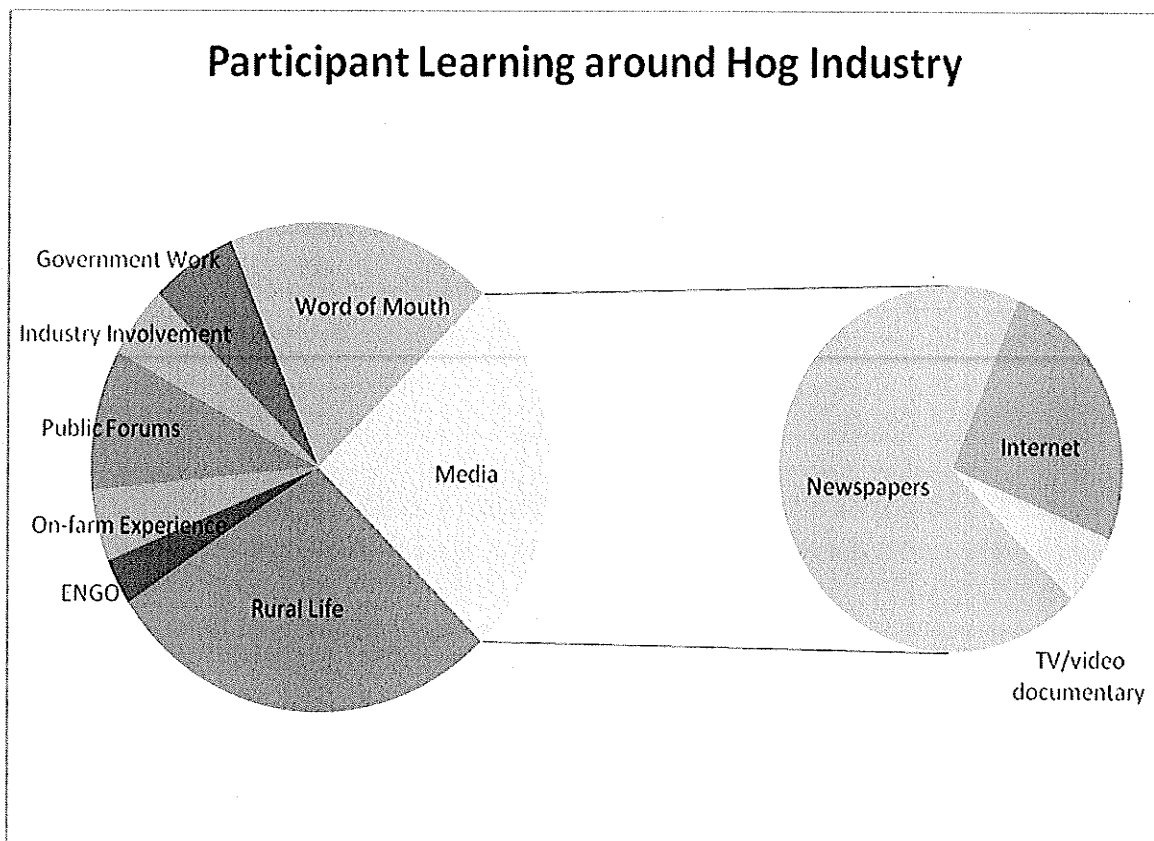
#### **4.6 Participant Learning that Informed Opinions on the Hog Industry**

In forming their opinions about the hog industry, participants used many practical tools and experiences to learn about issues in the hog industry (Figure 8). The main sources of information were the newspaper, rural life, and word-of-mouth from friends and neighbours. Other sources of information that informed their opinions included videos, and/or information viewed via the internet.

Media sources were some of the first types of information that participants relayed as ways they learned about the issues on hog production. However when probed and questioned further, they spoke more in-depth about some of the information they gathered from word-of-mouth and speaking to neighbours. They also stated that they learned about the industry through their personal experiences living rurally, including:

- On-farm activities;
- Involvement in town business and public meetings on the environment and agriculture;
- Through work with the hog industry and government; in speaking with elders;
- Membership in environmental non-government organizations (NGO) like Beyond Factory Farming and Roseisle Watershed Creek Association.

**Figure 8: Learning that Guided Participant Opinions on the Hog Industry**



#### 4.6.1 First Hand Experience in Agriculture

Participants said that they picked up knowledge along the way, through their first hand experience that related to the industry in several ways. Their daily lives provided learning experiences through farm labour and in business with a financial stake in the hog industry. The government, transport, and agriculture



sectors all provided work experiences that informed participant opinions on the hog industry.

*I'm involved in farming, so I read a lot about farming, and you talk to people. I know the problems – when you're a hog farmer or a dairy farmer you know the problems with animals, you know the problems with manure, you know the problems with weather, you know the problems with machinery. I have some feeling for it. I know how things operate. I'm not divorced from it. I don't live in Winnipeg and hardly know a hog from a cow.*

(Interview Participant #14)

*Over the years I've done a fair amount of work for the mediation board and the Farm Practices Review board. And we've done a few hog barns and so I've got a good idea where their financial situations sit, so I've learned a fair amount from that.*

(Interview Participant #4)

#### 4.6.2 Knowledge of the Natural Sciences

Some participants expressed a natural inclination towards learning about the hog industry because of their academic interests relating to various environmental topics. Since local developments, such as ILOs, are perceived to have a significant impact on the ecological processes and other aspects of the environment participants expanded their knowledge to include the environmental impact of the hog industry. This learning tended to stem from an academic background in the biological, soil, agricultural, and earth sciences.

*Both of us have biological backgrounds. I'm more interested in agriculture as a biological system, rather than a production system. So I look at the sort of farming operation that will deliver a whole bunch of livestock benefits, or I should say, landscape benefits, as well as provide food. I like operations that deliver wildlife habitat and clean water and clear air and a pleasing landscape as well. I think you have a much stronger economy and diverse economy, if you have a diverse landscape.*

(Interview Participant #18)

*[I went to university] To more or less find a better way to grow crops because there's the hogs at home. They always said when we were growing up that the big hog industry was the driving force behind the farm. I guess the cattle kind of*

*held their own, but grain was the one that was always bringing down the farm because it's always the most weather-dependent. So that's why I got into what I'm doing now – just trying to find a better way of doing things. I figure if you focus on the soil then that's the starting point, and everything else is based on that. Whether you're a vegetarian or omnivore or carnivore...everything comes from the soil. The plants feed the animals and the animals feed the plants and the plants come from the land.*

(Interview Participant #21)

As illustrated by the quotes, sustainable forms of agriculture are the product of more than innovative tools and technology, but also a holistic philosophy rooted in values of providing wildlife habitat, and an aesthetically pleasing landscape.

#### **4.6.3 Word-of-mouth**

In rural communities agriculture is clearly a popular topic for discussion. Discussion between neighbours and friends or word-of-mouth is one way that participants learned about issues in the hog industry.

*People knew where we stood on the issue, and we didn't make a lot of friends in this community because it's a small community...And because we were outspoken about it ...people would come to us and say, look can you do something about this? At some point, you know you're saying, well what about you guys? You don't want to take a stand? 'Well you know we have a cousin or a brother that works for the hog barn and we just don't want to be politically involved.' ...When they met us in the street they would say, 'oh we understand what you're doing and approve...That's why when stuff like this grater operator, when he sees me he says, 'I spotted another one again today'.*

(Interview Participant #13)

#### **4.6.4 Rural Schools**

Participants who were raised in a rural community that is more closely linked to a local food source and economy expressed their experiences as a student where these topics were brought up in peer discussions in the classroom.

*It was a big thing right when I left school. So you kind of get both sides--the kids I went to school with were on one side and the other side too. Reading [about it] in the paper and even just different events I've gone to in the city. They'll have stalls there for Manitoba Pork and then there are also stalls for animal rights activists [at school symposiums]... just sort of run into it, it seems.*  
(Interview Participant #17)

In relation to participant concerns, the majority (86%) of those who described the industry as unsustainable as currently operated, were also those people who cited their experience of day-to-day life in the country as their main source of finding out information on the industry. Similarly, 70% of people who spoke of learning things by word-of-mouth from friends and neighbours also tended to find the hog industry unsustainable. This suggests that perhaps the strongest views on the industry's unsustainability were also the neighbours to barns and those people within close vicinity to the ILOs. This conclusion is supported by the data which showed the majority of those who were living within a two mile radius of a hog barn viewed the hog industry as unsustainable. Conversely the majority of those participants who were either neutral or strongly in favour of the hog industry were also those who resided at least 5 – 8 miles from an existing barn. Five of the seven participants whose homes were not located within the vicinity of a hog barn were of a favourable or neutral opinion.

When information was gained from the newspaper, feelings on the hog industry were less dramatically opposed. However a significant portion (55%) of participants, who cited the newspaper as a source of learning, was also of the opinion that it was an unsustainable form of development in their area. In other words this source of information represented those people who tended to have more neutral views on the hog industry. Those people who said they learned

about the industry through public fora such as meetings and seminars also tended to be more neutral in their views of the industry.

The 21% of participants, who found the hog industry to be sustainable as currently operated, represented 100% of those people who cited their involvement in the industry and experience on the farm as primary sources of learning.

#### **4.7 Environmental Sustainability & the Future of Livestock Management**

Agriculture and Agri-Food Canada define sustainable agriculture as that which "protects the natural resource base, prevents the degradation of soil, water, and air quality, and conserves biodiversity, while also contributing to the economic and social well-being of all Canadians" (Agriculture and Agri-Food Canada 2001, iii). With moratoriums in Quebec (2002-05); North Carolina (since 1997); and recently one here in Manitoba (November 2006-March 2008) the hog industry has struggled to meet goals associated with sustainable agriculture.

The views expressed mirror many of those raised in other fora about intensive hog operations, such as in the CEC hearings themselves. Issues of manure management, nutrient runoff into waterways, and the vulnerability of drinking water are not unique to this study. However, issues that were more unique to the interview component of research included the identified need to improve upon issues at the political level, particularly through a more effective approval and enforcement process. The more prominent issues are discussed below in terms of environmental sustainability in the livestock sector.

#### 4.7.1 **Accounting for Greenhouse Gas Emissions in the Livestock Industry**

Despite global consequences, greenhouse gas emissions generated by the livestock industry are an example of an emerging issue that participants felt has not been widely discussed. It is only in more recent times that agriculture's contribution to global greenhouse gas emissions have emerged as an issue, as illustrated by the United Nations Food and Agriculture Organization (UN FAO) report named *Livestock's Long Shadow (2006)*. This report indicates that the livestock sector is a major player in climate change, contributing 18% of global greenhouse gas emissions. As discussed in the FAO report, this represents a higher proportion of carbon dioxide and carbon dioxide equivalent emissions than even attributed to the transport sector (FAO 2006). The report goes into detail about the livestock's contribution of 37% of anthropogenic methane; 65% of anthropogenic nitrous oxide and 64% of anthropogenic ammonia emissions. *Livestock's Long Shadow (2006)* report provided similar recommendations to what was heard from interview participants and at the CEC hearings. Report recommendations included improved animal diets to decrease "enteric fermentation" (through use of phytase and other feed additives), improvements in manure management, and increased research on the use of biogas as a renewable energy source (FAO 2006).

As picked up on by one of the interview participants the term "livestock" industry can be too broad of a term to use in policy discussions (see Section 6.2.5). The report *Livestock's Long Shadow (2006)*, offers another way of classifying the livestock sector into two categories. The FAO divides livestock into the landless and the grassland-based production systems. The vast majority

of Manitoba's hogs would fall under the category of landless livestock production systems and within this category, the FAO further divides the systems into the monogastric and ruminants species. The level of classification used here is extensive, with eleven separate categories of livestock systems according to agro-ecological zones, agriculture system, and the animals' relationship to the land (FAO 1996). In Manitoba, such a classification system could provide clear and distinct categories for the public to easily understand the environmental decisions that are being made.

According to the same report there are other high impacts from the global livestock industry that mirrored participants concerns. Examples of this are used from U.S. livestock industry data, which accounted for: 37% of pesticide use, 50% of antibiotic use, 55% of erosion and sedimentation, and contributed one third of both nitrogen and phosphorous loads in freshwater bodies (FAO 2006). FAO recommendations again included better manure management, such as the decentralization of manure to cropland that is not already over-burdened with nutrients that have the potential to run-off into waterways.

#### **4.7.2 Environmentally Sensitive Land Areas are Unsuitable for Livestock**

Answering participants' concerns on environmentally sensitive land areas, Bill 17, has placed a permanent moratorium on three areas of the province with sensitive land and water areas. Specifically, these three areas were the Interlake and Red River Valley floodplains and the high livestock density areas of south-eastern Manitoba. Bill 17 was passed in October 2008 and there is now a permanent moratorium on further expansion of conventional hog production in

these areas of the province. This is an example of the type of regulatory control that participants believed necessary in order to limit the impact and scale of the hog industry.

#### **4.7.3 Alternatives to ILOs are Necessary for Livestock Sustainability**

Biotech facilities represented one system that participants spoke favourably of. Research at the University of Manitoba's *National Centre for Livestock and the Environment* also points to the merits of group housing of hogs on straw. This research showed that longevity of sows was increased when they were raised this way and permitted the freedom to leave their crates to interact with other pigs ([www.universitynews.org](http://www.universitynews.org), accessed December 8, 2008). This research also showed that the rearing of hogs in conventional ILO facilities and crates resulted in the culling of more sows due to leg injuries and joint problems. As a result of injuries, the costs associated with heavier medication and higher culling rates increased to mitigate concerns around the additional labour and straw required in the group housing system. Some industry producers are known to favour the use of biotech and group housing facilities since they require only a fraction of the capital investment and their quonset-shaped, non-insulated buildings are easy to build (Tyrchniewicz and Gregory 2003). Although well-liked by interview participants as a system for rearing pigs, biotech operations currently represent only 10% of Manitoba's hog operations (CEC 2007) and are not used for sows and piglets because of our cold climate.

During the CEC hearings, the hog industry stated that their manure is mostly being incorporated into the soil through injection methods, and this was

supported by Flaten *et al.* (2007) which reported in the Census of Agriculture (2006) that 65% of all pig farms in Manitoba were incorporating manure into the soil. Incorporation of manure improves the uptake of nutrients by plants and lowers odours associated with the waste.

#### **4.7.4 Dependable Water Resources are Important for Livestock Sustainability**

Water is a resource that is often taken for granted, particularly in Canada, and despite the vulnerability of the arid prairie ecozone<sup>5</sup>. Therefore, water resource management is another area that has often not received enough attention in environmental governance.

