

Multilateral Risk Management and Proactionary Policy Formulation for Bovine Spongiform Encephalopathy: A New Framework

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This paper marks the culmination of a nine-week-long summer research project that I worked on as part of the 2006 Summer Undergraduate Research Opportunity Program (SUROP) at Kansas State University. Over the course of the summer, my research focus shifted from diagnostic methodologies for transmissible spongiform encephalopathies (TSEs) to global trade policy and risk management strategies associated with the regulation of bovine spongiform encephalopathy (BSE).

I came into this project with a strong background in the biological sciences but limited exposure to the areas of public policy and international relations. As my research progressed, I became fascinated by the real world implications and consequences of scientific epistemology – in particular, the policy regulations implemented by the United States and other countries due to the BSE problem. Science has shown me a vibrant and necessary basis for shaping trade policy and defining our social discourse in the context of modern food safety concerns. The current issues surrounding TSEs are of particular interest to me as scientific research in this area will require heightened social examination from many disciplinary perspectives. As we uncover more about the pathology and etiology of TSEs, we will inevitably need to reframe our understanding of their associated risks to human and animal health, effects on agricultural trade, and implications for food safety regulation. Such frameshifts do not occur in a vacuum. Rather, tremendous social, economic, political, and personal consequences result directly from it. In this way, the scientific process is deeply and fundamentally interwoven into the social fabric.

In this paper, I address issues related to BSE risk management, the sociology of risk, and the international politics that have ensued from the regulatory framework currently shaping BSE trade policy. I then discuss the problematic nature of such a framework and offer a novel alternative based on a proactionary approach to disease management. This new framework, founded on multinational cooperation and collaboration, is in the spirit of the *Security and Prosperity Partnership of North America* (SPP). Although in its incipient stage, the SPP has been affirmed by international political economy scholars such as Drs. Justin Kastner (Kansas State University) and Jason Ackleson (New Mexico State University) and offers the promise of heightened international cooperation on a host of issues related to trade and security.

I would like to thank, first and foremost, my mentors Drs. Justin Kastner and Abbey Nutsch of Kansas State University for their sincere guidance which has made this project possible. I would also like to extend my gratitude to the following individuals at Kansas State University who have shared with me some of their invaluable insights on TSE testing protocols, surveillance measures, food safety, and risk issues throughout this project: Cindy Chard-Bergstrom of the Kansas Veterinary Diagnostic Laboratory; Dr. Douglas Powell, Director of the Food Safety Network and Associate Professor of Diagnostic Medicine/Pathobiology; and fellow colleagues Sarah DeDonder and Ben Chapman. I would also like to extend my gratitude to Drs. Carol Shanklin and James Guikema, Associate Deans of the Graduate School; Mrs. Amelia Asperin and Mr. Charles Mamolo, SUROP Coordinators; Dr. M.M. Chengappa, Head of the Department of Pathobiology/Diagnostic Medicine at the College of Veterinary Medicine; Dr. Gary Anderson, Director of the Kansas Veterinary Diagnostic Laboratory; and the many others

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William Lee
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List of Abbreviations

AMR	advanced meat recovery
APHIS	Animal and Plant Health Inspection Service
BSE	bovine spongiform encephalopathy
CAC	Codex Alimentarius Commission
CAD	Canadian dollar
CDC	Centers for Disease Control and Prevention
CFIA	Canadian Food Inspection Agency
CJD	Creutzfeldt-Jakob disease
CNS	central nervous system
CWD	chronic wasting disease
DRG	dorsal root ganglia
EU	European Union
FAS	Foreign Agricultural Service
FDA	Food and Drug Administration
FSIS	Food Safety and Inspection Service
<i>GATT</i>	<i>General Agreement on Tariffs and Trade</i>
MBM	meat and bone meal
MS beef	mechanically separated beef
nvCJD	new variant Creutzfeldt-Jakob disease, <i>same as vCJD</i>
OIE	Office International des Epizooties
OTM	thirty months of age and over
PrP	prion protein
PrP ^c	prion protein (cellular, proteinase sensitive)
PrP ^{res}	prion protein (misfolded, proteinase resistant)
PrP ^{sen}	<i>same as PrP^c</i>
SAF	scrapie associated fibril
<i>SPP</i>	<i>Security and Prosperity Partnership of North America</i>
<i>SPS Agreement</i>	<i>Agreement on the Application of Sanitary and Phytosanitary Measures</i>
SRM	specified risk material
TSE	transmissible spongiform encephalopathy
USDA	United States Department of Agriculture
vCJD	variant Creutzfeldt-Jakob disease, <i>same as nvCJD</i>
WTO	World Trade Organization

Introduction and Background Information

Food safety and trade policy are historically fraught with difficulty. Both policy areas encompass a multitude of political, social, economic, and humanistic¹ concerns. In spite of, and ironically, quite possibly because of this, governments have traditionally avoided genuine multilateral cooperation and mutual assistance when it comes to agricultural trade decisions, especially when the threat of foodborne disease surfaces in foreign animal populations or transnational supply chains.² Unfortunately, the current international BSE policy scene is curiously characterized by a lack of *bona fide* international collaboration.³ BSE (bovine spongiform encephalopathy), also known as “mad cow disease,” is a fatal, neurodegenerative disease affecting cattle. BSE is part of a broad class of diseases known as the transmissible spongiform encephalopathies (TSEs), including scrapie (in ovines), CWD or chronic wasting disease (in cervids), and human

¹ Humanistic concerns reflect social concerns and thus the two are inextricably intertwined. Nevertheless, the term *humanistic*, as used in this paper, differs slightly in context from the term *social*. Social issues reflect concerns that exist on a *societal* or *macro* level – for example, “How will the discovery of indigenous BSE impact domestic consumer confidence in beef?” In contrast, humanistic concerns reveal a more *personal* or *micro* dimension to these same issues. In the context of an indigenous discovery of BSE, humanistic inquiry would address not only the aggregate effects that the incident has on society, but also the effects it has on *individuals in society* – for example “How will a farmer and his family, whose only source of income is from beef cattle, cope with the potentially devastating losses should such an event occur?”

² For example, in the mid to late 19th century, the flourishing live cattle trade between the United States and Great Britain was brought to a sudden standstill over the discovery of pleuropneumonia in U.S. cattle imports to Great Britain. U.S. officials disputed the legitimacy of British diagnoses of “pleuropneumonia” while British officials adhered to the slaughtering all American cattle once they reached British shores. Justin J. Kastner, Douglas Powell, Terry Crowley, and Karen Huff, “Scientific Conviction Amidst Scientific Controversy in the Transatlantic Livestock and Meat Trade,” *Endeavor* 29 (2005). and Justin J. Kastner, “Sanitary Related International Trade Disputes: A Multiple-Factor Analysis Based on Nineteenth-Century Precedents” (The University of Guelph, 2003), p32-47. Similarly, the trichinosis epidemic of the late 1800s resulted in foreign stigmatizing of the U.S. food supply and controversial bans on American pork imports by many European countries. *Ibid*, p66-73. A more recent food dispute issue concerns the ongoing EU ban on American hormone-treated beef products. In 1989, the EU banned importation of U.S. beef produced with growth hormones, citing health concerns. When negotiations proved futile, the U.S. reacted by selectively instigating retaliatory tariffs against key European countries, in accordance with the WTO-SPS trade dispute framework. Justin J. Kastner and Rosa K. Pawsey, “Harmonising Sanitary Measures and Resolving Trade Disputes through the WTO-SPS Framework. Part I: A Case Study of the US-EU Hormone-Treated Beef Dispute,” *Food Control* 13 (2002).

