Addressing Weaknesses in Avian Influenza Containment Strategies:

The International Health, Trade & Development Issues

By

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Submitted to the Faculty of Graduate Studies
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ABSTRACT

Globalization and integration of markets has increased the volume of international traffic of both goods and people at an accelerating pace. But the epidemiology of diseases has managed to keep pace with globalization. In particular, with their new light speed mutability, diseases such as the avian influenza (H5N1), have become a serious threat to humans. In response to the threat of an avian flu pandemic, the international community has formulated strategies to improve surveillance, detection, reporting and containment of the disease. But these strategies fail overlook two economic realities that can render them ineffective. The success of the current international strategies hinges entirely on the cooperation of poultry farmers. Yet, the strategies fail to create adequate incentives for poultry farmers to disclose infected livestock. For the individual poultry farmer in developing countries, the government's compensation for culled livestock is inadequate and does not inspire timely reporting. At the international level, countries that are honest enough to disclose infected livestock are not rewarded. Rather, they are punished for their candor. Importing countries use cases of infection to justify imposing blanket bans of the reporting nation's livestock. The economic havoc of such bans is even more acute for developing or transition economies. Furthermore, lengthy and inefficient dispute settlement by the World Trade Organization further discourages such countries from reporting cases of avian influenza. Creating a globally funded compensation scheme and streamlining the international trade dispute settlement process could help facilitate the success of avian influenza containment strategies.

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Namaste.

DEDICATION

This thesis is dedicated to all graduate students everywhere.

TABLE OF ABBREVIATIONS

AHITF	**Avian and Human Influenza Trust Fund (World Bank)**
DSU	**Dispute Settlement Understanding (WTO)**
FAO	**Food and Agricultural Organization**
GPAI	**Global Program for Avian Influenza (World Bank)**
OIE	**World Organization for Animal Health**
SPS	**Sanitary and Phyto-Sanitary (WTO)**
UN	**United Nations**
WHO	**World Health Organization**
WTO	**World Trade Organization**

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INTRODUCTION

The current strain of the avian influenza, H5N1 poses an imminent and serious threat to the health and economic welfare of the world's population. The successful containment of the disease within the animal population is essential to prevent its transmission to the human population and thereby avoid a full blown pandemic.

However, an examination of the current international avian flu containment strategies reveals that regulation of infectious diseases is an extraordinarily complex endeavor. Successful implementation of these strategies requires the coordination and cooperation of several international and national agencies, with overlapping roles and jurisdictions. This examination also reveals that two major flaws in these strategies have the potential to jeopardize successful containment of H5N1.

International laws mandate countries to report incidence of avian flu infection in animals to the lead technical international agencies. However, a failure to provide adequate compensation schemes to reward farmers for disclosure of infected livestock, tends to suppress discovery and delay containment of the disease in the animal population. This is particularly risky in developing countries, where the potential for spread of the disease to humans poses the highest risk.

At the level of international trade, a nation is similarly discouraged from reporting the presence of the disease to avoid being subject to reactionary import bans. The World

Trade Organization created the Sanitary and Phyto-Sanitary Agreement to protect the health and safety of consumers and prevent the spread of harmful diseasse to domestic plants and animals. The SPS Agreement was intended to provide a balance between open trade and the right of sovereign nations to determine their own standard of health protection. In practice, however, the World Trade Organization's (WTO) enforcement of the SPS Agreement is ineffective and inefficient. This erodes faith in the WTO's ability to punish trade protectionism thinly disguised as SPS health measures. Thus, the international trade laws tend to inhibit or delay reporting of avian influenza by affected nations, which in turn increases the opportunity for the disease to spread to the human population.

Although there is no perfect solution, an examination of these two problems helps to identify where improvements can be made. It is suggested that a globally funded compensation scheme will encourage farmers to report infected livestock and support the success of international disease containment plans. In addition, changes to the World Trade Organization's dispute settlement process, including an expedited review of import bans invoked under the SPS emergency health provision, will inspire nations to be more forthcoming about the presence of highly infectious diseases. When attempting to contain a disease that has the potential to become a full blown pandemic, such as the H5N1 strain of avian influenza, it is imperative to create a regulatory environment that encourages self-disclosure by affected individual farmers and nations. Strengthening disease management plans with supportive international compensation schemes and international trade regulations will place the international health community in the best

position to conquer not only H5N1, but other newly emerging or re-emerging infectious diseases which have the potential to become human pandemics.

CHAPTER I: The Downside of Globalization: Globalization of Disease

The impending threat of highly infectious diseases, such as the H5N1 strain of the avian flu, has reverberating effects on the landscape of international health, trade liberalization, and the economic progress of developing nations.

Globalization and integration of markets has increased the volume of international traffic of both goods and people at an accelerating pace. But we are also bearing witness to one of the unforeseen downsides of such integration[1].

It seems that the epidemiology of diseases has managed to keep pace with the rapid change in trade liberalization. In particular, with their new light speed mutability, diseases such as avian influenza, have become a serious threat to humans.

> "With a large and growing volume of regional and international trade in livestock and livestock products and the rapid movement of large numbers of people across continents through air travel, several emerging infectious zoonotic diseases are spreading widely and quickly over large geographical regions. These have a wide-ranging impact on the livelihoods of farmers, regional and international trade, food safety, public health and international travel and tourism.[2]"

In other words, improved access to travel and global integration of economies has also eased the ability of infectious diseases to spread from nation to nation. A brief review of

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[1] K. Käferstein, Y. Motarjemi, and D. W. Bettcher, ``Foodborne Disease Control: A Transnational Challenge `` (October-December 1997) Emerging Infectious Diseases, 3:4.

[2] FAO, OIE & WHO, "A Global Strategy for the Progressive Control of Highly Pathogenic Avian Influenza (HPAI)" (November 2005) online: FAO <http://www.fao.org/ag/AGAInfo/subjects/documents/ai/HPAIGlobalStrategy31Oct05.pdf> at 10.

the history and science behind this disease will help understand exactly why this disease poses such a threat to the human population.

1.1 The History of the Current H5N1Crisis

Infectious diseases are the number one killer of human beings worldwide[3] and thus pose the greatest threat to global health. But the current outbreaks of the avian influenza virus pose a particularly dangerous threat. Of the 1,500 microbes that can cause diseases to humans, influenza holds the title for overall mortalities[4]. In a given year, the garden-variety strain of the flu claims more than 1 to1.5 million lives, from influenza or influenza-related complications. In short, influenzas pose one of the greatest threats to the human population.

The current H5N1 flu is one of fifteen strains of the avian flu. The virus first surfaced in 1997, where it took the lives of six humans in Hong Kong[5]. At that time, the disease was believed to have been effectively contained with massive culling of the bird population to prevent its spread to neighboring countries. However, this was obviously not the case, as the latest crisis was re-ignited by an outbreak on a chicken farm near Seoul, South Korea

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[3] Osterholm, Michael T., "Preparing for the Next Pandemic" (2005), online: Foreign Affairs <http://www.foreignaffairs.org/20050701faessay84402/michael-t-osterholm/preparing-for-the-next-pandemic.html> at 2.

[4] *Ibid.*.

[5] "After its first detection in 1996 in Guangdong province, the disease broke out in Hong Kong in 1997. The disturbing event of the 1997 epidemic was the transmission of the disease to humans (confirmed in 18 people), leading to the deaths of 6." See "Avian Influenza – Background: History of the H5N1 Virus Circulation in Southeast Asia Before 2004", online: FAO <http://www.fao.org/AG/AGAInfo/subjects/en/health/diseases-cards/avian_bg.html.

in December 2003[6]. Once again, mass culling of the infected birds was thought to have successfully curtailed the spread of the disease.

Despite these best efforts, the virus managed to spread quickly throughout Southeast Asia in 2004 and 2005. Most alarmingly, in just three short months from February 2006 to April 2006, the disease rapidly diffused into 32 countries, located in Africa, Asia, Europe and the Middle East, with cases of infection in wild or domestic birds, or both[7].

> "The deadly bird flu virus has spread at lightning speed over the past three months, infecting birds in 30 new countries - double the number previously stricken since 2003, the U.N.'s bird flu point man said Tuesday.
>
> This is a really serious global situation," Dr. David Nabarro the U.N.'s chief coordinator for avian influenza, told reporters in Beijing. "During the last three months globally, there has been an enormous and rapid spread of H5N1.[8]""
>
> "This development marks the fastest and most extensive geographical spread of any highly pathogenic avian influenza virus recorded since the disease was first described in 1878."[9]

The World Organization for Animal Health (OIE) keeps the most up to date records on countries reporting incidence of H5N1 among its bird population[10]. To date, hundreds of

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[6] WHO, "Avian Influenza Fact Sheet" (15 January 2004), online: WHO <http://www.who.int/csr/don/2004_01_15/en/>.

[7] WHO, World Health Assembly, 59th Sess., Strengthening pandemic-influenza preparedness and response, including application of the International Health Regulations: Report by the Secretariat, WHO Doc. A59/4 (24 April 2005), online: WHO <http://www.who.int/gb/ebwha/pdf_files/WHA59/A59_4-en.pdf>.

[8] Mason, Margie, "U.N. Notes Alarming Speed of Bird Flu" *The Associated Press* (4 April 2006), online: Las Vegas Sun <http://www.lasvegassun.com/sunbin/stories/w-asia/2006/apr/04/040402935.html>.

[9] *Supra*, note 6.

[10] OIE, "Update on Avian Influenza in Animals (Type H5): Most Recent Official Reports" (27 March 2006), online: OIE <http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm>.

millions of domestic birds have been infected and culled in an attempt to control the spread of the disease. Nevertheless, the disease has still managed to spread to humans.

Although the toll on the human population is considerably smaller, nonetheless, the World Health Organization (WHO) documents 241 cases of humans infected by H5N1, resulting in 141 human deaths.[11]

Out of a possible Six Phases of Pandemic Alert, the WHO currently ranks the avian flu crisis at Phase Three, with Phase Six representing a full human pandemic[12]. Phase Three indicates that there have been a limited number of cases of human to human transmission of the avian flu. Although the current avian flu situation is not officially a full blown crisis, it has the potential to evolve into a pandemic. An understanding of how the avian flu mutates and transmit to humans will illuminate why, nevertheless, the current situation is considered so precarious.

1.2 Epidemiology of H5N1: Global Strategy is Required

The previously mentioned statistics emphasize how, despite current efforts at containment, the H5N1 is proliferating among the avian population at an alarming and unexpectedly rapid pace, across the globe.

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[11] WHO, Epidemic and Pandemic Alert Repsonse, *Cumulative Number of Confirmed cases of Avian Influenza A/(H5N1) Reported to WHO (23 August 2006), online:* http://www.who.int/csr/disease/avian_influenza/country/cases_table_2006_08_23/en/index.html.

[12] WHO, Epidemic and Pandemic Alert and Response, "Current WHO Phase of Pandemic Alert" (November 2005), online: <http://www.who.int/csr/disease/avian_influenza/phase/en/index.html>.

The latest strain of the avian flu, H5N1, is a considered a global threat to human health because of the volatile combination of numerous factors, which are briefly explained in the following sections.

Zoonotic Disease

H5N1 is a strain of the avian flu that readily mutates, through a process called antigenic shift or reassortment, and can thus jump the species barrier from poultry to humans[13]. Although, at present, the species barrier is still significant and the disease cannot easily pass from animals to humans, the fact remains that the disease is constantly mutating[14]. With every case of a human contracting the disease, there is the risk that it can mutate into a strain that is easily transmissible between humans, which would lead to a full blown pandemic.

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[13] "Of the 15 avian influenza virus subtypes, H5N1 is of particular concern for several reasons. H5N1 mutates rapidly and has a documented propensity to acquire genes from viruses infecting other animal species". See WHO, "Avian Influenza Fact Sheet" (15 January 2004), online: WHO <http://www.who.int/csr/don/2004_01_15/en/>.

Influenza viruses contain eight genes, packaged loosely in protective proteins. Its mutating ability arises from the fact that it reproduces sloppily. That is, its genes easily fall apart and absorb new genetic material from its host when reproducing. See Laurie Garrett, "The Next Pandemic?" (July/August 2005), online: Foreign Affairs <http://www.foreignaffairs.org/20050701faessay84401-p10/laurie-garrett/the-next-pandemic.html> at 4.

"Over the last several decades an average of one newly emerging disease per year has been identified, of which 75% have been of the zoonotic type. Their transboundary nature highlights that no country can count itself exempt from such diseases." See FAO, OIE & WHO, "A Global Strategy for the Progressive Control of Highly Pathogenic Avian Influenza (HPAI)" (November 2005) online: FAO <http://www.fao.org/ag/AGAInfo/subjects/documents/ai/HPAIGlobalStrategy31Oct05.pdf> at 1

[14] *Supra* note 4 at 2. See also *supra* note 10.

Highly Pathogenic, Contagious & Transmissible

A highly pathogenic form of the avian flu, H5N1 is characterized by sudden onset, severe illness, and rapid death, with a high mortality rate[15]. The mortality rate in the avian population is between 75 and 100%. Among humans, it has a mortality rate of over 50%.[16] Thus, once contracted, the chances of survival are low. The stakes are high with this disease, and time is of the essence in containment of such a highly contagious and lethal disease. Preventing the spread of this disease to humans should be the focus of disease containment strategies.

This disease can also be readily transmissible without an animal host. It has evolved into a strain that can now survive in chicken feces and the meat of dead animals, even in the absence of blood flow and living cells[17]. The hardiness of this disease increases the likelihood of transmission of the disease from equipment to both animals and humans, particularly so in backyard poultry farms with unsophisticated veterinary practices.

Higher Susceptibility in Domestic Poultry

The fact that "domestic poultry, including chickens and turkeys, are particularly susceptible to epidemics of rapidly fatal influenza" [18] adds significantly to the risk that the disease could become a pandemic for humans. Unlike migratory birds, domestic poultry have a greater chance of being infected and killed by this strain of the flu. Therefore, particularly in developing countries, with unsophisticated animal husbandry

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[15] Avian Influenza Fact Sheet, *supra* note 6.
[16] *Supra,* note 5.
[17] *Supra*, note 13, at 6.
[18] Avian Influenza Fact Sheet, *supra*, note 6.

practices and close daily contact with poultry, the likelihood of transmitting the disease to humans increases.

Unpredictable Proliferation

Unlike the spread of BSE, the disease vector in this case has wings, making it capable of easily spreading to remote locations. The disease can be easily spread by wild birds that follow migration patterns which scientists admit they cannot predict with any degree of certainty[19]. This is because migration patterns are dependent on a myriad of variables, such as, the strength of prevailing winds, the availability of food and nesting or resting habitats. All of these variables are themselves subject to further capriciousness, such as environmental changes brought about by global warming.

Any change in the environment, at the wrong time, in an infected country, could be the spark that lights the spread of the disease. For example, Indonesia is a country notorious for its inability to contain the disease within its widespread backyard poultry farms[20]. In May 2006, in the midst of H5N1 outbreaks, Indonesia was also hit with devastating earthquakes. This natural disaster further compromises food, shelter and basic health

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[19] Rosenthal, Elisabeth, "Spread of Bird Flu: Experts are Puzzled" *International Herald Tribune* (1 March 2006).

[20] Ben Wasserman, "Update 4: WHO Confirms Six More Bird Flu Cases in Indonesia (30 May 2006), online: Foodconsumers.org <http://www.foodconsumer.org/777/8/Update_4_WHO_confirms_six_more_bird_flu_cases_in_Indonesia.shtml>.

security of its citizens[21]. Lack of access to health and shelter security increase the chance of transmission of a zoonotic disease to humans and the scarcity of food further discourages citizens from reporting infected poultry. Indonesia is a powerful example of how the current precarious H5N1 situation can be easily ignited into a full pandemic.

History of Recurrence

Historically, an influenza pandemic is expected to occur three or four times a century[22]. In this century, there was the devastating 1918 Epidemic, which claimed 40 million human lives, followed by two lesser epidemics in 1957-1958 and 1968-1969. Although it is difficult to predict when the next epidemic will occur, experts believe that another one is "inevitable and possibly imminent[23]". So the unexpectedly rapid proliferation of the latest avian flu virus is an ominous harbinger that perhaps this strain will, in fact, evolve into the next human pandemic. Even more disturbing is the fact that scientists have found evidence of genetic similarities between the 1918 virus and the current H5N1 strain. With a significant increase in the world's population and international travel since 1918, the possibility of a recurrence of the 1918 epidemic would result in a significantly higher death toll.

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[21] Brummit, Chris, "International Efforts to Provide Indonesian Earthquake Relief Pick Up Pace" *CBC News* (31 May 2006), online: CBC News <http://www.cbc.ca/cp/world/060531/w053156.html>.

[22] "Based on historical patterns, influenza pandemics can be expected to occur, on average, three to four times each century when new virus subtypes emerge and are readily transmitted from person to person. However, the occurrence of influenza pandemics is unpredictable. In the 20th century, the great influenza pandemic of 1918–1919, which caused an estimated 40 to 50 million deaths worldwide, was followed by pandemics in 1957–1958 and 1968–1969. Experts agree that another influenza pandemic is inevitable and possibly imminent." *Supra*, note 6.

[23] *Ibid.*

Scientific Uncertainty

Scientists studying the virus have discovered some other alarming qualities about this disease, without being able to fully comprehend their ramifications. Alarmingly, since its first appearance in 2003, scientists have now discovered that the virus has evolved into two distinct strains, potentially increasing the risk to humans and complicating the search for a vaccine[24]. H5N1 is a disease that is rapidly mutating, becoming stronger and more difficult to combat with a human vaccine. Altogether, the world is grappling with a disease that is lethal, highly mysterious and scientifically unpredictable, making its containment within the avian population all the more imperative.

In summary, what makes the current avian flu crisis so foreboding is the potent *combination* of all of these variables. One or two of these factors alone might not make the prospect of a human influenza pandemic so imminent. But it is the simultaneous convergence of all of these conditions that makes the possibility of an influenza pandemic so alarming. A small change in any one of the variables can be the catalyst that ignites the avian flu epidemic into a full human pandemic. It emphasizes how important it is to contain the disease within the animal population to prevent its spread to humans. A brief examination of the toll of past influenza pandemics will highlight why it is so important to create avian flu containment strategies that are effective.

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[24] "Bird Flu Toll Rises Past 100-mark" *BBC News* (21 March 2006) online: http://news.bbc.co.uk/1/hi/world/europe/4830046.stm.

1.3 Death Toll: The Fourth Horseman

The last major influenza epidemic was in 1918, where some 20 to 50 million human lives were taken in under two years[25]. Also known as the Spanish Flu, the 1918 epidemic was considered the greatest global disaster to date, claiming a fifth of the world's population in just 18 months. In fact, the 1918 pandemic also started as a bird flu that jumped to the human population[26]. The Great War was believed to have contributed to the rapid spread of the disease, due to the mass movement of men and goods aboard ships.

Given an increase in the human population, population density and globalization of trade, the avian flu has the potential to wreak exponentially greater havoc than the 1918 epidemic. A conservative estimate by the World Bank pegged the potential cost of an avian flu pandemic at $800 billion per year[27]. The Bank also estimated that a pandemic would reduce global gross domestic production by 2%. Finally, a survey by the World Economic Forum revealed that the avian flu crisis was ranked as the number one risk concerning multinational businesses and national leaders, with bioterrorism ranked as

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[25] Billings, Molly, "The Influenza Pandemic of 1918" (June 1997), online: Stanford University <http://virus.stanford.edu/uda/>.

[26] "The 1918 Flu Virus Recreated", online: A Science Museum of Minnesota Community <http://ltc.smm.org/buzz/blog/1918_flu_virus_recreated>.

[27] WHO, "Avian Influenza and Human Influenza Pandemic: Summary Report", *Meeting on Avian Influenza and Human Pandemic Influenza* (held on 7-9 November 2005), online: WHO <http://www.who.int/mediacentre/events/2005/avian_influenza/summary_report_Nov_2005_meeting.pdf> [Summary Report] at 10.

"The World Bank estimated that the next pandemic might cost the world economy US$ 800 billion within a year. ... Moreover, the virus had established its strongest foothold in small backyard flocks in rural and periurban areas, where control was most difficult, opportunities for human exposure were greatest, and most human cases had occurred to date." See *Summary Report, ibid.*, at 10.

second.[28] Thus, the current avian flu situation poses a dire threat to global health and international economic and political stability.

The tsunamic effect of an influenza pandemic is even more potent in light of the current state of most healthcare systems. The healthcare systems of developed nations are already overtaxed, resulting in cost-cutting, lengthy waiting periods and a lack of medical personnel to treat existing ailments. The surge of cases brought on by an avian flu epidemic would further strain the economies of industrialized nations. The fledgling healthcare systems of developing countries, already struggling with AIDS, malaria and tuberculosis, would simply collapse[29]. The rest of the world would be forced to deal with the aftermath.

In short, the avian flu has the potential to decimate the human population, disrupt the flow of international trade and cause a tectonic upheaval in the world's economy. It is therefore imperative that current containment strategies are supported by the international community[30] and ensure that international trade rules are consistent with their objectives

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[28] Toby Poston, "Counting the Cost of Bird Flu" *BBC News* (17 February 2006), online: BBC News <http://news.bbc.co.uk/1/hi/business/4723874.stm>.

[29] Ed Stoddard, "Bird Flu Virus Found in Nigerian Chickens" *Reuters* (10 March 2006), online: iol.co.az <http://www.iol.co.za/index.php?set_id=1&click_id=3014&art_id=qw1141938361874B216>. See also David L. Heymann, "The Evolving Infectious Disease Threat: Implications for National and Global Security" (July 2003) 4:2 Journal of Human Development at 191-207. See also Laurie Garrett, "The Next Pandemic?" (July/August 2005), online: Foreign Affairs <http://www.foreignaffairs.org/20050701faessay84401-p10/laurie-garrett/the-next-pandemic.html>.

[30] David P. Fidler, "Germs, Governance, and Global Public Health in the Wake of SARS" (2004) 113:6 J. Clin. Invest. 799 at 799-804. See also Dennis G. Maki, "SARS Revisited: The Challenge of Controlling Emerging Infectious Diseases at the Local, Regional, Federal, and Global Levels" (2004) 79:11 Mayo Clin. Proc. 1359 at 1359-1366.

to ensure their success[31]. Previous containment approaches are no longer adequate and must be updated to ensure they are compatible with changes in international trade and disease epidemiology.

1.4 Past Strategies Are Insufficient

The previous sections explain why a global strategy is required for a species-jumping and highly contagious disease such as the avian flu. The potential toll on human lives and the world's economy require that any such strategy should focus primarily on preventing spread of the disease from the avian population to humans. Thus, containment of the disease among birds requires an approach that is timely, responsive and effective, regardless of which country outbreaks of H5N1 occur.