In the Clean Environment Commission's (CEC) recent review of Manitoba's hog industry one of the major concerns relayed was the industry's impact on water resources. As discussed often in hearings and interviews, one of the greatest threats to water quality is liquefied manure, which is stored either in earthen lagoons or above-ground storage tanks, and then spread as a fertilizer on fields. While manure contains nutrients that are important fertilizers for crops, the over-application of such nutrients has detrimental effects on ground and surface water. When applied in excess, harmful nutrients such as phosphorous and nitrogen run off into surface water. This is especially damaging during seasonal snow melts, but also during unusually heavy rainfall or flooding events. Nutrient over-enrichment of ground and surface water leads to a process called eutrophication, which is a naturally occurring phenomenon which has been

---

<sup>5</sup> An ecozone is a land area unit, as defined in the ecological land system of Canada, and divided into areas by similarities and dissimilarities of soil and water properties, wildlife, and climate.



recently accelerated by human activities. Eutrophication is the result of over-production and decay of plant materials, including harmful blue-green algae, which deprives the water of oxygen, and thereby leads to fish kills and the alteration of natural aquatic ecosystems. Other detrimental effects, largely as a result of blue-green algae, include clogged fishing nets, taste and odour problems in drinking water, closed beaches, and interference in the proper functioning of water treatment facilities (LWSB 2006).

Present day agriculture in Manitoba contributes approximately 15% of the total phosphorous and 5% of the total nitrogen load to the Lake Winnipeg watershed (Lake Winnipeg Stewardship Board (LWSB) 2006: 25-26). The need for incentives to reduce water pollution and consumption in the watershed has never been greater, with the hog industry representing a good place to begin such efforts (Tyrchniewicz *et al.* 2000).

Notwithstanding the concerns for water quality and other environmental impacts of the hog industry (among others), there continues to be a lack of real economic value attributed to the environmental services provided by water. As such, the hog industry and others like it, naturally view the resource as a cheap and convenient means of waste disposal. Water is used to flush and clean the barns, to cool the barns in the summer, to transport hog waste to storage lagoons and to meet the animal's drinking water requirements. This is just one activity that is detrimental to the Lake Winnipeg watershed and negatively impacting water quality in the province of Manitoba. It is problematic that such environmental costs are not being internalized and therefore not subject to

market forces. Consequently, individuals who experience the real costs of damages to their local environment, like many participants, rely on government to address these issues through effective policy and regulation.

In Manitoba the Provincial Crown, with primary jurisdiction over water, protects this valuable resource through regulation under *The Water Act*. *The Water Act* grants authority to the Water Stewardship Branch to issue water licenses for rights to access both surface and ground water for specific purposes. Water licenses are granted for the purpose of agriculture, which is defined as 'the use of water at a rate of more than 25,000 litres per day for the production of primary agricultural products, not including the use of water for irrigation purposes'. Application for a water license costs \$50 and rights are granted for a maximum of 20 years. License holders are required to report their water consumption on an annual basis, but the province does not record nor aggregate this water data (CEC 2007). If an operation uses less than 25,000 litres per day, it does not require a water license and is classified as domestic usage, a category which also includes water used on lawns and gardens and for sanitary and household needs.

Although the actual water consumption rates by the hog industry will vary by type and size of hog operation, the water usage estimated in Table 3 is nearly three times the amount that the Manitoba Pork Council claims their members use (CEC 2007). Furthermore, this level of water consumption is much greater than that allocated by agriculture water licenses for the entire province, which intends to supply water for the livestock and poultry industry in Manitoba (CEC 2007). As

discussed by a minority of participants, water allocation to the hog industry is an issue of concern and clearly more accurate monitoring of water use is required to properly assess water consumption by the hog industry in Manitoba.

Price increases per unit of water would help to more accurately reflect the true costs of water use in the industry, while also promoting water conservation. However in their final report (2007), the CEC contends that water fee increases are unnecessary because the economic incentives associated with liquefied manure storage and compliance with current nutrient management regulations already encourages water conservation.

Since the 2006 inception of Bill 33 under *The Planning Act*, land use plans and zoning bylaws are required in order for a municipality to approve a hog operation (Manitoba Conservation 2006). Some of the requirements of this land use policy are that hog barns account for proximity to rivers, lakes and wetlands; flood risk and groundwater sensitive areas.

However, in the absence of adequate monitoring of seepage from sewage lagoons, hog industry effluents are largely non-point sources of pollution. The run-off from fields cannot be measured and/or monitored as easily as other end-of-pipe systems. In addition, the cumulative impacts of many hog operations occupying a land base are not well understood nor adequately incorporated into existing regulations (Tyrchniewicz *et al.* 2007). Thus it is difficult to implement the "polluter pays" principle, which states that those who cause pollution must pay for the damages incurred. Compounding this problem is the ubiquitous issue of

inadequate monitoring and enforcement of industry regulations (CEC 2007), which are clearly essential to implementing any "polluter pays" policy program.

#### **4.7.5 Trust in Government to Effectively Monitor the Livestock Sector**

The concern that participants expressed regarding unbiased decision making in their local government echoes sentiments expressed in the *Finding Common Ground* (2000) report. In this report, interview participants agreed that decision making should occur beyond the realm of the RM because of the high potential for biased decision making (Tyrchniewicz *et al.* 2000). As discussed by participants, and also in such reports as *Finding Common Ground* (Tyrchniewicz *et al.* 2000), most participants wanted to see more enforcement of current regulations and increased monitoring of the hog industry. The lack of monitoring of the hog industry was officially made an issue as far back as 2000, when the Livestock Stewardship noted the reactivity as opposed to pro-activity of government enforcement officers. The manner in which this type of perceived negligence erodes public trust in government institutions cannot be underestimated. In support of this idea, recommendations made in the CEC's final report (2007) were to increase the Farm Practices Protection Board budget and make the public more aware of their services offered (Recommendation #10.5).

The Farm Practices Protection Board was established under the *Farm Practices Protection Act* to provide protection from nuisance lawsuits for farms operations operating according to regulatory standards. The Act also provides a means to address public complaints and decide whether they are "normal

operating procedure” or investigate the complaint, gather evidence, and hold a hearing to resolve the matter. The Farm Practices Board handles complaints about odour, noise, dust, but does not address other issues such as pollution, erosion, siting of barns, or inhumane treatment of animals. Since 1988, the Board has received only 75 complaints and 58 of these related to odour issues; the vast majority (85%) of which originated from hog operations (CEC 2007). This represents one community-based method for monitoring the hog industry, but does not create the opportunity for social learning through public participation in complex environmental decision making (Webler *et al.* 1995).

Participants expressed the desire for greater monitoring and enforcement of regulations around the hog industry. It was not so much an issue of the introduction of newer regulations, but the need to enforce existing ones. As discussed by participants, both nutrients of nitrogen and phosphorous are already well regulated but must be monitored and enforced in order to be effective.

Examples of such regulations include the *Livestock Manure and Mortalities Management Regulation (LMMMR)* found under *The Environment Act*, which requires that manure application comply with crop removal rates for nitrogen. However, crop removal rates for phosphorous are different from that of nitrogen and, as a result, phosphorous is being applied at rates 4-6 times the average provincial crop removal rate and thereby leading to nutrient runoff (CEC 2007).

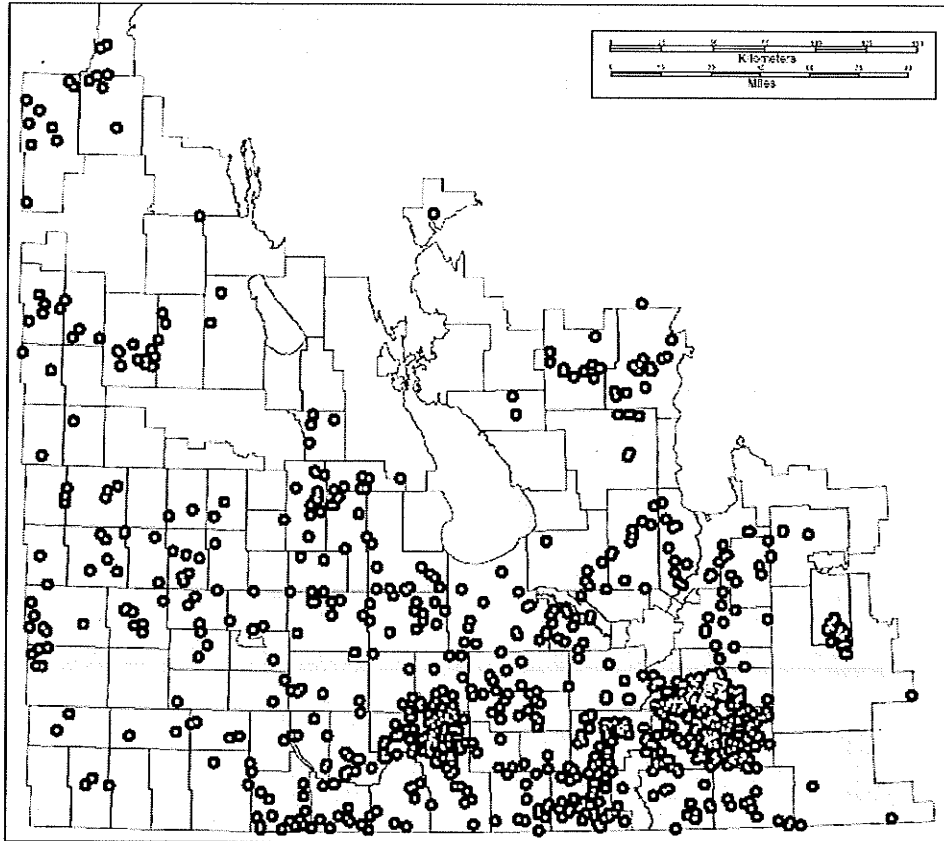
Based on the 2006 recommendations of the Manitoba Phosphorous Expert Committee, the LMMMR was amended to incrementally introduce improvements in the application of phosphorous. This amendment will aid in reducing the runoff of excess phosphorous that is potentially contributing to the eutrophication of Lake Winnipeg. However, the estimated cost to farmers of complying with these new phosphorous regulations is significant. One study estimates the cost of moving to a system where phosphorous is applied at an appropriate plant removal rate to be as high as \$28 million (Mann and Grant 2006). These regulations represent a great challenge to the future economic feasibility of hog farming in Manitoba.

#### **4.7.6 Economic Sustainability is a Key Component in Decision Making**

Despite extensive nutrient regulation of the hog industry in Manitoba, the greatest incentive for hog manure application to fields is economic. As described in a recent article by hog farmer Rolf Penner, a 2000-head finishing barn produces the equivalent of \$20,000 worth of synthetic fertilizers (Winnipeg Free Press 2008). However, the concentration of hog barns within a relatively small region of the province's land base has created an economic barrier to the transport of liquefied manure (Map 2). Large hog operations are less likely to own a significant acreage to spread manure and are therefore dependent on smaller and mid-size operations to provide land for manure spreading (CEC 2007). Moreover, hog manure is less concentrated than synthetic fertilizers, and as relayed by participants, the costs of transportation to available fields more than 5-10 kilometers away is cost prohibitive. This requires the cooperation of

farming neighbours and community to share land and ensure that manure is spread in a sustainable manner.

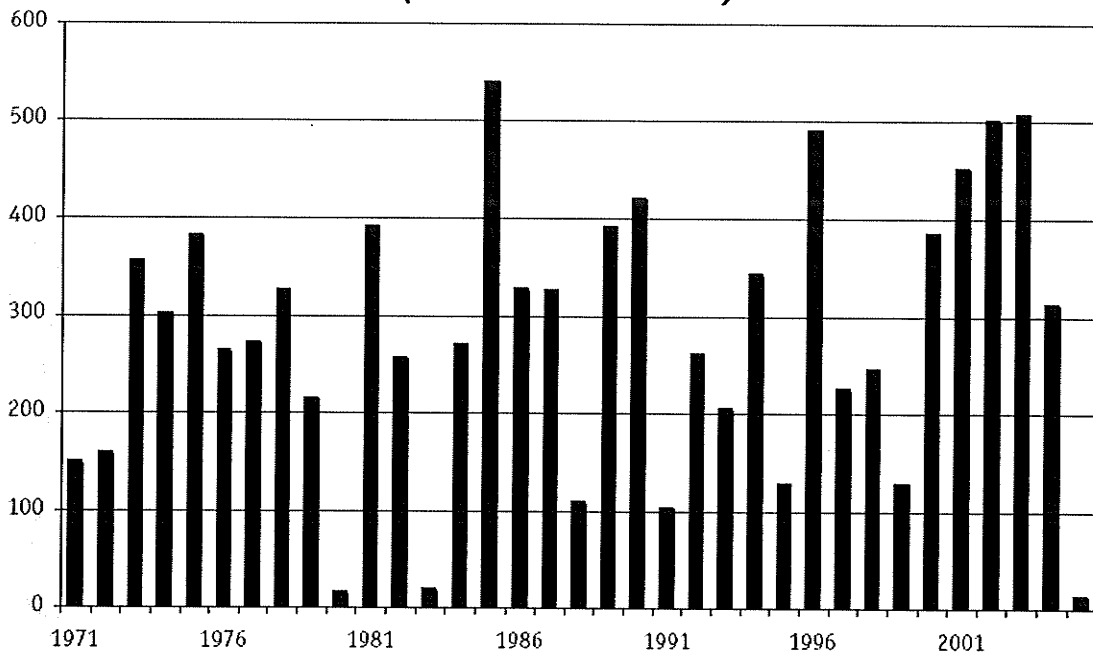
**Map 2: Concentration of Hog Operations in Manitoba**



Source: Manitoba Pork Council in Clean Environment Commission (2007)

Despite the unprecedented growth of the hog industry in Manitoba more recently, agriculture is a business that is characterized by unpredictable revenues (Figure 9) with most farmers requiring a second source of income just to survive. Reasons for the fluctuations in income are climate-induced droughts and natural disasters, as well as changes in the market place that determines demand for meat products.