³ Although there have been multilateral efforts in the past, the complex, difficult realities of food safety and trade policy make true multilateral action quite rare.

forms such as CJD (Creutzfeldt-Jakob disease).⁴ Several forms of CJD exist; the most relevant to the food safety community is vCJD (variant CJD), the disease form that is thought to occur due to consumption of infected bovine tissues.⁵ Clinical signs vary among TSEs, but all are characterized by a long incubation period (often for years) followed by the rapid onset of neurological aberrations which may include ataxia, depression, hyperesthesia, weight loss, general decline in physical and mental health, and death.⁶

The strong evidence linking BSE in cattle and vCJD in humans via the food chain has had tremendous implications for food safety regulation in both domestic and international contexts. Since BSE was first diagnosed in Great Britain (1986), new discoveries regarding its route of transmission⁷ have prompted many countries to impose bans on the use of ruminant-derived proteins in ruminant feed, prohibit the human consumption and cosmetic use of certain SRMs (specified risk materials – tissues found to have high levels of TSE-mediating prion protein, PrP), and restrict certain processing

⁴ Paul Brown, "Transmissible Spongiform Encephalopathy as a Zoonotic Disease," *ILSI Europe Report Series* (Brussels: International Life Sciences Institute, 2003), p4-10. TSEs were first recognized in 1982 by Dr. Stanley B. Prusiner, MD of the University of California, San Francisco. Prusiner explained the pathology of these diseases on the molecular level – neurodegeneration resulting from the accumulation of misfolded prion proteins (commonly abbreviated PrP^{res}) in nervous tissue. Disease can occur (1) naturally (by genetic mutation which may be inherited), (2) sporadically (by misfolding events of otherwise normal prions), or (3) by infection with PrP^{res} (via peripheral routes such as ingestion). Ibid, p10-13. Additionally, the normal cellular form (PrP^c or PrP^{sen}) undergoes an induced conformational misfolding in the presence of PrP^{res}; PrP^{res} is resistant to degradation by proteinase K in vitro, resulting in the lethal accumulation of the misfolded isoform. Ibid, p11-13. For more information on the molecular pathology of prion diseases, see Stanley B. Prusiner, "Molecular Biology and Pathogenesis of Prion Diseases," *Trends in Biochemical Sciences* 21 (1996) and Susanne Liemann and Rudi Glockshuber, "Transmissible Spongiform Encephalopathies," *Biochemical and Biophysical Research Communications* 250 (1998).

⁵ In some literature, also referred to as nvCJD (new variant CJD).

⁶ Brown, "Transmissible Spongiform Encephalopathy as a Zoonotic Disease," p7-10.

⁷ BSE is thought to have originated from feeding meat and bone meal (MBM) derived from scrapie-infected sheep carcasses to cattle. Scrapie is one of two TSEs known to be naturally occurring (the other being CWD). The practice of carcass recycling (feeding bovine and other ruminant-derived proteins to cattle as dietary supplements) has enabled infected tissues to reenter the bovine food chain and, thus, for BSE infection to spread. Ibid, p4-5, 16.

methods thought to pose a greater potential for disease transmission (e.g., slaughtering practices which could contaminate beef with CNS material).

Most countries have placed rigid trade restrictions on beef imports from countries where BSE has been found. Such restrictions place tremendous economic and social costs on the affected countries and may last indefinitely, or at least for many years.

Examples abound. The Canadian Food Inspection Agency (CFIA) imposes trade restrictions on countries which have reported even a single indigenous case of BSE; the re-establishment of full trading rights can come only after a seven year period in which the exporting country is declared to be at “negligible risk” for BSE if no additional cases are documented.⁸ The USDA’s Animal and Plant Health Inspection Service (APHIS) has banned the importation of live ruminants and rendered products since 1989 from countries where BSE has been found and from all European countries since 1997.⁹

Within days following the initial announcement of a BSE-positive dairy cow found in Washington state (23 December 2003),¹⁰ 53 countries banned the importation of live cattle and beef products from the U.S., resulting in the loss of most major export markets and an 82% decline in exports the following year.¹¹ To date, U.S. exports have not been

⁸ *BSE Import Policy for Bovine Animals and Their Products* (CFIA, 2005 [cited 10 July 2006]); available from <http://www.inspection.gc.ca/english/anima/heasan/policy/ie-2005-9e.shtml>.

⁹ "Federal Measures to Mitigate BSE Risks: Considerations for Further Action; Proposed Rule," Docket Nos. 04-047-1, 04-021ANPR, and 2004N-0264, *Federal Register* 69 (APHIS, FSIS, FDA, 2004).

¹⁰ The Washington cow that tested positive for BSE actually originated from Canada. Since then, two indigenous cases of BSE have been documented in the U.S., the first located in Texas (June 2005) and the second in Alabama (late February 2006). See the USDA’s final epidemiology reports for more information: "Texas BSE Investigation: Final Epidemiology Report," (USDA, 2005). and "Alabama BSE Investigation: Final Epidemiology Report," (USDA, 2006).

¹¹ Brian Coffey, James Mintert, Sean Fox, Ted Schroeder, and Luc Valentin, "The Economic Impact of BSE on the U.S. Beef Industry: Product Value Losses, Regulatory Costs, and Consumer Reactions," (Manhattan: Kansas State University, 2005), p4. Major export markets included Japan, Mexico, Canada, and South Korea; in addition to importing traditional beef cuts, many of these countries were important niche markets for variety meat products such as beef tongues, tripe, and other edible offals which are not highly valued by U.S. domestic consumers. Ibid, p13, 15.

able to fully recover to their former levels,¹² despite heightened BSE surveillance measures implemented by the federal government.¹³

Reactionary trade regulations and import bans such as these have been common on the international BSE policy scene. According to John Fox, et al. of Kansas State University, the remarkable foreign response to the December 2003 case of BSE found in the United States came as no surprise: “automatic border closure following such announcements had become standard procedure.”¹⁴ Thus, the current state of BSE risk management is firmly rooted in a framework in which policy decisions are made unilaterally by individual countries, most often *in response* to external events. This may seem natural, even intuitive; but, as will be discussed, such a reactionary framework leads to tremendous social and economic costs – costs that could possibly be avoided through a more thoughtful framework for policymaking.

¹² In January 2006, Japan reinstated a complete ban on all U.S. beef imports following a brief period of relaxed trade restrictions; the ban was reapplied after an embarrassing export-verification error at a plant in Brooklyn, NY. *Japan Reinstates Ban on U.S. Beef* (20 January 2006 [cited 10 July 2006]); available from <http://www.cnn.com/2006/BUSINESS/01/20/japan.us.beef/>. Prior to its ban on U.S. beef in late December 2003, the Japanese market was the most important export market for the U.S. beef industry, valued at US\$1.7 billion that year. Ibid. In early July 2006, South Korea, the third largest market for U.S. beef Exports in 2003 (valued at US\$813 million), had postponed plans which would have partially lifted its complete ban on U.S. beef. *South Korea Agrees to Lift Partially Ban on U.S. Beef Exports* (U.S. Dept. of State, 13 January 2006 [cited 10 July 2006]); available from <http://usinfo.state.gov/eap/Archive/2006/Jan/13-465523.html> and *South Korea to Delay Lifting US Beef Ban over Safety Measures* (Yonhap News Agency, 4 July 2006 [cited 10 July 2006]); available from <http://new.tradingcharts.com/futures/6/4/80475046.html>. Other important export markets, such as Mexico and Canada (the second and fourth largest markets for U.S. beef exports in 2003, respectively), have imposed partial bans on U.S. beef. Coffey, et al., "The Economic Impact of BSE on the U.S. Beef Industry: Product Value Losses, Regulatory Costs, and Consumer Reactions," p13, 21, 24. As of July 2006, Japan and the U.S. have agreed to yet another resumption of trade, but in light of what occurred in January, it remains to be seen if the agreement will be sustainable. Carl Freire, "Japan-US Beef [via FSNet listserve of 27 July, archived at www.foodsafetynetwork.ca]," *Associated Press*, 27 July 2006.