Previous infectious disease management plans will not suffice, as they were intended for diseases easily controllable by simple measures such as quarantine and border controls[32]. With the increase in international traffic of humans and goods brought on by globalization, such mechanisms are simply not agile enough to restrain a virus as mobile, mutation-prone and widespread as H5N1. In light of H5N1, the international community has created new disease management plans which will be examined in the proceeding

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[31] "Trade must take into account public health issues, including disease control & avoid blatant protectionism under guise of health ... " See Douglas W. Bettcher & Derek Yach & G. Emmanuel Guindon, "Global Trade and Health: Key Linkages and Future Challenges" (2000) 78:4 Bull. World Health Organ. 521.

[32] Buddhima Lokuge & Kamalini Lokuge, "Avian Influenza, World Food Trade and WTO Rules: The Economics of Transboundary Disease Control", Working Paper (January 2005), online: Centre for Governance of Knowledge and Development <http://cgkd.anu.edu.au/menus/PDFs/Lokuge%20et%20al_Avian%20Influenza%20%20World%20Food%20Trade%20and%20WTO%20rules.pdf>.

chapters. An examination of these plans will help identify any weaknesses that jeopardize successful disease containment. Pinpointing these weaknesses will enable the responsible agencies to improve their approaches and improve the likelihood of successful disease containment.

CHAPTER TWO: Many Faces of the Chicken: Complex Cross-Sectoral Tapestry

Much of the difficulty in formulating an effective and comprehensive avian flu management strategy is the sheer number of bureaucratic agencies charged with regulating different aspects of poultry and infectious diseases[33]. At the international level alone, these organizations have overlapping jurisdictions and are engaged in joint projects.

This is further complicated by the fact the international agencies must work to harmonize the approaches of national governments and non-governmental organizations. Thus, holding this "patchwork" quilt of networks and partnerships together, with a cohesive strategy, requires a tremendous amount of administrative energy.

> "Given the zoonotic nature of the HPAI, and the complex interface between farming systems, livestock trade, food safety and public health, a strong international partnership among FAO, OIE and WHO will be continued. This partnership will promote joint epidemiological studies, harmonize contingency plans, and promote public awareness and share virus strains and other technical information. A number of other partners will be involved, important among these would be the private sector, NGOs and regional national agriculture extensions systems (NARES), and selected wildlife organizations[34]".

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[33] Tran Tinh Hien, M.D., F.R.C.P., Menno de Jong, M.D., Ph.D., and Jeremy Farrar, D.Phil., F.R.C.P.,``Avian Influenza — A Challenge to Global Health Care Structures``(December 2, 2004) 351:23 New England Journal of Medicine, 2363-2365.

[34] FAO, OIE & WHO, "A Global Strategy for the Progressive Control of Highly Pathogenic Avian Influenza (HPAI)" (November 2005), online: FAO <http://www.fao.org/ag/AGAInfo/subjects/documents/ai/HPAIGlobalStrategy31Oct05.pdf>.

Put another way, this creates an overwhelming logistical tapestry, where any change introduced by one agency inevitably impacts all the other organizations[35]. A brief overview of each organization's role will assist in understanding the relationship between the lead technical health organizations and international health and trade laws in the context of avian influenza control.

The Food and Agricultural Organization (FAO) and the World Organization for Animal Health (OIE) are the two international agencies responsible for coordinating the animal health component of avian flu containment. Their roles are explained in the following sections.

2.1 Joint Work of the Food and Agricultural Organization (FAO) and the World Organization for Animal Health (OIE)

Poultry as Food: Food and Agricultural Organization (FAO)

As a source of food for humans, live poultry and poultry products are regulated by the Food and Agricultural Organization. Founded in 1945, the FAO is the largest autonomous agency within the United Nations system with 180 Member Nations plus the EC (Member Organization)[36]. Its mission is "to raise levels of nutrition and standards of living, to improve agricultural productivity, and to better the condition of rural

[35] D. P. Fidler, ``Microbialpolitik: Infectious Diseases and International`` (1998) 14 Am. U. Int'l L. Rev. 1. See also, B. J. Plotkin and A.M. Kimball,``Designing an International Policy and Legal Framework for the Control of Emerging Infectious Diseases: First Steps``(January- March 1997) Emerging Infectious Diseases, Vol.3, No.1.

[36] FAO, "A Short History of FAO", online: FAO <http://www.fao.org/UNFAO/about/history_en.html>.

populations. Through its Animal Health and Production Department, the FAO advises countries on good agricultural practices, disease control and eradication methods to protect the health of both animals and humans.

Poultry as Animals: The World Organization for Animal Health (OIE)

As an animal, the health of poultry is regulated by the OIE. The OIE is considered a global veterinary organization that governs the health of animals and provides scientific advice on appropriate veterinary practices and disease diagnostics.[37] Unlike the FAO, the OIE is not part of the family of United Nations organizations, but does collaborate closely with the FAO. Its role has been described as,

> "..the body that collects official information provided by countries, sets standards and guidelines and issues recommendations on safety of international trade of animals and animal products, on animal health and zoonoses.[38]"

The OIE consists of leading scientists representing member countries. Collectively, these scientists are responsible for setting international standards for safe manufacturing and use of vaccines on animals. The OIE also establishes the international norms for certifying a country, region or individual poultry producer as having disease-free status or how to regain disease-free status after an outbreak. These international standards will be discussed in greater detail in later sections of this paper, where they relate to the international trade of poultry and artificial trade barriers. For the purposes of this section,

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[37] OIE, "OIE Objectives", online: OIE <http://www.oie.int/eng/OIE/en_objectifs.htm>.

[38] FAO, "Transboundary Animal Diseases on the Rise: FAO and OIE Strengthen Cooperation", *FAO Newsroom* (25 May 2004), online: FAO <http://www.fao.org/newsroom/en/news/2004/43252/index.html>.

it is important to know that each member country is obliged to report incidents of avian influenza to the OIE within 24 hours of detection[39]. This notification requirement is intended to accelerate efforts at disease containment and prepare other countries at risk of being infected. The ability of countries to comply with this obligation may represent one of the key stumbling blocks to effective disease control. This obstacle is discussed in greater detail in Chapter Four of this paper.

With respect to infectious diseases in livestock, and in particular with respect to the current avian flu crisis, the work of these two organizations has become so integrated that their roles will be discussed together.

In summary, the FAO and the OIE work together to monitor outbreaks of the avian flu in animals, advise on appropriate containment procedures, such as culling, vaccination and quarantine as well as animal trade and husbandry policy and procedures.

Since 1954, the FAO has been battling transboundary diseases by providing leadership and technical expertise[40]. For its role in combating the avian influenza, the FAO best describes its responsibilities as follows:

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[39]OIE, *The Terrestrial Animal Health Code* (2005) online: World Organization for Animal Health <http://www.oie.int/eng/normes/mcode/en_partie_1.htm>, c.1.1.2, art. 1.1.2.3:

"Veterinary Administration to the Central Bureau:

1. Notification from the Delegate of the country by telegram, fax or e-mail, within 24 hours, of any of the following events: a. first occurrence of a listed disease and/or infection in a country or zone/compartment; b. re-occurrence of a listed disease and/or infection in a country or zone/compartment following a report declared the outbreak ended."

[40] FAO, "Enemy at the Gate: Saving Farms and People from Bird Flu", *FAO Newsroom* (11 April 2005), online: FAO <http://www.fao.org/newsroom/en/focus/2005/100356/index.html>.

> "In the avian influenza crisis.... FAO's roles are many: technical assistance, policy advice, provision of laboratory equipment, protective clothing and training, agency and donor coordination, contingency planning, technical information and guidelines, and public advocacy. The Organization works hand in hand with the OIE and, because of the threat to human health, with the WHO as well.[41]"

That is, specific to the current avian flu crisis, the FAO has taken on several roles, many in conjunction with the OIE, to attempt to contain the virus. Their projects are described in the proceeding sections.

(i) EMPRES – Livestock Program

(Emergency System for Transboundary Animal and Plant Pest Diseases)

Under its Animal Production & Health Division, the FAO has created the EMPRES-Livestock program (Emergency System for Transboundary Animal and Plant Pest Diseases). It was created in 1994, in recognition of the fact that food security necessitates the protection of livestock from diseases and preventing their spread to other nations[42]. It describes its mission as follows:

> "to promote the effective containment and control of the most serious epidemic livestock diseases/Transbounday Animal Diseases (TAD) as well as newly emerging diseases, by progressive elimination on a regional and global basis through international co-operation involving Early Warning, Early Reaction, Enabling research, Coordination"[43].

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[41] *Ibid.*

[42] FAO, "EMPRES: About Us", online: <http://www.fao.org/AG/AGAInfo/programmes/en/empres/about.html>.

[43] FAO, "EMPRES: About Us: Mission", online: <http://www.fao.org/AG/AGAInfo/programmes/en/empres/mission.html>.

Basically, this program is the working arm of FAO's mission to coordinate international monitoring and surveillance of animal disease outbreaks to ensure a harmonized approach to disease control. The program also promotes animal disease research and technical training for veterinary specialists.

(ii) Joint Initiative between FAO & OIE: GF-TADs

Under the EMPRES program, the FAO and the OIE have entered a joint initiative, called the *Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs)* [44]. The initiative is a formal recognition of an agreement between the FAO and the OIE to combine their strengths in order to combat transboundary diseases, including the avian flu. They will work together to help member countries to build their veterinary and other infrastructural capacity, to provide technical support and to establish programs to control specific diseases on a regional basis[45].

To this end, the FAO and the OIE have created the ECTAD or Emergency Centre for Transboundary Animal Disease in FAO Headquarters. Its role is to coordinate the response at a global level. There are also several decentralised Regional Support Units to coordinate containment of major avian flu outbreaks or assist in preparedness activities in areas of the world that are considered particularly at risk.

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[44] FAO & OIE, "Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs)" (24 May 2004), online: FAO <http://www.fao.org/ag/AGAinfo/resources/documents/empres/GF-TADsMay2004.pdf>.

[45] OIE, Regional Representation for Asia and the Pacific, *The First Regional Steering Committee of GF-TAD's in Asian and the Pacific* (held on 7-9 March 2005), Notes, online: OIE <http://www.rr-asia.oie.int/topics/detail025.html>.

(iv) Technical Training for Veterinary Parahealth Professional (FAO)

The FAO is able to provide, not only hands on training for veterinary personnel in developing countries, but also publishes several manuals as a source of readily usable information. The FAO has created a preparedness manual to assist countries that are at risk of having its bird population being infected by H5N1 to strengthen their veterinary infrastructure[46]. It also publishes the *Field Manual for ParaProfessionals*[47] for nations to train their own para-health personnel.

(v) Research on Animal Vaccines and H5N1 Epidemiology (FAO & OIE)

The FAO provides its members with a list of manufacturers and suppliers of the avian influenza animal vaccines to facilitate containment of the disease. FAO scientists and researchers have also joined forces with OIE experts, to create a scientific network, called OFFLU, which is devoted to sharing information and the latest disease epidemiological information strictly on the latest avian influenza virus[48].

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[46] Martin, V., *et al.*, "Preparing for Highly Pathogenic Avian Influenza: A Manual for Countries at Risk" (2006), online: FAO <http://www.fao.org/docs/eims/upload/200354/HPAI_PreparednessManual.pdf>.

[47] FAO, "Un Guide pour les Paravétérinaires au Vietnam: Prévention et Contrôle de la Grippe Aviaire dans les Petits Élevages de Volailles" (May 2006), online: FAO <http://www.fao.org/AG/AGAInfo/subjects/documents/ai/AI-Manual-french.pdf>.

[48] In 2006, in response to the avian flu crisis, the OIE and the FAO have created and endorsed a joint network of scientific expertise specifically on the avian flu, called the OFFLU Network: Joint FAO & OIE Network on Avian Influenza. Devoted exclusively to studying and sharing scientific information and material on the avian influenza virus, the network is intended to provide a pool of information to encourage understanding and research on its epidemiology. It invites other credible research institutions and laboratories to become collaborating members of the network. See "OFFLU: OIE & FAO Network of Expertise on Avian Influenza", online: OFFLU <http://www.offlu.net/>.

In summary, the FAO and the OIE are the lead technical agencies responsible for animal diseases that pose a threat to human health. The FAO is responsible for advising on good agricultural practices and disease control techniques. The OIE is responsible for setting international standards on vaccination and safe housing and handling of poultry. Together, they also provide technical assistance, equipment and training to diseased regions. They also jointly oversee a scientific network that pools latest epidemiological information and samples of the virus. Finally, the two organizations provide the latest information on outbreaks in animals and containment efforts to the public. But, avian influenza control is also complicated by the involvement of other international organizations, such as the World Health Organization and the World Trade Organization.

2.2 Poultry as a Threat to Human Health: The World Health Organization (WHO)

As a disease vector, poultry poses a threat to human health. This makes it subject to regulations by the World Health Organization. The WHO is "the United Nations specialized agency for health whose mandate is the attainment by all peoples of the highest possible level of health."[49] The WHO is the international agency responsible for creating strategies for the human component of avian flu containment. The WHO is responsible for monitoring and providing alerts on outbreaks of human cases of infection[50]. It also provides advice and assistance for WHO member countries to develop adequate national surveillance and containment system.[51] The WHO's role in formulating avian flu containment strategies is discussed in much greater detail in Chapter Three of

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[49] "About the WHO", online: WHO <http://www.who.int/about/en/.

[50] Council for Agricultural Science and Technology, ``Global Risk of Infectious Animal Diseases`` (February 2005) Issue Paper No. 28.

[51] *Ibid.*

this paper. For the purposes of this discussion, it is important to recognize that the regulations and strategies of the WHO add yet another dimension of complexity to avian flu containment.

2.3 Poultry as a Tradable Commodity: World Trade Organization (WTO)

The international poultry trade is a multi-billion dollar industry, involving some 84 million tons of trade in live poultry alone[52]. Any trade restrictions on poultry imports created as a health protection measure are governed by the Sanitary and Phyto-Sanitary (SPS) Agreement, as part of the WTO's treaties [53]). Although at first glance, the WTO might seem to only play a peripheral role in infectious disease control, in fact, the WTO and the SPS Agreement play a pivotal role in avian flu containment. When a WTO member imposes an import ban against a country that has been honest enough to disclose cases of avian flu in their poultry population, they may be violating international trade laws. If the WTO does not settle trade disputes arising from animal diseases with sufficient fairness to all parties, it can have the impact of discouraging prompt reporting of the disease[54]. This in turn seriously hampers the success of disease containment plans. The role of the WTO is discussed in greater detail in Chapter Four of this paper. For the purposes of this discussion, it is important to note that the WTO and the proper

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[52] However, in light of consumer reaction to outbreaks of avian flu, the FAO revised this statistic and predicted this figure would be decreased by 3 million tonnes. See "Poultry trade prospects for 2006 jeopardized by escalating AI outbreaks", online: FAO: <http://www.fao.org/ag/againfo/subjects/en/economics/facts/poultry_trade_jeopardised_ai.pdf>..

[53] D.Roberts, `` Preliminary assessment of the effects of the WTO agreement on sanitary and phytosanitary trade regulations`` (1998) 1 Journal of International Economic Law 3, 377-405.

[54] Plotkin and Kimball, *supra* note 35.

enforcement of international trade laws is crucial to sustain the goals of the containment strategies created by the FAO, OIE and the WHO.

2.4 Poultry as a Source of Income & Economic Development

For developing countries, raising poultry is a relatively inexpensive and sustainable source of income. In the agrarian economies that characterize developing nations, poultry is a valuable source of protein. It also provides a 700% return on their investment that requires little maintenance, technology or education[55].

Ironically, as part of its mandate to facilitate food security for its members, the FAO has promoted poultry production as a means of poverty eradication in developing countries. Under its *Contribution of Livestock to Poverty Alleviation Program*, the FAO has provided households with technical support and information to maximize their production and profitability[56]. Focusing on small-scale backyard producers, this program is FAO's recognition of how poultry farming can "make a substantial contribution to household food security by providing income, quality food, energy, fertilizer and assets in over 80 percent of rural households in developing countries.[57]"

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[55] FAO, 'Presentation on Chicken Economics', online: FAO: http://www.fao.org/AG/AGAINFO/foto/2006/flash/chickenani.html. See also Frands Dolberg. ' A livestock development approach that contributes to poverty alleviation and widespread improvement of nutrition among the poor' (Paper presented at the workshop 'Malnutrition in Developing Countries: Generating Capabilities for Effective Community Action', held on 19-20 September 2001), 13:5 Livestock Research for Rural Development (2001), online: cipav.org.co http://www.cipav.org.co/lrrd13/5/dolb135.htm. Also see T. Deesie & B. Ogle, 'Village Poultry Productions Systems in Central Highlands of Ethiopia' (Dec. 2001) 33:6 Trop. Anim. Health. Prod. 521.

[56] FAO, "Contributions of Livestock to Poverty Alleviation", online: FAO <http://www.fao.org/AG/AGAInfo/programmes/en/A3.html>.

[57] *Ibid.*

2.5 Regulatory Sector of National, Regional and Local Governments

Further complicating this regulatory tapestry, within each country, there are governmental agencies that parallel the overlapping jurisdictions of the above mentioned international organizations[58]. And finally, there are numerous agencies at the regional and local level that regulate matters of human health, veterinary care and agriculture within each country. Once again, all of these agencies compound the administrative complexity of implementing a single, cohesive disease containment effort.

Thus, it is evident that avian flu containment is an extraordinarily complex endeavor, requiring an enormous amount of coordination at the international, national and regional levels[59]. Similarly, effective avian flu strategies will need to be as nimble and agile as the disease itself, yet comprehensive enough to meet the objectives of all of the institutions involved. Implementing strategies that successfully achieve a balance between these two interests is a considerable undertaking. This paper will now turn to a more in-depth discussion of the actual strategies formulated by these lead technical agencies in order to evaluate their strengths and weaknesses and recommend improvements to increase their effectiveness. Understanding the particulars of avian flu containment strategies is necessary to clarify how international health and international trade laws can properly provide support to the successful implementation of the strategies. A proper

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[58] L.J. King & N. Marano & J.M. Hughes, "New Partnerships Between Animal Health Services and Public Health Agencies" (2004) **23:**2 Rev. Sci. Tech. Off. Int. Epiz. 717-726.

[59] Hien *et al.*, supra note 33.

understanding of the strategies will also help identify practical ways of improving any inefficiencies in these disease control plans.

CHAPTER THREE: Current International Avian Influenza Strategies

3.1 Senior UN Coordinator of Avian Influenza

Given the complexity of coordinating the role of several technical agencies to implement avian flu containment, the United Nations has appointed Dr. David Nabarro[60] as Senior UN Coordinator of Avian Influenza to provide cohesive leadership and guidance. Dr. Nabarro is being seconded from the WHO and is one of the most senior public health experts in the World Health Organization (WHO).

He will be responsible for "ensuring a harmonised approach to address the concerns for human health and those relating to poultry production and the livelihoods of producers, especially those in developing countries[61]" with respect to avian flu containment. Put another way, Dr. Nabarro will be responsible for

> "ensuring that the United Nations system makes an effective and coordinated contribution to the global effort to control the epidemic of avian influenza (or "bird flu").....He will also ensure that the United Nations system supports effective local, national, regional and global preparations for a potential human influenza pandemic -- so as to reduce the human toll, as well as the economic and social disruption, that this pandemic could cause.[62]"

In other words, the Special Coordinators role is to be the overall coordinator of the lead international agencies, each dealing with a different aspect of avian flu containment, including, the FAO, OIE, the World Bank and the WHO. His role is to make sure that

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[60] UN Secretary-General, Press Release, "Secretary–General Appoints Dr. David Nabarro as Senior UN System Coordinator for Avian and Human Influenza", UN Doc. SG/A/946 & SAG/398 (29 September 2005), online: United Nations <http://www.un.org/News/Press/docs/2005/sga946.doc.htm>.

[61] FAO, "Avian Influenza Control and Eradication: FAO's Proposal for a Global Programme" (17 March 2006), online: FAO <http://www.fao.org/AG/AGAINFO/SUBJECTS/documents/ai/Global_Programme_March06.pdf>.

[62] *Ibid.*

both the animal and human components of disease containment are syncopated and consistent with each other.

3.2 Global Strategy for the Containment of the Avian Flu (FAO& OIE)

The FAO and the OIE have created several strategic documents to assist countries in creating veterinary and disease management infrastructures that will best prevent the spread of H5N1. The primary document is the *Global Strategy for Progressive Control of Highly Pathogenic Avian Influenza (HPAI*[63]*),* (hereinafter, Global Strategy) created in conjunction between the FAO and the OIE, in consultation with the WHO.

(i) Global Strategy for Progressive Control of HPAI

This strategy represents the amalgamation of the FAO and OIE's recommendation to control and prevent the spread of the H5N1 virus in animals. It details the scientific, veterinary and infrastructural components of containment, such as establishing appropriate disease surveillance and monitoring agencies within each country. It also outlines the administrative and logistical structure that needs to be created to coordinate such a large and comprehensive international strategy, involving numerous stakeholders.

The strategy is broken down into the following 4 sections: coordination and management of an international response, capacity building in affected countries, promoting strategic research on disease behaviour and vaccines and restructuring of the poultry industry.

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[63] *Supra*, note 34.

Under this strategy, the FAO will be responsible for coordinating the strategy via an international network, operating through 6 satellite regional support units. The strategy is intended to be implemented over three time frames: short term (1 to 3 years), medium term (4 to 6 years) and long term (4 to 7 years).

(a) Coordinate and Manage the International Response

Along with the OIE, the FAO will provide leadership, in the coordination and communication between all stakeholders at both global and regional levels[64]. They will also coordinate communications between donor agencies, regional organizations, national authorities and individual stakeholders.

For example, in Asia, many of the participating countries are members of the two major inter-governmental organizations (ASEAN and SAARC). In other regions, countries are members of coordinating organizations such as: the Economic Cooperation Organization (ECO), the Arab Maghreb Union (AMU), AU-IBAR (African Union Interafrican Bureau for Animal Resources), and the Southern Africa Development Community (SADC). Each of the organizations is committed to controlling transboundary animal and zoonotic diseases[65].

[64] *Ibid,* at 20.
[65] *Ibid*, at appendix 9.

Both the OIE and the FAO will facilitate the exchange of information between governments and these networks to ensure that the latest data on outbreaks and containment efforts is immediately available.

The FAO has also created 6 regional support units to ensure that regional and national strategies are harmonized. The 6 regional units represent the following geographic areas: Central Asia, the Middle East, North Africa, Eastern Africa, Western Africa, and Eastern Europe & the Caucasus region.