**Figure 9: Net Income per Farm in Manitoba from 1971 to 2005**  
*(in millions of dollars)*



(Source: MAFRI in Clean Environment Commission 2007)

#### 4.7.7 Government Support Programs Aid in Industry Sustainability

Many of today's hog farmers find themselves in difficult financial situations and cannot afford to shoulder the costs of internalizing environmental costs and improving their technology to reduce their environmental impact. Government programs such as the *Environmental Farm Plan* provide an important source of financial aid to farmers, but still require significant commitment on the part of the farmer to follow-through with best management practices (BMPs). This federal-provincial initiative was adopted in 2005. Upon application to the Canada-Manitoba Farm Stewardship Program, farmers are eligible to receive grants covering between 30-50% of their total costs, up to a maximum of \$50,000. Applications received under the *Environmental Farm Plan* have resulted in payments of almost \$4.5 million dollars to producers to implement BMPs on their land. Common categories of BMPs adopted include better cropping systems,



product and waste management, wintering site management, improved pest management and nutrient management planning, but other water-related projects (well management, riparian protection) are eligible also (Lake Winnipeg Stewardship Board 2006).

Other efforts from government and various stakeholders includes the provincial *Covering New Ground* program (a.k.a.: Agricultural Sustainability Initiative) which provides financial support and technical advice to establish Best Management Practices (BMPs) in the livestock sector, with a particular emphasis on those BMPs that reduce nutrient runoff. Other provincial funding for environmental stewardship research relating to the hog industry includes the *Sustainable Development Innovations Fund*, the *Agri-Food Research and Development Initiative* and the *Manitoba Livestock Manure Management Initiative*.

Thus there is a role for continued and enhanced government support, in conjunction with market-based incentives such as tax benefits and PES programs to ensure a sustainable future for the hog industry in Manitoba. Participants echoed the sentiment that farmers need more financial backing and added that the public must be more willing to pay a fair price for meat to support local agriculture.

#### **4.7.8 The Socio-Cultural Landscape is Changing: Hutterites, and Politics**

An interesting point raised by interview participants was that, at least in some areas of the province, a shift in Hutterite culture is occurring as a result of the hog industry. There were four beliefs that lead to the reformation of the

Hutterite Brethren; the belief most relevant to this discussion is that the Bible necessitates the separation of church and state. As a result, Hutterites do not traditionally vote in mainstream government elections. However, as brought up by interviewees, the pressure to have continued growth in the hog industry is perceived to have driven some colonies to vote in municipal elections.

On Hutterite Colonies, all baptized men (20+ years) of the community would vote in major community decisions. However, if the decision to vote in mainstream government elections was made by the authority (often including the “pig boss”) the entire colony may be expected to follow suit. Similarly, other colonies with ties to the voting colony might also be pressured to participate in the election. Therefore this decision to vote in municipal elections represents a potentially dramatic increase in the number of voters occupying a region.

Hutterites are forward-thinking in their operation of business, but it appears that the business aspects of hog production are changing the culture and religious beliefs of the community. The hog industry appears to have been successfully persuasive in influencing Hutterites in at least some areas of Manitoba to reinvent centuries-old traditional culture, and perhaps is reflective of the power of economics over other important dimensions of Hutterian life.

#### **4.7.9 Industry Leadership to Achieve Sustainability in Livestock**

Views offered by participants on issues regarding the future sustainability of hog production in Manitoba speak for themselves. One issue that does not come through as clearly from the results relates to how we define and measure sustainability and whether the hog industry should be a leader or a follower in its

pursuit. Some participants seemed to be suggesting that the hog industry should only take action on environmental sustainability after other sectors clean-up their act. For example, over the course of the CEC hearings the Manitoba Pork Council often referred to the City of Winnipeg's wastewater treatment plant as a substantial culprit in over-enrichment of nutrients in waterways as well. The sentiment expressed by the hog industry was that they were being "unfairly targeted" or serving as "scapegoats" for the problems currently experienced in Lake Winnipeg. In other words the industry should not be expected to be a leader in fulfilling sustainable development goals. However, other major polluters in the province are taking a lead in hearing sustainability goals. The City of Winnipeg is undergoing a multi-million dollar upgrade to its wastewater treatment plant and has established targets of 10% reduction in phosphorous and 13% reduction in nitrogen, to "pre-1970" water quality standards for the Red and Assiniboine Rivers, as well as Lake Winnipeg. Furthermore, at the end of September 2008, the Minister of Conservation requested another review relating to over-enrichment of water with the Clean Environment Commission now investigating nutrient reduction and ammonia treatment at the City of Winnipeg's wastewater treatment facilities. These are not the only stakeholders that should be involved in improving water quality, with a significant source of nutrients come from jurisdictions outside of Manitoba, and where trans-boundary waterways and their stakeholders all impact upon the Lake Winnipeg watershed.

#### **4.7.10 Future Policy Directions**

Changes in policy that are currently underway in the Manitoban government include encouragement of the practice of organic farming. Government incentives for making organic a viable option for smaller scale farmers was one recommendation made by interview participants. The Government of Manitoba recently released news of new incentives for Manitoba agriculture producers to convert to organic systems (Province of Manitoba News release, September 23, 2008). New scientific studies at Glenlea Research Station are now showing the many environmental benefits of improved soil and plant health, and nutritional human health as well, as a result of practicing organic farming methods (University of Manitoba news release, September 19, 2008). Another example is the first ever Canadian Holistic Management International Conference held in Brandon, Manitoba in late October of 2008, which was sponsored in part by Manitoba Agriculture, Food and Rural Initiatives (MAFRI). The theme of this conference was the holistic management of agricultural systems and paradigm shifting for the future of agriculture. Examples of discussion topics included holistic agricultural systems in Mexico, carbon farming in the USA, tours, and a demonstration of low-stress livestock handling systems.

#### **4.8 Chapter Summary**

A summary of the rationale for viewing the industry as environmentally unsustainable included key concerns over water quality, nutrient runoff into waterways from improper manure management, distrust in decision makers, inaccurate technical review processes, difficulty in communicating with

environment officers, odour, and a breakdown in the socioeconomic fabric of rural communities. Adding to these key concerns were minority issues specifically: the significant level of greenhouse gas emissions from manure, animal ethics, human health impact, inadequate soil sampling, the sense of over-specialization in the agricultural sector which has led to the decreased resiliency of industry to respond to changes, and a stressed water supply for rural Manitoba.

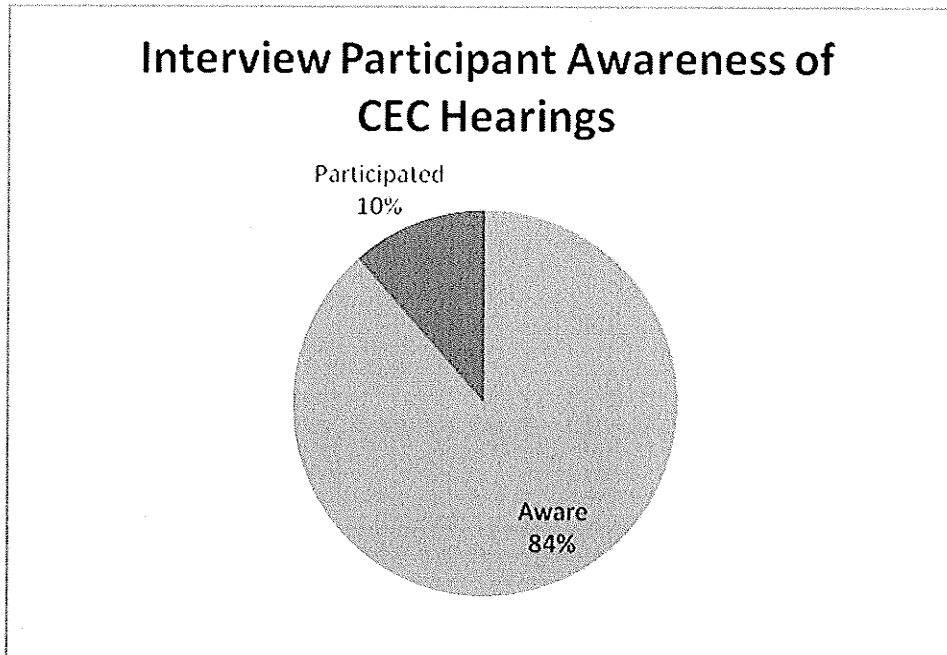
Participants learned about the hog industry and opportunities for public participation from media sources such as, the internet and also by word-of-mouth from neighbours, friends and community elders. However, there were several other ways that participants learned about the hog industry, including by public fora, such as municipal meetings for barn proposals, and also more broad education fora such as career fairs and seminars for students. Participants also gained information through their membership in citizen groups such as Roseisle Creek Watershed Association and environmental non-governmental organizations, like Beyond Factory Farming and Hogwatch. Last, but certainly not least, participants described learning through personal rural life experiences and employment in the agriculture sector.

## **5 Non-Participation in the CEC Hearings**

### ***5.1 Introduction***

Given the demonstrated concerns about the hog industry, and as participants were very forthcoming in their viewpoints and interest in the issues, it is curious that they chose not to participate in the CEC's public hearings. It would seem evident that there is a genuine interest and personal stake in the outcome of the CEC's public hearings and review process, in terms of future planning and decision making around the industry. Thus it is reasonable to assume that participation and attendance rates at the CEC hearings would have been high. However, despite the 84% of participants who reported that they were aware of the CEC hearings, only 10% of them actually participated (Figure 10). More than half of the 16% of participants, who stated they were unaware of the CEC public hearings, were also of First Nation demographic.

**Figure 10: Awareness of CEC Hearings amongst Interview Participants**



Participants recognized the benefits of public hearings in identifying them as opportunities for learning, public discussion and direct communication with decision makers. Furthermore, these were not people who were inactive in other public participation activities, as they identified many examples of when they had participated in public fora around hog meetings and barn proposals. Despite being aware of the hearings, recognizing their benefits, and even being involved in public life the majority of participants did not choose to attend or participate in the CEC public hearings. The following explores some of the reasons, as provided by participants, for non-participation in the CEC public hearings and relate these to the literature.

**5.1 Key Reasons for Non-Participation**

There were several reasons for non-participation that were brought up by participants. The reasons for non-participation in the CEC hearings were based

on perceptions of previous public fora around the hog industry, as most participants had never attended a CEC hearing. As established in Table 5, key reasons identified for non-participation by interviewees included: a negative past experience in similar public fora, discussions that were too highly politicized and polarized, a sense of intimidation by the industry, and the fact that the barns were N.I.M.B.Y. Key reasons are identified as those brought up most often and raised by 75% or more of participants describing these themes in the non-participation data.

Other reasons given for non-participation in the public fora included: energy and time requirements, an inadequate stake in the discussion, and the feeling that their views were represented by participating agencies. As discussed further on, the CEC was also considered a factor in non-participation rates because of the sense of bias and the lack of decision making power held by the Commission.

**Table 5: Key Reasons for Non-Participation by Participants**

<b>Key Reasons for Non-Participation in the CEC Public Hearings on the Hog Industry</b>
Past Experience in Public Fora on the Hog Industry
Polarized Debate on the Issue
Intimidating Forum
Not In My Back Yard
The Role of the Clean Environment Commission

**5.1.1 Past Experience with Public Fora on the Hog Industry**

The majority of people interviewed had attended public hearings in the past, often on issues very much related to hog barns. Participants explained that their past experiences were stressful and tiring due to the clash of interests at the



meetings and the impact it had on their personal relationships and financial well being. The quotes below emphasize how participants past experiences had a negative bearing on their interest in participating in future public CEC hearings in their region.

*I am just tired. We spent two years fighting the barn here and then I went on counsel for four years and I was on 'til the fall. I'm just sick of it all. I couldn't stand any more hearings. If another barn threat came in here, I don't even think I'd fight it to tell you the truth. I'm just burnt out. I've had enough of it. There have been so many hearings all over the place for the last six years.*  
(Interview Participant #6)

*What tends to happen is that people will become active for maybe a few months and then they either burn out or they move on like I did, and they don't become involved again because they're just burned out.*  
(Interview Participant # 22)

Public meetings were not the only form of public participation wherein interviewees relayed negative experiences after being involved. The following participant sat on a livestock planning advisory committee and she had a negative experience due to an underlying feeling of disempowerment. She spoke specifically of issues of gender and age imbalances in the committee, but also implied difficulty in relaying opinions because of her "non-agricultural" background.

*Well we went to the meetings originally just as concerned citizens and then someone, I'm assuming the RM, forwarded our names to get on the [planning] panel...There were all kinds [of people]—industry related, community citizens, just regular agriculture farmers, I would say a whole mix—veterinarians. But I would say most [people] would've been farmers of some sort in this area, not necessarily hog related...It was interesting but would I do it again? Never in a million years. There were two women out of 63 in that room. Average age I'd say was 60, so yeah being 25 years old and female too, it didn't go over all that well. It was a tough crowd...like I say I wouldn't do it again. I did it, but ...valuable experience I'd say not.*  
(Interview Participant #5)

### 5.1.2 Polarized Debate

There was a sense of volatility about the public hearings that turned people off of attending. Participants believed that those active at public hearings represented the polar opposite sides of the debate and issues around hog barns. Unfortunately, they did not seem to view public hearings as a forum or opportunity for thoughtful discussion of the issues. Participants believed that either pro-hog or anti-hog people would attend, but not the average person with whom they themselves identified. This impression of hearing volatility was a deterrent to attend the CEC hearings for the average participant. This sense of polarization was evident in the interview process where participants described the hog industry as everything from “victimized” and “a scapegoat” to “unethical” and “ill-informed”.

*Well, obviously the pig barns have their agenda, right? So you don't necessarily have a proper say from another side you know, like when a pig barn holds a public meeting, they actually want to keep it as low key as possible. Their objective isn't to send it out to everybody. They'll maybe put a poster up or something...obviously they don't want Greenpeace to come out...So whether the full voice or side is heard, I really doubt it.*  
(Interview Participant #10)

*There have been hearings where things did tend to get a little personal, and I wouldn't call it out of control, but tempers did flare—the truth comes out and people don't like to face it. Although it should be the chairperson's role to deal with this.*  
(Interview Participant #20)

### 5.1.3 Intimidating Forum to Speak in Public

Participants admitted to being intimidated by the idea of speaking out on the issues around hog barns at a public hearing. This was because they felt that their acquaintances and friends in attendance would be defending their livelihood and had a specific and vested interest in the issue. Since participants felt that

their interests were around broader, common issues such as water and air, it was an intimidating prospect to imagine speaking up in front of neighbours.