¹³ See *USDA's BSE Testing: Protecting America's Herd* (APHIS, July 2006 [cited 10 July 2006]); available from http://www.aphis.usda.gov/lpa/issues/bse_testing/test_results.html. Currently, the USDA is considering lowering surveillance sample sizes. Libby Quaid, "Mad cow-testing [via FSNet listserve of 20 July, archived at www.foodsafetynetwork.ca]," *Associated Press*, 20 July 2006.

¹⁴ John Fox, Brian Coffey, James Mintert, Ted Schroeder, and Luc Valentin, "The Response to BSE in the United States," *Choices* 2005, p103.

This paper addresses the current state of BSE risk management and policy formulation, noted by its predominant emphasis on reactionary politics and lack of an internationally collaborative management effort. In particular, the politics of BSE can be evaluated through the lens of a *punctuated equilibrium model of policy change* as advanced by Baumgartner and Jones.¹⁵ Such a framework for BSE management is problematic because it is based on short rather than long-term disease prevention. Furthermore, it addresses prevention from a domestic rather than an international perspective. The lack of transnational (or transregional) diagnostic standards for BSE detection, coupled with issues in risk communication and perception, further compound these problems.

In short, the extant framework poses a challenge to simultaneously protecting animal and human health and ensuring the economic security of the global beef trade. In this context, a vital alternative to the status quo is presented. This alternative model for BSE risk management (inspired, in part, by the collaborative spirit of the SPP) is based on proactionary,¹⁶ multilaterally cooperative standards of policy formulation and disease control. It advances the concept of transnational (or transregional) BSE management from a supply-chain perspective, in contrast to the current regulatory framework based on political boundaries.

¹⁵ Frank R. Baumgartner and Bryan D. Jones, *Agendas and Instability in American Politics* (Chicago: The University of Chicago Press, 1993).

¹⁶ In writing this paper, there was extensive deliberation on which word, *proactionary* or *proactive*, would best describe the nature of this new policy framework. The “proactionary principle,” as advanced by Max Moore, is based on a model of objective risk management, anchored by founding principles such as transparency in the decision-making process, freedom from unwarranted restrictions, proportionality and simplicity in policy formulation, and critical reflection. Collectively, these attributes conveyed the comprehensive framework that was sought. Hence, it was decided that the term *proactionary* would be more appropriate, for it seems to inherently imply a proactive approach to the risk management process. For more information on the “proactionary principle,” see Max Moore, *The Proactionary Principle* (29 July 2005 [cited 13 July 2006]); available from <http://www.maxmore.com/proactionary.htm>.

It is acknowledged that such a proposal, as with any policy prescription, does not come without its own flaws and inevitably begs new questions for the global community. Meanwhile, research into BSE (and TSEs in general) is truly an emerging science, requiring scientists, policymakers, and the public alike to constantly reevaluate their understanding of existing management practices and associated risks. Additional cases of BSE arise almost every month across the world, resulting in a dynamic flow of information and policy consequences. In fact, it is true that since this paper was drafted, new histories may have already been written.¹⁷

Nevertheless, policy formulation with regards to managing BSE risk remains predominantly reactionary, with newly documented cases generally spawning a slew of trade restrictions against the afflicted countries. In this light, a proactionary, collaborative system of trade policy offers a serious and progressive alternative to current BSE management practices. The long-term prevention of this disease¹⁸ and the benefits of the interconnected global economy can be simultaneously realized only through multilateral cooperation.

¹⁷ For example, Creekstone Farms Premium Beef (Arkansas City, KS) initiated a lawsuit against the USDA, following the Department's policy decision (in April 2004) to not allow Creekstone to privately conduct 100% BSE testing at its processing facilities. The case is currently before the federal court; a final decision remains to be seen. (Sources: Creekstone Farms to Challenge USDA's Decision, 2006, Creekstone Farms Premium Beef, <http://www.creekstonefarmspremiumbeef.com/news.html>, (accessed 27 July, 2006); Creekstone Farms Premium Beef Files Lawsuit Challenging USDA's Ban on Voluntary BSE Testing, 2006, Creekstone Farms Premium Beef, http://www.creekstonefarmspremiumbeef.com/news_bse_press.html, (accessed 27 July, 2006); and Pete Hisey, "Creekstone asks for summary judgment in BSE testing case [via FSNet listserve of 17 July, archived at www.foodsafetynetwork.ca]," *Meatingplace.com*, 17 July 2006.) For more information regarding the Creekstone case, see Stephen R. Vina, "The Private Testing of Mad Cow Disease: Legal Issues," *CRS Report for Congress*: Congressional Research Service, The Library of Congress, 2004.

¹⁸ Of course, a proactionary approach can also be applied in the management of other diseases.

Existing Framework and the Economics of Reactionary Policy

As already mentioned, the existing state of BSE risk management is grounded in reactionary decision making. Two significant factors contribute to this framework: (1) governmental interests aimed at protecting domestic animal and human health against a relatively unfamiliar (and stigmatizing) disease and (2) sociology of risk issues which have produced a *punctuated equilibrium model of policy change* in BSE politics. Both factors can, and should be, considered in an historical context. Together, they constitute a regulatory basis perturbed by adverse economic and social consequences.

The Politics and Economics of Reaction

One of the greatest challenges in managing BSE, from a political standpoint, is the relative novelty of the disease: BSE was first identified in the mid-1980s in the UK¹⁹ and the molecular biology of TSEs was described by Stanley Prusiner only a few years earlier in the form of the “prion hypothesis.” The link between BSE and vCJD was not recognized until nearly a decade after the discovery of BSE,²⁰ and diagnostic capabilities in testing for BSE and other TSEs have been limited to post-mortem histopathological examination of nervous tissues in which prion material is found.²¹ In short, the mysterious biological processes of TSEs are just beginning to be unraveled.²²

¹⁹ *Frequently Asked Questions About “Mad Cow Disease” and Human Health* (MA Dept. of Public Health, January 2004 [cited 16 July 2006]); available from <http://www.mass.gov/dph/cdc/factsheets/madcow.htm>.

²⁰ Ibid.

²¹ To date, the only way of confirming a presumptive clinical diagnosis is by immunochemical analysis of the appropriate tissues. PrP is found in the tissues of the CNS and lymphatic system, in particular, the obex portion of the brainstem. In disease transmission via the ingestive route, ingested PrP^{res} is absorbed into the bloodstream and propagates in the lymphoid tissue due to the induced conformational misfolding of normal prion proteins into their aberrant form. Subsequently, PrP^{res} migrates to the spinal cord and brain where it accumulates, causing the neurodegenerative symptoms associated with TSEs. Michael Tyshenko, *BSE Risk in Canada, Part 2: Current Methods of Testing for Bovine Spongiform Encephalopathy (BSE)* (14 January 2004 [cited 5 June 2006]); available from www.leiss.ca/bse/142?download. Immunohistochemistry (IHC), enzyme-linked immunoadsorbent assay (ELISA), and Western blotting (immunoblotting) are three of the

Because of this, many countries have imposed strict regulations on the beef industry to ensure the safety of its food supplies. Such policies have affected multiple areas of the beef industry, including the feeding and processing sectors, and – most notably – the international beef trade. Often, these policies are instituted *in response* to external triggering events, such as the discovery of a BSE-positive diagnosis in a foreign country or a new scientific discovery about the disease's pathology. Domestic social pressures (from industry, interest groups, the media, and the public-at-large) also play an important role in shaping BSE politics.