The FAO and OIE will also host a Global Early Warning and Response System (GLEWS) to monitor the animal population and rapidly identify new outbreaks of the virus. It will use its information networks, from both formal and informal sources, to identify the latest outbreaks and countries at highest risk of infection. This network will include national reference laboratories and other scientific centers of expertise. The network will also assist national authorities to effectively respond to outbreaks by providing the best available diagnostic support and technical advice.

(b) Capacity Building

As previously mentioned, through its Technical Cooperation Programme and in collaboration with other donor-funded projects, the FAO has provided technical advice, personnel and resource support to regions and countries undertaking avian flu control and eradication. In total, it has provided $20 million to 87 countries affected by or at risk of

H5N1 outbreaks to strengthen its veterinary, legal and institutional capacities for effective H5N1 prevention or containment.

This assistance has included supporting the national government with activities such as: development and implementation of avian flu control programs, conducting socio-economic assessments on disease control strategies, preparation of national contingency and emergency preparedness plans, recommend improvements to national disease surveillance and information systems.[66]

The Global Strategy also identified the disease control options from which a country-specific plan can be formulated, in collaboration with the appropriate national health authorities. These disease control options can include a combination of: immediate stamping out of new outbreaks, enhanced biosecurity of poultry farms, tighter control in the movement of poultry and poultry products, rapid and humane culling of infected and 'high risk' poultry, strategic vaccination and the separation of uninfected poultry from the diseased population[67].

More details on the exact nature of each control measure are set out in the FAO's Rec*ommendations on the Prevention, Control and Eradication of Highly Pathogenic Avian Influenza (HPAI) in Asia,* which is summarized in a proceeding section of this paper.

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[66] *Ibid,* at 17.
[67] *Ibid,* at 21.

(c) Strategic Research

To understand the dynamics of the spread and persistence of H5N1 and evaluate the effectiveness of vaccines, the FAO and the OIE include a research component to the Global Strategy. The goals of this research include understanding the role of backyard poultry in transmission of the disease, promoting research on different types of vaccines and diagnostics tests and identifying the major risk factors for transmission to humans[68]. A greater understanding of the behaviour of the disease will help improve containment strategies for future outbreaks.

(d) Restructure the Poultry Sector

The Global Strategy also includes a component that encompasses restructuring of the poultry sectors of affected countries[69]. To this end, the FAO will conduct post avian influenza studies to assess the socio-economic impact of H5N1 on the poultry sector and individual (farmer) stakeholders. These studies are to take into account issues of human and food safety and national economic development. The results from these studies will be used to improve on containment plans in other countries and to improve the recovery of international marketing opportunities by affected countries.

To supplement the implementation of the Global Strategy, the FAO has created two complementary publications. The following two documents address the main scientific and technical issues on prevention, control and eradication of HPAI. Although they were

[68] *Ibid*, at 26.
[69] *Ibid*, at 24.

originally created to be used in Asia, they are still used as benchmarks recommendations for avian flu containment, until new guidelines are completed.

(ii) Rec*ommendations on the Prevention, Control and Eradication of Highly Pathogenic Avian Influenza (HPAI) in Asia*[70]

This document represents the FAO's best practices recommendations on the safe standards and procedures for the proper diagnosis and control of the virus using vaccines. It is intended to be used by national governments experiencing outbreaks or preparing for possible outbreaks. It recommends that each country adopt a different control strategy, based on the degree of pervasiveness of the disease and their given technical capacity.

The paper recommends using control measures such as stamping out, following vigilant disinfection procedures and administration of vaccines where necessary. It also recommends additional measures such as movement control by veterinary and trade officials and upgrading biosecurity on individual farms. Finally, it provides recommendations on safe handling of contaminated equipment and livestock by technical workers.

As previously mentioned, for those countries in greater need of assistance in implementing these recommendations, the FAO provides training and personnel to the relevant national authorities.

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[70] FAO, Recommendations on the Prevention, Control and Eradication of Highly Pathogenic Avian Influenza (HPAI) in Asia (2004), online: FAO <http://www.fao.org/AG/AGAInfo/subjects/en/health/diseases-cards/27septrecomm.pdf>.

(iii) FAO's *Guiding Principles for Highly Pathogenic Avian Influenza Surveillance and Diagnostic Networks in Asia.*

The minimum standards for surveillance are established in the FAO's *Guiding Principles for Highly Pathogenic Avian Influenza Surveillance and Diagnostic Networks in Asia.*[71] The document provides countries with guiding principles and establishes minimum requirements for creating effective surveillance and diagnosis of highly pathogenic avian influenza (HPAI).

For example, each country should have a surveillance system that incorporates a formal system of detecting, investigating and reporting outbreaks to the relevant international agencies. The country also needs to create a formal data management system to track, update and disseminate information on outbreaks and the status of efforts on containment. The FAO recommends that surveillance should be conducted a minimum of every 6 months. Finally, it recommends that countries unaffected by outbreaks should include surveillance at its border and international entry points and monitor its wild bird population[72].

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[71] FAO, "Guiding Principles for Highly Pathogenic Avian Influenza Surveillance and Diagnostic Networks in Asia", *Expert Meeting on Surveillance and Diagnosis of Avian Influenza* (held on 21-23 July 2004, Bangkok), online: FAO <http://www.fao.org/AG/AGAInfo/subjects/en/health/diseases-cards/Guiding%20principles.pdf>.

[72] *Ibid*, at 4-6.

In summary, the FAO and the OIE have formulated avian flu containment strategies that address all of the key areas of disease management in animals. That is, these strategies provide recommendations on developing and strengthening of national health technical infrastructures, establish minimum disease surveillance standards, recommend appropriate disease control measures and finally, identify disease, epidemiology and vaccine research priorities. Also, the strategies establish a framework for the ensuring efficient coordination of communications between the numerous global, regional and national stakeholders. In other words, these avian flu containment plans demonstrate tremendous forethought in identifying the administrative, technical and scientific necessities for controlling such an elusive infectious disease as H5N1.

These strategies for control within the animal population are also intended to be congruent with the strategies of the WHO. The WHO is responsible for avian flu containment that pertains to human cases of H5N1, which is discussed in the following section.

3.3 World Health Organization (WHO): The Human Component of Disease Containment & Revised International Health Regulations[73]

WHO's Avian Flu Strategy: Focus on Humans

The focus of the WHO's component of avian flu containment is, of course, on limiting the spread of the disease among the human population. The previously described international strategies take a preventative approach, with a focus on containing the virus within the bird population and limiting its transmission to humans.

(i) Global Influenza Preparedness Plan (2005)

The WHO Global Influenza Preparedness Plan was prepared to assist WHO Member States and those responsible for public health, medical and emergency preparedness to respond to threats and occurrences of pandemic influenza[74].

Replacing the previous, 1999, *Influenza pandemic plan*[75], the updated version provides public health authorities with guidelines on influenza preparation and response. It is

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[73] WHO, World Health Assembly, 58th Sess., *Revision of the International Health Regulations,* WHO Doc. A58/55 (23 May 2005), online: WHO <http://www.who.int/gb/ebwha/pdf_files/WHA58/A58_55-en.pdf>. Also see Schatz, G.S., "International Health Regulations: New Mandate for Scientific Cooperation" (2 August 2005), online: The American Society of International Law <http://www.asil.org/insights/2005/08/insights050802.html>.

[74] WHO, Department of Communicable Disease Surveillance and Response – Global Influenza Programme, *WHO Global Influenza Preparedness Plan: the Role of WHO and Recommendations for National Measures Before and During Pandemics*, WHO Doc. WHO/CDS/CSR/GIP/2005.5 (2005), online: WHO <http://www.who.int/csr/resources/publications/influenza/GIP_2005_5Eweb.pdf.

[75] WHO, Department of Communicable Disease Surveillance and Response – Global Influenza Programme, *Influenza Pandemic Plan: the Role of WHO and Guidelines for National and Regional Planning*, WHO Doc. WHO/CDS/CSR/EDC/99.1 (April 1999), online: WHO http://www.who.int/csr/resources/publications/influenza/whocdscsredc991.pdf.

based on defining new, more detailed phases of avian flu outbreak classifications. It allows a step-wise escalating approach to preparedness planning and response. The WHO recommends a different course of action before and during outbreaks, depending on which phase the pandemic threat has reached in each country.

The six phases represent, in ascending order, the evolution of the avian flu outbreaks and the degree of risk of developing a full blown pandemic. In Phase 1 and 2, there are no subtypes of avian flu virus affecting the human population, but the virus is present in neighboring bird populations. In Phase 3 there are limited cases of humans contracting the avian flu. Phase 4 and 5 represent greater risk of pandemic, with larger and more pervasive, albeit localized, clusters of human outbreaks. Phase 6 represents a full blown state of influenza pandemic with sustained outbreaks throughout the general population[76].

For each phase, the WHO provides a list of recommended actions for the national authorities and the WHO to undertake. The courses of actions are broken down into 5 categories: (1) planning and coordination; (2) situation monitoring and assessment; (3) prevention and containment; (4) health system response; and (5) communications[77].

The plan provides very detailed recommendations for establishing the administrative public health infrastructure that will enable each nation to be prepared for, monitor and assess incidence of the avian flu. The following sections briefly summarize the actions recommended by the WHO in each category.

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[76] Supra note 74, at 6-8.
[77] Supra footnote 74.

Planning and coordination

The WHO recommends the establishment of a national pandemic planning committee, with clearly defined decision-making roles assigned to different government agencies. It recommends periodic review and revision of the pandemic plan at consistent intervals to ensure they are consistent with the latest scientific information. Finally, it recommends the establishment of national guidelines to address food safety, safe agricultural practices and other public health issues related to infected animals.[78]

Situation monitoring and assessment

The WHO recommends the establishment of a national disease surveillance system, for both animals and humans. This system should include assessment and categorization of the epidemiology of each significant outbreak of human cases. It also recommends each national epidemiology centre collaborate with other scientific international and national disease agencies to share samples of the virus and improve their understanding of its pathogenicity in humans[79].

Prevention and containment

The WHO recommends the creation of national vaccination policy and the establishment of vaccination research programs. It also recommends that each country manufacture domestically or purchase a stockpile of vaccines for emergency use. The vaccination

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[78] *Ibid.*
[79] *Ibid.*

policy should include plans to assess availability of antivirals, and resolve liability and other legal issues linked to use of the pandemic vaccines in humans[80].

Health system response

The WHO recommends the clear delineation of chains of commands within the relevant health agencies to facilitate the most efficient decision-making in emergency pandemic situations. It also recommends mandated training for key health care personnel on influenza preparedness and contingency planning. Contingency plans should include provisions for responding to overloading of health facilities with influenza patients, implementation of surge-capacity arrangements and alleviating staff shortages in health-care facilities[81]

Communications

The WHO recommends the creation of a national communication protocol to update the national health authorities on human outbreaks of the avian flu. To ensure transparency, the WHO also recommends ensuring that the latest information on outbreaks, details on the government's outbreak response and likely next steps be provided to the public,. It also recommends the national health agencies provide the public with instructions on self-protection and reporting of suspected outbreaks. Finally, the WHO provides guidelines for ensuring consistent communication with media, international health authorities and other national governments on the latest outbreaks.

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[80] *Ibid.*
[81] *Ibid.*

Thus, this plan provides very detailed recommendations for establishing the administrative public health infrastructure that will enable each nation to be prepared for, monitor and assess incidence of the avian flu. It also provides recommendations on the appropriate implementation of prevention and containment measures. Finally, the plan will facilitate health authorities to communicate with the public and the WHO regarding the status of outbreaks and containment efforts. Following the recommendations contained therein will help ensure that each nation is harmonized with the newly revised International Health Regulations

The purpose of this plan is to provide harmonization of approaches taken by all affected countries which will improve international coordination and transparency. Guidance is also provided to national authorities for developing their own pandemic plans in line with these phases in the *WHO Checklist for Influenza Pandemic Preparedness Planning.*

(ii) WHO Checklist for Influenza Pandemic Preparedness Planning (2005)[82]

The WHO Global Influenza Plan should be used by national authorities in conjunction with the *WHO checklist for influenza pandemic preparedness planning*. The checklist is an outline of the essential minimum elements of preparedness, as well as elements of preparedness that are considered desirable for an effective plan. It will also help identify any missing components of a country's plan.

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[82] WHO, Department of Communicable Disease Surveillance and Response – Global Influenza Programme, *Epidemic Alert & Response: WHO Checklist for Influenza Pandemic Preparedness Planning*, WHO Doc. WHO/CDS/CSR/GIP/2005.4 (2005), online: WHO <http://www.who.int/csr/resources/publications/influenza/FluCheck6web.pdf>.

Basically, the checklist is a summary of the recommendations from the Global Influenza Plan, published in a user-friendly format. Countries are advised to read the checklist in conjunction with the more comprehensive guideline, set out in the Pandemic Influenza Protocol.

(iii) Pandemic Influenza Protocol for Rapid Response and Containment (2006)[83]

The Pandemic Influenza Protocol is a more comprehensive guideline that focuses on the containment phase of pandemic control. This guideline contains more scientific background information elaborating on how the recommended action plans are instrumental to effective containment. In brief, the protocol defines the conditions that must be present, including scientific verification of presence of the disease, before taking any active containment measures. The WHO recently updated its *Pandemic Influenza Protocol for Rapid Response and Containment in 2006*[84].

Recognizing the Event

The WHO establishes the criteria that should trigger national health authorities to investigate possible human cases of the avian flu. In particular, the most concerning clusters are cases of 3 or more human infections, within close geospatial proximity, exhibiting symptom onset within 10 days of each other. If the cluster of outbreaks

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[83] WHO, "WHO Pandemic Influenza Draft Protocol for Rapid Response and Containment" (30 May 2006), online: WHO <http://www.who.int/csr/disease/avian_influenza/guidelines/protocolfinal30_05_06a.pdf> [WHO Pandemic Influenza Draft Protocol].

[84] *Ibid.*

exhibits these and other beacon alarming characteristics, then the national authority should report the incident to the WHO and initiate an official investigation[85].

Verifying the Event and Risk Assessment

Once a potential outbreak has been notified to the WHO, the WHO will launch a risk and needs assessment. The needs assessment will analyze the available national resources for rapid response and containment, and identify the need for additional support, including technical personnel, supplies (including antiviral drugs) and other logistics needs[86]. In the event that the risk assessment indicates the need to deploy antivirals from the WHO's global stockpile, the appropriate government official will be required to submit a formal request to WHO headquarters, in accordance with the procedures set out in the Draft Protocol[87].

Rapid Response and Containment Control Measures

If immediate control measures are needed to contain an outbreak, depending on the potential for an explosive increase of existing outbreaks, national health agencies can choose among such WHO recommended measures as: isolation, voluntary home quarantine, social distancing of potentially infected institutions, administration of antiviral drugs, strict use of personal protective equipment by health care personnel, strict adherence to disinfection procedures and consistent public updates on the status of outbreaks and responses[88].

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[85] *Ibid.*, at 3.
[86] *Ibid*, at 6.
[87] *Ibid,* at 7.
[88] *Ibid,* at 9.

In summary, the WHO's Global Influenza Plan, the Checklist for Influenza Pandemic Preparedness and the Protocol for Influenza Rapid Response and Containment are documents intended to be read and applied by national authorities in conjunction with one another. Armed with these documents, national authorities of countries infected or at risk of infection will be able to formulate thorough pandemic preparedness and containment strategies. It will also ensure that governments are complying with the WHO's International Health Regulations, which will be discussed in the proceeding section of this paper.

(vi) Revised International Health Regulations

In May 2005, in response to threats of bio-terrorism and infectious diseases such as SARS and BSE, the WHO revised its International Health Regulations. These new regulations alter the international law regarding national government's obligation to identify and respond to highly infectious human diseases[89]. These new regulations do not enter into force until 2007, but members are being urged to voluntarily adopt the terms of the regulations prior to 2007. The revisions to the IHR that are most relevant to the current avian flu crisis are summarized in the following sections.

[89] For a detailed analysis of the new IHR, see D.P. Fidler, "From International Sanitary Conventions to Global Health Security: The New International Health Regulations" (2005), 4 Chinese J.I.L.

(a) New Obligation to Report

Under the previous IHR, WHO members were only required to report incidence of cholera, plague, yellow fever[90]. This reporting obligation has been expanded to require notification of any incidence of any disease outbreak or "event of urgent international public health importance". This would include human outbreaks of the current H5N1 avian influenza virus.

(b) Core Surveillance and Response Capacity

Each WHO member country is required to develop a national health agency with the requisite scientific capacity to contain communicable diseases[91].

> "to build and maintain core surveillance and response capacities to be able to handle the international spread of disease. The core capacity provisions require states parties to establish specific public health capabilities at local, intermediate, and national levels and at designated airports, ports, and ground crossings."[92] Furthermore, international scientific cooperation to limit the spread of major disease becomes obligatory[93]. All members shall undertake to collaborate with each other, to the extent possible' in detection, assessment, and response to 'potential and actual major threats to international health' and 'provision or facilitation of technical and logistical support, particularly in the development, strengthening and maintenance of the public health capacities required'...."[94].

(c) Establish National Contact Points

The new IHR requires states parties and the WHO itself to maintain clear points of contact (national and local "focal points")[95]. This is intended to ensure the most efficient

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[90] *Ibid.*

[91] IHR (2005), *ibid.*, at Annex 1.

[92] Fidler, David, P., "The Continuing Global Spread of Avian Influenza A (H5N1) and Its Implications for International Law"(7 November 2005), online: The American Society of International Law (ASIL) <http://www.asil.org/insights/2005/11/insights051107.html>..

[93]IHR (2005), *supra* note 73, art. 44.

[94] IHR (2005), *ibid.*, art. 44.

[95] IHR (2005), *ibid.*, arts. 4, 6(b)

communications between member countries or communications with the WHO in the event of public health emergencies. Also, the new regulations bolster the WHO's legal authority to intervene where serious threats to international health are kept secret, as in the early cases of SARS[96]. This is intended to ensure the earliest possible detection and containment of outbreaks.

(d) Obligation to Assist Developing Countries

Since developing countries lack the scientific capacity to fully comply with surveillance, diagnosis, and control guidelines of known and emerging diseases, the revised IHR oblige the have-nations to contribute to their capacity development. As yet, this is an unfunded mandate and the regulations do not contain a formula for contribution.

(e) Formalize WHO's Role as Coordinator

Finally, the revisions formally recognize the WHO's role to "act as the directing and co-ordinating authority on international health work [97]." Until now this has been done under ad hoc arrangements and without a clearly delineated legal hierarchy. The new IHR establish a formal system for convening of experts and for emergency action[98]. Identifying the WHO as the lead technical agency on infectious human diseases is

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[96] "When WHO receives information of an event that may constitute a public health emergency of international concern, it shall offer to collaborate with the State Party concerned in assessing the potential for international disease spread, possible interference with international traffic and the adequacy of control measures...I f the State Party does not accept the offer of collaboration, WHO may, when justified by the magnitude of the public health risk, share with other States Parties the information available to it, whilst encouraging the State Party to accept the offer of collaboration by WHO, taking into account the views of the State Party concerned." IHR (2005), *ibid.*, art.10(3)-(4).

[97] IHR, *ibid,* art. 2(a).

[98] IHR (2005), *supra* note 73, at para.3, art. 13 & arts. 47-53. Schatz, *supra* note 73.

intended to clarify the lines of authority and facilitate international coordination in case of public health emergencies.

Basically, the new International Health Regulations formalizes legal accountability and obligations of WHO member countries. Members must undertake disease surveillance and report outbreaks of high-profile infectious diseases to the WHO. The WHO is also formally recognized as the coordinator communication between member countries.

In its overall role as the international agency responsible for human outbreaks of avian influenza, the WHO is responsible for leading its members on establishing influenza pandemic preparedness plans. It creates the primary documents from which national authorities can develop their own infectious disease management plans. It incorporates the latest findings from scientific and policy experts on disease containment.

To ensure that all members participate in international disease containment efforts, the WHO has also revised its health regulations. These new regulations clearly establish the legal accountability of national governments to conduct disease surveillance and provide transparent reporting of outbreaks to the public and the WHO. Unfortunately, not all WHO members are wealthy enough to develop the infrastructures needed to comply with obligations under the WHO's regulations or to comply with FAO and OIE recommendations for containment in the animal population. In an attempt to overcome such financial barriers to effective disease control, the World Bank has created two

financing mechanisms to assist poorer countries fund their containment efforts. The soundness of these mechanisms is considered in the proceeding section.

(4) World Bank: Mechanisms for Financing Containment

The previously described animal and human containment strategies require considerable financial resources to implement. For its role in coordinating the containment of the avian flu, the FAO projected its budget alone would be $880 million (US) (over three years, excluding any compensation paid to farmers).[99] In light of the unexpected spread of the disease to Europe and Africa, this estimate is an increase from previous estimates of $496 million (US).[100]

In response to this need for financial assistance, the World Bank has created two mechanisms to help countries combat the avian flu in animals and be prepared for a potential human pandemic:

The Global Program for Avian Influenza (GPAI); and,

The Avian and Human Influenza Trust Fund (AHITF)[101]

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[99] "The plan presented the projected budgets of recipient countries and the two international agencies involved in the animal health sector, FAO and OIE. This document elaborates on those budgets and indicates estimated costs for FAO to fulfill its role." See FAO, "Avian Influenza Control and Eradication: FAO's Proposal for a Global Programme" (17 March 2006), online: FAO <http://www.fao.org/AG/AGAInfo/subjects/documents/ai/Global_Programme_Jan06.pdf> at 2.

[100] *Ibid.*

[101] The World Bank, "Projects to Address the Avian Influenza Control and Pandemic Preparedness", online: The World Bank <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTHEALTHNUTRITIONANDPOPULATION/EXTTOPAVIFLU/0,,contentMDK:20865058~pagePK:64168445~piPK:64168309~theSitePK:1793593,00.html>.

The Global Program for Avian Influenza (GPAI)[102]

This global funding program will provide up to $500 million (US) in loans, credit and grants from the Bank's concessional lending arm, the International Development Association. It is an adaptable loan program, meaning the terms for approval will be varied according to the unique circumstances and challenges faced by each country applying for funds. The funds are intended to help countries strengthen their veterinarian and health infrastructure and comply with the strategies recommended by the FAO, OIE and the WHO. Three areas of containment will be considered for support: (i) prevention, (ii) preparedness and planning and (iii) response and containment. More specifically, funding is intended to assist the applicant country in:

(a) developing a national strategy;

(b) establishing an adequate institutional and regulatory framework and arrangements for program implementation;

(c) carrying out assessments of vulnerability and risks;

(d) strengthening systems, facilities, and processes that are necessary for effective prevention and control of the avian influenza and human pandemic; and

(e) funding needed goods, services, and consumables[103].