Additionally, participants relayed their experiences of being outspoken on hog issues and then losing business and friends who were connected to the industry. In some cases, hog barn owners were overtly critical of members of the community who were perceived as "against the hog industry", as evidenced by their submissions to newspapers and comments at public meetings. Those participants who admitted that presenting at the CEC hearing would be intimidating were not inclined to participate in the public forum, and were very appreciative of the opportunity to do private interviews instead.

*I mean, [Mr. Hog Farmer] would be intimidating to me because he's been in the business for how many years?! And he's a good politician to boot.*

*Yeah, but you wouldn't be going in to talk to him.*

*But if I knew that he was even there!*  
(Interview Participant #19)

*I know here it has set the community apart in many ways. When we first started opposing [the hog industry] I lost money on it because the guy that I was building for never paid me for my work. Now we don't--I don't--stand up and say 'I don't think you're doing the right thing'.*  
(Interview Participant #13)

*I was at the AGM for the economic development corporation here in town a couple weeks ago. One of the major hog producers – the one who has the barn here and the one whose barn burned down a few years ago--he's a sort of make money at any cost type of guy and he's into the wind turbine thing because it pays him \$5,000 a year. He got up and said, Look, make sure you come to the environmental review on May 16 for the wind turbines and make sure that you don't make any complaints about anything so that we're sure to get it. So when there is an environmental hearing you've been given orders beforehand of how to behave and what to say in those hearings. That's why I find the fact that you're here today a miracle and unbelievable--really unbelievable.*  
(Interview Participation #25)

#### 5.1.4 Not In My Backyard

“Not In My Backyard” is a phrase used to refer to “N.I.M.B.Y” behaviour, wherein people do not want to have certain negatively-perceived land uses occurring in close proximity to their homes, and so they become active politically and petition against certain land use practices and developments. In several cases, participants indicated that they did not choose to learn about the hog industry themselves so much as learn about it out of a feeling of necessity. The imminent development of an ILO near to the participant’s home created a sense of urgency and desire to understand how their lives might be impacted. Some participants might be described as true N.I.M.B.Y. activists in that they were compelled to participate in these fora only because the development under consideration would have a direct impact on their homes, children, and lifestyle.

*In our case [learning about the industry] it was more of a defensive mechanism because it [the barn] was already there. And I’m thinking that’s what the situation would probably be like--nobody would probably care until somebody’s threatening to put it in your backyard and then all of the sudden you have an opinion. If it’s your neighbour down the road, I mean you probably...you can say that you support them or whatever, but the reality is it’s not a threat [to you personally].*

*So the people who participated in your case were neighbours of the barn?*

*Right, everybody had a direct personal issue.*  
(Interview Participant #5)

*I think they (the residents) rallied to this particular cause, and they’re not normal political people or people who get involved in that type of thing but because it was sort of in our own back yard there were about twenty of us that were very active and I doubt any of them even thought about going to the hearings. It was that particular cause in our community that brought them sort of out of the woodwork so to say.*  
(Interview Participant #6)

The opposite case was also made by participants who did not live near barns, but still relates to the idea of N.I.M.B.Y. A barrier to participation in this case was actually the fact that hog operations were not located within close distance to the participants' homes and therefore they did not feel compelled to take action or participate in public hearings. Participants openly admitted that they did not participate in the CEC hearings because the hog barns had either ceased to be a threat to their personal quality of life, or they were not living in an area currently densely populated with hog barns. When asked why he had not raised his concerns about the ILOs with his elected official, one participant said that he would if the barns became a more immediate threat to him and his family's quality of life. This type of N.I.M.B.Y. behaviour is also reflected in literature by Diduck and Sinclair (2002), which discusses the ways that participants may not participate due to the perception that a development does not affect them personally.

*Because I don't have a hog farm near enough to me that I have to smell it. If I lived in the town of Somerset and every beautiful jolly day you went out, and no matter which way the wind was blowing, you'd be smelling pig shit--then I probably would [participate].*  
(Interview Participant #7)

*I'm at the stage in my life now where I'm enjoying my grandchildren and I like to grow plants and do these positive things, which may be sort of shirking my responsibility as a citizen, but I think I would stand up and fight if it were something that was happening right local. I would get together with my neighbours again, I think we would. And I would be prepared to put the time in then.*  
(Interview Participant #27)

### **5.1.5 The Role of the Clean Environment Commission**

As the CEC was the agency delivering and moderating the public hearings, their role in public participation is significant and naturally came up during the interviews. Themes common in the interview results included the perception of CEC bias, misunderstandings about the CEC and their mandate, and concerns about their lack of decision making power. These concerns and issues relating to the CEC had an impact on participants' decision to attend and present at the public hearings.

#### **5.1.5.1 Perceived Bias of the CEC**

In some cases, participants branded the CEC as too involved in the political aspects of government to truly represent a process of unbiased decision making. In addition, there were negative feelings associated with public meetings in general. Particularly, notions such as the foregone conclusion of the hearings process were posed against the workings of the CEC. The quote below is supportive of the idea that a barrier to participation may be the sense that the hearings are politically motivated.

*It's just a public relations exercise. That's where I put this CEC hearing on the hog industry, it's all about politics. The NDP in front of the elections trying to curry votes with some of the more urbanized individuals.*  
(Interview Participant # 28)

Some participants also perceived the CEC to be biased in decision making and discussed their concerns regarding the makeup of the panel. Those that did attend the CEC hearings also spoke of occasional comments made by the commissioners that were perceived as biased towards the industry. Comments whether made at the hearing, or in other public fora, were believed to damage

the integrity of the panel and thereby impacted any perception of balance and open-mindedness in panel member recommendations and the hearings process.

*I understand that one of the top CEC persons stepped down [from the panel]. It makes me wonder what's happening--whether it was conflict of interest, or whether he didn't tow the party line? As somebody that's putting faith in the CEC as a citizen--to get everything up front and accounted for--now all of a sudden I see one of their top people stepping down. There are a lot of things that happen under the table that we don't know about.*

(Interview Participant #3)

*It seemed like he (CEC commissioner) was pro-hog to me, just in some of the questions that he asked...the types of questions that he asked of the presenter and comments that he made were unjustified really. I don't think they should be making comments. It's okay to ask questions, but he actually made comments...somebody asked about small operations and he said, "Oh well, we all know that they aren't viable anyway"...that these small operations aren't viable. To me it says: well, we should be having the large ones. I don't think it was right to be saying that at the hearing.*

(Interview Participant #22)

*There was one gentleman on that panel that is very pronounced for Lake Winnipeg and I heard him stand in front of a crowd one day and say that he wished that this moratorium on hog barns was permanent. Now presenting something to a man who has his mind made up like that leaves me pretty well going for beer--to hell with it.*

(Interview Participant #26)

A few participants also spoke of the general impression that the CEC was inclined towards unfairly examining the environmental aspects of a development, over other aspects such as the economy and society, as illustrated by the quote below.

*I imagine that people who sit on the CEC have a strong environmental slant...the credibility of the CEC...I think people question it because we do have this view (and incorrectly by the sounds of it) that people who are involved in the environmental business don't look at other parts of life—such as economics, social life...I mean how many people can argue against a clean environment? But at the loss of what is the concern.*

(Interview Participant #7)

### **5.1.5.2 Limited Understanding of the CEC and its Mandate**

When participants were provided with additional information and background on the CEC and its mandate, it seemed that participants became more interested in attending the CEC forum. This suggests that a barrier to participation is the lack of understanding about the Commission and its purpose. As shown by the quote below, even people active in municipal government do not necessarily understand the CEC's role and investigative process.

*I'm curious about when this report does come out and you have these bits from the Commission and your input here, who else is having input?...I'm curious with the CEC, does its mandate override or overrule say Manitoba Conservation?*  
(Interview Participant #20)

### **5.1.5.3 Absence of Binding Decision Making Power in the CEC**

Participants relayed the concern that the CEC lacked binding decision making power, and therefore this created a sense of foregone conclusion. The participants expressed their desire to see more accountability on the part of decision makers and follow-up done with the hearing participants so as to show evidence of their opinions having influence in the final outcome.

*As I see it, as a citizen, I don't see how the CEC has the teeth to do anything. Their proposals, if it's a forty-page booklet to the government, they get to read it and if they sit there and say, Gee whiz, it's all valid but we're not going to do anything about it...all they've done is lip service for the general public and nobody gets to hear anything...We only hear about it later when there's a problem--it's too bad.*  
(Interview Participant #3)

*I've seen this where the Clean Environment Commission makes some recommendations to government and they have been ignored, or not considered...these investigations take into account public opinions, take into account scientific knowledge, and the report is prepared. And then governments don't act on it so that's a disadvantage, I would say, if it's only used to kind of mollify the public.*  
(Interview Participant #27)



This sentiment is further discussed by Sinclair and Diduck (2002), where participants chose not to participate because they believe that planning was already underway and the hearings were considered to be mere formality.

## **5.2 Other Reasons for Non-Participation**

Other reasons provided by participants were that they believed their elected officials would represent them at the hearings, lack of time and energy to participate, sources of information and an insufficient stake in the issue.

### **5.2.1 Elected Officials were Representative of Participant Views**

Some participants did not believe in the concept of "direct democracy" and felt that their elected officials were representative of their viewpoints and interests. Again, the feeling that those people attending public hearings should be those whose homes and families were directly affected by the hog barns.

*I think that direct democracy is politically correct, but I don't believe in it. In terms of these things here, I think it's just lack of concern. Those people who were affected were concerned, those of us who weren't, really weren't. And that's just human nature. So there has to be, in my opinion, a larger body making these decisions for the betterment of all and I look to the provincial government for that, rather than small municipalities*

(Interview Participant #7)

Diduck and Sinclair (2002) also recognize that a barrier for participation in the public hearings is the sentiment that the public interest is represented by others at the hearings and therefore individuals need not participate individually.

### **5.2.2 Timing Issues and Energy Requirements**

Participants noted that with busy lives people need to clearly understand the time required to participate in one of these hearings.

*I didn't quite understand how they [public hearings] were advertised. There were two dates per day and with a couple of hours in between--now I wasn't sure if they were broken into two or if it was the same hearing or just two*

*hearings...That was one of the reasons I was in conflict there, because I thought I'd have to stay for the whole thing.*  
(Interview Participant #20)

This point is also made by Diduck and Sinclair (2002) where participants do not want to feel their time will be taxed by attending a public hearing. The fact they were not sure of the time commitments around attending and specifically whether they could easily come and go was a deterrent for some participants to attend the hearings.

Yet other participants felt that they were already contributing their time and skills to the issue of a healthier environment by personally participating in the composting of manure, development of biogas technology, and testing of their local water supply.

*And why not [attend the hearings]?*

*Well I just sort of felt I was already doing my part. I was doing it by testing the water and keeping an eye on the river here, myself personally, and being in contact with the conservation district. That was my little piece of the pie.*  
(Interview Participant #15)

### **5.2.3 Sense of an Inadequate Stake in the Issue**

Other participants relayed the feeling that they did not believe they had enough of a stake in the perceived issues surrounding the hog industry to be speaking out against it. Conversely, those perceived to have "adequate stake" were often farmers and other members of the agricultural and agribusiness industry.

*But it's more you know, my opinion doesn't really matter. Who'd care what I think anyway? Because I don't have any vested interest. If you have a farm, well obviously I have interest, as it's my means of support. But for me? Well, somebody will make sure the water's safe...somebody will make sure it doesn't smell...what can I do anyway?*

*So there's your vested interest right? I mean the water you drink.*

*Yeah, but even there it's kind of vague. Like it might smell and the water quality might go down... Even if we decide, maybe we should go in [to the public hearings] because we're a little concerned about the water. What am I going to say? Well I can get up and say I'm worried about the water and then go and sit down. My whole presentation's going to be four and half seconds long.*  
(Interview Participant #19)

#### **5.2.4 Sources of Information about the Hearings**

In order to participate in public hearings, the public must first be sufficiently aware of their occurrence. While most participants were aware of the hearings, in a few cases participants noted that the newspaper and the internet were not their main sources for finding out this kind of information.

##### **5.2.4.1 Newspapers as a Source of Information on Hearings**

Newspapers were one of the most commonly cited sources of information about the hog industry as discussed in Section 4.6. In particular, participants in rural areas acknowledged the value of information garnered from their local newspaper. For information specific to agricultural issues, they also relied on information from the Manitoba Cooperator, another local newspaper.

*Usually reading notices that the council will put out in the paper because that's where you see it... Yeah, the local newspaper. We're not talking about the Winnipeg Free Press or that other rag.*  
(Interview Participant #11)

However, Swan Lake First Nation participants, they indicated that newspapers had not necessarily proven to be an effective method for communicating information about environmental hearings to their community.

The below quote indicates that although the Treherne Times and Morden newspapers (with notice of the CEC public hearings) were received by the band office, it was not used as a source of information by participants.

*Well, that proposal (notice) for a hog barn was sent around here about the hog plant, but other environmental hearings, I don't ever see notifications going around about those.*

*Were you aware of the Clean Environment Commission and their hearings going on?*

*Not really, no.*

*Do you guys get the Treherne Times?*

*Yes, the Treherne and Morden newspapers.  
(Interview Participant #16)*

#### **5.2.4.2 The Internet as a Source of Information on Hearings**

Media and other information gathered from the internet represented one of the first places that participants learned about the hog industry. Participants learned about cases of hog barns moving into other regions, both within and outside of the province of Manitoba. The web also provided links to provincial websites and acted as a source of information on government regulations and policy around the industry. As shown in the quotes below, the internet was a place to connect with environmental non-government organizations to share information and become better informed on other action being taken in the province. An example of such an organization that was found online includes Beyond Factory Farming (BFF).

*We had to learn about it because of the threat of the barn in here and through the Internet mostly. We were just thanking our lucky stars for the Internet because you can access so much information so quickly and then share that information so quickly, and talking to other outfits that had fought barns. We joined Hogwatch and some of those outfits—just for the sharing of information.  
(Interview Participant #6)*

Although the internet has seemingly become ubiquitous in its use and widely accessed by the public, it is worth noting that the reality is not always the

same for people in rural parts of the province. Some participants indicated that there are people living in both rural and urban settings who do not have adequate access to internet and therefore do not rely on it as a primary source of information. As one participant said:

*No, we don't have high speed Internet in the rural area. I tell you, it's slow. You [use internet to] do what you've got to do, and then move on. It could take you twenty minutes to get on-line.*

(Interview Participant #1)

### **5.3 Participant Recommendations for Overcoming Barriers to Non-Participation**

Participants also provided recommendations for overcoming barriers to non-participation in public fora during the interview process. These included the use of a public participation agency such as the CEC, that is perceived as non-biased, multi-pronged approaches to participation, improved communication between the public and government agencies, use of clear language that is specific to the hog industry, informal settings with more opportunity for discussion, increased media coverage of the hearings, the increased and broad scoping of public hearings, and the use of mediation as a form of conflict resolution. These eight participant recommendations are summarized in Table 6.