At the outset, it must be admitted that “reaction” is not always bad. Because of some of the reactionary actions taken by governments in response to the BSE problem, vital public health regulations have been adopted. For example, Great Britain imposed a ban on feeding MBM to ruminants in 1988 and the EU later in 1994.²³ Both the United States and Canada imposed bans on the feeding of any mammalian-derived proteins to

most widely used immunochemical tests for detecting the presence of PrP^{res}. The tests are developed by a number of different companies and have slightly varying degrees of sensitivity, specificity, and detection limits, and varying throughput levels. Additionally, visual examination of infected tissues using conventional microscopy reveals vacuolation and filamentous clusters known as scrapie associated fibrils (SAFs). Ibid. For more information on TSE diagnostics, see Eric Kubler, Bruno Oesch, and Alex J. Raeber, "Diagnosis of Prion Diseases," *British Medical Bulletin* 66 (2003), Brian J. Bennion and Valerie Daggett, "Protein Conformation and Diagnostic Tests: The Prion Protein," *Clinical Chemistry* 48 (2002), and Susanne Krasemann, Martin H. Groschup, Silke Harmeyer, Gerhard Hunsmann, and Walter Bodemer, "Generation of Monoclonal Antibodies against Human Prion Proteins in Prp^{0/0} Mice," *Molecular Medicine* 2 (1996). Additionally, the European Commission conducted a study in 1999 on the diagnostic capabilities of several available tests: Jim Moynagh, Heinz Schimmel, and G.N. Kramer, "The Evaluation of Tests for the Diagnosis of Transmissible Spongiform Encephalopathy in Bovines," (Brussels and Geel: European Commission and the Institute for Reference Materials and Measurements, 1999).

²² Among other things, scientists still do not know how PrP^{res} actually induces a misfolding event of normal prions; current hypotheses postulate a seeding mechanism (nucleation) or chaperonin catalysis as the mechanism of conformational change. Additionally, they have not been able to explain why genetic mutations, which account for five to ten percent of human TSEs, have not been linked to the disease forms affecting most other animals. Brown, "Transmissible Spongiform Encephalopathy as a Zoonotic Disease," p12, 15.

²³ Ibid, p30.

ruminants in 1997.²⁴ These feed bans have greatly reduced the number of BSE cases worldwide. After the December 2003 case of BSE in the U.S., the Food Safety Inspection Service (FSIS) adopted a series of interim final rules which has mitigated the risk of disease transmission to humans.²⁵ These rules (1) prohibit the use of SRMs and “downer” cattle (cattle that are unable to walk at the time of slaughter) in products destined for human consumption²⁶, (2) place restrictions on certain processing methods (MS beef/AMR)²⁷, and (3) ban the use of penetrative captive bolt stunning devices (which inject air into the cranial cavity) during slaughter.²⁸ Collectively, these policies have helped to prevent contamination of edible products with CNS tissue and other tissues at risk for transmitting BSE.

Despite successes in the domestic regulation of BSE, a reactionary approach to disease management in international trade has been problematic. This is especially true in the context of reactionary trade bans. At this time, the governmental response to BSE will be discussed; an analysis of social factors appears in the next section.

In the early 1990s, government and health officials in the UK were faced with a national BSE epidemic. In its peak years (between 1992 and 1993), about 1,000 new

²⁴ "Federal Measures to Mitigate BSE Risks: Considerations for Further Action; Proposed Rule," Docket Nos. 04-047-1, 04-021ANPR, and 2004N-0264.

²⁵ These rules were effective 12 January 2004.

²⁶ "Prohibition of the Use of Specified Risk Materials for Human Food and Requirements for the Disposition of Non-Ambulatory Disabled Cattle," Docket No. 03-025IF, *Federal Register* 69 (FSIS, 2004). SRMs are designated as the brain, skull, eyes, trigeminal ganglia, spinal cord, vertebral column (excluding the vertebrae of the tail, the transverse process of the thoracic and lumbar vertebrae, and the wings of the sacrum), and dorsal root ganglia (DRG) of cattle thirty months of age and older (OTM), the tonsils and small intestine of all cattle, as well as all non-ambulatory, “downer” cattle (those unable to walk at time of slaughter). The small intestine ban was revised to allow for its consumption excluding the distal ileum, effective 7 October 2005. "Prohibition of the Use of Specified Risk Materials for Human Food and Requirements for the Disposition of Non-Ambulatory Disabled Cattle," Docket No. 03-025IA, *Federal Register* 70 (FSIS, 2005).

²⁷ "Meat Produced by Advanced Meat/Bone Separation Machinery and Meat Recovery (AMR) Systems," Docket No. 03-038IF, *Federal Register* 69 (FSIS, 2004).

²⁸ "Prohibition of the Use of Certain Stunning Devices Used to Immobilize Cattle During Slaughter," Docket No. 01-0331IF, *Federal Register* 69 (FSIS, 2004).

cases of BSE were arising every week.²⁹ To date, there have been over 180,000 cases reported worldwide, over 95% of which are from the UK.³⁰ Most other European countries and some non-European countries – notably Canada, Japan, and the U.S. – have also reported indigenous cases of BSE.³¹ Most of these countries have henceforth taken steps aimed at curtailing future cases of BSE within their borders, in the form of domestic industry regulations and import restrictions. These policy decisions are not without controversy, nor are they without tremendous economic and social implications. For several years *after* the UK reported its first case of BSE, government officials were still vouching for the safety of the British beef supply in an attempt to protect the reputation of the nation's beef industry, despite growing uncertainties regarding the disease's zoonotic potential.³² Finally in early 1996, after vCJD had claimed ten victims (with many more to come³³) and the growing body of scientific knowledge could not outrule BSE's link to vCJD, the British government came forward with its official

²⁹ "Federal Measures to Mitigate BSE Risks: Considerations for Further Action; Proposed Rule," Docket Nos. 04-047-1, 04-021ANPR, and 2004N-0264.

³⁰ Ibid.

³¹ The OIE, an international organization for animal health, maintains updated records of all global incidences of BSE: *Number of Cases of Bovine Spongiform Encephalopathy (BSE) Reported in the United Kingdom* (OIE, 5 March 2006 [cited 14 July 2006]); available from http://www.oie.int/eng/info/en_esbru.htm and *Number of Reported Cases of Bovine Spongiform Encephalopathy (BSE) in Farmed Cattle Worldwide (Excluding the United Kingdom)* (OIE, 11 July 2006 [cited 14 July 2006]); available from http://www.oie.int/eng/info/en_esbmonde.htm. Additionally, a map depicting the geographic distribution of all reported cases of BSE since 1989: *Geographical Distribution of Countries That Reported BSE Confirmed Cases since 1989* (OIE, 10 June 2006 [cited 14 July 2006]); available from http://www.oie.int/eng/info/en_esbcarte.htm.

³² See Chapter 1 of *Mad Cows or Crazy Communications?*, in William Leiss and Douglass Powell, *Mad Cows and Mother's Milk: The Perils of Poor Risk Communication*, 2nd Edition ed. (Montreal & Kingston: McGill Queen's University Press, 2004), p3-25.

³³ The UK Dept. of Health releases monthly updates on the cumulative number of reported vCJD cases in the country. As of June 2006, there have been a total of 161 confirmed or probable cases of vCJD (156 deaths, 5 probable cases still alive) in the UK. See *Monthly Creutzfeldt Jakob Disease Statistics Published* (UK Department of Health, 30 June 2006 [cited 14 July 2006]); available from http://www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/CJD/CJDAssociatedPublications/fs/en?CONTENT_ID=4120472&chk=SGTAFJ for more information. Recent statistics released by the CDC report a total of 177 cases of vCJD worldwide. *Questions and Answers Regarding Bovine Spongiform Encephalopathy (BSE) and Variant Creutzfeldt-Jakob Disease (vCJD)* (CDC, 29 June 2005 [cited 17 July 2006]); available from <http://www.cdc.gov/ncidod/dvrd/vcjd/qa.htm>.

announcements concerning the true risks associated with consuming BSE-infected meat.