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[102] The World Bank, *Program Framework Document for Proposed Loans/Credits/Grants in the Amount of US$500 Millions for a Global Program for Avian Influenza Control and Human Pandemic Preparedness and Response*, The World Bank Doc. Rep. No. 34386 (5 December 2005), online: The World Bank <http://siteresources.worldbank.org/PROJECTS/Resources/40940-1136754783560/Avian-Flu-PAD.pdf>. Also see The World Bank, Avian and Human Influenza: Financing Needs and Gaps, World Bank Draft Doc. (December 2005), online: The World Bank <http://siteresources.worldbank.org/PROJECTS/2015336-1135192689095/20766293/AHIFinancingGAPSFINAL12-21.pdf#search=%22AVIAN%20AND%20HUMAN%20INFLUENZA%3AFINANCING%20NEEDS%20AND%20GAPS%22>.

Given the urgent nature of the crisis, the Bank will be using its emergency procedures to expedite preparation, approval and processing of applications[104]. Approximately 20 countries are expected to obtain funding from this program by the end of 2006[105].

The Avian and Human Influenza Trust Fund (AHITF)

Unlike the previous mechanism, this program will not be financed by the World Bank itself, but rather will be financed with donations from pledging countries. The goal of this fund is to help developing countries bridge financing gaps in their national programs that hinder the effective containment of the avian flu and thereby avoid a human influenza pandemic.

This fund is also expected to co-finance the Bank's global financing facility, GPAI, as well as other self-standing projects. In particular, the self-standing projects will be targeted at promoting action in the 145 developing countries that are behind in their avian flu preparedness due to a lack of resources and technical capacity. For instance, the funds are to be used to support programs to upgrade veterinary systems, launch vaccination drives and help communicate and educate on the importance of employing sound animal husbandry practices.

To fulfill the financing goals of the AHITF, the international community sponsored an International Pledging Conference on Avian and Human Influenza in Bejing in January 2006. The conference assessed the financing needs at the national, regional and global

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[103] *Ibid.*, at 15.
[104] *Ibid.*, at 13.
[105] *Supra* note 101.

levels. The international community pledged US $1.9 billion in financial support and discussed coordination mechanisms.[106]

However, as well intentioned as these two mechanisms are, certain practical limitations can dampen their effectiveness. Although the GPAI intends to process applications for funding using emergency procedures, it still forecasts that it will take up to six years for its projects to be fully funded and implemented by the recipient countries[107]. Meanwhile, in the last three months alone, the virus has spread like wildfire from Asia into most of Europe and parts of Africa. Keeping in mind that the 1918 flu epidemic reduced the world's population by one-fifth in less than two years, for the pledge scheme to be effective, it needs to become fully operative in the very short term. However, in recognition of the urgency of the avian flu crisis, the World Bank has expedited provision of loans to high priority countries,

> "....some of the $1.9 billion pledged by the international community in January for bird flu and pandemic preparedness has started reaching countries hit hard by the virus. A lot of that money is now being spent in Indonesia, Vietnam

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[106] The World Bank, "Projects & Operations: International Pledging Conference on Avian and Human Influenza" (17 - 18 January 2006), online: The World Bank <http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/0,,contentMDK:20765526~pagePK:41367~piPK:51533~theSitePK:40941,00.html>. Also see *Beijing Declaration at the International Pledging Conference on Avian and Human Pandemic Influenza* (held on 17-18 January 2006), online: The World Bank <http://siteresources.worldbank.org/PROJECTS/Resources/40940-1136754783560/beijingdeclaration.pdf>. "The conference was organized to promote, mobilize, and help coordinate financial support from the donor community for the national, regional and global response to highly pathogenic avian influenza (HPAI) and to support efforts at all levels to prepare for a possible human influenza pandemic. The pledging conference drew on recommendations previously developed by the international community including *the Resolution of Enhancing Capacity-building in Global Public Health* adopted at the 60th Session of UN General Assembly and the FAO/OIE/WHO/World Bank-sponsored International Meeting on Avian Influenza and Human Pandemic Preparedness held in Geneva on 7-9 November, 2005."

[107] Supra, note 102, at 17.

Cambodia, countries in central and eastern Europe, Turkey, Nigeria and Central Asia[108]"

The second weakness, as pointed out by Senior UN Coordinator David Nabarro, is that obtaining funding is "not a simple process" [109]. Rather, it is complex and time-consuming. A country in need must apply for funding and then undergo an appraisal process that involves "dialogue, negotiation, and investigation"[110]. Such delays impede containment of a rapidly spreading disease like H5N1.

The third weakness is that the AHITF fund is based on pledges and not binding contracts to provide funding. Although the World Bank is already providing loans to developing countries, donor countries can in fact renege on their pledges if priority needs arise. In fact, disbursement of funding by pledging countries has been quite sluggish[111]

> " In January, 2005, an international conference to clarify the scheme's goals and solidify pledges from the international community to finance the AHITF was held in Bejing, China. Approximately $1.9 billion was pledged by the international community. However, according to a recent World Bank report, only a meager $268 million has been dispersed to the fund.
>
> Of the donor countries, only Japan has fully committed its pledge in Beijing of $158 million, Switzerland has pledged and has spent $4.7 million while the Czech Republic promised and has spent $200,000. The report also singles out the United States, which pledged and committed $334 million, but which has spent $70.95 million

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[108] Mason, Margie, "U.N. Notes Alarming Speed of Bird Flu" *The Associated Press* (4 April 2006), online: Las Vegas Sun <http://www.lasvegassun.com/sunbin/stories/w-asia/2006/apr/04/040402935.html>.

[109] UN Office for the Coordination of Humanitarian Affairs: Integrated Regional Information Networks, News Release, "Africa: Interview with David Nabarro, UN Coordinator for Avian Flu" (31 March 2006), online: reliefweb.int <http://www.reliefweb.int/rw/RWB.NSF/db900SID/DPAS-6NEGYU?OpenDocument>.

[110] *Ibid.*

[111] Wroughton, Lesley & Maggie Fox, "Less than $300 Million Spent on Bird Flu - World Bank" *Antara News* (4 June 2006), online: antara.co.id <http://www.alertnet.org/thenews/newsdesk/N04222091.htm>.

> Of $500 million in loans promised by the World Bank, just $113 million has been committed and only $1.97 million sent out."

Thus, the reluctance and delay in disbursement of pledges and other administrative obstacles render the well-intentioned World Bank mechanisms less effective than intended and are not entirely consistent with the urgency of the avian flu crisis.

Finally, although a donor pledging scheme facilitates improving veterinary and healthcare infrastructure, it does not address providing adequate compensation for culled livestock. Regardless of how sophisticated a country's surveillance and containment capacity may be, it will never be perfect and outbreaks may still go undetected by national veterinary authorities. Furthermore, despite the best efforts of customs officials, illegal smuggling of birds is still a reality that renders borders of developing countries somewhat porous[112]. Thus, it is crucial that national governments supplement their surveillance with incentives that enlist the cooperation of poultry farmers.

More importantly, the incentive should encourage immediate self-disclosure of infected livestock, upon discovery of the outbreaks. The key to prevention is timely reporting. Early disclosure is best encouraged by providing adequate market value compensation to farmers for destroyed livestock. The World Bank's mechanisms and donor pledging schemes overlook this crucial gap in containment plans, which could contribute to the spread of the lethal H5N1 to the human population.

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[112] M.J. Ott, R. Nugent, A. McLeod, 'Transboundary Animal Diseases: Assessment of Socio-Economic Impacts and Institutional Responses' (February 2004), Livestock Policy Discussion Paper No.9, FAO, Livestock Information and Policy Branch.

Summary of Avian Flu Strategies

In the simplest of terms, the collective approach of the FAO, OIE, WHO for avian flu containment consists of two components, the animal side and the human side. The FAO and the OIE are responsible for the animal component and the WHO is responsible for the human side. The strategies of both components consist of: surveillance and monitoring for outbreaks, timely reporting of outbreaks to facilitate early containment measures and promotion of relevant scientific research. These two components are inextricably linked, as the presence of animal outbreaks of H5N1 is determinative of human outbreaks. The success of containment in the animal population will dictate the risk of transmission to the human population.

Thus, containment of the infection within the avian population is crucial to preventing spread of the disease to humans and avoiding a full blown pandemic.[113] Since compensation for disclosure of infected birds is crucial to timely containment, it is pivotal to preventing a human pandemic. The World Bank iterates the sentiment that compensation is the key to containment of the disease within the avian population,

> "... key elements in helping countries cope with avian flu outbreaks among animals is improving access to veterinary services and providing proper compensation for culling and for farmers reporting cases of avian flu.
>
> "Another experience from programs to date is that if governments provide proper compensation for culling programs, and identify outside of those culled areas, the areas that have to be vaccinated, then those programs are successful.

[113] *Supra* note 34 at 22. See also K. Ben Jebara, "Surveillance, Detection and Response: Managing Emerging Diseases at National and International Levels" (2004) 23:2 Rev. Sci. Tech. Off. Int. Epiz. 709 at 709-715.

> "Obviously for farmers – particularly poor rural farmers – this is their income. If they are properly compensated and paid an appropriate market price for their animals, culling programs will be successful. If they're not properly compensated, experience shows, they'll find another way of getting animals to market and the problem will expand.
>
> "And experience shows if you get the animal side right, one substantially reduces the risk of a human pandemic.[114]"

The current avian flu strategies are certainly thorough and meticulous. But the sheer breadth of the activities and agencies that need to be taken into consideration renders these strategies somewhat awkward and cumbersome regulatory animals. Whereas, the virus is constantly mutating and evolving, highly contagious and easily transmissible – it is an agile, elusive creature. Thus, an effective containment strategy needs to be equally nimble. The goal then should simply be to recalibrate the current strategies to render them more agile and responsive. The implementation of incentives that are compatible with the priorities of poultry farmers and the poultry industry is the key to improving avian flu surveillance and containment. Therefore, this paper will turn to a discussion of the types of incentives that would be compatible with the needs of the poultry sector in countries experiencing outbreaks of H5N1.

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[114] The World Bank, News Release, "New Global Program to Deal with Avian Flu" (4 November 2005), online: The World Bank <http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:20711283~pagePK:64257043~piPK:437376~theSitePK:4607,00.html>.

CHAPTER FOUR: Key to Prevention is Containment at Bird Population

In this section, we will discuss the two main vulnerabilities that jeopardize the success of current influenza containment strategies. These weaknesses arise from a lack of recognition that the success of the plans recommended by the FAO, OIE and the WHO hinge entirely on the cooperation of poultry farmers[115]. Under the OIE's Terrestrial Animal Health Code, countries are obligated to report incidence of the avian flu to the OIE. Despite this obligation, the current regimes all fail to provide adequate incentives for poultry farmers to comply with this obligation and report infected livestock.

Backyard Farmer's Dilemma: Disclose or Starve

In fact, current strategies actually deter farmers from reporting infected poultry at several levels[116]. For the individual poultry farmer in developing countries, the government's compensation for culled livestock is highly inadequate and does not approach market value to sustain their livelihood.

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[115] "In particular, compensation of farmers was identified as a strategy that would relieve the economic burden on small farmers, improve compliance with control measures, and encourage the spontaneous reporting of outbreaks. By giving a better picture of the 'hot spots' of animal disease, it would also help target surveillance for human cases." See *Summary Report of November Meeting on Avian Influenza*, *supra* note 27 at 24.

[116] *Ibid.*

At the industry level, as consumers react to hyperbolized media coverage of the threat of the avian flu, both the demand and price of poultry and poultry products fall dramatically. This makes the poultry industry more hesitant to disclose potential incidence of the flu[117].

At an international level, the terms of the WTO's SPS Agreement are implemented in an overly arbitrary and subjective manner. Some countries create non-tariff barriers to importation by claiming the barriers are SPS measures necessary for the protection of their nation's health. This discourages developing countries from disclosing cases of infected poultry as they fear being subjected to blanket import bans. In effect, the lack of reliable enforcement of the SPS Agreement can exacerbate the spread of the avian flu. The decision-making process of humble backyard poultry farmers can alter the health landscape of the entire global community. Ensuring that the SPS Agreement is applied in a manner that is more consistent, objective and predictable will encourage developing countries to be more forthcoming about incidence of avian flu in their bird population.

4.2 Inadequate Compensation:Why Developing Countries Are The Weakest Link

By far the highest risk for spread of the avian flu comes from developing countries. The following sections briefly explain why.

(i) Unsophisticated, Decentralized Poultry Industry

Unlike the highly sophisticated, centralized poultry industry of developed countries, the poultry industry in developing countries is widely dispersed, across primarily agrarian

[117] *Ibid.*

households[118]. For example, in Vietnam, about 75 of the population live in rural areas of which almost 90% deal regularly with poultry[119]. Such a highly decentralized market structure makes surveillance and monitoring livestock for infection a logistical nightmare. This is particularly true for nations that have weak or non-existent veterinary infrastructures. Should livestock be infected with H5N1, the unsophisticated veterinary and communication infrastructures will delay reporting and containment of the disease.

(ii) Close Contact with Disease Vectors

Poultry farmers in developing countries employ unsophisticated means for housing and maintaining their poultry – the chickens are kept, quite literally, in their backyards or even rooftops. This also means there is close, daily contact between humans and potentially infected livestock on a daily basis. This, of course, increases the likelihood of the transmission of the avian flu to humans[120].

(iii) Unsophisticated stakeholders focus on short term priorities.

Chicken-rearing constitutes a vital source of income for farmers in developing countries. In many developing countries, the poultry raisers have taken out loans to buy their initial livestock, under poverty eradication programs developed by agencies such as the FAO

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[118] "In Africa…an estimated 60 to 70 percent of poultry in the region is kept under backyard, free ranging conditions, allowing for exposure to migratory birds, with the potential of HPAI transmission." See *Global Strategy for Progressive Control*, *supra* note 34, at 19 & 25, at Table 2.

[119] The World Bank, "Making Services Work for Poor People", *World Development Report 2004*, online: The World Bank <http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:20128873~menuPK:34476~pagePK:34370~piPK:34424~theSitePK:4607,00.html>.

[120] A.W. Mounts, H. Kwong & H.S. Izurieta, *et al.*, "Case-control Study of Risk Factors for Avian Influenza A(H5N1) Disease, Hong Kong, 1997' (1999) 180:2 J. Infect. Dis.505.

and the World Bank[121]. Disclosing infected livestock is a destruction of their entire life-savings and robs these farmers of a sustainable source of income and nutrition for their families. Inadequate compensation also denies them of the means to repay their current loans[122] and blocks the road to obtaining credit in the future.

Furthermore, in countries where malnutrition is a serious threat to health, raising chickens provides these families with a valuable and sustainable source of protein. Unlike the developing world, these families do not have access to local grocery stores to purchase refrigerated sources of protein. Even if they could afford to buy the food, many developing countries are too undeveloped and do not even have local grocery stores to meet the needs of these agricultural communities.

Chicken economics, as explained by an FAO report, demonstrates how vital the poultry industry is to the health and economic development of poor countries[123]. One hen will lay 70 eggs in a year. Of these eggs, 50% are consumed by the household and provide a rich source of protein for the family. Of the remaining 50% of the eggs, 29 will perish from disease and only 6 will become full grown chickens to be sold on the market. This

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[121] "But it is small commercial farmers rather than backyard poultry keepers who are most vulnerable, the FAO says. Ironically, U.N. agencies and many donor governments have in recent years been promoting small scale poultry farming as a way out of poverty. Chicken is a cheap form of protein and can bring a 700 percent annual return of capital invested. Encouraged by various development schemes, many people in Asia and West Africa have taken out loans to start small poultry businesses, buying a few hundred birds and building shelters for them. In countries like Vietnam some of these farmers had not even broken even before having their whole stock destroyed. Compensation, which is only partial, is taking months to come through. Vietnam has urged banks to extend loans to prevent people sinking even further into debt." See Batha, Emma, "Crisis Profile: Bird Flu" *Reuters Foundation: AlertNet* (27 Feb 2006), online: alertnet.org <http://www.alertnet.org/thefacts/reliefresources/11410486058.htm>.

[122] *Ibid.*

[123] Chicken Economics, *supra,* note 55.

provides the family with a 700% annual return on their investment. Thus, poultry farming is a low maintenance, low investment, and low technology –intensive means of economic growth that provides a remarkable rate of return[124].

In this context, it is easier to understand why unsophisticated farmers are so hesitant to disclose chickens infected with the avian flu[125]. When their national government provides poultry farmers with compensation far below market value, the average poor farmer is encouraged to conceal rather than disclose incidence of H5N1. When faced with a scarcity of resources and desperation, these farmers naturally focus on short-term survival[126]. Preserving their current investments and providing food for their children will be of much more pressing concern than the risk of spreading the avian flu. The long term implications of spreading the avian are too remote and pale in comparison to survival. In fact, the economic devastation of witnessing the total devaluation of one's life investment has pushed nine poultry farmers in India to commit suicide[127].

Thus, one of the key rifts in the current avian flu containment strategies is the failure to provide adequate compensation for poultry farmers. It bears reiterating that the key to preventing the spread of the avian flu to humans is containing the virus at its source, the bird population. With their weak infrastructures, developing countries pose the greatest

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[124] *Ibid.*

[125] Fred Kuchler & Shannon Hamm, "Animal Disease Incidence and Indemnity Eradication Programs" (April 2000) 22:3 Agric. Econ. 299.

[126] M.B. Nelson, "International Rules, Food Safety and the Poor Developing Country Livestock Producer", Pro-Poor Livestock Policy Initiative (PPLPI) Working Paper 25 (July 2005), online: FAO <http://www.fao.org/ag/againfo/projects/en/pplpi/docarc/wp25.pdf> at 26.

[127] "Nine Poultry Farmers Commit Suicide in Flu-hit India" *Reuters* (12 April 2006), online: int.iol.co.za <http://www.int.iol.co.za/index.php?set_id=1&click_id=31&art_id=qw1144828801872B216>.

risk for transmission of the disease form birds to humans. Yet, these countries provide the most meager compensation for destroyed livestock. In the following section, the farmers in developing countries can themselves attest to this market failure.

Inadequate National Compensation Schemes

Compensation is the responsibility of national governments, but developing countries have virtually no budget to provide adequate compensation to their poultry farmers. Logically, farmers are motivated to hide rather than disclose cases of infection.

> "Aid agencies say inadequate compensation will not only tip millions into extreme poverty but will help spread avian flu by discouraging people from reporting the disease.....
>
> People fear reporting sick birds because their flocks will be destroyed and they may not be compensated for their losses. So instead, they hide the sick birds or sell them and that, in turn, contributes to the transmission of avian flu to new areas." said Sanjay Sinho, CARE International's health programme director...
>
> Whether farmers are compensated at all and by how much varies greatly. Vietnam, one of the worst hit countries, initially recommended compensating people 50 percent of the value of their birds, but some regions said they could only afford 30 percent, according to the U.N.'s Food and Agricultural Organization (FAO)[128].

Failure to report incidence of H5N1 becomes an even greater concern as the avian flu spreads into destitute regions in Africa, such as Nigeria.

> "The Nigerian government says it will pay farmers the equivalent of $1.75 US per chicken killed due to bird flu. But Awalu Haruna, secretary of the Poultry Farmers' Association of Nigeria's Kano state, said the figure was well below market rates of $2.50 to $7.
>
> "If they do not make an offer that is going to compensate the farmers, these farmers

[128] *Supra* note 121.

> will not co-operate," said Haruna. "They will hide and refuse to bring out the birds.[129]"

Even areas of the globe that have yet to be hit by the avian flu, such as the Caribbean, recognize how important adequate compensation is to their containment strategies,

> "A major concern by industry experts is the compensation for farmers who may lose their poultry stock due to culling if the Caribbean is hit by the avian influenza within the predicted 18-month time-frame.[130]"

Thus, it is evident that providing adequate compensation is crucial to successful avian flu containment. Conversely, the failure to provide market value for destroyed livestock will result in failure or delays in reporting infected chickens. Time is of the essence in the containment of an extremely transmissible and contagious disease as the avian flu. Inadequate compensation could result in transmission of the disease to humans and pave the road to a full pandemic.

In fact, the OIE has found that countries are indeed under-reporting cases of the bird flu, and the lack of compensation is cited as a major cause in discouraging disclosure.

> "China, Indonesia and African nations are under-reporting incidences of bird flu, according to the World Organization for Animal Health (OIE).
>
> A lack of adequate compensation schemes for farmers with infected poultry is the major factor, said the OIE avian influenza coordinator.
>
> She is urging developed countries to provide the funding for such schemes.

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[129] Balint-Kurti, Daniel, "Nigerian Farmers Say Avian Flu Compensation Plan Unlikely to Work" *Canadian Press* (10 Feb 2006), online: *http://www.canada.com/topics/news/world/story.html?id=1ea87f62-ba0c-42ca-91ac-55f4964ff39e&k=59643*.

[130] Ali, Jameela, A., "Experts Concerned Over Compensation For Farmers" (Presented on the Seminar on Animal Disease Surveillance and Preparedness, April 2006), online: Trinidad & Tobago Express <http://www.trinidadexpress.com/index.pl/article_news?id=148809401>.

> The call came at the end of a two-day international conference to discuss the spread of avian flu."[131]

This under-reporting should cause great concern to the international health community as it indicates why how detrimental the lack of compensation is to preventing the spread of H5N1 to humans.

Indonesia provides another powerful example of how the lack of compensation in a developing nation could open the doors to a human pandemic. In May 2006, seven members within the same Indonesian family were infected with H5N1, of which six have died[132]. The WHO became so concerned about this cluster of human infections that it put the manufacturer of the antiviral, Tamiflu, on alert[133]. As a pre-emptive move towards preventing further human-to-human transmission of the virus, the WHO also delivered 9,500 doses of the medication to the country. Indonesia has refused to carry out mass slaughter of its poultry because it cannot afford to compensate its farmers. As an impoverished country with non-existent biosecurity measures and a densely populated country-side, it provides an ideal ground for transmission of the virus from birds to humans.

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[131] McGrath, Matt, "Nations Under-Report Bird Flu" *BBC News* (31 May 2006). BBC News, Rome online: http://news.bbc.co.uk/1/hi/sci/tech/5034276.stm.

[132] WHO, Disease Outbreak News, "WHO Avian Influenza: Situation in Indonesia – Update 14" (23 May 23 2006), online: WHO <http://www.who.int/csr/don/2006_05_23/en/index.html>.

[133] Mason, Margie, "WHO Puts Bird-Flu Drug Company on Alert" *The Associated Press* (27 May 2006), online: The Globe and Mail <http://www.theglobeandmail.com/servlet/story/RTGAM.20060527.wbirdtami0527/BNStory/International/home>.