**Table 6: Recommendations on Overcoming Public Participation Barriers**

<b>Eight Recommendations for Overcoming Barriers to Public Participation</b>
Unbiased CEC Panel
More Informal and Unintimidating Settings
Multi-Pronged Approaches to Participation
Increased Scope of the Hearings
Clear/Plain Language Specific to the Hog Industry
Mediation as a form of Conflict Resolution
Increased Media Coverage of the Proceedings
Improved Communications on the Process

### **5.3.1 Unbiased CEC Panel Members**

As mentioned before, interviewees were critical of the makeup of the panel of Commissioners. Recommendations for improving the image of the panel as comprised of open-minded and non-biased commissioners included the use of people with experience dealing both in industry and government, while also familiar with the rural and local environment. An example of this type of ideal commissioner would be a conservation officer who works in sustainable agriculture or a member of a well-respected non-governmental organization such as the Deerwood Soil and Water Management Association. The theme underlying the participants' recommendations was that there should be the sense that the panel members have knowledge of the local areas and familiarity with rural issues in agriculture and the environment.

*There are people in the conservation districts for example, who are very knowledgeable, you would almost say they're environmentalists, but they're still*

*farmers. And they want to see sustainable agriculture ...their bias is sustainable agriculture. Like [Mr. Y] from Deerwood, he is an agrologist by trade, he's farming and he's been head of the Deerwood Conservation District for years.*  
(Interview Participant #4)

*I think if they had someone on the panel who had had experience living close to one of these operations that would be quite useful I think. And then you might get a little bit of a more balanced judgment.*  
(Interview Participant #22)

### **5.3.2 More Informal Settings for Public Discussion**

Many participants were looking for more informal venues to discuss and communicate the issues around the sustainable development of the hog industry. They also pointed out that the issues should be local and relevant to the community in which they live. They wanted the public forum to be held in a convenient location that involved smaller groups, or one-on-one conversations, so that it was not intimidating to speak in front of community members who may be involved in the hog industry.

*I think they [the public] are intimidated...I'm thinking one-on-one, like what you're doing, probably has more clout than in a group setting.*

*Just driving in to yards and saying, I'm from such and such. What do you think of the hog industry? What do you think of any industry? Just drive in. Ask the neighbours' opinions if there are concerns. Talk to the people around these barns and see what they think. A lot of people, you get them in a group setting, me included – you put in front of a group of people with a microphone and I clam up-- I know it takes a lot more time, but I think you get a better feel for what the people think.*  
(Interview Participant #1)

*...Would it be possible for them to have a smaller scale thing, rather than going and talking in front of a whole room? [this would be more appealing] To non-professionals, yes because there might be some people that wouldn't want to present in front of a whole room, but would be willing to do this [interview] where you sit down in front of a couple people.*  
(Interview Participant #19)

*I wish there were more forums, where local governments, provincial governments, municipal governments, would not feel so threatened by conducting, not necessarily even public hearings, but just conversations with people about what their wishes are...I think that would make it more appealing to me personally. It would have to be more local. I mean, I wouldn't want to drive far to attend. I would want it more conversational rather than formal. And I want it to be a building process, rather than a confrontational kind of thing.*  
(Interview Participant #27)

First Nation participants were also of similar mind regarding the value of informal settings for improving the extent of public participations. One participant recommended that rather than using the newspapers, she wished to be notified more personally either through an in-person visit or by calling to speak directly with community leaders about these sorts of opportunities for public participation. The band office appears to play an important role in communicating with the rest of the reserve and occupies a position of authority and official information. As pointed out by this participant, First Nation peoples would have traditionally learned about these issues (such as the environmental impact of the hog industry) in an informal manner such as the way that Elders shared stories and communicated information directly and in person to the community. To use the words of Participant #2, she stated that this type of information would have been shared and learned through someone "who has great knowledge of something."

### **5.3.3 Multi-Pronged Approaches to Public Participation**

Participants expressed the desire to take a multi-pronged approach to public participation, in support of the findings of Stewart and Sinclair (2005). They provided examples of more passive and uni-directional public input (emailed surveys, questionnaires and interviews) and also favoured active forms of public engagement.



*There definitely needs to be a multi-pronged action plan for gathering public opinion on particular issues, especially those as important as the sustainability of the hog industry in the province because it affects so many people*  
(Interview Participant #24)

*[the purpose of the National Farmers Union meetings was] to try to educate people, pig farmers included, about some of the problems that can arise from large scale hog farm operations. He [the speaker] is a very educated man. He's a guy from Alberta – Schaeffer maybe – he's a water man [expert]. This guy from Rosendale is just like him, he doesn't get on anybody's case about what they're doing wrong, and he just tries to educate them on what they should be doing. He's very diplomatic and very good. There were 150 people, maybe, at each meeting. The meetings were well advertised by a group here that Bill Harrison was a part of.*

(Interview Participant #15)

Participants also expressed the desire for more interactive fora for public input in issues such as the sustainable development of the hog industry.

Examples of public participation techniques that participants perceived to be more interactive included conferences, theatre and debate, which could all serve as tools for broadening education around issues in the hog industry. Participants suggested these types of interactive fora could also be followed up by in-person interviews as an opportunity for the public to share their learning and outcomes of participation.

*If all we do is make plays that simply point fingers I don't know that we're going to get the job done, but if we make plays that bring out the issues...wow! I think people will be led, to where their heart is... I would do [the theatre piece] and then I would continue it with a debate of two or three people—civilized intelligent people who have issues that are very constructive and concrete. That's something I would come to and something I'd be very interested in seeing you know...I don't think what they're doing is a terrible idea to say about concerns and things like that but it doesn't get me fired up. I want to hear fully both sides and I want accuracy, I don't want lies.*

(Interview Participant #10)

*Maybe we could have a conference which would bring together all these aspects and actually we could have a hog industry conference not sponsored by the hog industry in Winnipeg where we had these people coming from different opposing*

*directions...We could format it so that we could study all aspects surrounding the industry, bringing in participants not only from the industry itself, but opposing points of views and common experience for a common education. That would be interesting.*

(Interview Participant #25)

#### **5.3.4 Improved Notice and Transparency**

Participants felt that there was a problem with the lack of notice regarding upcoming hog barn developments in their area. Communication to the general public of new hog barn developments by the industry and government was perceived to be lacking so as to speed the approval of hog barn applications. This is in spite of the fact that *The Planning Act* states that within thirty days of receiving the Technical Review Committee's (TRC) report a public hearing must be held and every property owner within a three kilometer radius of the proposed ILO site notified, even if they are outside of the boundaries of the planning district or municipality (Public Interest Law Centre 2007). Therefore, the recommendation made by participants was that industry and government work harder to improve notice and transparency of ILO development to the public living in rural communities.

*We need a much more open approach to hog production and everything that goes on in it. Lift the veil of secrecy that surrounds all this and protects this, but does not protect us but actually prevents us from discussing some things and finding solutions... [It seems that] it's not an affair for citizens in general. It concerns only the producer and the municipality. We need more communication, openness and frankness and laying the facts out on the table if it affects the lives of everybody.*

(Interview Participant #25)

In the quote below, the participant indicates how important communication is, and not just at the municipal level, but also from the aspect of individuals and neighbours so that community accord may be sustained.

*When you build something that will affect a fairly large area you should at least go and visit your neighbours and say, look, I'm thinking of building a hog barn. Now your neighbour may not like it, but at least he's been forewarned. Responsible farmers will do this. I have a neighbour for instance, in this field here, just on the other side of the trees here there was rye grass. He couldn't bail it and he had to burn it. The wind was from the wrong direction for burning but he had to because it was his only opportunity. Well he came in my yard and said, Look, I know it will be inconvenient for you, I know if the wind is in the wrong direction and the smoke will get into your yard so what do you think? And I said, you warned me, go ahead. We'll close our windows and do what you have to do.* (Interview Participant #25)

Another way to improve transparency in the public process is to ensure that follow-up occurs with participants. This helps participants see how the public's views are considered in the decision making processes.

*I would want the recommendations, assuming that the study were done thoroughly and properly, that there would be some follow-up [with the public].* (Interview Participant #27)

First Nation participants also recommended more informal opportunities for communicating with decision makers on issues of environmental sustainability. Where members of the Swan Lake First Nation did participate in public meetings, they felt at times that they were not being listened to and that was a definite barrier for them. The quote below recounts one band member's experience at a hog meeting in the local municipality, and his impressions about how the Chief's voice was received:

*Mainly our Chief. Sometimes when he was speaking, I feel that they didn't listen to the Chief. Until some of the other people spoke up.*

*So people from off the reserve brought it up at the hearing that they didn't feel the Chief was being listened to?*

*Yeah.*

*Interesting. And how did the committee in charge respond to that comment?*

*They opened it up again and let the Chief say more...*

*And did that then seem to improve communication?*

*Oh yeah.*

(Interview Participant #16)

The message of more informal venues for communication came through loud and clear from participants in the Swan Lake First Nation. One of the participants from this First Nation's community suggested coming to visit them in person to learn their opinions. Her feeling was that the hearings did not allow enough opportunity for discussions to occur. She stated that she felt as if "one was not allowed to say anything" and that a more informal structure was required or "how else are you going to get your point across?" (Interview Participant #2). This sentiment is echoed in literature by Hessing *et al.* (2005) where the public showed a desire to speak "off the cuff" about environmental issues that were being decided.

Finally, rather than posting notices in the paper, this participant recommended that the First Nation community be better informed of such opportunities to participate in environmental decision making by sending a notice via fax or email to the direct attention of the Band Office. These types of notices could be further communicated by placing the advertisement on the band office's bulletin board, which is in plain sight of all community members passing through the office.

### **5.3.5 Increased Scope of Public Hearings**

Recommendations were also made with respect to the scope of public hearings, as discussed in section 2.3.1 the CEC held pre-hearing meetings in

Morden, Friedensfeld and Winnipeg to determine the scope of the public hearings. As with other research on participant opinions of environmental assessment process on the topic of the hog industry in Manitoba (Diduck and Mitchell 2003) participants recommended a wider breadth of issues and needs be considered to address the sustainability of the hog industry.

*It makes sense to me to have chart, you know you have a circle chart and you go like what is the full picture for us? Obviously there are concerns like money, but obviously there are all these areas that are missed out, and maybe livelihood has something to do with it. But is ethics a part of your chart? Are environmental concerns—concerns, not just standards because I think standards are set. And I think you need to go further and beyond. And make that a point of what your company's doing. Say you know we are really concerned about these things and it's a part of what we do.*

(Interview Participant #10)

*With the CEC at that time the process was more restrictive, you could only rule on evidence that was presented at the hearing. So if something didn't come up at the hearing yet you knew it was an issue, you couldn't bring it into the report because it hadn't been raised at the hearings. So the report was sort of dependent on who presented. If all you hear is one side of the question then that's what the report will reflect. I don't know if that's the situation with the current panel or not. It seems to me that their scope is broader. And I don't know if they can commission new research but...if they said, we have to have a five-year study on water quality before we can report then that probably wouldn't be allowed.*

(Interview Participant #18)

### 5.3.6 Use a Mediator

In Section 6(5) of *The Environment Act* the CEC is given authority to serve as a mediator in times of dispute over an environmental issue. Section 6(3) of *The Act* also provides authority to the CEC to investigate, on its own volition, any proponent action that is suspected to be *ultra vires* to *The Environment Act*. The participant below expressed his desire to see such a service in his own

community and particularly in times of dispute over the environmental impact on common natural resources.

*One of the things that I don't think they do enough of is if there is a real serious disagreement in the area, that maybe the Clean Environment Commission has the ability to bring in a mediator instead of allowing the municipality to make that final decision because they're in a bit of a conflict of interest in that their concern is mainly the tax base and the more barns the bigger the tax base vs. maybe what is really needed out there.*

(Interview Participant #4)

### **5.3.7 Use Language Specific to Different Aspects of the Livestock Sector**

Participants described language in the livestock sector as too broad and indiscriminating about its different aspects. They thought that specific language, as it applied to either cattle, hogs, or poultry would be more appropriate for clearly discussing the issues. One participant relayed a story about her presentation to the RM on livestock operations and setback distance. Due to the broad nature of the term "livestock", she found it difficult to present her opinions that were specific to the hog industry, without impacting decisions about the cattle industry as well. Since she did not want to raise concerns about the cattle industry, she did not raise her points at all in the public discussion on livestock.

*Now I have no objection to another cattle farm being within a quarter of a mile from me. But I certainly would object to their being a hog farm being within a quarter of a mile from me. So that brings up the problem with the regulations again, is that they refer to all livestock, not a specific species. And I don't know why the government is doing that. It might be a bit of subterfuge... You can't object, and nobody will object, like I say to a beef farm being next to them. Because there isn't the problem with odour when you clean the pens out and that it's only once a year and maybe the smell is bad for a day, but that's all. everybody can put up with the smell of cattle manure for a day... In fact when I attended the meetings, some of the beef producers in there said, yeah, but then if you put those limitations on the hogs, it applies to the beef as well and so you restrict the amount of development of the beef industry in the province—which I don't think is objectionable.*

(Interview Participant #27)

### **5.3.8 Increased Media Presence at Public Hearings**

Another participant recommended increased involvement of members of the media as an effective way to better communicate the issues that are being discussed at the public hearings.

*The general public won't go [to public meetings]. The only way the general public will know [about an issue being discussed at the meeting] is if you get a reporter in there because they're going to write an article in the paper and then somebody might actually see what was going on... In fact, some of the articles are really good from a different point of view...they go there with a general point of view just like when you're asking general questions, they sort of take everything and put it in one package, which makes sense to the normal reader...For the most part, the articles I've read, especially to do with farms, basically, they are very well done.*

(Interview Participant #20)

### **5.4 Towards More Inclusive Decision Making & Use of Alternative Tools**

Participants also provided comments on more inclusive forms of decision making and how the use of other tools might result in more broad-based public participation. For example, over the course of the interviews, participants expressed deep appreciation for the opportunity to have their views heard in an unthreatening forum. Moreover, many participants articulated a wish to see the CEC do this again in other fora. Participants were exceedingly forthcoming with their views as evidenced both in the number of people that participated and the amount of time they spent doing the interviews.