The repercussions were enormous:

Overnight, the British beef market collapsed, and politicians learned how to enunciate the names of the diseases. Within days, the European Union banned exports of British beef; consumption of beef fell throughout Europe, especially in France and Germany, and in Japan, where suspicion of foreign food runs high...For almost a decade the British government and its leading scientific advisors insisted there was no risk – for that the risk was so infinitesimally small that it could be said there was no risk – of BSE leading to a similar malady in humans, CJD, even in the face of contradictory evidence. The no-risk message contributed to devastating economic and social effects for Britons, a nation of beef-eaters, to the mass slaughter of British cattle, and to a decrease in global consumption of beef, all at a cost of billions of dollars.³⁴

For years, the British government was well aware of the potential risks associated with this disease. After its index case in November 1986, the government took several steps aimed at addressing the BSE problem: in 1988, it banned the use of ruminant offal in cattle feed and began the process of disposing all cattle (and milk from cattle) suspected of having BSE.³⁵ Despite such proactive measures, the nature of BSE management was shrouded in secrecy, with government officials often downplaying the disease's associated risks to human health.³⁶ Ultimately, the lack of candid discourse by British officials, especially regarding a notoriously publicized disease, helped exacerbate the chain of reactionary trade sanctions against the nation's beef exports.

³⁴ Excerpt from Leiss and Powell, *Mad Cows and Mother's Milk: The Perils of Poor Risk Communication*, p3-4. The US and Canada had already banned importation of British beef several years earlier (1989 and 1990, respectively). Ibid, p7.

³⁵ Ibid, p5.

³⁶ Notwithstanding the discovery in 1990 that infectious prions could “jump” from specie to specie, British officials continued to advocate that BSE did not pose a concern to human health. Ibid, p6-7.

Similar foreign responses have characterized much of the subsequent history concerning global beef trade. The CFIA imposes sanctions against foreign beef products from countries where even a single case of BSE has occurred. When Japan experienced its first case of BSE in September 2001, Canada, along with several other countries, imposed restrictions on the importation of Japanese beef. In the past, Canada has even imposed trade sanctions against Brazil, a country with no reported history of BSE, but which Canadian officials suspected of harboring a warranted risk.³⁷ Reciprocally, when the first indigenous case of BSE showed up in Canadian herds on 20 May 2003, Canada was not spared of the trade sanctions it itself had previously placed on other countries. In fact, Japan not only cut off importation of Canadian beef, but demanded that the U.S. (which at the time, had not yet experienced its own BSE crisis) sever its Canadian supply chains or face trade sanctions as well.³⁸ Just a few months later, the U.S. experienced the full impact of such reactionary politics, with the loss of nearly all its major export markets due to a single case of BSE.

For nearly two decades, trade sanctions against a country reporting even a single case of BSE have been commonplace. Although the basis of such reactionary trade politics is well-intentioned (prevention of disease in one's domestic herds following its discovery in a foreign population), the logistics of controlling BSE by means of trade sanctions which are *unilaterally defined and executed at the whims of the imposing country* are problematic. Reduced to its simplest logic, what exists is a system whereby trade sanctions are blindly imposed against any country with known (or suspected) BSE risk, sanctions that may last indefinitely given the lack of internationally defined

³⁷ Ibid, p236.

³⁸ Ibid, p235.

protocols for managing the disease and the absence of transnational diagnostic standards. Furthermore, the current system *precludes a collaborative framework for managing the disease from an international standpoint*, resolving disease control and prevention entirely to the domestic front. Essentially, a country bans importation of suspected meat products (to the significant economic adversity of the afflicted country), hoping that its own surveillance program does not find a positive diagnosis which it would be forced to report and subsequently face trade sanctions from other countries as well (ironically, including countries which it itself may have previously banned).

It goes without saying that such a reactionary framework does not come without significant economic costs.³⁹ According to an analysis performed at Kansas State University by Brian Coffey, et al. regarding the economic losses attributed to the December 2003 case of BSE in the United States, approximate export losses were in the range of US\$3.2-4.7 billion in 2004.⁴⁰ Additionally, economic costs associated with newly implemented FSIS regulations (effective 2004) targeting the U.S. processing sector amounted to about US\$200 million.⁴¹ The economic effects in the U.S. due to its index case were relatively mild in comparison to the devastating impacts experienced by countries whose beef industries were highly export reliant. Canada, for example, exports nearly 75% of its beef products, in contrast to the U.S., where beef exports account for

³⁹ The USDA's Foreign Agricultural Service (FAS) releases annual overviews on the world beef trade: see *World Beef Overview: Total Beef Exports to Drop 9 Percent in 2004; U.S. Beef Exports Drop 83 Percent* (FAS, 2004 [cited 17 July 2006]); available from <http://www.fas.usda.gov/info/circular/2004/04-03LP/beefoverview.html> for the 2004 report; *World Beef Trade Overview: Beef Exports Rise 6.5 Percent in 2005; U.S. Market Share Forecast at 4 Percent* (FAS, 2005 [cited 17 July 2006]); available from <http://ffas.usda.gov/dlp2/circular/2004/04-10LP/beefoverview.html> for the 2005 report. Also, see Nancy Morgan, "Repercussions of BSE on International Meat Trade: Global Market Analysis," (Food and Agriculture Organisation, 2001) for more information on the international economic costs associated with BSE.

⁴⁰ Coffey, et al., "The Economic Impact of BSE on the U.S. Beef Industry: Product Value Losses, Regulatory Costs, and Consumer Reactions," p4.

⁴¹ Ibid, p3-4.

only about 10% of the total beef market.⁴² Needless to say, the Canadian cattle industry was extremely hard-hit by the trade sanctions imposed against it, sanctions which still debilitate it to this day.⁴³

In short, reactionary politics have dominated much of the BSE management scene to date, despite appeals to multilateral solutions by the OIE and some North American countries. The current system focuses on curtailing BSE, not through multilaterally collaborative means of disease prevention and eradication, but by unilaterally imposed trade policies which are impractical when it comes to controlling BSE on the international level (since countries are primarily concerned with preventing disease on the domestic front). Additionally, such trade policies are economically devastating to countries which are subject to the inhibitory sanctions. These economic costs do not afflict faceless entities. Rather, it is the businesses, large and small, that are involved in the growing, processing, and shipping operations, the numerous individuals who work in the food service and marketing sectors, and the farmers and producers who have devoted entire careers to supplying consumers with products which have made dining experiences more fulfilling, who bear the ultimate costs.

Perception, Reality, and the Sociology of Risk

In addition to politics, other social factors often play a major role in shaping the policy response to current events. Political events do not exist in a social vacuum.

⁴² Statistics from Leiss and Powell, *Mad Cows and Mother's Milk: The Perils of Poor Risk Communication*, p234 and Coffey, et al., "The Economic Impact of BSE on the U.S. Beef Industry: Product Value Losses, Regulatory Costs, and Consumer Reactions," p4.

⁴³ "Estimated direct and indirect economic costs from the first - single - case of BSE [in Canada] exceed \$5 billion [CAD], as of November 2003, and those costs continue to rise with each passing month. The personal and family costs among farm families are incalculable." Leiss and Powell, *Mad Cows and Mother's Milk: The Perils of Poor Risk Communication*, p229.