Simultaneous to this outbreak in humans, Indonesia was hit with an earthquake and volcanic eruptions, further jeopardizing food, housing and hygienic security of its citizens[134]. In the wake of such natural disasters, Indonesia's citizens would be more motivated than ever to conceal possible flu outbreaks in its poultry, in order to secure scant remaining sources of food. The case of Indonesia demonstrates how pivotal compensation is to preventing the avian flu from becoming a human pandemic.

Although the considerable resources necessary for financing compensation schemes may seem daunting, it would pale in comparison to the forecasted $800 billion (per year) price that a full-blown human pandemic would wreak on the global economy.

In speaking about the cost of the bird flu, Francois Le Gall, a livestock expert at the World Bank, stated that an early response to "few small outbreaks could cost perhaps $5m (£2.8m).... If that does not happen, a wider campaign could cost 10 times as much. Further delay could lead to the disease becoming endemic,... and another 10-fold increase in the cost."[135]

The cost of preventing the spread of the bird flu is significantly lower than the exorbitant price a pandemic would exact.

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[134] 'Deadly Earthquake in Indonesia' *The Associated* Press, (27 May 2006), online: The Globe and Mail http://theglobeandmail.com/servlet/story/RTGAM.20060526.wquake0526/BNStory/International.

[135] Walker, Andrew, "Bird Flu a Long-term Threat to Africa" *BBC News* (3 March 2006) online: http://news.bbc.co.uk/1/hi/world/africa/4769148.stm.

Fear of Reporting: Drop in Domestic and Foreign Demand for Poultry

In addition, media hyperbole and interest group propaganda have created "poultry hysteria". The average consumer is confused by this plethora of information and remains uncertain as to when poultry or poultry products are safe to consume. In a situation loaded with ambiguity and lethal consequences, the knee jerk reaction is to avoid contact with chicken altogether. When in case of doubt, governments are taking the safer route of simply avoiding consumption of poultry or poultry products from infected regions altogether[136]. Thus, when a case of infected poultry is discovered in a country, their chickens are altogether banned from importation[137].

Even fellow citizens will not support their domestic poultry industry if cases of avian flu are detected. Despite government pleas urging citizens to continue eating chicken and eggs, there has been a sharp decline in poultry consumption within their own country[138].

Therefore, there are now two tiers of disincentives for farmers to report infected poultry. First, inadequate compensation promotes farmers to conceal rather than disclose

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[136] "Responses among European consumers to H5N1 avian influenza found in wild bird flocks has been variable, with consumption shocks ranging from a dramatic 70 percent decline in Italy in mid-February to 20 percent in France to a more subdued 10 percent response in northern Europe. These responses are similar to those observed in Europe in late 2005 when consumer concern about AI outbreaks moving progressively westward from Asia contributed to an annual one percent drop in demand in the EU-15 in 2005." See FAO, "Poultry trade prospects for 2006 jeopardized by escalating AI outbreaks", online: FAO: <http://www.fao.org/ag/againfo/subjects/en/economics/facts/poultry_trade_jeopardised_ai.pdf> at 2.

[137] FAO, Agriculture Department, Animal Production and Health Division, "Avian Influenza: Related Issues, Socio-Economic Implications", *Animal Health Special Report*, online:FAO <http://www.fao.org/AG/AGAInfo/subjects/en/health/diseasescards/avian_issues.html#2>.

[138] "Flying rumours", *Al-Ahram Weekly On-line* (23 February 2006 – 1 March 2006), online: weekly.ahram.org.eg <http://weekly.ahram.org.eg/2006/783/fr1.htm>.

incidence of H5N1. Second, fearing an over-reaction by the poultry market, domestically and internationally, farmers are induced to conceal rather than report tainted livestock. Some critics may argue that the WTO provides a safeguard against such blanket import bans through its Sanitary and Phyto-Sanitary (SPS) Agreement. But, the following discussion will illuminate how the application of the SPS Agreement fails to live up to its promise.

4.3 WTO & SPS Agreement: Honesty Does Not Always Pay

At the international level, reporting even a single case of infected poultry can damage a crucial sector of a country's economy. Countries that are honest enough to disclose infected livestock are not rewarded. Rather, they are punished for their candor.

Importing countries, with considerable pressure from domestic agricultural interest groups, can use the infected livestock to justify imposing blanket bans of the reporting nation's livestock. The economic havoc of such bans is even more acute for developing or transition economies. For poor countries, their primary source of wealth is from the sale of agricultural products [139]. They are the most vulnerable to import bans imposed by richer, developed countries. The billion dollar economic impact on Canada from BSE and

[139] Douglas Gollin & Stephen Parente & Richard Rogerson, "Economic Development Across Time and Space: The Role of Agriculture in Development" (paper and proceedings of the 114th Annual Meeting of the American Economic Association) (May 2002), 92:2 The American Economic Review at 160-164. See also Bruce F. Johnston & John W. Mellor, "The Role of Agriculture in Economic Development" (September 1961) 51:4 The American Economic Review at 566-593. See also Thirtle, Colin & Xavier Irz & Lin Lin1, *et al.*, "Relationship Between Changes in Agricultural Productivity and the Incidence of Poverty in Developing Countries", *United Kingdom Department for International Development Report No.7946* (27 February 2001).

SARS are two real examples of the damage that market over-reaction can cause. The economic impact of SARS to Canada was estimated at $1.5 billion, with Ontario's travel and tourism hardest, lowering its real economic activity by $1.1 billion in 2003[140]. And a Statistics Canada study estimated that the economic cost of BSE trade bans on Canada totaled $6.3 billion in 2003[141]. But first, an explanation of how the SPS Agreement operates with respect to the avian flu and the trade in poultry.

SPS Agreement[142]: The Rose-Colored Ideal

(1) What is an SPS Measure?

Every nation will create measures to ensure that food is safe for consumers, and to prevent the spread of pests or diseases among animals and plants. These measures are collectively known as SPS measures. *Sanitary* deals with hygienic practices related to animals and human health, and *phyto-sanitary* deals with safe standards related to plant health. SPS measures can take many forms[143], creating standards on such matters as:

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[140] The Conference Board of Canada, "The Economic Impact of SARS", Special Briefing (May 2003), online: Department of Foreign Affairs and International Trade <http://www.dfait-maeci.gc.ca/mexico-city/economic/may/sarsbriefMay03.pdf >.

[141] Mitura, Verna & Lina Di Piétro, "The Cost of BSE: Canada's Beef Cattle Sector and the Impact of BSE on Farm Family Income" (2000-2003) *Statistics Canada: Agricultural Division*, Agricultural and Rural Working Paper Series, Paper No. 69, online: Statistics Canada <http://dissemination.statcan.ca/english/research/21-601-MIE/21-601-MIE2004069.pdf> at 5.

[142] *Agreement on the Application of Sanitary and Phytosanitary Measures* (1994) online: WTO <http://www.wto.org/English/docs_e/legal_e/15-sps.pdf> [Hereinafter SPS Agreement] at Appendix I. See also WTO, *The Legal Texts: The Results of the Uruguay Round of Multilateral Trade Negotiations* (Cambridge: Cambridge University Press) at 59-72.

[143] "Sanitary or phytosanitary measures include all relevant laws, decrees, regulations, requirements and procedures including, *inter alia*, end product criteria; processes and production methods; testing, inspection, certification and approval procedures; quarantine treatments including relevant requirements associated with the transport of animals or plants, or with the materials necessary for

inspection, testing and certification of products, quarantine treatments, requirements for safe transport of animals or plants, food safety packaging and labeling requirements, requirement of products to come from a disease-free zones and specified treatment or processing of products.

SPS measures become the focus of international trade law when these measures are applied to food, animals and plants imported from other countries. Within the context of the avian flu crisis, this paper will only be discussing those SPS provision that deal with standards imposed on importers of live poultry and poultry products.

(2) Legally Binding on WTO Members

The SPS Agreement[144] was specifically created in the Uruguay Round (1994) of the WTO negotiations to prevent the use of SPS measures as a form of protectionism[145]. The

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their survival during transport; provisions on relevant statistical methods, sampling procedures and methods of risk assessment; and packaging and labelling requirements directly related to food safety." *Agreement on the Application of Sanitary and Phytosanitary Measures*, *ibid.*, art. 14, Annex A.

[144] "The Agreement on the Application of Sanitary and Phytosanitary Measures (the "SPS Agreement") entered into force with the establishment of the World Trade Organization on 1 January 1995." See WTO, "Understanding the WTO Agreement on Sanitary and Phytosanitary Measures", online: WTO <http://www.wto.org/English/tratop_e/sps_e/spsund_e.htm>.

[145] "Because sanitary and phytosanitary measures can so effectively restrict trade, GATT member governments were concerned about the need for clear rules regarding their use. The Uruguay Round objective to reduce other possible barriers to trade increased fears that sanitary and phytosanitary measures might be used for protectionist purposes. The SPS Agreement was intended to close this potential loophole. It sets clearer, more detailed rights and obligations for food safety and animal and plant health measures which affect trade ..." See WTO, "Understanding the WTO Agreement on Sanitary and Phytosanitary Measures", online: WTO <http://www.wto.org/English/tratop_e/sps_e/spsund_e.htm>.

[145] "The GATT rules also contained an exception (Article XX:b) which permitted countries to take measures "necessary to protect human, animal or plant life or health," as long as these did not unjustifiably discriminate between countries where the same conditions prevailed, nor were a disguised restriction to trade. In other words, where necessary, for purposes of protecting human, animal or plant health, governments could impose more stringent requirements on imported products than they required of

SPS Agreement improves upon the previous GATT[146] rules, to provide more clearly defined bases to challenge a state's SPS measures as protectionism. As a part of the WTO treaty, all members of the WTO are legally bound by the terms of the SPS Agreement[147].

(3) Purpose of SPS: Balance Two Interests

Self- Determined Level of Health Protection vs. Disguised Protectionism

The starting premise of the WTO treaties is that trade in goods should be open, subject to certain justifiable exceptions[148]. The SPS Agreement is a formal recognition of one such exception. The purpose of the SPS Agreement is to allow each nation the freedom to set its own health standards with respect to food, animals and plant imports.

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domestic goods." See WTO, "Understanding the WTO Agreement on Sanitary and Phytosanitary Measures", online: WTO <http://www.wto.org/English/tratop_e/sps_e/spsund_e.htm>.

[145] "The GATT rules also contained an exception (Article XX:b) which permitted countries to take measures "necessary to protect human, animal or plant life or health," as long as these did not unjustifiably discriminate between countries where the same conditions prevailed, nor were a disguised restriction to trade. In other words, where necessary, for purposes of protecting human, animal or plant health, governments could impose more stringent requirements on imported products than they required of domestic goods. " From *Understanding the WTO Agreement on Sanitary and Phytosanitary Measures from the WTO website at webpage*: http://www.wto.org/English/tratop_e/sps_e/spsund_e.htm.

[147] "This agreement and others contained in the Final Act, along with the General Agreement on Tariffs and Trade as amended (GATT 1994), are part of the treaty which established the World Trade Organization (WTO). The WTO superseded the GATT as the umbrella organization for international trade." See WTO, "Understanding the WTO Agreement on Sanitary and Phytosanitary Measures", online: WTO <http://www.wto.org/English/tratop_e/sps_e/spsund_e.htm>. The text of the SPS Agreement appear in the Final Act of the Uruguay Round of Multilateral Trade Negotiations, signed in Marrakesh on 15 April 1994Agreement. The full legal text of WTO Treaties can be found at WTO legal texts, online: WTO <http://www.wto.org/English/docs_e/legal_e/legal_e.htm#finalact>.

[148]WTO, "Understanding the WTO: Basics: Principles of the Trading System", online: <http://www.wto.org/english/thewto_e/whatis_e/tif_e/fact2_e.htm>..

The new SPS Agreement was created to provide a better balance between a state's sovereign right to set their own standards for health protection, called the Allowable Level of Protection (ALOP) and facilitating free trade. That is, the freedom of a nation to self-determine its own health standard is tempered to ensure it is not a disguised means of protecting its domestic industry. Articles 2.1 and 2.2 of the SPS Agreement clearly state this intention:

> "2.1. Members have the right to take sanitary and phytosanitary measures necessary for the protection of human, animal or plant life or health, provided that such measures are not inconsistent with the provisions of this Agreement.
>
> 2.2. Members shall ensure that any sanitary or phytosanitary measure is applied only to the extent necessary to protect human, animal or plant life or health, is based on scientific principles and is not maintained without sufficient scientific evidence, except as provided for in paragraph 7 of Article 5."[149]

Key Features of the SPS Agreement

A brief description of the provisions in the SPS Agreement will help understand how it applies to the poultry industry.

Transparency: Article 7

WTO member countries are required to publish and notify the WTO of all proposed and implemented measures and establish enquiry points for trading partners to address any questions. A special SPS Committee also provides WTO members with a forum for the exchange of information regarding any aspect of the implementation of the SPS Agreement. [150]

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[149] *SPS Agreement, supra note 142..*
[150] *Ibid.*

Equivalence: Article 4

Member countries are required to accept another country's SPS measures if it can be demonstrated that the measures provide equivalent levels of protection as the importing countries measures.[151]

Regionalism: Article 6

Member countries are required to ensure that their SPS measures have been adapted or modified to account for different regional considerations and thereby allow importation of products from pest or disease-free areas in other states within the same exporting country.[152]

Developing Countries Assistance: Article 9 & 10

In recognition of the potential infrastructural barriers to complying with the SPS Agreement, developed countries are obliged to provide developing countries with technical assistance to meet SPS standards.[153]

The most important provisions of the SPS Agreement deal with Harmonization and Risk Assessment.[154]

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[151] *Ibid.*
[152] *Ibid.*
[152] *Ibid.*
[153] *Ibid.*
[154] "Perhaps the most important feature of the agreement is that it requires states to justify any standards higher than current international standards. Specifically, science-based Risk Assessment (Articles 2.2 & 5) should guide standard setting." See "Making International Food Safety Rules Serve the Interests of the Poor Developing Country Livestock Producer", Policy Brief (July 2005) Pro-Poor

Harmonization: Article 3

This provision encourages member countries to use international standards, guidelines and recommendations where they exist, as an attempt to encourage the use of one consistent health standard across all nations (italics for emphasis):

> "1. To harmonize sanitary and phytosanitary measures on as wide a basis as possible, Members shall base their sanitary or phytosanitary measures on international standards, guidelines or recommendations, where they exist, except as otherwise provided for in this Agreement, and in particular in paragraph 3.
>
> 2. Sanitary or phytosanitary *measures which conform to international standards, guidelines or recommendations shall be deemed to be necessary* to protect human, animal or plant life or health, and presumed to be consistent with the relevant provisions of this Agreement and of GATT 1994.
>
> 3. Members may introduce or maintain sanitary or phytosanitary measures which result in a higher level of sanitary or phytosanitary protection than would be achieved by measures based on the relevant international standards, guidelines or recommendations, if there is a scientific justification, or as a consequence of the level of sanitary or phytosanitary protection a Member determines to be appropriate in accordance with the relevant provisions of paragraphs 1 through 8 of Article 5. Notwithstanding the above, all measures which result in a level of sanitary or phytosanitary protection different from that which would be achieved by measures based on international standards, guidelines or recommendations shall not be inconsistent with any other provision of this Agreement."[155]

The SPS specifically points to the guidelines established by the Codex Alimentarius Commission (Codex) and the Organization for Animal Health (OIE) and the International Plant Protection Convention (IPPC). But, members may use measures with higher standards than these international standards, if there is scientific justification.

The standards of the Codex and the OIE are not to be considered either the "floor" or "ceiling" for sanitary measures, rather the standards that have sufficient scientific

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Livestock Policy Initiative (PPLPI), online: FAO <http://www.fao.org/AG/AGAINFO/projects/en/pplpi/docarc/pb_wp25.pdf> at 11.

[155] The SPS Agreement, *supra* note 142.

weight, as they were established in consultation with leading scientists in their respective fields.

Risk Assessment: Article 5

This section obliges importing countries to justify their SPS measures on an assessment of the risk the imported products might pose to their nation, keeping in mind the objective of minimizing negative trade effects. It also enumerates the factors[156] that the importing country must consider in its risk assessment, the foremost of which is scientific evidence. Article 5.5 prevents members from being discriminatory in applying their SPS measures[157] . Article 5.6 requires that countries use the least trade restrictive measure possible to achieve their level of health protection.[158]

> "Article 5.1. Members shall ensure that their sanitary or phytosanitary measures are based on an assessment, as appropriate to the circumstances, of the risks to human, animal or plant life or health, taking into account risk assessment techniques developed by the relevant international organizations.
>
> Article 5.4. Members should, when determining the appropriate level of sanitary or phytosanitary protection, take into account the objective of minimizing negative trade effects."

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[156] Article 5.2 of the SPS Agreement requires that the importing country consider the following factors in making its risk assessment: Available scientific evidence; Relevant processes and production methods; Relevant inspection; Sampling and testing methods; Prevalence of specific diseases or pests; Existence of pest- or disease-free areas; Relevant ecological and environmental conditions; and Quarantine or other treatment. See the SPS Agreement, *ibid.*

[157] *Ibid.*

[158] *Ibid.*

How the SPS Agreement Applies to Poultry Imports

There are two paths by which SPS measures can be applied under the Agreement, depending on the urgency of the health situation. Different procedures and provisions apply under non-emergency or emergency situations.

(a) Non-Emergency Situation: International Standard or Scientific Basis

(i) Equal to International Standards

If the importing country follows the international standards as set out by the Codex or the OIE, then it is deemed to be based on scientific evidence and thus a valid SPS measure.

(ii) Higher than International Standards

If the importing country adopts a measure that is more stringent than international standards, and the exporting country challenges this as being overly restrictive, then the importing country must provide scientific evidence that this measure is necessary[159]. The problem, though, is the definition of "international standards" in the context of the current avian influenza situation.

A closer look at the exact nature of these international standards as they relate to the avian flu and trade in poultry is required. The SPS Agreement specifically refers to the regulations established by the Codex Alimentarius Commission (Codex) and the Organization for Animal Health (OIE) as international standards. These norms are

[159] *Ibid.*

considered sufficiently based on science, as the standards were developed by leading scientists in their respective fields.

What are the Standards Embodied in the Codex and the OIE?

Codex Not Applicable to the Avian Flu

The Codex Alimentarius Commission was created in 1963 by FAO and WHO to develop food standards, guidelines and related texts, such as codes of practice, under the Joint FAO/WHO Food Standards Programme[160]. Their role has been best described as:

> "... the primary international food standard setting organization ....produces a wide range of food standards. Those most relevant to livestock food product safety include: (a) standards relating to the maximum levels of pesticides, residues, contaminants, and additives that can be found in foods, and (b) guidelines on processes and procedures such as the Hazard Analysis Critical Control Point system. Other work of the Codex involves labeling standards, commodity standards (defining what a product is or how it is made) and quality descriptors"[161].

For example, they set standards in matters such as maximum lead levels in a product, when a product can properly claim to be "organically produced" or the method for

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[160] "FAO/WHO Food Standards: Codex Alimentarius", online: codexalimentarius.net <http://www.codexalimentarius.net/web/index_en.jsp>. "In the early 1960s, the Food and Agriculture Organization (FAO) of the United Nations and the World Health Organization (WHO) recognized the importance of developing international food standards for the purposes of protecting public health and minimizing disruption of international food trade. The Joint FAO/WHO Food Standards Program was established, and the Codex Alimentarius Commission was designated to administer the program ...The leaders who established the Food Standards Programme and the Codex Alimentarius Commission were concerned with protecting the health of consumers and ensuring fair practices in the food trade. They felt that both of these objectives could be best met if all countries harmonized their food regulations and adopted internationally agreed standards". See WTO, "SPS Agreement Training Module: Chapter 7: Work of Other Relevant Organizations", online: WTO <http://www.wto.org/english/tratop_e/sps_e/sps_agreement_cbt_e/c7s1p1_e.htm>.

[161] *Pro-Poor Policy Brief, supra* note 154 at 15. See also FAO & WHO, Report of the Evaluation of the Codex Alimentarius and Other FAO and WHO Food Standards Work (2002), online: WHO <http://www.who.int/foodsafety/codex/en/codex_eval_report_en.pdf>.

determining pesticide residue in a given product[162]. Their provisions are not related to the control of the avian flu as they deal with standards for food quality, nutrition and labeling, and not with health of the animals.

OIE Applicable to the Avian Flu: "The Code" & "The Manual"

The WTO explains the role of the Office International des Epizooties (OIE) as "the world organization for animal health recognized by the SPS Agreement. Founded in 1924, the OIE has three main missions:

- To inform members of the occurrence and course of animal diseases throughout the world and of means of controlling these diseases;

- To co-ordinate international research devoted to the surveillance and control of animal diseases; and

- To promote the harmonization of health regulations for trade in animals and animal products among members.

These missions are achieved through different activities including the establishment of standards, guidelines and recommendations pertaining to animal health." [163] In the short, the OIE can be thought of as an international veterinary association.

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[162] FAO & WHO, "Food Standards: Current Official Standards", online: codexalimentarius.net <http://www.codexalimentarius.net/web/standard_list.do?lang=en>.

The main OIE normative works related to the avian flu are the:

(i) *Terrestrial Animal Health Code* (the Code), (formerly the International Animal Health Code), and ;

(ii) *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals (2004)* (the Manual)[164].

The Manual sets minimum standards for reliable and credible diagnostic tests used to verify the presence of certain diseases. It also sets the international manufacturing and quality standards to ensure vaccines used are safe and effective. The relevant provision with respect to the avian flu is Chapter 2.1.14.[165] However, as this set of international rule is not relevant to this paper, it will not be discussed further.

Understanding the provisions of this Manual will illuminate exactly what justifiable "scientific basis" entails with respect to the avian flu and the poultry trade.

The *Terrestrial Animal Health Code* (the Code)

The other main normative work of the OIE is the Terrestrial Health Code. It recognizes the legal status of the OIE's role as a reference point for the SPS Agreement. This is specifically articulated in Article 1.3.1.2 of the Terrestrial Animal Health Code:

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[163] WTO, "SPS Agreement Training Module: Chapter 7: Work of Other Relevant Organizations", online: WTO <http://www.wto.org/english/tratop_e/sps_e/sps_agreement_cbt_e/c7s1p1_e.htm>.

[164] OIE, "Manual for Diagnostic Tests and Vaccines for Terrestrial Animals", Summary (2004) online: World Organization for Animal Health <http://www.oie.int/eng/normes/mmanual/A_summry.htm>.