The research suggested that the public is concerned about the environmental impact and sustainability of the hog industry. Furthermore, they were often looking for information that was factual and addressed concerns on water, soil, air and human health. The CEC recommendation of a water education centre for public and social learning provides a good example of the

multi-pronged approach needed to achieve greater public participation in these important issues. As discussed by Daniels and Walker (1996), public hearings “may appeal to conceptualizers, but will likely do little for people who need more concrete experience or action” and undermines key learning theories that involve several distinct modes of learning.

Interviewees have suggested other participatory fora for learning about the issues, for example presentations by the National Farmers Union followed by community discussions to reflect on the different issues raised by stakeholders. As defined by the literature, stakeholders are “all those who affect, and/or are affected by, the policies, decisions and actions of the system; they can be individuals, communities, social groups or institutions of any size, aggregation or level in society” (Grimble and Chan 1995: 114).

Other examples of a multi-pronged approach to involving a broad group of stakeholders include the use of a dual-track public participation process, whereby the first round of meetings had a more educational focus (using a conference setting or theatre plays) followed by a second round of debate of the issues and one-on-one discussions on decision making. An example of a two-round public consultation technique for public participation is seen in Quebec, where the Bureau d'Audiences Publiques sur l'Environnement (BAPE) conducted a first round of hearings aimed at informing the public on issues in the hog industry and then did a second round to solicit public opinion. The rationale for this type of dual-track process is that the public is better equipped with the necessary information through the first round and therefore may feel more confident participating in the



decision making process during the second round. For more information, visit the BAPE website at [www.bape.gouv.qc.ca](http://www.bape.gouv.qc.ca).

The deliberative democracy literature links trust and public participation in decision making. In particular, deliberative democrats see institutional trust (the feeling of safety, being listened to, and hopeful of their ability to influence the outcome) as key to successful participation (Parkins and Mitchell 2005). In the section recommending better communication and transparency with the public, the interview participant specifically describes a “veil of secrecy” around the hog industry. This echoes Smith and McDonough’s (2001) discussion about how the perception of secrecy in decision making, where the public believes that it has not been informed about how a decision was reached results in decreased public support.

In deliberative democratic theory, public participation includes provisions for arenas of debate, personal reflection and informed public opinion. A “deliberative space” is the phrase used to describe a forum for public participation and is more commonly associated with deliberative democracy. These deliberative spaces are defined as ideal social environments where “citizens can discuss and debate common concerns, access a wide range of information, and reflect and revise their understanding of the issues.” For example, some members of this school of thought may seek a non-language based alternative forum that allows for nonlinguistic communication with the natural world. Experiences such as these in the review of the environmental sustainability of the hog industry in Manitoba could be learning gained through a visit to a hog barn in person and participation

in the CEC hearings. When participants spoke of more informal discussions and dialogue in plain language, it seems that they are reflecting the ideals associated with the abovementioned deliberative democracy.

The current reality in the sphere of public participation in Manitoba is that few people ever set foot in a hog barn and only 10% of interview participants went to the CEC hearings. All of this suggests that citizens need new fora for learning about the hog industry, such as those conducted by the CEC (2007), but also new and more informal public participation techniques that allow the public to discuss and interact with members of the industry and decision makers.

### **5.5 Chapter Summary**

With respect to the CEC hearings, participants discussed the nature of small communities and the close ties they have to neighbours. This close-knit social fabric of small towns means that it is not always easy to discuss concerns about an industry since neighbours may have been hog farmers and/or have friends and family with strong ties and investments in the industry. Others spoke of the intimidation experienced in the act of getting up in front of a crowd, and particularly when the balance of knowledge on farming practices falls heavily in one direction.

Other reasons participants relayed to explain non-participation in the CEC public hearings included previous experience at public meetings, the perception that the hearings would involve polarized viewpoints on the issues, time and energy deficiencies, the intimidation factor of speaking up in front of an audience and especially where stakes in the issue were less direct than other participants,

the perception that their viewpoints were represented by elected officials, because the barns did not impact their lives directly or in a significant enough way, a perception of bias within the CEC and finally the CEC's lack of decision making power.

Recommendations provided by participants for achieving more inclusive decision making included greater use of the multi-pronged approach to public participation. This may necessitate the use of a mediator where appropriate, greater notice and communication with the public, and an increased scope to public hearings around the hog industry. In addition, participants recommended less formal and unintimidating settings for discussing the sustainability of the hog industry.

The research reflects the issues discussed by literature on public participation, such as the difficulty in achieving broad stakeholder participation and balanced discussion of the issues (Robinson *et al.* 2001).

## **6 Conclusions and Recommendations**

### **6.1 Introduction**

The sustainable development of the hog industry in Manitoba continues to be investigated and a subject of public concern. This concern began in Manitoba following the rapid and haphazard growth of the hog industry in the mid-1990s (CEC 2007). The province responded with the Livestock Manure and Mortalities Management regulation in 1998, the Livestock Stewardship Initiative and *Finding Common Ground* report in 2000 and the Department of Conservation's report on the environmental sustainability of hog production in 2006. In November of 2006 a moratorium was called, and any further expansion of the hog industry was halted pending a report by the Clean Environment Commission. The CEC recognized that there would be people who felt intimidated by the public hearings and would not share their opinions on the hog industry in a public setting. Therefore the purpose of the research was to learn the opinion of Manitobans, not inclined to participate in public hearings. In learning about participant opinions on the hog industry, I also explored how the public participation process might become more inclusive.

To achieve the above purpose, the following four objectives were pursued:

1. To describe the views of farmers and other interested rural Manitobans concerning the environmental sustainability of the hog industry.
2. To identify why people chose not to participate in public hearings.
3. To explore how people learned about issues surrounding the hog industry.
4. To recommend approaches to making public processes more accessible.

This study employed qualitative research methods. The research focused on the CEC hearings and the review of the environmental sustainability of hog production in Manitoba. Attempts were made to target members of the public who chose not to participate in the CEC hog hearings. Consistent with qualitative methodology, the primary research instruments were semi-structured interviews and participant observation at the public hearings.

## **6.2 Conclusions**

### **6.2.1 Perspectives on Environmental Sustainability & the Hog Industry in Manitoba.**

As described in Chapter 4, the major issues conveyed by participants about the hog industry related to manure management, water quality, odour, and the socio-political ramifications of ILO developments on small rural communities. Minority issues of GHG emissions, antibiotics use, and inaccuracies in the technical review process were established, and were also examined in the CEC final report (2007). This concern for GHG emissions from the hog industry is relatively recent in the public eye and unique to this study. The concern relates to manure management and specifically the slurry volatilization of nitrous oxide and methane to the atmosphere. Participants recommended that farmers develop greenhouse gas action plans to mitigate their GHG emissions and be encouraged to implement best management practices.

Nearly a decade later, and although issues of manure management, water quality and odour have been widely discussed in previous reports and studies, (e.g. *Finding Common Ground* (Tyrchniewicz *et al.* 2000)), the participants in this study continue to voice significant concerns on these issues. One good news

exception to this is the issue of odour. It would seem that the more prevalent use of manure injection practices has decreased some of the perceived odour concerns associated with manure management. That said, the concerns for water quality have never been greater, and as described by participants, the public perception of inadequate monitoring and enforcement in the hog industry remains.

As recommended by participants, driving into neighbouring yards of hog operations would provide an important opportunity to become acquainted with enforcement officers. This would also be an informal way to initiate discussions on local hog operations. More face-to-face interaction and local experience with the environment officers would instill greater confidence in the monitoring, enforcement and communication aspects of the hog industry. As the old adage says, 'you have to not only do the right thing, but be *seen* to be doing the right thing' in the case of hog industry management. Participants looked to the provincial government to appropriately monitor and enforce the hog industry, and felt that their local government was too often biased in favour of the hog industry. This type of provincial enforcement and public communication requires adequate staffing and other resources to ensure a job well done. Since the hog industry is such a contentious issue for many rural Manitobans, it should be a major priority of government and environment officers to instill public trust in its proper environmental governance.

### 6.2.2 **Reasons for Non-Participation**

A number of barriers to participation were identified regarding involvement in the CEC hearings and other types of public meetings. One barrier identified was the integrity of the CEC itself. However, when the role and makeup of the CEC was discussed in greater depth with participants, participants tended to agree that equipped with this greater awareness they would be more likely to attend a CEC public hearing in the future. The participants' attitude and awareness level reflected the importance and value of communicating the CEC's mandate and educating the public on opportunities for public participation in environmental decision making. It seems that the mandate of the CEC is still unclear to many people, although their website is very useful in providing this information. Finally, participants' comments suggest the need for greater understanding in the makeup of the panel of Commissioners, and confidence in the process of its selection. Information such as panel member biographies can be found on the CEC's website, but as illustrated by the sources of information that participants used, newspapers and word of mouth are more heavily relied upon than websites.

In Sinclair, Diduck and Fitzpatrick (2002) these sentiments were similarly expressed and the recommendation made to use other forms of advertising the CEC's work. Recommendations that were not adopted (and that the recent hog hearings may have benefited from) included the lack of TV or radio advertising of the opportunity for public participation in the hearings. *The Environment Act* also provides for this in Section 7(1) where it states that public notices of

hearings/hearings are to be “advertised in newspapers or other media as the commission deems fit”.

Furthermore, participants tended not to participate in the CEC hearings because of timing constraints and other demands already placed on their lifestyle through their involvement in other (more positive) activities and interests. The literature has sometimes referred to these as structural barriers to participations and the “involuntary complexity” of fast-paced western lifestyle (Diduck and Sinclair 2002).

Other reasons for non-participation included participants' previous experience with similar fora, which was often perceived as negative. Also, participants noted the intimidating experience of speaking about issues that affected hog barn owners in their community. They felt alienated by the technical discourse of public hearings (Petts 2003, Sinclair and Diduck 2002), and noted their feelings of lack of direct experience in the agriculture industry limited their stake in the issues being discussed. This is juxtaposed by the perception that the scope of the hearings was too narrow and the feeling that hearings would represent an overly polarized debate of the issues. Participants were not interested in attending a hearing that was represented by extreme points of view and bias, and would have instead liked to see a more informal and thoughtful discussion of the issues with the end aim of consensus and decision making. Informal settings where participants could have discussions with decision makers and learn more about hog industry policies and regulation were recommended.



### 6.2.3 Learning About the Hog Industry

Participants learned about issues around hog production largely through first-hand experience of living rurally, being involved in the agricultural sector and speaking with neighbours. Although a few participants were involved in coalitions, such as Beyond Factory Farming, or the National Farmers Union, more social forms of learning that was organized at the societal level were in short supply. Instead, it seemed that participants referred to learning occurring at the scale of the individual. Perhaps this is no surprise, as understanding of the hog industry is currently limited in scope. For example, as the CEC points out in its final report (2007), neither the RMs, Manitoba Pork Council or the provincial government were able to identify even the location and number of all the hog barns in the province overall. Without such a basic understanding or factual representation of the hog industry at the institutional level of government and industry, it may be difficult for the general public to place confidence in the management and governance of the hog industry or fully grasp its implications for the environment.

In order for learning to occur in such realms as public hearings, community discord between some members of the hog industry and those fiercely opposed needs to be resolved. Participants described the ways that bad blood between neighbours, and distrust in decision makers as a result of political ties to the industry, requires more neutral and open discussion of concerns. The public should not feel intimidated to raise their concerns with decision makers or that those making decisions are biased in favour of the industry. There is plenty of willingness to speak on these issues, as evidence by the length of interviews

and number of interviews, but this is currently not occurring in large public settings, such as hearings. It remains a fact that the lay public is still a small percentage of those in attendance at public hearings as shown in Figure 5 and discussed in the literature (e.g., Stewart and Sinclair 2005).

Due to the public concerns that continue seven years after the establishment of a provincial Livestock Stewardship Initiative and public participation process, it is apparent that new fora for learning are required. In addition education and awareness building among all stakeholders would serve as an “on-ramp” to more dialogic and active forms of public participation in livestock decision making (Sinclair and Diduck 1995; Kidd and Sinclair 2007). This “on-ramp” for learning about the industry is particularly important when the topic is as broad as sustainability, and when the industry is as large and has a far-reaching impact on Manitoba’s water, greenhouse gas emission, economic, political and social quality of life.

#### **6.2.4 More Accessible Public Participation**

Participants indicated that a multi-pronged approach is required to involve a breadth of public stakeholders. Some participants were intimidated by the prospect of attending hearings in a public forum that included farmers, friends and neighbours. This barrier also validated the use of interviews as a supplementary form of gaining public opinions. As shown in Figure 6, a broader demographic of participants were involved in the interview process than that of the public hearings.

Interview participants were highly supportive of alternative approaches to public participation. They wished to see more informal opportunities for public participation in environmental decision making on the hog industry. Small group discussions, interviews and, as supported by Petts (2003), participating in ongoing dialogic process such as citizen advisory committees are all examples of alternative and more informal ways that participants could participate.

“Participatory and social learning approaches, emphasizing dialogue, mutual learning, and the continual evolution of ideas” (Diduck 2004: 488) are well suited to issues of uncertainty, such as the environmental sustainability of hog production in Manitoba.

### **6.3 The CEC Report 2007**

The CEC report entitled *Environmental Sustainability and Hog Production in Manitoba* was released in December of 2007 and included recommendations such as the need for more information and research related to the hog industry and that this should be better communicated to the public. The province appears to have accepted many of the CEC recommendations made in their final report, including Recommendation 13.3 which calls for the establishment of a Watershed Studies Institute. According to the CEC report, the Watershed Studies Institute would partner universities/colleges and government agencies to “coordinate information collection, analysis, and evaluation, direct research and provide support to agencies and organizations undertaking watershed management in Manitoba” (CEC 2007: 148). While an excellent recommendation, the vision for the Watershed Institute could perhaps be

expanded to address some of the communication and public education issues that have been elicited by this research. Since this would be a university-based institute, this type of non-governmental body would be potentially very well received by members of the public for providing accurate and unbiased information. A further recommendation for this institute would be to house a 1-800 number to serve the public and provide information on the hog industry, such as contact details of the appropriate regulatory authorities. Not only did participants support this idea through their recommendations to create an easy to use, one-stop information shop on the hog industry, but the CEC has also supported the idea of a toll-free number "to which members of the public could report concerns" (CEC 2007: 149). The establishment of a Watershed Studies Institute (as recommended by the CEC), could also increase the potential for informal dialogue between decision makers and the public, which was expressed as highly desirable to the participants.