Rather, history is shaped by the active input of a wide number of non-governmental actors, including industry, interest groups, the media, and the public-at-large. These actors have contributed to the reactionary framework that currently characterizes BSE risk management. In this section, the social basis of risk – most importantly, the ties between actual risk, perceived risk, and policy formulation – will be addressed. How risk is *defined* by various actors is equally as important as how it is *communicated* between these actors in affecting policy dynamics. The discrepancies between different conceptions of risk, coupled with a stolid dialectic divide between government officials and non-governmental actors, has led to a recurring model of *punctuated equilibria* in BSE politics where too often policies are hastily instituted in response to action *focusing events*.⁴⁴

Traditionally, the concept of risk has been divided along semantic lines. One definition posits risk deep in the *technical* vernacular. In this framework, risk is reduced to a quantifiable measure based on objective and scientifically-recognized truths.⁴⁵ Generally speaking, governments have largely tried to base decisions on this model, justifying actions on the grounds of science-based risk analysis. On the other hand, definitions of risk may be framed by value judgments. In this latter case, risk is seen as a social construct, one that cannot be separated from the emotional and highly personal context of its social actors.⁴⁶ This *social* conception of risk is characteristic of the public's assessment of potential dangers. In the public eye, risks are not defined

⁴⁴ Term borrowed from existing literature on the role of social actors in the policy process. See Thomas A. Birkland, *After Disaster: Agenda Setting, Public Policy, and Focusing Events*, ed. Barry Rabe and John Tierney, *American Governance and Public Policy* (Washington, D.C.: Georgetown University Press, 1997).

⁴⁵ Judith A. Bradbury, "The Policy Implications of Differing Concepts of Risk," *Science, Technology, & Human Values* 14 (1989): p381.

⁴⁶ *Ibid.*

according to an impersonal, statistically driven model framed by obscure terminology (for example, concepts such as *probability*, *significance levels*, and *detection limits* pervade the technical vernacular).⁴⁷ Rather, the public seeks definitive answers regarding the directly personal impacts that the risks associated with a particular event or entity will likely pose. Questions such as “How will this disaster, should it arise, affect me or the ones I love?” or “So, is this going to happen or is it not?” are genuine expressions founded in another basis of risk assessment – that of social ethos. According to Leiss and Powell, neither a technical nor a value-based approach to risk is wrong; “both are legitimate expressions of our attempts to deal with risks as we go about our daily business.”⁴⁸ However, problems arise when the technical community falsely communicates (or does not even attempt to communicate to the public), risk factors which warrant socially reflexive input. The UK, for example, had miscommunicated the human health risks associated with consuming BSE-infected meat for nearly a decade, even amidst growing scientific conviction of the disease’s zoonotic potential.⁴⁹

Such miscommunications of risk, especially when they arise in the area of disease management, exacerbate public fears when positive cases do occur and are made public. Risk management, especially in the case of BSE, can be understood through the lens of a *punctuated equilibrium* model. This model, as advanced by F. Baumgartner and B.D. Jones, posits policy-making within the scope of a few key players who hold a policy monopoly. These relatively few actors are responsible for shaping the extant policy framework; outside concerns can be downplayed as insignificant or unwarranted.⁵⁰

⁴⁷ Leiss and Powell, *Mad Cows and Mother's Milk: The Perils of Poor Risk Communication*, p27-28.

⁴⁸ Ibid, p28.

⁴⁹ Ibid.

⁵⁰ Baumgartner and Jones, *Agendas and Instability in American Politics*, p6-9.

Because of this, the policy scene often goes unchanged for an extended period of time. Any policy changes must generally come from those who instituted them in the first place. Sooner or later, an action *focusing event*,⁵¹ such as the announcement of BSE in a country with no prior history of the disease, heightens public awareness of what may have been, just a short while ago, unforeseen or even unknown to the general population.⁵² The public's emotional volatility during this period may be further reinforced by sensationalist imagery from media outlets and interest groups.⁵³ Subsequently, the threat of imminent, domestic danger (which may actual or perceived, but appear equally real in the public eye) *forces* policymakers to act rapidly, resulting in hasty policy decisions which are often geared towards the short-term and may not be the most effective means of dealing with the issues at stake. Rather, they bear just enough credence to get past public scrutiny, at least until the next focusing event occurs in which policy-makers will have to revisit the drawing table. According to Ulrich Beck, influential author of *Risk Society*⁵⁴:

*The end of latency has two sides, the risk itself and public perception of it. It is not clear whether it is the risks that have intensified, or our view of them. Both sides converge, condition each other, strengthen each other, and because risks are risks in knowledge, perceptions of risks and risks are not different things, but one and the same.*⁵⁵

In short, the nature of reactionary politics has fostered a system whereby policy decisions are inevitably framed by some degree of risk *perception*, which in times of

⁵¹ That is, "a rare, harmful, sudden event that becomes known to the mass public and policy elites virtually simultaneously." Birkland, *After Disaster: Agenda Setting, Public Policy, and Focusing Events*, p3.

⁵² Baumgartner and Jones, *Agendas and Instability in American Politics*, p10.

⁵³ Ibid.

⁵⁴ Original in German: *Risikogesellschaft*, 1986

⁵⁵ Ulrich Beck, *Risk Society: Towards a New Modernity*, trans. Mark Ritter (London: Sage Publications, 1992), p55.

urgency, may not be distinguishable from actual risks. This can be problematic, as it leads to a blurring of reality and perception in management decisions.

This punctuated equilibrium model is wholly transparent in what has historically been a reactionary approach to BSE risk management. Many, but not all, governments have adhered to a policy of downplaying the actual risks involved in the interests of maintaining consumer confidence in the *domestic* beef market.⁵⁶ New regulations are conspicuously absent during periods in which no additional cases of BSE are found or no new complications avail themselves. It is as if policy-makers are anxiously holding their breaths, awaiting the next case of BSE to show up or for a new problem to arise. When a new risk does manifest itself, governments have no choice but to enact new policies, often hastily and without sufficiently justifiable scientific rationale, in order to mitigate public fears. This comes at great economic cost to the afflicted countries, since they will have trade sanctions imposed against their beef exports alongside the likely decrease in domestic consumption.

Additionally, the current model of reactionary politics does not easily allow for policymakers to honestly base their decisions on credible scientific analyses. In the case of focusing events that occur abroad, governments are compelled to rapidly institute measures aimed at collective, domestic protection. This has been especially true in countries such as the United States, Canada, and Japan,⁵⁷ where BSE risk generally manifests itself in the form of a *foreign* danger as opposed to a domestic danger. As a

⁵⁶ For example, British officials had allowed for the continued export of feedstuffs, live cattle, and other bovine products from the country, knowing full well that some were infected. In turn, BSE spread to over twenty other countries, including most of Europe, in a matter of years. Leiss and Powell, *Mad Cows and Mother's Milk: The Perils of Poor Risk Communication*, p231. In contrast, there have been other countries (e.g., the U.S. and Canada) where good risk communication helped sustain domestic demand after BSE discoveries. See also Coffey, et al., "The Economic Impact of BSE on the U.S. Beef Industry: Product Value Losses, Regulatory Costs, and Consumer Reactions," p4.

⁵⁷ Since these countries haven't seen as many cases of BSE as some European countries have.

result, these countries, alongside others, have been among the most prolific in instituting reactionary trade sanctions against countries reporting even a single case of BSE, or those in which the risk of BSE is suspect. Currently, many countries follow OIE prescribed risk levels for BSE when it comes to import restrictions. This all seems well until one recognizes that only three categories exist: *negligible risk*, *controlled risk*, and *undetermined risk* (of which, the latter two are generally subject to trade sanctions at the whim of individual countries). Under this system, any country with reported cases of BSE, no matter if it is the first in twenty years or the hundredth case in a month, is classified as being at a controlled risk⁵⁸ for the disease and must wait a minimum of *seven years from the date of birth of the infected animal*⁵⁹ before it becomes eligible again for negligible risk status. Science-based risk assessment takes into account both the *impact of a potential event* and its *likelihood of occurrence*. Current BSE risk categorizations and trade bans, however, have focused overwhelmingly on the former to the neglect of the latter. As Leiss and Powell articulate,

*It doesn't matter whether you are in the UK, with an incidence rate in 2002 of 228 cases per million head, or Japan, with 1 case per million. It doesn't matter whether you are a country with only a single confirmed case in total, such as Austria, Finland, or Greece, where the first and so far only reported cases occurred in 2001, with none thereafter. It doesn't matter whether you only have 1 case per year, as Slovenia does.*⁶⁰

⁵⁸ Of course, this is assuming that it has taken appropriate measures since then to combat against future domestic occurrences of the disease.