[165] OIE, "Manual of Diagnostic Tests and Vaccines for Terrestrial Animals: List A Diseases: Avian Influenza" (May 2005) at c. 2.1.14 online: World Organization for Animal Health <http://www.oie.int/eng/normes/mmanual/A_00037.htm>.

" The SPS Agreement encourages WTO Members to base their *sanitary measures* on international standards, guidelines and recommendations, where they exist. Members may choose to adopt a higher level of protection than that provided by international texts if there is a scientific justification or if the level of protection provided by the relevant international texts is considered to be inappropriate. In such circumstances, Members are subject to obligations relating to *risk assessment* and to a consistent approach of *risk management*.

The SPS Agreement encourages Governments to make a wider use of risk analysis: WTO Members shall undertake an assessment as appropriate to the circumstances of the actual *risk* involved.

The SPS Agreement recognises the OIE as the relevant international organisation responsible for the development and promotion of international animal health standards, guidelines, and recommendations affecting trade in live *animals* and animal products.[166]"

Article 1.2.1.2. re-iterates that the importing country has an obligation not to be more trade restrictive than necessary and its restrictions must be justified by science[167].

Article 1.2.1.3. explains the responsibilities of the exporting country:

" An *exporting country* should be prepared to supply the following information to *importing countries* on request:

a. information on the animal health situation and national animal health information systems to determine whether that country is free or has *free zones* of listed diseases, including the regulations and procedures in force to maintain its free status;
b. regular and prompt information on the occurrence of transmissible diseases;
c. details of the country's ability to apply measures to control and prevent the relevant *listed diseases*;
d. information on the structure of the *Veterinary Services* and the authority which they exercise;

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[166] OIE, *The Terrestrial Animal Health Code* (2005), online: World Organization for Animal Health <http://www.oie.int/eng/normes/mcode/en_chapitre_1.3.1.htm>, c. 1.3.1.

[167] OIE, *The Terrestrial Animal Health Code* (2005), online: World Organization for Animal Health <http://www.oie.int/eng/normes/mcode/en_chapitre_1.2.1.htm>, c. 1.2.1.

e. technical information, particularly on biological tests and vaccines applied in all or part of the national territory" .

The provision most relevant to this paper is the section that establishes guidelines for safe exportation of poultry and poultry products exposed to the avian flu.

Chpt. 2.7.12 – OIE Recommendations for the Avian Flu

The OIE Code has a specific set of recommendations for handling cases of poultry exposed or infected with the avian flu. They can be summarized as follows:

(i) Definition of Avian Flu Incident & Obligation to Notify

Under Article 1.1.2.3, each country is obliged to notify the OIE of an incidence of a listed disease[168]. This list includes the avian flu. A clinical definition of an "occurrence" of the avian flu is provided in Article 2.7.12.1.[169]

(ii) Disease Free Status & Regaining Free Status: s.2.7.12.4

This section provides a clinical definition of how a country, zone or compartment can gain status as being "free" of highly pathogenic avian flu (HPNAI free status). Basically, a country must be able to provide veterinary evidence that their establishment has been free from the avian flu for the previous 12 months[170]. The exporting country must also

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[168] OIE, *The Terrestrial Animal Health Code* (2005), online: World Organization for Animal Health <http://www.oie.int/eng/normes/Mcode/en_chapitre_1.1.2.htm#article_1.1.2.3>, c. 1.1.2.

[169] *Ibid.*

[170] *Ibid.*

have a surveillance system that includes a "formal and ongoing system for detecting and investigating outbreaks of disease or NAI infection."[171]

If there has been an incidence of the flu, the state can regain disease free status 3 months after stamping out (culling) and disinfection have been carried out in accordance with recommended procedures.

(iii) Safe Importation of Live Poultry or Product: s.2.7.12.5 to s.2.7.12.23

This section establishes the conditions for safe importation of live poultry or poultry products. It is incredibly thorough and always requires an International Veterinary Certificate[172] to attest that the poultry and the storage establishments were tested free from the virus. It is a very thorough set of guidelines and provides slightly different procedures for safe importation of Live Poultry, Chicks, Eggs, Egg Products, Poultry Semen, Fresh Poultry Meat, and Feathers & Down[173].

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[171] *Ibid.*

[172] The OIE definition of an "*International veterinary certificate*" is "a certificate, issued in conformity with the provisions of Chapter 1.2.2., describing the animal health and/or public health requirements which are fulfilled by the exported *commodities*." See OIE, *The Terrestrial Animal Health Code* (2005), online: World Organization for Animal Health <http://www.oie.int/eng/normes/Mcode/en_chapitre_1.1.1.htm#terme_certificat_veterinaire_international>, c. 1.1.1.

[173] In addition to verifying that the poultry showed no clinical signs of infection, other conditions that the International Veterinary Certificate attest to include: chicks are derived from virus free parent flock, poultry or chicks were kept isolated from infected livestock, poultry housing were disinfected according to Code recommendations, the poultry or chicks were transported in new containers, and that poultry meat, feathers and down were processed to destroy virus and avoided contact with source virus. See OIE, *The Terrestrial Animal Health Code* (2005), online: World Organization for Animal Health <http://www.oie.int/eng/normes/mcode/en_chapitre_2.7.12.htm>, c. 2.7.12., arts. 2.7.12.5-2.7.12.23.

(iv) The Code also sets out the factors to be considered for a **risk assessment**[174], which requires weighing the risk factors associated with the importing country, such as: the demographics of the importing country, the presence of factors that could accelerate spread of the disease (population density, customs, culture), the potential consequences on health, and the cost of containment, in case of outbreak of disease.

It is important to note that assessment of these risk factors includes both quantitative and *qualitative* judgments. This means that scientific assessments still entail considerable discretion and subjectivity.[175]

Equivalency (Article 1.3.6.1)

Under Article 1.3.6.1, the Code recognizes that different countries will use different procedures or sanitary measures that can provide an equivalent degree of health protection. It sets out the principles by which an importing country should judge the degree of equivalence of sanitary measures which differ from its own. However, as these are merely recommendations, there is no obligation on the importing country to fully recognize the merits of different sanitary measures[176].

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[174] OIE, *The Terrestrial Animal Health Code* (2005), online: World Organization for Animal Health <http://www.oie.int/eng/normes/mcode/en_chapitre_1.3.2.htm>, c. 1.3.2.

[175] OIE, *The Terrestrial Animal Health Code* (2005), online: World Organization for Animal Health <http://www.oie.int/eng/normes/mcode/en_chapitre_2.7.12.htm>, c. 2.7.12.

[176] "An *importing country* should recognize that *sanitary measures* different from the ones it has proposed may be capable of providing the same level of protection; 4) the importing country should, upon request, enter into consultations with the exporting country with the aim of facilitating a judgment of equivalence; 5) any *sanitary measure* or combination of *sanitary measures* can be proposed for judgment of equivalence; 6) an interactive process should be followed that applies." See OIE, *The Terrestrial Animal Health Code* (2005), online: World Organization for Animal Health http://www.oie.int/eng/normes/mcode/en_chapitre_1.3.6.htm>, c. 1.3.6.

Onus on Exporter to Challenge the Importer's SPS Measure

In sum, if a poultry exporter finds that a country has created SPS measures that is stricter than the above-mentioned standards set out in the Terrestrial Code, the exporter can challenge these measures under Article 5.8 of SPS Agreement,

> "When a Member has reason to believe that a specific sanitary or phytosanitary measure introduced or maintained by another Member is constraining, or has the *potential to constrain, its exports and the measure is not based on the relevant international standards, guidelines or recommendations, or such standards, guidelines or recommendations do not exist, an explanation of the reasons for such sanitary or phytosanitary measure may be requested and shall be provided by* the Member maintaining the measure."

Importer Must Justify Scientific Basis of Restrictive SPS Measure

Once this challenge has been made, the importing country has to provide a scientific justification for the restrictive nature of that SPS measure. Article 5.6 requires that the country prove that their SPS measure is the least trade restrictive measure necessary, among alternative SPS measures with the same degree of health protection.

> "6. Without prejudice to paragraph 2 of Article 3, when establishing or maintaining sanitary or phytosanitary measures to achieve the appropriate level of sanitary or phytosanitary protection, Members shall ensure that such measures are not more trade-restrictive than required to achieve their appropriate level of sanitary or phytosanitary protection, taking into account technical and economic feasibility."[177]

For example, a country could require that poultry cannot be imported unless the exporter can prove that their entire country has avian flu free status. However, if an outbreak of the avian flu is contained to a particular region within the country, the exporting country

[177] For purposes of paragraph 6 of Article 5, a measure is not more trade-restrictive than required unless there is another measure, reasonably available taking into account technical and economic feasibility, that achieves the appropriate level of sanitary or phytosanitary protection and is significantly less restrictive to trade.

can argue that this it too restrictive if they can prove the exported poultry came from another avian flu free region of the same country.

(b) Emergency Situation: Incomplete Knowledge About Risk (Article 5.7)

In an emergency health situation, such as the current avian flu crisis, an importer of poultry can invoke Article 5.7 of the SPS Agreement to justify closing their borders from countries with incidence of H5N1.

> "7. In cases where relevant scientific evidence is insufficient, a Member may provisionally adopt sanitary or phytosanitary measures on the basis of available pertinent information, including that from the relevant international organizations as well as from sanitary or phytosanitary measures applied by other Members. In such circumstances, Members shall seek to obtain the additional information necessary for a more objective assessment of risk and review the sanitary or phytosanitary measure accordingly within a reasonable period of time.[178]"

However, it should be emphasized that Article 5.7 is a "qualified exemption". This means that four conditions must be met before the provision can be invoked. The conditions are that: the relevant scientific information on the disease threat is insufficient; the measure is adopted on the basis of available pertinent information; the country adopting the measure must seek additional information for a more objective assessment of risk; and the invoking nation must review the SPS measure within a reasonable period of time[179].

In other words, even in an emergency situation, where it is better to err on the side of caution, the country relying on this emergency provision cannot do so indefinitely. At some point, they are obliged to seek additional scientific information and review whether

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[178] *Supra* note 142.

[179] WTO, "SPS Agreement Training Module: Chapter 2: The Key Provisions of the Agreement", online: WTO http://www.wto.org/English/tratop_e/sps_e/sps_agreement_cbt_e/c2s8p1_e.htm>, c. 2.8.

the urgency of the health risk persists or has diminished. If the health risk has diminished, the restrictive measure should be changed to reflect this change in circumstances[180].

SPS in Theory vs. SPS in Practice

According to the WTO, the SPS Agreement has been more successful at defining more precise basis for challenge than under the SPS provisions contained in the previous GATT rules. Under the previous provision, only one challenge was brought. Whereas, there were 10 challenges brought in the first three years of the inception of the new SPS Agreement[181]. The WTO feels the new SPS Agreement provides greater traction for exporting countries to challenge overly restrictive SPS measures[182].

However, there are still several drawbacks with the SPS Agreement. In theory, when challenged, an importing country must scientifically justify its SPS measures. This ensures that only those health measures that can be justified as necessary for the protection of health can be implemented to restrict trade. However, the application of the SPS Agreement in practice produces results that are different than intended, particularly for developing countries[183].

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[180] WTO, "SPS Agreement Training Module: Chapter 2: The Key Provisions of the Agreement", online: WTO <http://www.wto.org/english/tratop_e/sps_e/sps_agreement_cbt_e/c2s7p1_e.htm>, c. 2.7..

[181] WTO, "Understanding the WTO Agreement on Sanitary and Phytosanitary Measures", online: WTO <http://www.wto.org/English/tratop_e/sps_e/spsund_e.htm>.

[182] *Ibid.*

[183] Nathan Associates Inc, TSB Project, 'Trade Capacity Building and Sanitary and Phytosanitary Control: A Research Report,'(April 22, 2003). Sponsored by USAID's Bureau of Economic Growth, Agriculture and Trade (EGAT) online :' http://pdf.usaid.gov/pdf_docs/PNACX953.pdf..See also, M.J. Jensen, ``Reviewing the SPS Agreement: A Developing Country Perspective``(February 2002) Working Paper Subseries on Globalisation and Economic Restructuring in Africa no. xvii, CDR Working Paper 02.3.

This occurs because of the procedural hurdles built into the SPS provisions and the lengthy delays between initiating a challenge and final resolution by the WTO[184]. These practical failings have the effect of reducing a state's faith in the SPS Agreement's ability to ensure that health measures truly are based on science or that SPS measures used as thinly veiled trade barriers will be held invalid. When SPS measures that are clearly artificial protectionism go unchallenged or unpunished, confidence in the authority of the SPS Agreement is severely undermined.

In the context of the avian flu crisis, a lack of faith in the SPS Agreement will deter member countries from disclosing cases of H5N1 infected poultry. This, of course, can have dire consequences for the entire health community.

(i) Arbitrariness in Interpretation of Scientific Knowledge

As mentioned in the previous section, the science behind infectious diseases is not exact or conclusive. This therefore leaves lots of room for subjective judgments to be made. An assessment of the SPS provisions from the perspective of pro-poor livestock policy experts concludes that the fact that "science may not always be clear leaves the door open for other factors to influence international rule-making." [185] Some of the other factors that take detract from the objective application of SPS standards are:

(a) When dealing with subjects upon which there is no conclusive science, it is difficult to establish standards based on incomplete information,

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[184] S.J. Henson, R.J. Loader, A Swinbank, M. Bredahl and N. Lux. *Impact of Sanitary and Phytosanitary Measures on Developing Countries*, (The University of Reading, 2000) at Chapter 9 and Chapter 13.

[185] Pro-Poor Policy Brief, *supra* note 154 at 8.

(b) science is context-specific, which makes the application of universal standards too rigid, and;

(c) if an SPS-related dispute is resolved by the WTO dispute settlement body, the issue will not necessarily be resolved by scientific experts[186].

The High Cost of Uncertain Science: The SARS Example

An example of how uncertainty in science can cause serious economic damage, despite a wealth of expert advice, is the SARS outbreak in Toronto, Canada. The World Health Organization misjudged the severity of the outbreak and issued a travel advisory against non-essential travel to Toronto[187]. This advisory conflicted with the recommendation of the U.S. Centers for Disease Control and Prevention in Atlanta, Georgia[188]. Seven days later the WHO lifted the ban and listed the city at "SARS-affected" status. However, the public's perception of Toronto as an unsafe place to travel arising from the WHO's original travel ban was too deeply imbedded. Despite the change in status, Toronto experienced an estimated $1.1 billion in lost travel and tourism revenues alone.[189] The WHO's mistake in judging the severity of the outbreak in Toronto is an example of how mistakes in scientific judgments can cause irreparable harm to a nation's economy.

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[186] Guzman, Andrew, "Food Fears: Health & Safety at the WTO" (2004), 45 Va. J. Int'l L. See also Stewart, Terence P. & David S. Johanson, "The SPS Agreement of the World Trade Organization and International Trade of Dairy Products" (1998) 55:1 Food Drug L.J.

[187] "Toronto Removed from SARS List" *CBC News* (15 May, 2003) online: http://www.cbc.ca/story/news/national/2003/05/14/sars_toronto030514.html.

[188] Cost of SARS, *supra* note 145.

[189] "Indepth: SARS: The Economic Impact of SARS" *CBC News Online* (8 July 2003), online: cbc.ca <http://www.cbc.ca/news/background/sars/economicimpact.html>.

(ii) Frequent Changes in Standards & Prohibitive Cost of Compliance

Another weakness with the SPS in practice is the extremely expensive cost of complying with a country's SPS standards. It requires considerable financial investment to create an infrastructure that complies with international health standards, as it requires developing fairly sophisticated veterinary and food administrative agencies. Even when a country is able to meet health standards, other countries can simply change their SPS requirements, and then other countries have to expend more resources to meet these new standards. This discourages other countries from even attempting to enter these markets.

> "Importantly from the perspective of investments in SPS and disease control, it is not simply the fact that standards are high compared to existing levels in developing countries that make them difficult and costly to meet, but that they are subject to frequent changes. This makes returns on investments in SPS uncertain, as meeting current international SPS standards does not necessarily translate into access to export markets in the future.[190]"

In this manner, confidence in the SPS Agreement's ability to prevent the use of health measures as protectionism is undermined. This is particularly true for undeveloped countries, whose infrastructures are still in the formative stages[191].

(iii) Prohibitive Cost & Delay in Pursuing SPS-Related Dispute

Article 11.1 of the SPS Agreement[192] specifically mandates all SPS related disputes to be resolved according to the procedures set out in the WTO's *Understanding on Rules and*

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[190] Lokuge, *supra* note 32 at 11.
[191] Supra, note 184 at Chapter 9.
[192] *SPS Agreement, supra* note 142.

Procedures Governing the Settlement of Disputes, more commonly known as the *Dispute Settlement Understanding* (DSU)[193].

The main objective of the DSU is not to impose judgments, but rather to facilitate mutually agreeable solutions and "prompt settlement" of disputes between members. As such, under article 23, the WTO members are obliged to use the DSU to resolve their disputes, and cannot take unilateral action against any alleged violator of the WTO agreements or resort to using any other fora.

Given that achieving mutually agreeable solutions is the primary objective, the first stage of every dispute is for the parties to enter negotiations with each other, to find a mutually acceptable resolution. This is called the "consultation" phase of dispute settlement (Article 4). If these negotiations fail, a panel is appointed to consider the matter, using submissions from all parties. The panel submits its final report to the Dispute Settlement Body (DSB), which has the right to accept or reject the panel's ruling. In practice, as decisions to reject a panel's findings requires unanimous consent of the DSB, their rulings are rarely rejected.

So, in a typical WTO dispute, where the case runs its full course to a first ruling, the procedure should not take more than one year, or, if the case is appealed, up to 15 months. In some cases, the agreed time limits are flexible, and the process can be

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[193] *Agreement Establishing the World Trade Organization: Understanding on Rules and Procedures Governing the Settlement of Disputes* at Annex 2, online: WTO <http://www.wto.org/English/docs_e/legal_e/28-dsu.doc>.

accelerated if it can be demonstrated that the case is urgent (e.g. if perishable goods are involved, under Article 4.9).

Even once a panel or final appeals ruling is made, however, there can be additional delay before the offending trade behavior is withdrawn. Although under article 3.3 and article 21, the DSU stresses that "prompt compliance with recommendations or rulings of the DSB is essential in order to ensure effective resolution of disputes to the benefit of all Members", in practice, enforcing compliance is not always so simple or prompt. This is because the injuring party can simply choose not to comply with the ruling. Thus, even assuming a dispute, complete with appeals, is pursued and all deadlines are followed, there can still be considerable delay before an unfair ban is lifted, or compensation paid or trade sanction imposed.

Compensation Must Be Mutually Agreed

After a ruling, the compliance can be delayed as the injuring party has an additional 30 days to state its intention to comply (Article 21.3). It is then given a grace period to comply with the ruling within a "reasonable period of time". If it is impractical to comply or simply refuses to comply, the party is granted another 20 days to negotiate a mutually agreeable compensation with the injured parties (Article 3.7 and Article 22.2). Compensation cannot be extracted unilaterally and can only be assumed by the offending party voluntarily (Article 22). If the offending country continues to refuse to comply, the burden is on the complaining party to ask the DSB to impose trade sanctions, for which the DSB has 30 days from the expiry of the "reasonable period of time" to impose

(Article 22.2). Thus, only after compensation negotiations have failed, will the DSB consider taking retaliatory action against the offending state.

In other words, even after a decision has been rendered by the DSB, the process of enforcing compliance on a reluctant party can take an additional six months, and does not always result in an award of compensation. Meanwhile, the economic damage of an SPS-related import ban is wreaking havoc on the injured party's economy. Particularly for a developing nation, each day that the unfair import ban persists, a central pillar of their fledgling economy is being corroded, perhaps irrevocably.

Furthermore, the high cost of hiring legal and scientific expertise erects another procedural deterrent that discourages developing countries from reporting infected livestock, challenging an unfair trade ban is prohibitively expensive[194]. In fact, one study found that the cost of complying with SPS standards and obtaining legal and scientific expertise to dispute a ban on their exports would amount to "an entire year's development budget" for most developing and transitory economies.[195]" Obviously, this makes pursuit of unfair trade restrictions unthinkable for poor countries. A nation's faith in the fair application of the SPS Agreements depends on its belief that it can effectively challenge another country's SPS measures. But when the cost of pursuing such challenges is so prohibitive, this diminishes the developing world's confidence that the WTO can protect against unfair trade restrictions[196].

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[194] Henson, *supra*, note 84.

[195] Lokuge, *supra* note 32, at 11.

[196] Henson, supra, note 184.

Not only is this detrimental to the economic development of poor countries, but it jeopardizes the health of the entire world. When the WTO dispute settlement mechanism is so prohibitively expensive and time-consuming, it acts as a deterrent for developing countries to disclose livestock infected with the avian flu. This in turn greatly increases the opportunity for the virus to become a human pandemic. These deterrents are compounded by the fact that even when the WTO imposes trade sanctions for violations of the SPS agreement, they are not a very satisfactory resolution for developing countries[197]. The ineffectiveness of certain retaliatory measures is explained in the following section.

(iv) Ineffective Enforcement of SPS Infractions: the *Hormones Case*

In the 1996 *Hormones Case*[198], the only SPS case to progress to the WTO dispute settlement body, the European Union (EU) was held in violation of the SPS Agreement. The EU claimed that a ban on imports of beef from the United States and Canada was necessary because the cattle were treated with growth hormones that could damage humans consuming the beef. Although the WTO found this SPS measure was invalid and unscientifically justified, the EU refused to comply with the order to lift the ban by the May 1999 deadline. Faced with this non-compliance, the WTO had to resort to imposing a retaliatory tariff on EU imports to the US worth $116 million and to Canada

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[197] B.L.Brimeyer, 'Bananas, Beef and Compliance in the World Trade Organization: The inability of the WTO Dispute Settlement Process to Achieve Compliance from Superpower Nations' (Winter 2001) Minnesota Journal of Global Trade, 133-168.

[198] K.H. Matthews, & J. Bernstein & J. C. Buzby, "International Trade of Meat/Poultry Products and Food Safety Issues", U.S. Department of Agriculture (USDA) Government Publications, USDA Doc. AER-828, online: Economic Research Services of the USDA: <http://www.ers.usda.gov/publications/aer828/aer828f.pdf> at 4.

worth $11.3 million, per year[199]. In the simplest of terms, a retaliatory tariff allows the injured party to raise their tariffs imposed on goods exported by the offending state into the injured state. But, in practice, this type of enforcement would have little deterrent effect when a developing country is the injured party.

This is because tariffs can only be used effectively by state's which wield sufficient market power in international markets[200]. One study that compared the effectiveness of fines and tariff retaliation found that "tariff retaliation is often not in the interest of an injured party. For example, optimal tariffs for countries that are too small to influence world prices would be typically near zero. As a result, any tariff retaliation will only further reduce their welfare[201]".