Other helpful recommendations that address the concerns raised by participants in this study include improving the visibility of enforcement officers by the provision of "measures that allow Manitoba Conservation Environment Officers to be distinguished in the field and at public events" (p. 149). The simple act of wearing a uniform, carrying identification tags, driving labeled vehicles while attending public fora and carrying out monitoring of the industry in the field would help improve public trust in the environmental sustainability of the hog industry.

Since the 2007 report, the provincial government has acted in part on the CEC recommendations a step further with the passing of Bill 17, which established a permanent moratorium on hog barns in three areas of the province, namely the Interlake, Red River Valley and south-eastern regions of the province. Bill 17 prohibits the expansion of hog barns in these three areas, which are widely considered overpopulated with hog barns already. Nicknames such as "hog alley" used to refer to the south-eastern corner of the province illustrate the common sentiment that these are areas of high hog population density.

#### **6.4 Concluding Thoughts**

Hog production is just one type of industry that is consuming significant amounts of water in Manitoba. In order to provide animal drinking water, clean barns, sanitize equipment and flush manure into storage lagoons, it is estimated that the hog industry consumes nearly 31 million litres of water per day (Nyachoti *et al.* 2007).

A decrease in water supply may result in future water resource conflicts between competing stakeholder interests since water is a necessity for both the health and survival of all members of society. When future uncertainties relating to climate change are taken into consideration and particularly with respect to the forecasted drought in the prairie region, water resource conflict is of significant concern. As stated by Agriculture and Agri-Food Canada (2008): "Agriculture is the largest consumer of water in arid and semi-arid regions like the Canadian Prairies -- climate change would mean good quality water supplies would become even more crucial and contentious than they are today." Furthermore,

the abuse of water resources by industry, and other users, can lead to decreased tourism and recreational value of our lakes and rivers, as well as a loss of commercial fisheries and general decline in human well-being and quality of life. The economic burden of mitigating this damage to environmental and human health has been and will be shouldered by public institutions such as health care and social assistance. Therefore it is recommended that Manitoba take significant steps to internalize some of the externalities associated with intensive hog operations, and in particular, water pollution and use.

The PEW report entitled *Putting Meat on the Table: Industrial Farm Animal Production in America* (PEW 2008) also recommends that industrial farms begin to internalize the environmental and social costs of this form of meat production. In their 2008 report, the PEW Commission on Industrial Farm Animal Production<sup>6</sup> conducted economic analysis of switching from a liquid manure-based system to a hoop structure, or biotech swine facility, and found that the increase costs were only 26 cents per hundred weight of hog. The use of biotech, or hoop barns, was favoured by interview participants as a system for hog rearing. This same report found that if ILO were to be required to factor in externalized costs of swine production, the increased costs would mean an additional \$12.16 per hundred weight of pork (PEW 2008). In this light it seems that increased use of more sustainable and publicly favoured systems such as biotechs are relatively cheap to implement. At the same time the true long-term costs of industrial livestock

---

<sup>6</sup> PEW Commission is project of The Pew Charitable Trusts and the Johns Hopkins Bloomberg School of Public Health. The panel of experts is made up of people from the fields of veterinary medicine, agriculture, public health, business, government, rural advocacy and animal welfare.

operations are not being accounted for and artificially low costs of meat may also be creating unsustainable demand for the product.

Underlying these discussions is the lack of full-cost accounting in the exploitation of our water, soil, air and other environmental resources. Water is essentially an open-access resource and considered a public good—which makes it difficult to attribute its true economic value. In order to create a market for natural resources, they must be made exclusive and divisible. At the global scale, few experts have attempted to assess the economic value of ecosystem goods and services provided by natural capital. One of the only studies completed to date has estimated the world's ecosystem goods and services to be valued at \$16-54 trillion US dollars/year (Costanza *et al.* 1997). The absence of a market for ecosystem goods and services lends itself to unsustainability in hog production and overexploitation of natural resources.

As noted in the CEC's final report (2007), many of the environmental concerns associated with intensive livestock production are primarily experienced down-stream or perceived as distant future problems with more immediate concerns needing to be addressed. One method for internalizing the environmental damage downstream and protecting resources for future generations might be through the use of Payment for Environmental Services (PES) approach. This method of encouraging environmental sustainability should be put to greater use in agricultural systems, such as the hog industry.

In Manitoba, we currently have two forms of PES to build upon:

1. *Alternative Land Use Systems (ALUS)*, which is funded by all three levels of government and represents an incentive-based program that rewards producers for implementing conservation strategies on their land. These strategies include financial reward for the maintenance and enhancement of wetlands, ecologically sensitive lands and other natural areas. To date, approximately 20,000 acres of farmland have enrolled in the ALUS program in Manitoba (George Morris Centre 2007).
2. *Riparian Tax Credit*, which capitalizes on reductions in nutrient runoff achieved through the presence of riparian vegetation along stream channels and lake shores. Manitoba is one of the first provinces to capitalize on this by implementing its Riparian Tax Credit.

In terms of future research, participants have raised an important alarm about the hog industry's major contribution to GHG emissions, which has only been widely discussed in recent times (FAO 2006). This is an area of interest for participants, and society as a whole, where increased attention and research is needed.

In terms of public participation in environmental decision making, the CEC hearings remain a venue mainly attended and participated in by professionals, high-interest stakeholders and a few advocates for the environment (Figure 5). The review of environmental sustainability of hog production was broader than normal hearings convened by the CEC in that there was no proponent or proposal under review. Rather, it was labeled as an investigation into the environmental sustainability of the hog industry overall, and throughout Manitoba.



The investigatory nature of this review made it possible for the CEC to commission research such as the private interviews which were conducted. Participants were highly impressed and thankful for the opportunity and voiced their opinions to see similar opportunities in the future.

It is important to remember that trust in institutions and public participation are intrinsically linked, as discussed from the perspective of deliberative democratic theory (Parkins and Mitchell 2005). The Livestock Stewardship Panel (2000) discussed how the perceived lack of monitoring of the hog industry in Manitoba has led to decreased trust in public institutions. The public perceives enforcement and monitoring of the industry as clearly lacking and one of the outcomes of this is less meaningful and active participation at CEC hearings. Furthermore the formal structure of the CEC hearings is at odds with the idea of informal and open discussions about the issues that were relayed by participants. Institutional trust, as described by Parkins and Mitchell (2005) is foundational for successful participation, and quite different from interpersonal trust. In this case, the interpersonal distrust that occurs between corporate-owned hog farms and some rural neighbours is considered a healthy form of democratic debate (Parkins and Mitchell 2005). However, trust in the Clean Environment Commission is a key form of institutional trust and will aid in more successful public participation in rural Manitoba.

It seems evident that most participants felt that the hog industry does not take them or their concerns seriously, which further supports the need for independent meetings and hearings like CEC hearings, participant funding

assistance and alternative forms of public participation. It seemed that industry was not interested in the social malaise or community discord that may have resulted from hog development in rural areas. The hog industry was well aware of "recent controversies" in rural Manitoba and therefore should focus their efforts on repairing the damage caused by hog developments in tightly-knit communities. The hog industry has an opportunity to be a leader in showing its commitment to minimizing the environmental impact and social disputes that are the direct outcomes of hog developments in rural Manitoba and yet appear to scorn them instead. Opportunities for positive relationship building with the public include the use of public participation tools such as collaborative learning fora, citizen advisory committees and other techniques such as mediation and small problem-solving group discussions. The discussions must be fair and unintimidating to include all interested members of the public.

Though an in depth exploration of the power struggles between rural residents and producers fell outside the scope of this study, the theme manifested in many aspects throughout the data. A more level playing field between hog producers and fellow community members is needed for broad-based public participation. For example, as described in Section 5.1.1., a participant shared her experiences sitting on an advisory committee around planning for livestock development in her community. Her recollections of this experience were almost entirely negative. She spoke specifically of issues of gender and age imbalances on the committee, and found it difficult to relay her opinions because of her "non-agricultural" background.

Furthermore, and also on the point of power imbalance, interviewees brought up changes to Hutterite culture in Manitoba and this represents an area of further interest and future research. Hutterites make up nearly one-third of hog producers in Manitoba. The marked increase in participation and voter-ship of this demographic, as evident in their high participation in the public hearings and the advocacy of the hog industry through unprecedented turn-out at election times, has prompted greater support for the hog industry in rural Manitoba. It could be that this large populace, for better or for worse, has been an important contributor to the changed landscape in Manitoba.

## REFERENCES

- Agriculture and Agri-Food Canada. *Frequently Asked Questions About Climate Change and Agriculture*. 6 December 2008. [www.agr.gc.ca](http://www.agr.gc.ca)
- Arnstein, S. 1969. A Ladder of Citizen Participation. *Journal of the American Institute of Planners* **35**(4): 216-224.
- Berg, B. L. 2004. *Qualitative Research Methods: For the Social Sciences (5<sup>th</sup> Edition)*. Pearson Education, Inc., California.
- Bocking, S. 2004. *Nature's Experts: Science, Politics and the Environment*. Rutgers University Press, New Brunswick.
- Brundtland, G. 1987. *Our Common Future: The World Commission on Environment and Development*. Oxford University Press, Oxford, England.
- Carson, R. 1962. *Silent Spring*. Houghton Mifflin Company, New York, New York.
- Checkoway, B., and J. Van Til. 1978. What Do We Know about Citizen Participation? A Selective Review of Research. In *Citizen Participation in America*. S. Langton (ed), 25 – 42. Lexington, MA: D.C. Heath and Company.
- Clean Environment Commission. *Environmental Sustainability and Hog Production in Manitoba*. December 2007. 188 pp.
- Cohen, J. 1989. Deliberative Democracy and Democratic Legitimacy in A. Hamlin, and P. Pettit, (eds), *The Good Polity*. Oxford: Blackwell. pp. 17–34
- Creswell, J. W. 1994. *Research Design: Qualitative & Quantitative Approaches*. Sage Publications, Inc., Thousand Oaks, California.
- Creswell, J. W. 2003. *Research Design: Qualitative, Quantitative and Mixed Method Approaches*. Sage Publications, Inc., Thousand Oaks, California.
- Daneke, G.A. 1977. Public participation in Natural Resource Development: A review of Water Resource Planning. *Environmental Affairs* **6**(1): 11-31.
- Daniels, and Walker. 1996. Collaborative Learning: Improving Public Deliberation in Ecosystem-based Management. *Environmental Impact Assessment Review* **16**: 71-102.
- Diduck, A.P. and B. Mitchell. 2003. Learning, public involvement and environmental assessment: A Canadian Case Study. *Journal of Environmental Assessment Policy and Management* **5**(3): 339-364.

- Diduck, A. and J. Sinclair. 2002. Public participation in Environmental Assessment: The Case of the Nonparticipant. *Environmental Management* **29**(4): 578-588.
- Dorcey, A.H.J. and T. McDaniels. 2001. *Great Expectations, Mixed Results: Trends in Citizen Involvement in Canadian Environmental Guidance*. Pages 247-302 in E.A. Parson, Editor. *Governing the Environment: Persistent Challenges, Uncertain Innovations*. Toronto University Press, Toronto, Ontario.
- Driedger, L. The Encyclopedia of Canada's Peoples, Hutterites & Politics. 14 November 2008 [www.multiculturalcanada.ca](http://www.multiculturalcanada.ca)
- Fiorino, D.J. 1990. Citizen Participation and Environmental Risk: A Survey of Institutional Mechanisms. *Science, Technology & Human Values* **15**(2): 226-243.
- Fitzpatrick, P. and A.J. Sinclair. 2003. Learning through Public participation in environmental assessment hearings. *Journal of Environmental Management* **67**: 161-174.
- Flaten, D., K. Wittenberg, and Q. Zhang. *A Report on Current Knowledge of Key Environmental Issues Related to Hog Production in Manitoba*. Commissioned by the CEC. October 2007.
- Foddy, W. 2003. *Constructing Questions for Interviews and Questionnaires: Theory and Practice in Social Research*. Cambridge University Press, Cambridge, England.
- Fowke, V. 1957. *The National Policy and the Wheat Economy*. University of Toronto Press, Toronto, Ontario.
- Gibbs, G. 2002. *Qualitative data analysis: Explorations with NVivo*. Open University Press, Pennsylvania.
- Grier, K., C. Brethour, B. Sparling, and A. Mussell. 2007. *Economic Analysis of the Hog Production Industry in Manitoba in Relation to the Clean Environment Commission Review of Environmental Sustainability*. Guelph, George Morris Centre. Commissioned by the Clean Environment Commission.
- Hessing, M., M. Howlett and T. Summerville. 2005. *Canadian Natural Resource and Environmental Policy: Political Economy and Public Policy*. UBC Press, Vancouver, British Columbia.
- Kasperson, R.E. 1986. Six Propositions on Public Participation and Their Relevance for Risk Communication. *Risk Analysis* **6**: 275-281.

Kidd, S. and J. Sinclair. 2007. The Urban Public and Forest Land Use Planning: Tapping into the Majority. *Forestry Chronicles*, In Print.

Krueger, R.A. 1988. *Focus Groups: A practical guide for applied research*. Sage Publications, Inc., Newbury Park, California.

Manitoba Agriculture and Food. N.d. Pork in Manitoba. 5 February 2007. <<http://www.gov.mb.ca/agriculture/livestock>>

Manitoba Agriculture and Food. 2003. *Agriculture Statistics. .Manitoba Agricultural Review*. 28 January 2007. <<http://www.gov.mb.ca/agriculture/statistics/aac01s01.html>>.

Manitoba Agriculture Food and Rural Initiatives (MAFRI). 2006. *Living with Livestock Production: Public Concerns with Livestock Production*. 15 February 2007 <<http://www.gov.mb.ca/agriculture/livestock/publicconcerns/cwa01s00.html>>

Manitoba Agriculture and Food. *Manitoba Swine Industry Facts: An Overview of Production, Processing and Exports*. Winnipeg: Manitoba Agriculture and Food, 2002.

Manitoba Clean Environment Commission. 2007. *Guide to Public Participation in the Clean Environment Commission Hog Production Industry Review*. 4 pp. 2 February 2007 <<http://www.cecmnitoba.ca>>.

Manitoba Conservation. 2006. *An examination of the environmental sustainability of the Hog Industry in Manitoba*. 53 pp.

Manitoba Finance. 2004. *Manitoba 2004 Budget Papers: Today's Challenges, Tomorrow's Opportunities*. 12 February 2007. <<http://www.gov.mb.ca/finance>>.