⁵⁹ As of 31 May 2006, the OIE has revised its risk categorization system for BSE. Formerly, once a country reported a case of BSE, it would have to wait a period of 7 years from the date of the disease's discovery before it was eligible for "negligible risk" classification. The new revision sets the 7 year interim from the date of birth of the infected animal. See *World Animal Health Body Changes Mad Cow Risk Definitions* (Environment News Service, 31 May 2006 [cited 10 July 2006]); available from <http://www.ens-newswire.com/ens/may2006/2006-05-31-02.asp> for more information.

⁶⁰ Leiss and Powell, *Mad Cows and Mother's Milk: The Perils of Poor Risk Communication*, p238.

All it takes is *one* case and a country is out of the export market, often indefinitely.

Towards a New Framework for BSE Risk Management

As highlighted in past sections, the current framework for BSE management has been one plagued by the inefficiencies of a unilateral and reactionary approach to disease control. For the past two decades, policymakers in most countries have stubbornly adhered to the policy of instituting reactionary import bans on beef and other bovine products from countries which have reported even a single case of BSE within their geographic boundaries. In turn, if and when BSE is found within the country imposing these bans, it will undoubtedly experience the same sort of sanctions against its own beef exports by foreign countries (ironically, this may include countries that it had formerly banned imports from). Such trade sanctions are unilaterally defined by the imposing country, may last for years, and entail tremendous economic costs. Moreover, these costs do not affect obscure entities, but in fact the millions of ordinary people involved directly in the agricultural industry and associated industries such as transport, packing, marketing, sales, and food service. In short, while the economic costs run well into the billions, the humanistic costs are incalculable.

On the other hand, it may seem that if the status quo of rigid trade sanctions is forgone, existing standards of protecting animal and human health would somehow need to be sacrificed. However, relying upon a system of trade in which policies are defined and enforced unilaterally, and that focuses on protecting domestic herds at the economic expense of affected countries, may actually pose a greater threat to global health in the long-run. In effect, the policy system that has manifested itself has been a game of sorts:

countries ban products from other countries they think might pass BSE along to them, but if it shows up in their own herds, they lose. Hopelessly, this is a game without winners.

This is because all remaining players must forego trade interests in order to address other domestic interests should any “opponents” lose the game. Furthermore, when a country does lose, it will not likely receive any assistance in dealing with the potential economic and health consequences, as it has given none to others in the past. Countries like players, after all, do bear grudges after being cheated out of a game.

In turn, what is required is a frameshift in the understanding of BSE risk management. A framework based on multilateral, collaborative approaches to disease control may offer a viable, and sustainable, means for risk management. As will be discussed, such a proactionary framework, especially with regards to regulating the international beef trade, can simultaneously advance both animal/human health and economic security objectives. It does so by transcending the traditional role of the national border as a demarcative barrier to trade and coordinated regulation, drawing upon concepts which have been employed by various nations on a geographically domestic or regional basis to date. Such concepts can be equally well adapted to an internationally-based system for managing BSE.

Furthermore, the fruition of a proactionary regulatory basis can only be realized in the context of effective and honest risk communication between all affected parties. This entails not only active collaboration amongst the various nations’ government officials and policy-makers who are directly involved in the decision process, but also forward exchange of ideas and concerns between these technical bodies and the public-at-large. Politics do not exist in a social vacuum; public mobilization in response to crises often

fuel the flames for abrupt, dramatic policy changes. Therefore, in order to transcend the existing reactionary framework, the dialectic divide must also be bridged.

Historical Insights

The underlying principles of a proactionary approach to BSE management are not, nor should they be, sweepingly revolutionary. In fact, the common threads of collaboratively-engineered product regulations and internationally-applicable standards of trade have already been sewn into the fabric of international diplomacy over the past half-century or so.⁶¹ Terms such as *supranationalism*, *multinational enterprise*, and *international political economy*, common in the present-day vernacular but almost unheard of just a century before, only hint at the increasing global interconnection human societies have embraced.

Despite this trend towards globally-based collaborations on trade policy, the application of a multilateral framework to the management of BSE has largely been non-existent. In a way this is not unduly surprising, as issues pertaining to agricultural trade have historically been among some of the latest to receive consideration on the international level.⁶² For example, the *General Agreement on Tariffs and Trade* (GATT), created in 1947, seeks to foster greater economic integration by means of non-discriminatory trading among all signatory nations.⁶³ Issues pertaining to agricultural trade, however, were traditionally left off the agenda. In fact, no significant advances were made with respect to liberalizing agricultural trade policy until the Uruguay Round

⁶¹ Stephen Woolcock, "The Multilateral Trading System into the New Millennium," *Trade Politics: International, Domestic, and Regional Perspectives*, ed. Brian Hocking and Steven McGuire (London: Routledge, 1999).

⁶² David N. Balaam, "Agricultural Trade Policy," *Trade Politics: International, Domestic and Regional Perspectives*, ed. Brian Hocking and Steven McGuire (London: Routledge, 1999).

⁶³ Woolcock, "The Multilateral Trading System into the New Millennium."

of GATT (1986-1994), when efforts to reduce the level of domestic agricultural protectionism were finally advanced.⁶⁴ This reluctance, in part, stems from the complexity of agricultural trade issues, which entail not only food safety and health concerns but also the intricate web of protectionist economic considerations. This has led to a status quo in which countries have been extremely reluctant to allow others active input in the framing of their domestic, agriculture-based regulations. In short, agriculture “remains one of the world’s most protected items.”⁶⁵

However, advances have been made which hint at the possibility of greater international collaboration when it comes to agricultural trade regulations. The creation of the *Agreement on the Application of Sanitary and Phytosanitary Measures* (SPS Agreement), coordinated with the strengthening of the trade dispute settlement process and creation of the World Trade Organization (WTO) has structured a systematic framework for dually advancing international trade and animal/plant health protection.⁶⁶

More recently, the *Security and Prosperity Partnership of North America* (SPP), advanced in early 2005 by the United States, Canada, and Mexico, seeks to coordinate

⁶⁴ Balaam, "Agricultural Trade Policy."

⁶⁵ Ibid, p52.

⁶⁶ Ibid. The WTO-SPS framework seeks to “prevent the arbitrary and unjustified use of sanitary and phytosanitary measures as barriers to trade.” Kastner and Pawsey, "Harmonising Sanitary Measures and Resolving Trade Disputes through the WTO-SPS Framework. Part I: A Case Study of the US-EU Hormone-Treated Beef Dispute," p49. It does so by promoting internationally-applicable standards for food safety, requiring countries to base their sanitary measures on scientific risk assessment in cases where their regulations deviate from standards set by the CAC, OIE, or other established protocols, and providing for equivalence measures to reconcile different standards which achieve similar objectives. Ibid. However, the framework cannot guarantee compliance by its signatories. The WTO dispute settlement process only goes as far as to enable the afflicted member nation to impose retaliatory tariffs on the violating country, at levels established by the WTO. For more information on the WTO dispute settlement process, see World Trade Organization Secretariat, *A Handbook on the WTO Dispute Settlement System* (Cambridge, UK: Cambridge University Press, 2004). Because of this, the usefulness of the WTO-SPS framework has already been brought into question. For example, the framework has failed to reconcile competing interests with regard to the ongoing U.S.-British hormone treated beef dispute. See Kastner and Pawsey, "Harmonising Sanitary Measures and Resolving Trade Disputes through the WTO-SPS Framework. Part I: A Case Study of the US-EU Hormone-Treated Beef Dispute."

the three countries' efforts pertaining to range of regional economic and security concerns.⁶⁷ Relevant to agricultural trade and food safety, the SPP establishes a precedent in North America for the following: (1) cooperative border security, bioprotection, and emergency response strategies, (2) streamlined intra-regional flow of legitimate goods at shared borders, (3) the establishment of compatible regulations and standards for securing health and safety, (4) accelerated identification, management, and recovery from foodborne risks, (5) multilateral advising in all policy decisions that could adversely affect the other countries, and (6) the implementation of policies which are founded in scientifically-warranted risk and that present the least restrictive means towards achieving stated objectives.⁶⁸

In this spirit, the SPP may offer some valuable insights into advancing a proactionary framework for policy formulation and multilateral risk management when it comes to BSE.