Meanwhile, after undergoing a dispute settlement process that can take up to two years, significant economic damage to the inured party's industry can be wreaked. In addition, the stigma attached to the injured country's industry can significantly hamper future export potential. Given how pivotal a role that poultry farming plays in developing and transition economies, forming a pillar of their economic development, the economic

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[199] WTO, Dispute Settlement Panel, *Award of the Arbitrator on EC Measures Concerning Meat and Heat Products (Hormones),* WTO Doc. WT/DS26/15 (the US Dispute) & WT/DS48/13 (the Canadian Dispute) (1998), online: WTO <http://docs-online.wto.org>.

[200] Douglas Ierley, "Developing Country Compliance with and Participation in the WTO Dispute Settlement System: Another Look at the Dispute Over Bananas" (Spring 2002) 33:4 Law & Pol'y Int'l Bus. at 615-651.

[201] Nuno Limão & Kamal Saggi, "Tariff Retaliation Versus Financial Compensation in the Enforcement of International Trade Agreements" (January 2006), online: University of Southern Maryland <http://faculty.smu.edu/ksaggi/LIMAO-SAGGI.pdf> at 2, 24.

damage from lengthy, protracted settlement procedures can be irreparable. This emphasizes how important it is to ensure that the WTO properly enforces SPS violations.

> "The perception that SPS regulations are sometimes unevenly and unjustifiably applied needs to be altered so that producers and governments in developing countries are incentivized to make the considerable investments that are needed.[202]"

The procedural weaknesses in enforcing the SPS Agreement, provide little confidence in its ability to prevent SPS measures from being used as artificial trade barriers. In the context of the avian flu, this will motivate countries experiencing incidence of H5N1 to conceal or at the very least hesitant to report the presence of the disease. Once again, time is of the essence in trying to contain a disease as highly contagious and transmissible as the current strain of the avian flu. The fact that developing countries do not perceive the SPS Agreement as an effective safeguard against protectionism[203], acts as deterrent to disclosing infected livestock and threatens the health of the entire human community. But the right changes to the current avian flu containment strategies and the SPS Agreement mechanisms can alleviate these market failings. These suggestions are discussed in the following section.

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[202] Lokuge, supra note 32 at 12.

[203] M. Bezuhly, D.P. Fidler, A.L. Taylor, M. E. Wojcik ``International Legal Developments in Review: 1997 Public International Law, International Health Law,``(Summer 1998)32 Int'l Law. 539.

CHAPTER FIVE: Recommended Solutions: International Compensation Scheme & Improved SPS Dispute Settlement

The previous sections have discussed how the current avian flu containment strategies operate and which organizations are involved. This paper has also discussed how procedural inefficiencies hamper the effectiveness of these strategies. The lack of adequate, reliable compensation for poultry farmers in developing countries creates a disincentive to report infected livestock. A further disincentive arises as the SPS Agreement fails to provide adequate assurance that SPS measures are not used as disguised protectionism. Both of these problems discourage farmers in reporting or delay their reporting of infected livestock, which increases the probability of transmission of H5N1 to the human population.

Although not intended to be definitive solutions to these issues, this section of the paper will provide recommendations on how to resolve or contribute to the resolution of these two weaknesses.

5.1 Immediate Solution : Adequate, Reliable Compensation

Although both of the weaknesses described will impede the success of global strategies to control the avian flu, only one can be resolved immediately. Witnessing the rapid spread of the disease in the last three months, the urgency of the avian flu crisis should prioritize efforts on preventing the spread of H5N1 from the bird population to the human population. The possibility of repeating the 1918 influenza pandemic and losing another

40 million lives, or likely many more millions, is unthinkable. Therefore, creating a reliable compensation scheme for poultry farmers, particularly in developing countries, should be a paramount concern.

Global Public Good, Global Financing

Given that the greatest risk for spread of the disease arises from developing countries, one cannot continue to rely on their national governments to finance compensation. It is therefore suggested that a centralized, internationally funded compensation scheme be created. The FAO explicitly states that they consider "protecting global human health and well-being a responsibility of the international community.[204]" This would suggest that avian flu containment should be considered a global public good, as all countries would benefit from preventing the spread of the disease to the human population[205]. Put another way, all countries would suffer the negative consequences of a human pandemic – in terms of both human lives and economic losses.

Therefore, like any other global public good, each nation should be required to contribute to the compensation fund that will reward disclosure of diseased birds[206]. In order to be fair to lesser developed countries, each nation would be required to pay based on their pro rata share of global gross domestic product.

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[204] *Global Strategy for Progressive Control of Avian Influenza*, supra note 34 at 3.

[205] D.P., Fidler 'Symposium Issue: The UN at Sixty: Celebration or Wake? Contributor Development, Disease and Environmental Degradation: The UN and the Responsibility to Practice Public Health' (Winter 2005) 2 J. Int'l L. & Int'l Rel. 41. See also R. Smith, D. Woodward, A. Acharya, R. Beagle and N. Drager ``Communicable disease control: a 'Global Public Good' perspective`` (2004) Health Policy and Planning 19(5): 271–278.

[206] David P. Fidler, `` Microbialpolitik: Infectious Diseases and International Relations`` (1998) 14 Am. U. Int'l L. Rev. 1. See also *E. Folch, et al,* `` Infectious Diseases, Non-Zero-Sum Thinking, and the Developing World`` (August 2003) American Journal of the Medical Sciences. 326(2):66-72.

The World Bank has two mechanisms to assist financing avian flu containment endeavors, the Global Program for Avian Influenza (GPAI) and the Avian and Human Influenza Trust Fund (AHITF). But, there are several drawbacks which make these options unsuitable for a compensation fund. First, the World Bank estimates that both of these programs will take several years to finance and fully implement. Secondly, as is often the case with a large bureaucratic organization as the World Bank, the process for applying for and receiving funding approval and monitoring disbursements slows its effectiveness. Third, one of the mechanisms relies on pledges from donor countries who may renege on their promises, and in fact have been slow to actually disburse funds to the World Bank.

Thus, these funding programs are incompatible with the exigency of providing compensation immediately, in order to minimize the spread of highly infectious H5N1 to unaffected regions and the transmission to humans. It bears re-iterating that time is of the essence in containing a highly contagious and lethal disease as H5N1, and thus any compensation scheme must be fully operational within a short time frame.

Thus, the fund for the recommended compensation scheme needs to be more simple and streamlined than existing financing mechanisms. Highlighting the urgency of containment of the disease in animals to prevent its transmission to humans is not proving to be sufficient motivation. To overcome this weakness, the compensation fund needs to be financed by providing more compelling reasons for nations to contribute. With these

obstacles in mind, the following author provides some recommendations on how best to finance and structure an effective avian flu compensation fund.

To ensure that the funds are paid out as efficiently and swiftly as possible, the fund should be centrally administered by a private humanitarian organization such as CARE[207] or a credible non-governmental organization. The purpose of placing the administration of this scheme beyond the scope of existing organizations such as the FAO or the World Bank is to ensure that it does not get bogged down by excessive bureaucratic accountability lethargy. Removing some of the administrative hurdles will also help instill confidence in the reliability of the compensation scheme by otherwise skeptical farmers. There are several options for funding such an apparatus: insurance, tax, or private investment schemes. The first option to consider is a compulsory livestock insurance scheme.

(a) Compulsory Insurance Schemes: Impractical for Developing Countries

The financing of compensation through a livestock disease insurance scheme is a relatively new mechanism being used in some countries[208]. However, this option is not practical for the current avian flu crisis because it requires the compensation to be paid from a pool of funds that is an accumulation of premiums paid by the insured (farmers) over several years. This type of compulsory fund structure will not work in developing countries as the farmers are simply too poor to afford paying the insurance levies.

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[207] "CARE History", online: CARE <http://www.care.org/about/history.asp.

[208] R.A.J. Roberts, "Livestock and Aquaculture Insurance in Developing Countries" (November 2005), online: FAO <http://www.fao.org/AG/ags/subjects/en/ruralfinance/pdf/LivestockAquacultureInsurance_en.pdf> at c. 4 at 24.

Furthermore, it would also be impractical as it requires several years to accumulate sufficient premiums to finance adequate compensation.

Unfortunately, the world does not have the luxury of waiting several years to accumulate a large enough pool of funds. The highly contagious nature of H5N1 and its unexpectedly rapid spread require containment strategies that are immediately usable. Neither a compulsory nor a voluntary insurance scheme is a practical solution for developing countries and other more viable options are available.

(b) International Public Health Emergency Tax

Although a very idealistic suggestion, this paper suggests the imposition of an international public health emergency tax on all national governments. If preserving the health of humans is considered a global public good and the economic consequences for failing to do so run in the range of billions of dollars, it would be in the best interest each country to contribute to a compensation fund that accomplishes containment.

Taking a preventative approach to disease management has always been more cost-effective than taking a reactive approach. Particularly for a highly contagious and lethal disease, it simply makes more sense to finance prevention.

Currently, industrialized nations such as Canada and the United States are allocating billions of dollars for human pandemic preparedness. In fact, Canada, recently increased

its influenza pandemic budget to $1 billion[209]and the United States has allotted $3.8 billion[210]. Both countries have also allocated millions of dollars to finance domestic agricultural infectious disease control programs. A mere 5% to10% of these budgets would provide millions of dollars in funding for a compensation programs that would reduce or eliminate the spread of outbreaks in developing countries. Recently, even the FAO has declared that a disproportionate amount of money has been allocated to focus on the human pandemic component and not enough for the animal side[211]. Taxing all countries for the compensation fund would redistribute the burden of its cost onto all nations that stand to benefit from containment of the avian flu. In the alternative, this paper also suggests that private market stakeholders could be convinced to contribute to the compensation fund.

(c) Entice private sector stakeholders to invest in the compensation fund

At first glance it may seem that there is no benefit for private companies to invest in a fund that compensates farmers in developing countries for diseased livestock. But developing countries will not remain undeveloped forever. As they become more industrialized, their economies represent potential new markets for businesses looking to expand. So developing countries offer lucrative opportunities for future markets, particularly if a company can secure exclusive access and first entry to the market.

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[209] Thomas Blackwell, "Pandemic Spending and Fears Overblown" *The National Post* (16 May 2006).

[210] "United States Allocated $3.8 Billion To Avian Flu Preparedness" (2006), online: USINFO.STATE.GOV <http://usinfo.state.gov/gi/Archive/2006/Apr/04-216362.html>.

[211] 'FAO Calls World to Prioritize Funds for Preventing Bird Flu" *China View* (18 May 2006), online: Chinaview <http://news.xinhuanet.com/english/2006-05/18/content_4567852.htm >.

Thus, this paper suggests that only certain private market players would be interested in the compensation fund, such as pharmaceutical manufacturers of animal vaccines and diagnostic tests and private veterinary biosecurity companies. Each company would agree to sponsor compensation in a developing country in exchange for such benefits as:

(i) Exclusive supply agreement to the agricultural sector in the host country. The sponsor and host government could negotiate a mutually acceptable agreement where the sponsor will have the right to be the exclusive supplier of vaccines or biosecurity, for a limited number of years, to the host country's livestock production sector.

(ii) The sponsor could be granted special foreign investment concessions – such as tax breaks by the host country.

(iii) The sponsor company would also benefit from the positive publicity of being able to claim that they were responsible for successful containment of the avian flu in the developing world. Being able to claim that they were responsible for heading off a human pandemic would provide the sponsor with valuable branding goodwill in the eyes of the rest of the world.

Eventually, poor countries in the developing world will become more industrialized and wealthier. Enticing private companies with first entry to these markets will provide a powerful incentive to invest in the avian flu compensation fund and the results would be beneficial to all stakeholders.

All of these options for motivating investment in the compensation fund are variations of an attempt to link the economic health of the poultry farmers in developing countries to the health of the industrialized world. They are attempts at inducing richer countries to have a vested interest or stake in improving the veterinary infrastructure of developing countries. Now that the financing of the compensation fund has been discussed, the following section will discuss how the compensation payments will be structured.

Traditional Compensation : Monetary Compensation

An objective market valuation formula would have to be used to ensure that each farmer would be equitably compensated, regardless of their country of origin. Paying a premium for early reporting would also help encourage early disclosure of potentially infected livestock. In addition, compensation should encompass two components of loss: direct loss and indirect or consequential losses.

Compensation for Direct Losses

The compensation for direct losses, would be similar to indemnity payments, with the aim of restoring farmers to their original position prior to the outbreak, and not to compensate for the cost of recovery[212]. Therefore, farmers would be compensated for fair market value of the livestock before the outbreak. However, to encourage early reporting, farmers would only be compensated for self-disclosure of infected livestock. If the outbreaks are discovered as part of the government's veterinary surveillance, farmers

[212] Ben Gramig & Richard Horan & Christopher A Wolf, "A Model of Incentive Compatibility Under Moral Hazard in Livestock Disease Outbreak Response" (July 24-27, 2005), Selected Paper (prepared for presentation at the American Agricultural Economics Association Annual Meeting, Providence, Rhode Island, July 2005), online: Michigan State University <http://www.msu.edu/user/gramigbe/papers/Gramig+Horan+Wolf_AAEA2005.pdf>.

would receive either no compensation or a severely discounted value. It would also be another condition of payment that the farmer demonstrate that they exercised a minimum standard of livestock husbandry to avoid infection of the avian flu. This will help avoid the moral hazard of compensation schemes, where farmers may not be motivated to minimize or avoid losses[213]. Compensation for direct losses should be immediately payable to farmers upon disclosure.

Compensation for Consequential Losses

A component of compensation should be included for consequential losses suffered by the farmers as a result of destruction of the livestock. This would encompass other types of economic loss such as: business interruption, lost market access and a decrease in livestock prices.

This component will not be immediately payable as the calculation for lost market access will differ from country to country and will take longer to assess. The cost of losing access to markets will be country specific because it will be a function of the severity of reaction by other countries. That is, whether it will result in closure of markets (trade bans) and the length of time the closures persist. This component can be payable within a year of disclosure.

[213] *Ibid.*

Alternative to Monetary Compensation: "Soft" Credit and "Avian Miles"

But there may be some instances where national governments are so poor they cannot subsidize any component of compensation whatsoever. Since the compensation fund may not have sufficient finances immediately available to offer compensation, it is suggested that alternatives to monetary compensation also be offered. A recent post-avian influenza rehabilitation study found that poultry farmers in some developing countries actually preferred access to soft credit and veterinary services over compensation[214]. For these countries, it is suggested that instead of monetary compensation, reward for disclosure of infected livestock could consist of one or a combination of the following alternatives:

i) Extension of Existing Loans

As repayment of their existing loans is one of the biggest concerns for poultry farmers, in exchange for destruction of infected livestock, farmers could be offered adjustments to their repayment schedules[215]. For example, they could be offered an extension of their loan terms. Short term loans could be extended by an extra six months and medium and long term loans could be extended by half of their original term. This would reduce the stress of repayment and remove the farmer's fear of bankruptcy.

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[214] FAO, *Emergency Regional Support for Post-Avian Influenza Rehabilitation – Summary of Project Results and Outcomes*, FAO Doc. TCP/RAS/3010(E) (February 2005), online: FAO <http://www.fao.org/ag/againfo/subjects/en/health/diseases-cards/cd/documents/rehabdolberg.pdf> at 29.

[215] *Ibid.*, at 18.

ii) Soft Credit on New Loans

As it is difficult for farmers to obtain credit without collateral, trying to obtain new financing to restart their business is a big concern for poultry farmers[216]. To counter this problem, in exchange for destruction of diseased birds, these farmers could be offered credit with low or no collateral. In addition, these new loans could be offered with low interest or subsidized interest rates.

iii) Rebate on Purchase of Alternative Livestock

In the aftermath of major outbreaks in highly infected regions, some poultry farmers are hesitant to return to the poultry industry. This is particularly true where the price and demand of poultry has dropped significantly. These farmers have expressed an interest in hog or other livestock production[217]. Therefore, it might be practical to offer farmers a rebate on the purchase of alternative livestock, in exchange for their destroyed poultry assets. This would also help ensure that livestock sectors of these economies continue to develop and contribute towards long term sustainable development.

iv) Credit for Veterinary Services: The "Avian Miles" Plan

In exchange for reporting infected poultry, farmers could receive credit for free veterinary services. The beauty of this approach is that it accomplish two goals, provides an incentive for farmers to report outbreaks of the disease and ensures that future animal husbandry and biosecurity measures are improved to protect their remaining livestock. In

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[216] *Ibid.*, at 18.
[217] *Ibid.*, at 14.

the long run, this will benefit the agricultural sector of developing countries and improve their accessibility to international markets. Borrowing from a clever marketing technique, this form of reward could be called the "avian miles" plan.

Early reporting being of the essence in containing the avian flu, it is imperative that a reliable, compensation scheme be created and implemented as quickly as possible. In summary, these suggestions for financing the compensation fund and alternative forms of compensation to poultry farmers represent flexible and novel attempts of inducing wealthy stakeholders to have a greater stake in improving the veterinary capacity of developing countries. Rather than taking an overly rigid approach to avian flu containment, it is important to incorporate incentives that are both compatible with the needs of wealthy nations and consistent with developing country priorities. In the long run, it is also important to improve member confidence in the SPS Agreement. The following suggestions will help enhance trust in the WTO's application of the SPS Agreement.

5.2 Long Term Solution: Revamping SPS Agreement

Access to Export Markets as Incentive: Enforcement is Key to Credibility

This paper recognizes the administrative inertia that impedes the implementation of any recommendations for improving the SPS Agreement. Changes to international laws borne by an institution as large and complex as the WTO will require several years to come to fruition. This is particularly true when such changes require the unanimous

ratification of all WTO members. Nevertheless, this paper suggests the following changes to the SPS Agreement to improve its credibility.

(a) For non-emergency SPS measures

(i) Shift Onus

Currently, the onus lies with the exporting country to challenge the importing country's SPS measure as scientifically unjustifiable. However, the prohibitively high cost of hiring legal and scientific experts to pursue such a challenge creates a procedural barrier that effectively prevents developing countries from undertaking SPS related disputes.

It is therefore recommended that the onus for justifying the scientific basis of a nation's SPS measures should lie with that nation. This is also consistent with the core mandate of the WTO treaties, to encourage liberalization of trade. Exceptions to this starting premise should require the invoking nations to justify their position. Similarly, the nation relying on SPS measures as an exception to open trade, should be required to provide a scientific rational for doing so. Furthermore, as each nation is claiming that their SPS measures are scientifically justified, there is no additional cost for simply re-producing this evidence, as it was already gathered in order to create the SPS measures in the first place.

This will help alleviate the high cost of challenging an SPS measure, and assist developing countries in bringing challenges through the WTO dispute settlement mechanism.

(ii) Financial Assistance for Developing Countries to Comply with SPS

As previously mentioned, Articles 9 and 10 of the SPS Agreement require developed countries to provide technical assistance to developing countries to comply with its provisions. However, developed countries have been slow to follow through with these obligations, which contribute to the inability of developing countries to comply with international health standards.

In addition to Articles 9 and 10, this paper suggests that a fund be created to provide financial assistance for developing countries to pursue SPS related challenges. This will help lower the procedural hurdles to using the WTO dispute settlement mechanism and narrow the legal and technical knowledge gap between richer and poorer members of the WTO

(iii) Better enforcement of SPS Agreement

Presently, SPS disputes must undergo a protracted bilateral negotiation process before it can proceed to the WTO Dispute Settlement Body. This creates a lengthy and expensive delay between the initial incident and resolution. The remoteness of these resolutions also acts as a disincentive for injured parties to initiate SPS disputes.

It is therefore recommended that a separate SPS dispute settlement body be created to handle only SPS related issues. This will result in much more rapid settlement of SPS challenges. Faster resolution will decrease the negative economic impact on the injured

country and enable them to recover financially and restore its international market repute sooner.

5.5 SPS Measures Adopted in Emergency Situations: New Mandated Expedited Review of Trade Bans

In emergency situations, where there is incomplete knowledge and potentially dire consequences, a country can invoke the emergency provision of the SPS Agreement. Although they are obliged to review the SPS measure within a reasonable period of time, it remains at the discretion of the invoking country to determine what a reasonable period constitutes. The ambiguity of a "reasonable period" could allow the invoking country to prolong the SPS measure for much longer than is necessary.

It is therefore suggested that for highly pathogenic diseases, such as the avian flu, an expedited review of the trade ban be mandated. This will ensure that any SPS measures invoked in emergency situations are not used indefinitely. For example, within two months of invoking a trade ban, the review will be conducted to consider the scientific justification of the ban, given the latest scientific data

High costs and lengthy delays associated with challenging unfair trade bans, and the ineffectiveness of retaliatory tariffs for developing countries, tend to discourage rather than encourage reporting of infected poultry. In emergency health situations, such as the current avian influenza crisis, a faster, more accessible means of assessing the scientific justification of trade bans is necessary.

Finally, the long-term, negative stigma of a nation subject to an avian flu import ban makes time of the essence in assessing whether such bans are justified. If the ban is unjustified and removed, it will enable the infected country to return to exporting and recover their economic status much more quickly. Thus, a credible expedited review process will encourage developing countries to report livestock infected with the avian flu.

Therefore, to reward countries for candid and prompt reporting of avian flu outbreaks, a highly expedited, independent, review process will immediately assess whether such blanket import bans are justified. In order to hold countries accountable for invoking the emergency SPS provisions and imposing blanket import bans, this review will determine whether there is sufficient scientific evidence to justify the ban. The review can also determine whether a less drastic health protectionist measure could be used in place of a national ban, such as a regional ban.

The review will be held on a highly expedited basis, to reflect the severity of the economic losses on the banned country and the stigma of being associated with a highly infectious disease as the avian flu. Given that the economic stakes of import bans on a pivotal industry are so high for developing countries, an expedited review is necessary.

If the review body determines that the ban is unjustified, the offending country will be obliged to pay compensation to the injured party for resulting economic losses on a strict liability basis. The findings of this review body can also be used if a subsequent formal WTO challenge is brought by the injured party, as part of their submissions to a WTO panel. Thus, the decision of this expedited review will provide some persuasive authority

to assist the injured party in their challenge. It will also act as a deterrent for countries attempting to misuse the emergency provision of the SPS agreement as an artificial trade barrier.

The expedited review body would consist of credible members of the international scientific and legal community and could be chosen from the FAO, the OIE and a roster of international trade arbitrators.

It is also important that the funding for this expedited review process arise from a pool into which all WTO members are obliged to contribute. Therefore, the cost and risk of using the SPS as artificial protectionism will be borne by all WTO members. Having the expense of the expedited review process borne by all WTO members will also narrow the gap between poorer and richer members of the WTO on SPS related disputes. This fund can be financed by imposing a levy on all WTO members, perhaps one or two percent of their net trading activities. Thus, those countries that are wealthiest and engage in the highest trading volume will contribute the most to the fund. This will ensure accessibility to the expedited review mechanism is equally available to all WTO members, regardless of their wealth.