Manitoba Trade and Investment. *Global Trade Opportunities: Agriculture and Food Processing: Pork*. 2 February 2007 <<http://www.gov.mb.ca/trade/globaltrade/agrifood/livestock/pork.html>>.

Mitchell, R.E. 2002. *Resource and Environmental Management (2<sup>nd</sup> Edition)*. Prentice Hall, Harlow, Essex.

Moyer J., P. Fitzpatrick, AP Diduck, and B. Froese. 2008. Toward community-based monitoring of the hog industry in Manitoba. *Canadian Public Administration Journal* **51**(3): XX –XX.

National Environmental Justice Advisory Council. *Environmental Justice and Federal Facilities: Recommendations for Improving Stakeholder Relations*

- between Federal Facilities and Environmental Justice Communities*. October 2004. 20 pp.
- Novek, J. 2003. *Intensive Livestock Operations, Disembedding, and Community Polarization in Manitoba*. *Society and Natural Resources* **16**: 567-581.
- Parkins, J.R. and Mitchell, R.E. 2005. Public Participation as Public Debate: A Deliberative Turn in Natural Resource Management. *Society and Natural Resources* **18**: 529-540.
- Patton, M. Q. 1987. *How to use qualitative methods in evaluation*. Pp. 108-143. Sage, London, England.
- Petts, J. 2001. Evaluating the effectiveness of deliberative processes: waste management case studies. *Journal of Environmental Planning and Management* **44**(2): 207-226.
- Petts, J. 2003. Barriers to Deliberative Participation in EIA: Learning From Waste Policies, Plans and Projects. *Journal of Environmental Assessment Policy and Management* **5**(3): 269-293.
- Pew Charitable Trusts. 2008. *Putting meat on the table: Industrial farm animal production in America*. [http://www.pewtrusts.org/our\\_work\\_detail.aspx?id=48](http://www.pewtrusts.org/our_work_detail.aspx?id=48)
- Public Interest Law Centre. 2007. Clean Environment Commission Hog Production Industry Review 2007. "WSUB – 098" available on the Clean Environment Commission website.
- Robinson, D., M. Robson and R. Rollins. 2001. Towards Increased Citizen Influence in Canadian Forest Management. *Environments* **29**(2): 21-41.
- Rowe, G. and L.J. Frewer. 2000. Public Participation Methods: A Framework for Evaluation. *Science, Technology & Human Values* **25**(1): 3-29.
- Sinclair, J. and A. Diduck. 1995. Public education: An undervalued component of the environmental assessment public involvement process. *Environmental Impact Assessment Review* **15**(3): 219-240.
- Sinclair, A.J. and A.P. Diduck. 2005. Public Participation in Canadian environmental assessment: Enduring Challenges and Future Directions. Pages 53-74 in K.S. Hanna, editor. *Environmental Impact Assessment Process and Practices in Canada*. Oxford University Press, Don Mills.
- Sinclair, A.J., A. Diduck, T. Morris-Oswald and M. Olczyk. 2003. Public participation in Flood Management in the Red River Basin: An Assessment of a Recent Initiative. *Canadian Water Resources Journal* **28**(3): 461-480.

Smith, P. D. and M. H. McDonough. 2001. Beyond Public Participation: Fairness in Natural Resource Decision Making. *Society and Natural Resources* **14**: 239-249.

Stewart, J. and Sinclair, J. 2005. *Identification and Application of the Components of Meaningful Public Participation in Forest Management*. Unpublished Master's Thesis. The University of Manitoba.

Tyrchniewicz, E., N. Carter and J. Whitaker. 2000. *Finding Common Ground: Sustainable Livestock Development in Manitoba*. Report prepared for the Government of Manitoba by the Livestock Stewardship Panel. 72 pp.

Tyrchniewicz, E. and H. Gregory. 2003. *Manitoba's Pork Value Chain: Where is it Going and What is Driving it?* Report prepared for Market and Industry Services Branch of Agriculture and Agrifood Canada, Winnipeg.

United Nations. 1992. *Report of the United Nations Conference on the Human Environment, Stockholm, 5-16 June 1972*. United Nations publication, Sales No. E.73.II.A.14 and corrigendum, Chap. I.

U.S. Department of Energy, Environment, Safety and Health: Office of NEPA Policy and Assistance. *Effective Public Participation Under the National Environmental Policy Act* (2<sup>nd</sup> Edition) 1998.

Webler, T., H. Kastenzholz and O. Renn. 1995. Public Participation in Impact Assessment: A Social Learning Perspective. *Environmental Impact Assessment Review* **15**(5): 443-463.

World Commission on Environment and Development (WCED). 1987. *Our Common Future*. Oxford University Press, Oxford, England. 400 pp.



## **Appendix 1: Participant Interview Schedule and Guide**

Obtain:

- Name of participant
- Participant mailing address
- Proper name of participant's community (colony, first nation, business, etc)
- Location of Interview

### **Section 1: General Questions**

1. How far away would you estimate the nearest hog operation to be from your home?
2. Which of the following do you best identify with?
  - a. Farmer
    - i. Hog
      1. What is the size of your operation? (AU, number of sows, etc.)
    - ii. Organic
    - iii. Other- be specific.
  - b. Concerned Citizen
  - c. Academic
  - d. Environmental activist
  - e. Government representative
  - f. Involvement with an NGO
  - g. Livestock industry representative
  - h. Animal welfare activist
  - i. Other - Please explain
3. How did you hear about this opportunity for interview?
  - a. Through a friend
  - b. Saw an advertisement
    - i. Poster
    - ii. Newspaper
    - iii. Radio
  - c. Solicited at hearing
  - d. Through the CEC
    - i. Verbally
    - ii. Website
  - e. Other

### **Section 2: The Hog Industry in Manitoba**

*\* In the following questions, I may use the prompts noted in the Appendix as necessary. Unless otherwise noted, these areas of concern will only be prompted if the participant brings the issue up within the context of their responses. The exception to this rule will be the prompt in c) Environment, where I will make a point of asking these questions in the event that the participant does not address them voluntarily. My reason for prompting questions relating to the environment is that they directly relate to my first research objective (learning public views about how to make the hog industry more environmentally sustainable).*

As you know, I am doing these interviews in part for the CEC who is investigating the environmental sustainability of hog production in Manitoba.

1. What are your views about the environmental sustainability of the hog industry that you would like conveyed to the Clean Environment Commission?

2. What recommendations would you make to improve upon the abovementioned issues regarding the hog industry in Manitoba?
3. How would you describe your feelings surrounding large-scale agriculture in general?
4. How would you describe your feelings relating to the hog industry in Manitoba?
5. How would you say you are connected to the hog industry?
6. How did you learn about the hog industry in Manitoba?
7. You indicated about that you were especially concerned with \_\_\_\_\_, how did you learn about this issue in particular?

### **Section 3: Public Hearings and Participatory Processes**

1. Have you ever attended any type of public hearing?
  - a. If so, on what issue?
2. How did you hear about this hearing?
3. What are your impressions of public hearings?
4. Do you plan to attend any of the current public hearings surrounding the hog industry?
  - a. If so, which one(s)?
5. How did you hear about the current hearing relating to hog production in Manitoba?
6. What made you want to attend the current hearing?
7. Why did you choose not to present at the current CEC hearings relating to hog production in Manitoba?
8. If you do not plan to attend any of these current hearings, what are your reasons for not doing so?
9. How would you describe the advantages of public hearings?
10. How would you describe the disadvantages of public hearings?
11. How would you change the public hearings process to make it more appealing to you as a member of the public?
12. What other processes might you recommend in order to improve public input on environmental issues?
13. What recommendations would you make to the CEC about how to encourage wider public participation in environmental and resource decision making?

Please provide any other comments you might have on the hog industry, public hearings or this survey.

I would also like to encourage you to share any background information and evidence you have on the issues raised during the interview. I will ensure that they are brought to the attention of the CEC.

Thank you for this opportunity to interview with you. I will be mailing you my notes regarding your input today to improve the accuracy of my interpretation of your opinions and concerns.

*\*\*\* The following questions (a-e) are provided for my reference only, in the event that the interviewee brings up these areas of concern. I will only prompt the issue of c) Environment, as these questions relate to Objective 1 (learning public views about how to make the hog industry more environmentally sustainable).*

Would you say you are opposed to the current operation of hog facilities?

- a. If so, what are its weaknesses?
- b. Are you opposed to meat production and consumption in general?
- c. Are you opposed to hog production in general?
- d. Are you opposed to industrial hog production?
- e. Are hoop structures okay?
- f. Are free-run operations preferable?

What are key issues facing the hog industry today that you would like to share with me and the Clean Environment Commission?\*

- a. Socioeconomic-
  - i. How have hog operations changed the social fabric of your community, if at all?
    1. Family farms?
    2. Loss or increase in employment?
    3. Community discord or accord?
    4. Increased community or RM revenue? etc
  - ii. Are concerns relating to the type of operation? E.g. Loss of Family Farm
  - iii. In your opinion, what are the main economic losses of hog operations?
  - iv. In your opinion, what are the main economic gains from hog operations?
- b. Planning and Approval-
  - i. What specifically is the problem with this process?
    - lack of public input?
    - lack of public Appeal?
    - lack of environmental information?
    - lack of Analysis?
    - lack of independent decision making body?
    - the TRC process?
    - the local council?
    - the density of hog barns?
    - the setback of hog barn construction?
    - the municipal development plan?
- c. Environmental-
  - i. Concern regarding water Quality?
    1. ground water, surface water?
  - ii. Concern regarding water allocation?
    1. The sheer volume of water being used by hog operations?
  - iii. Concern for runoff from fields?
    1. Timing of the runoff?
  - iv. Concern for monitoring of water?
  - v. Concern for odour issues?
  - vi. Concern for health issues?

1. Which ones specifically?
  - vii. Concern for the industry's contribution to climate change and greenhouse gas emissions?
- d. Enforcement-
  - i. How do you feel the industry is currently regulated?
  - ii. Have you raised your concerns with anyone?
    1. Who?
    2. What was the outcome of this?
- e. Manure Management-
  - i. How do you feel manure is currently managed in hog operations?
  - ii. Is the opposition based on liquid manure?
  - iii. Would they have this opposition if the operations used dry manure handling techniques?
  - iv. Are application methods the issue?
    1. Why?
  - v. Is timing of application the issue?
    1. Why?
  - vi. Is the magnitude of output from one operation or the cumulative effects of several?

## Appendix 2: Participant Consent Form for Interview



UNIVERSITY  
OF MANITOBA

### Manitoba's Hog Industry Review: Tapping into the Non-Participant Lindsay Irwin

This consent form, a copy of which will be left for you, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

Dear participant,

My name is Lindsay Irwin, and I am a graduate student at the Natural Resources Institute (NRI), University of Manitoba.

The results of this survey will be used in my Master's thesis research and shared with the Clean Environment Commission (CEC). I am conducting qualitative research, in the form of interviews and participant observation, which is sponsored by the Clean Environment Commission. The purpose of my research is to learn from Manitobans, who are not inclined to participate in public hearings, their opinions on the hog industry and in so doing, explore how the public hearings process might become more inclusive and participatory. The results of this survey will be given to the CEC to aid in the development of their recommendations for the Minister of Conservation regarding the environmental sustainability of the hog industry in Manitoba.

Please note that if you should like to do so, there are other avenues for conveying your opinion to the CEC outside of this private interview setting. For example, members of the public may mail the CEC a written submission or arrange to present their opinion before the panel of commissioners at any one of the seventeen public hearings scheduled throughout Manitoba. Please visit the CEC website at [www.cecmnitoba.ca](http://www.cecmnitoba.ca) for more details on how to participate and request information of the CEC directly.

Our interview should take no longer than 1 hour and may be aided by the use of an audio recorder, with your permission. Even if you initially give permission to be recorded, you may at any time verbally state that you would like to end the recording of the survey. Your responses will be held in strict confidence and the results of this study will be reported with no reference to specific participants. Your mailing address will only be requested for the purposes of verifying my research findings as they pertain to our interview today.

Your signature on this form indicates that you understand the information regarding your participation in the research project and consent to being an interview subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and/or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

Thank you for your time and consideration.

Lindsay Irwin  
Master's Student, Natural Resources Institute  
70 Dysart Road, University of Manitoba, Winnipeg, MB R3N 2T2  
(204) 474-7172, llindsayi@gmail.com

---

This research has been approved by the University of Manitoba Joint Faculty Ethics Review Board. If you have any concerns or complaints about the project you may contact my supervisor Dr. John Sinclair, NRI at (204) 474-8374 or the Human Ethics Secretariat at (204) 474-7122. A copy of this consent form has been given to you to keep for your records and reference.

I give my consent for an interview:

---

Participant Signature Date

I give my consent for the interview to be tape-recorded for research purposes:

---

Participant Signature Date

---

Researcher Signature Date

Would you like to receive a copy of the Clean Environment Commission's to be submitted to the Minister of Conservation? Yes \_\_\_ No \_\_\_

I give my consent for the Clean Environment Commission to receive my name and address for the purpose of final report mail-outs.

---

Participant Signature Date

## Appendix 3: Public Notice of Opportunity to Interview



UNIVERSITY  
OF MANITOBA

### **Manitoba Hog Moratorium: Call for Interview Participants**

*Do you, or a friend, have an opinion to share on Manitoba's  
Hog Industry?*

*Would you like to make sure the public's voice is heard?*

I am a graduate student doing research on the future sustainability of the hog industry and public hearings process.

I am conducting interviews in your community and would like to hear the opinions, comments and concerns of people who have chosen not to present at the CEC hearings!

The views gathered in the interviews will be given to the *Clean Environment Commission* for consideration as part of their decision making process.

For more information, or to schedule an interview, please contact:

**Lindsay Irwin**

*Master of Natural Resources Management Candidate*

Office: (204) 474-7172

Email: [llindsayi@gmail.com](mailto:llindsayi@gmail.com)

## **Appendix 4: Newspaper Advertisement**

### **Do you, or a friend, have an opinion to share on Manitoba's hog industry?**

I am a graduate student conducting interviews on the environmental sustainability of hog production in Manitoba. Through this private interview, your views will be made known to the *Clean Environment Commission* as part of their decision making process.

For more information or to arrange an interview, please contact me:

Lindsay Irwin  
Master's Student  
Natural Resources Institute  
(204) 474-7172  
llindsayi@gmail.com