Applications to BSE Policy

The difficulties associated with managing BSE risk are reflective of the complicated realities, and at times seemingly counterposing values, that policymakers are

⁶⁷ The SPP, while not a formal treaty, is a trilateral agreement based on the recognition that promoting economic prosperity and securing high standards of health and safety are not separate, unrelated issues. *Report to Leaders: Security and Prosperity Partnership of North America* (27 June 2005 [cited 10 July 2006]); available from http://www.spp.gov/report_to_leaders/index.asp?dName=report_to_leaders. Rather, it is understood that *neither* objective can be fully realized if *either* one is neglected.

⁶⁸ This list is not exhaustive. (Sources: U.S. Department of Homeland Security Press Office, *Fact Sheet: Security and Prosperity Partnership* (27 June 2005 [cited 10 July 2006]); available from http://www.spp.gov/SECURITY_FACT_SHEET.pdf?dName=fact_sheets, White House Office of the Press Secretary, *The Security and Prosperity Partnership of North America: Next Steps* (31 March 2006 [cited 10 July 2006]); available from http://www.spp.gov/pdf/security_and_prosperity_partnership_of_north_america_fact_sheet.pdf, *Prosperity Working Groups: Security and Prosperity Partnership of North America* (2005 [cited 10 July 2006]); available from http://www.spp.gov/prosperity_working/index.asp?dName=prosperity_working, and White House Office of the Press Secretary, *Prosperity Agenda: Security and Prosperity Partnership of North America* (23 March 2005 [cited 10 July 2006]); available from http://www.spp.gov/prosperity_agenda/index.asp?dName=prosperity_agenda.) For more information, visit <http://www.spp.gov>.

forced to make on issues of food safety. On one hand, government officials have the responsibility of ensuring the quality of domestic food supplies in order to safeguard animal and human health. On the other hand, imposing tougher food controls, especially in the context of reactionary policymaking, often entails tremendous economic hardship to the affected domestic and/or foreign industries. By focusing management efforts in the context of reactionary trade bans, countries have exacerbated a policy framework that has had crippling effects on beef markets worldwide. Furthermore, these sanctions have not been all too effective in actually preventing domestic occurrences of disease, since local agricultural practices (for example, non-compliance by farmers with respect to feed ban regulations) present the same risks to animal and human health as importation does.

A proactionary basis for the management of BSE may help achieve the dual goals of food safety *and* economic security. It does so by focusing on objectives that are quite similar to those presented in the SPP. For example, such a framework entails *multinational cooperation in disease management*, which is currently lacking given the unilateral nature of reactionary trade bans. Furthermore, it emphasize *mutually recognized standards for diagnostics and disease surveillance*, which is wanting given the wide variability in surveillance measures and testing protocols adopted by various countries.⁶⁹ Lastly, it recognizes the need for *reciprocal assistance among countries when disease occurs* – empowering, rather than debilitating, the afflicted country.

⁶⁹ In terms of surveillance, the United States and Canada have opted to pursue a much more minimalist approach, testing only a fraction of their domestic cattle population, usually only “downer cattle.” Leiss and Powell, *Mad Cows and Mother's Milk: The Perils of Poor Risk Communication*, p256. In comparison, Japan has tested every cow destined for human consumption since its own crisis with BSE earlier this decade. Ibid, p255. Furthermore, diagnostic procedures vary from country to country. Cindy Chard-Bergstrom, Kansas Veterinary Diagnostic Laboratory, interview with the author, Manhattan, 20 June 2006. Variations in testing conditions (i.e. staining procedures, equipment fidelity, etc.) between diagnostic laboratories in some cases, and between countries in almost all cases, further inhibits a coordinated system of disease identification.

Accordingly, reciprocal assistance requires that countries foster an internationally recognized, systematic approach to dealing with disease after it has occurred, including pre-defined standards for effectively removing the infected animal(s) from the normal population and facilitating the reopening of trade with minimal economic adversity.

Furthermore, a proactionary framework for managing BSE entails regulation from a *supply-chain perspective*, in contradistinction to what has traditionally been regulation at geographic borders.⁷⁰ The SPP has established a precedent for facilitating the flow of goods at shared borders by focusing management efforts on high-risk traffic while streamlining the efficient passage of low-risk goods.⁷¹ A proactionary framework for BSE management would do much the same, facilitating the beef trade while maintaining vigilantly enforced and universally accepted surveillance measures to detect any BSE positives. Ideally, such a system would entail mandatory testing of all animals destined for human consumption or other human use. A system of such scope, although seemingly cost prohibitive at first glance, has already proven itself to be successful in Japan and may be worthy of consideration on a more global scale. In fact, a study conducted at Kansas State University in 2005 demonstrated that if full-scale testing was implemented in the United States (at a cost of roughly \$15-20 a head), producers would see a jump of \$9.72 in profit per head if only half of the South Korean and Japanese markets (lost due to the December 2003 case of BSE) reopened trade to U.S. beef

⁷⁰ Dr. Brian Evans, the Chief Veterinary Officer for Canada, believes that food safety and animal disease risk management should be pursued in reference to particular commodity supply chains and regions, not merely the political boundaries that separate nation states. Jason Ackleson and Justin Kastner, "The Security and Prosperity Partnership of North America," (accepted by *The American Review of Canadian Studies*, forthcoming Summer 2006).

⁷¹ Ibid.

suppliers.⁷² In short, proactionary management does not have to compromise any pre-existing standards of animal and human health. It may very well enhance them. By dually increasing the efficacy of international surveillance measures while promoting a system of honest, active communication between all parties involved, much of the friction present in a management stratagem currently characterized by varying, unilaterally defined policies can be eliminated.

Final Remarks

It goes without saying that the new framework posed does not come without its own set of problems. For example, by what means can such a system of proactionary management be enforced, especially amidst a historic precedent for reactionary trade politics? How will countries, each with varying levels of BSE risk, and some with no documented risk at all, foster a system that is mutually acceptable? What will be the reaction from industry and the public-at-large to such a framework?⁷³ These are important questions to think about, not only in evaluating the possibility of a proactionary framework, but when any alternative to the status quo is considered. After all, a policy alternative is not really an alternative if it does not present salient solutions to current societal concerns.

Nevertheless, policy-framers must not shy away from change simply for the sake of convenience. The current framework with which countries have managed BSE risk is in need of reconsideration. The economic costs of a reactionary approach to disease management have proven themselves to be formidable; the social costs are incalculable.

⁷² Coffey, et al., "The Economic Impact of BSE on the U.S. Beef Industry: Product Value Losses, Regulatory Costs, and Consumer Reactions," p54.

⁷³ These two groups will bear the immediate brunt should unforeseen consequences manifest themselves.

Furthermore, the practice of imposing reactionary trade bans on foreign countries in order to protect domestic health interests, rather than approaching health and safety from an internationally collaborative basis to begin with, may not be the most effective means of managing disease in the long-term. At this point, *any* increase in global cooperation and collaboration will be a good first step.

In short, a proactionary framework for BSE risk management and policy formulation may offer a refreshingly viable alternative to a reality burdened by the consequences of reactionary politics. It does so by addressing animal and human health concerns from an international perspective while dually recognizing the economic and social realities of the global beef industry. It offers the promise of long-term solutions, not short-term answers.

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