Furthermore, it is also suggested that countries which invoke the emergency provisions of the SPS be required to post a bond with a third party. In the event that the ban is found to be scientifically unjustifiable, the offending country will have to forfeit this bond. The money from the bonds will be used to finance future expedited reviews of emergency trade bans. This will help ensure that countries relying on the emergency provision do so in a responsible manner, and not as a form of disguised protectionism.

But is there any authority in the WTO or the SPS agreement that would support the creation and use of such an expedited review process? It is the opinion of this author that several provisions of the existing WTO dispute settlement rules and the SPS agreement may have paved the way for such a review process.

i) Article 4.9 of the Dispute Settlement Understanding (DSU)

Even under the existing dispute settlement rules set out by the WTO, if one of the parties can demonstrate circumstances of "urgency" under article 4.9, then the panel can accelerate their decision-making process.

> "4.9 In cases of urgency, including those which concern perishable goods, the parties to the dispute, panels and the Appellate Body shall make every effort to accelerate the proceedings to the greatest extent possible."

And the urgency does not necessarily have to arise from the fact that perishable goods are the subject of the dispute. In fact, in the *Canada - Patent Term* case, the United States submitted a request for expedited consideration under Article 4.9 of the DSU. The US argued that the premature expiration of patents during the dispute settlement procedure could cause irreparable harm to the patent owners if the proceedings were too lengthy. Although the panel did not accelerate the deadline for its first substantive meeting, it was willing to do so after its second meeting[218].

This case then provides some ground for arguing that the urgency of economic losses arising from delays in resolving a dispute can be valid grounds for expedited WTO panel rulings. Similarly, given that the economic losses to the poultry industry of the injured

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[218] WTO, *Report of the Panel on Canada – Term of Patent Protection*, WTO Doc. WT/DS170/R (5 May 2000), online: WTO <http://docs-online.wto.org> at para. 1.5

party can run into billion of dollars, this might also similar grounds for justifying the expedited review of avian flu import bans. Furthermore, the long term economic consequences of being stigmatized as a nation "tainted" with the avian flu also provide grounds for arguing that an expedited process is necessary to review avian flu motivated trade bans.

ii) Right to Seek Outside Technical Expertise:

Article 13 of the DSU and Article 11.2 of the SPS Agreement

Under article 13 of the DSU, a panel has the authority to,

> ".....seek information from any relevant source and may consult experts to obtain their opinion on certain aspects of the matter. With respect to a factual issue concerning a scientific or other technical matter raised by a party to a dispute, a panel may request an advisory report in writing from an expert review group. "

This clearly authorizes a panel to seek information, on scientific and technical matters, that may be outside of the panel's knowledge or expertise, including a report from an expert review group.

Furthermore, under Article 11.2 of the SPS Agreement, given the highly technical and scientific nature of the findings that a panel will have to make for SPS disputes, a panel has the authority to.

> "seek advice from experts chosen by the panel in consultation with the parties to the dispute. To this end, the panel may, when it deems it appropriate, establish an advisory technical experts group, or consult the relevant international organizations, at the request of either party to the dispute or on its own initiative[219]."

[219] SPS Agreement, supra note 142, art. 11 (provision on dispute settlement).

Once again, this provision recognizes that the special nature of SPS related disputes will necessitate relying on the advice of outside experts. This would support that an expedited review process, conducted by experts on the avian flu and international trade, is consistent with current WTO and SPS dispute settlement rules and objectives.

Both of these provisions were considered in the *EC- Hormones* case[220]. The EC challenged the right of the panel on its selection and use of experts. The Appellate Body decided that a Panel has the discretion to decide whether to seek advice from individual scientific experts or from a group of such experts. Furthermore, it decided that, a panel has the right to establish *ad hoc* rules for such consultations:

> "Both Article 11.2 of the *SPS Agreement* and Article 13 of the DSU enable panels to seek information and advice as they deem appropriate in a particular case.... We find that in disputes involving scientific or technical issues, neither Article 11.2 of the *SPS Agreement,* nor Article 13 of the DSU prevents panels from consulting with individual experts. Rather, both the *SPS Agreement* and the DSU leave to the sound discretion of a panel the determination of whether the establishment of an expert review group is necessary or appropriate.
>
> The rules and procedures set forth in Appendix 4 of the DSU apply in situations in which expert review groups have been established. However, this is not the situation in this particular case. Consequently, once the panel has decided to request the opinion of individual scientific experts, there is no legal obstacle to the panel drawing up, in consultation with the parties to the dispute, *ad hoc* rules for those particular proceedings[221]."

Therefore, there is precedence, particularly for SPS related disputes, for the reliance on the advice and findings of outside experts, on highly scientific and technical matters, to

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[220] WTO, "Repertory of the Appellate Body Reports: Seek Information and Technical Advice" on *EC Measures Concerning Meat and Heat Products (Hormones),* s. 4.1, para. 147, online: WTO <http://www.wto.org/english/tratop_e/dispu_e/repertory_e/s4_e.htm>. See also WTO, *Report of the Appellate Body on EC Measures Concerning Meat and Heat Products (Hormones),* WTO Doc. WT/DS26/AB/R & WT/DS48/AB/R (1998), online: WTO <http://docs-online.wto.org> at paras. 147-148.

[221] *Ibid.* See also WTO, "WTO Analytical Index: Dispute Settlement Understanding: Understanding on Rules and Procedures Governing the Settlement of Disputes", online: WTO <http://www.wto.org/English/res_e/booksp_e/analytic_index_e/dsu_06_e.htm#article13>.

resolve SPS disputes. It would not be such a huge step then to similarly engage experts for an expedited review process, on an emergency basis, prior to a formal WTO challenge being instigated.

iii) Expedited Arbitration: Article 25 of the DSU

Finally, under Article 25 of the DSU, parties can have recourse to an expedited arbitration of their dispute:

> "25.1 Expeditious arbitration within the WTO as an alternative means of dispute settlement can facilitate the solution of certain disputes that concern issues that are clearly defined by both parties.
>
> 25.2. Except as otherwise provided in this Understanding, resort to arbitration shall be subject to mutual agreement of the parties which shall agree on the procedures to be followed. Agreements to resort to arbitration shall be notified to all Members sufficiently in advance of the actual commencement of the arbitration process.[222]"

The only WTO case that considered article 25 is *US Copyright 110(5)*[223]. Both parties to the dispute, the EC and the United States agreed to have their dispute resolved by expedited arbitration under Article 25. The goal of the arbitration was to determine the degree of impairment of benefits to the European Communities from the operation of Section 110(5)(B) of the US Copyright Act. It was decided that the parties had every right to have their matter decided through arbitration. In fact, it was held that

> "In general, recourse to arbitration under Article 25 strengthens the dispute resolution system by complementing (compensation) negotiation under Article 22.2. The possibility for the parties to a dispute to seek arbitration in relation to the

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[222] WTO, *Uruguay Round Agreement: Understanding on Rules and Procedures Governing the Settlement of Disputes*, online: WTO <http://www.wto.org/English/docs_e/legal_e/28-dsu_e.htm#1_2>.
[223] WTO, Award of the Arbitrators on United States – Section 110(5) of the US Copyright Act - Recourse to Arbitration under Article 25 of the DSU, WTO Doc. WT/DS160/ARB25/1 (9 November 2001), online: worldtradelaw.net: <http://www.worldtradelaw.net/reports/25awards/us-copyright(25).pdf>.

> negotiation of compensation operates to increase the effectiveness of that option under Article 22.2.[224]"

Therefore, article 25 and the US Copyright case provide some justification for the creation of an expedited assessment body to review avian flu motivated import bans. If an arbitration panel can be considered consistent with the principles of the DSU, it could be argued that an expedited independent review panel, having the same objectives as arbitration, would be similarly consistent with DSU principles and goals.

However, the main drawback with Article 25 is that is requires the consent of all parties to resort to arbitration. And, as witnessed in the *EC Hormones* case, if the offending party continually refuses to cooperate in reaching a fair resolution, they can simply refuse to have the matter referred to arbitration. The benefit of an expedited review as suggested in this paper, is that it would not require the consent of both parties. Rather, given the urgency of the health crisis and economic stakes for the parties involved, it would be mandatory review.

In summary, implementing an expedited review of import bans invoked under the guise of the emergency provisions of the SPS Agreement will help ensure that this provision is not abused. It provides a counter-balance because it requires the invoking state to immediately provide scientific justification for the necessity of the import ban. It provides a means of accessing justice that is faster, simpler and quicker than the usual WTO dispute settlement mechanism. Having the expedited review financed by contributions from all WTO members also relieves the financial burden on, and enhances

[224] *Ibid*, at 8.

procedural accessibility, by developing countries. It also re-distributes the risk of unfair trade bans and the cost of challenging such bans to all WTO members. This will help deter WTO members from imposing unjustifiable trade bans in an irresponsible manner.

Certain provisions of the DSU and the SPS Agreement already provide some precedent for expedited proceedings and the use of outside technical experts in WTO dispute settlement. Under Article 4.9 of the DSU, panel proceedings can be accelerated to avoid severe economic losses. Under 13.2 of the DSU and 11.2 of the SPS Agreement, a panel also has the right to seek advice or appoint a body of outside experts to assist in making findings of a highly technical and scientific nature. Finally, expedited arbitration is available under article 25 of the DSU as an option to normal negotiations. However, as arbitration requires the consent of all parties, this options is not practical in situations where one party is not cooperative. Nevertheless, these provisions would suggest that an expedited review for SPS purported import bans is entirely consistent with current WTO dispute settlement principles and objectives.

An expedited review of avian flu motivated trade bans might help in encouraging countries with outbreaks of H5N1 to have greater confidence that such trade bans will not be invoked irresponsibly. This, in turn, will hopefully inspire such countries to be more forthcoming about incidence of the disease in their poultry industry. Improving procedural accessibility will heighten the effectiveness of current avian flu containment strategies.

CHAPTER SIX: Conclusion

The rapid growth in the world's population and globalization of trade has exacerbated the threat posed by infectious diseases such as avian influenza. Furthermore, in the face of globalization, traditional containment strategies, that include such mechanisms as border controls and quarantines, have become outdated and inadequate.

The unexpectedly rapid diffusion of H5N1 in bird populations across Asia, Europe and Africa is causing great concern within the international health community. In early 2006, the disease spread quickly to 32 countries in less than four months. This new strain of the avian flu also seems to have become more resilient and unpredictable in its mutability, leaving our leading scientists uncertain as to its behavior. With every incidence of H5N1 in the animal population, the likelihood of human transmission increases.

In response to the threat of an avian flu pandemic, the international community has formulated strategies to improve surveillance, detection, reporting and containment of the disease in both the animal and human population. The most effective means of preventing the spread of the disease in humans is by containment within the animal population. One way of identifying outbreaks is by conducting vigilant surveillance and monitoring of the animal population. But such surveillance efforts are time-consuming,

expensive and will never be perfect, particularly in developing countries. It would be simpler to create incentive mechanisms that encourage self-disclosure by poultry farmers.

Therefore, preventing the transmission of H5N1 to the human population hinges on enlisting the support of poultry farmers. But, two main weaknesses tend to discourage disclosure of infected livestock. These weaknesses arise because existing incentives are incompatible with the priorities of developing countries.

The first failure is the inability to recruit the cooperation of the individual poultry farmers. Failing to offer adequate compensation for culled livestock inspires poultry farmers to conceal rather than disclose livestock infected with avian flu.

This is a particularly dangerous flaw in developing countries, as these regions pose the greatest risk for spread of the disease. Yet these farmers are offered the weakest or even non-existent compensation. In fact, lead technical agencies are discovering cases of under-reporting of diseased birds arising from a lack of compensation for destroyed livestock. Since national governments of these countries lack the resources to finance adequate compensation schemes, alternative means of financing compensation need to be synthesized.

The second weakness arises at the level of international trade, when certain provisions of the World Trade Organization`s SPS Agreement are misused as trade protectionism. But the procedural lethargy that accompanies the pursuit of SPS related disputes has diluted

member confidence in the effectiveness of the SPS Agreement. This lack of confidence effects a country's decision to disclose incidence of infectious diseases, such as the avian flu.

This is particularly true for developing or transition economies, as these countries have the most to lose by reporting infected livestock and the fewest resources to engage in WTO disputes. Thus, procedural inaccessibility and ineffective enforcement of the SPS Agreement creates a second tier of deterrence for countries to report incidence of H5N1. It is unlikely that overcoming these two issues will be achieved by implementing sweeping revolutionary changes. Rather, this paper provides recommendations intended to supplement existing and future ideas for encouraging reporting of incidence of dangerous infectious diseases.

International Compensation Scheme

The consequences of a human pandemic arising from the avian flu will reverberate across the entire global community. Thus, resolving this weakness should be the responsibility of all nations. In the short run, the creation of a centrally-administered, internationally-funded compensation scheme will encourage reporting of infected livestock by poultry farmers. But another problem arises in attempting to motivate donors to finance a compensation fund.

One suggestion is to impose an international public health emergency tax on all nations. This will help redistribute national government spending on human pandemic preparedness onto more preventive measures. Another suggestion is to entice private stakeholders to invest in the compensation fund, in exchange for favorable foreign investment concessions or exclusive supply agreements with the agricultural sector of the sponsored developing country.

Once financing is in place, compensation can be provided to poultry farmers for both direct and consequential losses resulting from destruction of their infected livestock. To be truly flexible, alternative compensation can be also be offered in lieu of strict monetary compensation, such as: an extension on the farmer's existing loans, offering soft credit with subsidized interest rates, rebates on the purchase of alternative livestock (other than poultry) and credit for free veterinary service.

Equally important to successful avian flu containment, is improving the developing world's confidence in the dispute settlement process of SPS invoked trade bans.

Mandated Expedited Review of Emergency SPS Trade Bans

Along with improving the streamlining the SPS challenge procedures, the most significant recommendation is to implement an expedited review of import bans invoked under the guise of the emergency provisions of the SPS Agreement.

The purpose of this expedited review is to help ensure that this provision is not abused. It provides a means of reviewing the scientific basis of the ban that is faster, simpler and less protracted than the usual WTO dispute settlement mechanism. It provides a counter-balance to the emergency provision as it requires the invoking state to immediately provide scientific justification for the necessity of the import ban.

Existing provisions of the DSU and the SPS Agreement already provide some precedent for the use of expedited proceedings in dispute settlement. WTO panel proceedings can be accelerated to avoid severe economic losses incurred by one party. Both the DSU and the SPS Agreement have provisions explicitly stating a panel's right to seek and use outside experts, in recognition of the highly technical nature of the scientific nature of the disputes involved. Finally, WTO disputes can be resolved through expedited arbitration, but, as it requires the consent of all parties, this options is not practical if one party is uncooperative. Thus, suggesting an expedited review for SPS purported import bans is entirely consistent with current WTO dispute settlement principles and objectives.

An expedited review of avian flu motivated trade bans will encourage countries experiencing outbreaks of H5N1 to have greater confidence that such trade bans will not be invoked irresponsibly. This in turn will inspire such countries to be more forthcoming about incidence of the disease in their poultry industry. Improving procedural accessibility will heighten the effectiveness of current avian flu containment strategies.

This paper serves to illustrate how the decision-making process of humble poultry farmers in developing countries can make or break the success of global infectious disease strategies. It highlights how the health and economic welfare of humans in developed countries are inextricably linked with and dependent on the health of humans in the developing world. So this paper has recommended mechanisms intended to foster an economic symbiosis, that is, to create scenarios where it is in the best economic interest of richer nations to foster the health of poorer countries. As an essential component of global disease management, it is imperative that livestock compensation schemes and international trade laws are compatible with developing country priorities. The health of all humans is at stake.

APPENDIX I:

AGREEMENT ON THE APPLICATION OF SANITARY AND PHYTOSANITARY MEASURES

Members,

Reaffirming that no Member should be prevented from adopting or enforcing measures necessary to protect human, animal or plant life or health, subject to the requirement that these measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between Members where the same conditions prevail or a disguised restriction on international trade;

Desiring to improve the human health, animal health and phytosanitary situation in all Members;

Noting that sanitary and phytosanitary measures are often applied on the basis of bilateral agreements or protocols;

Desiring the establishment of a multilateral framework of rules and disciplines to guide the development, adoption and enforcement of sanitary and phytosanitary measures in order to minimize their negative effects on trade;

Recognizing the important contribution that international standards, guidelines and recommendations can make in this regard;

Desiring to further the use of harmonized sanitary and phytosanitary measures between Members, on the basis of international standards, guidelines and recommendations developed by the relevant international organizations, including the Codex Alimentarius Commission, the International Office of Epizootics, and the relevant international and regional organizations operating within the framework of the International Plant Protection Convention, without requiring Members to change their appropriate level of protection of human, animal or plant life or health;

Recognizing that developing country Members may encounter special difficulties in complying with the sanitary or phytosanitary measures of importing Members, and as a consequence in access to markets, and also in the formulation and application of sanitary or phytosanitary measures in their own territories, and desiring to assist them in their endeavours in this regard;

Desiring therefore to elaborate rules for the application of the provisions of GATT 1994 which relate to the use of sanitary or phytosanitary measures, in particular the provisions of Article XX(b)[225];

Hereby agree as follows:

Article 1

General Provisions

1. This Agreement applies to all sanitary and phytosanitary measures which may, directly or indirectly, affect international trade. Such measures shall be developed and applied in accordance with the provisions of this Agreement.

2. For the purposes of this Agreement, the definitions provided in Annex A shall apply.

3. The annexes are an integral part of this Agreement.

4. Nothing in this Agreement shall affect the rights of Members under the Agreement on Technical Barriers to Trade with respect to measures not within the scope of this Agreement.

Article 2

Basic Rights and Obligations

1. Members have the right to take sanitary and phytosanitary measures necessary for the protection of human, animal or plant life or health, provided that such measures are not inconsistent with the provisions of this Agreement.

2. Members shall ensure that any sanitary or phytosanitary measure is applied only to the extent necessary to protect human, animal or plant life or health, is based on scientific principles and is not maintained without sufficient scientific evidence, except as provided for in paragraph 7 of Article 5.

3. Members shall ensure that their sanitary and phytosanitary measures do not arbitrarily or unjustifiably discriminate between Members where identical or similar conditions prevail, including between their own territory and that of other Members. Sanitary and phytosanitary measures shall not be applied in a manner which would constitute a disguised restriction on international trade.

4. Sanitary or phytosanitary measures which conform to the relevant provisions of this Agreement shall be presumed to be in accordance with the obligations of the

[225] In this Agreement, reference to Article XX(b) includes also the chapeau of that Article.

Members under the provisions of GATT 1994 which relate to the use of sanitary or phytosanitary measures, in particular the provisions of Article XX(b).

Article 3

Harmonization

1. To harmonize sanitary and phytosanitary measures on as wide a basis as possible, Members shall base their sanitary or phytosanitary measures on international standards, guidelines or recommendations, where they exist, except as otherwise provided for in this Agreement, and in particular in paragraph 3.

2. Sanitary or phytosanitary measures which conform to international standards, guidelines or recommendations shall be deemed to be necessary to protect human, animal or plant life or health, and presumed to be consistent with the relevant provisions of this Agreement and of GATT 1994.

3. Members may introduce or maintain sanitary or phytosanitary measures which result in a higher level of sanitary or phytosanitary protection than would be achieved by measures based on the relevant international standards, guidelines or recommendations, if there is a scientific justification, or as a consequence of the level of sanitary or phytosanitary protection a Member determines to be appropriate in accordance with the relevant provisions of paragraphs 1 through 8 of Article 5.[226] Notwithstanding the above, all measures which result in a level of sanitary or phytosanitary protection different from that which would be achieved by measures based on international standards, guidelines or recommendations shall not be inconsistent with any other provision of this Agreement.

4. Members shall play a full part, within the limits of their resources, in the relevant international organizations and their subsidiary bodies, in particular the Codex Alimentarius Commission, the International Office of Epizootics, and the international and regional organizations operating within the framework of the International Plant Protection Convention, to promote within these organizations the development and periodic review of standards, guidelines and recommendations with respect to all aspects of sanitary and phytosanitary measures.

5. The Committee on Sanitary and Phytosanitary Measures provided for in paragraphs 1 and 4 of Article 12 (referred to in this Agreement as the "Committee") shall develop a procedure to monitor the process of international harmonization and coordinate efforts in this regard with the relevant international organizations.

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[226] For the purposes of paragraph 3 of Article 3, there is a scientific justification if, on the basis of an examination and evaluation of available scientific information in conformity with the relevant provisions of this Agreement, a Member determines that the relevant international standards, guidelines or recommendations are not sufficient to achieve its appropriate level of sanitary or phytosanitary protection.

Article 4

Equivalence

1. Members shall accept the sanitary or phytosanitary measures of other Members as equivalent, even if these measures differ from their own or from those used by other Members trading in the same product, if the exporting Member objectively demonstrates to the importing Member that its measures achieve the importing Member's appropriate level of sanitary or phytosanitary protection. For this purpose, reasonable access shall be given, upon request, to the importing Member for inspection, testing and other relevant procedures.

2. Members shall, upon request, enter into consultations with the aim of achieving bilateral and multilateral agreements on recognition of the equivalence of specified sanitary or phytosanitary measures.

Article 5

Assessment of Risk and Determination of the Appropriate Level of Sanitary or Phytosanitary Protection

1. Members shall ensure that their sanitary or phytosanitary measures are based on an assessment, as appropriate to the circumstances, of the risks to human, animal or plant life or health, taking into account risk assessment techniques developed by the relevant international organizations.

2. In the assessment of risks, Members shall take into account available scientific evidence; relevant processes and production methods; relevant inspection, sampling and testing methods; prevalence of specific diseases or pests; existence of pest- or disease-free areas; relevant ecological and environmental conditions; and quarantine or other treatment.

3. In assessing the risk to animal or plant life or health and determining the measure to be applied for achieving the appropriate level of sanitary or phytosanitary protection from such risk, Members shall take into account as relevant economic factors: the potential damage in terms of loss of production or sales in the event of the entry, establishment or spread of a pest or disease; the costs of control or eradication in the territory of the importing Member; and the relative cost-effectiveness of alternative approaches to limiting risks.

4. Members should, when determining the appropriate level of sanitary or phytosanitary protection, take into account the objective of minimizing negative trade effects.

5. With the objective of achieving consistency in the application of the concept of appropriate level of sanitary or phytosanitary protection against risks to human life or

health, or to animal and plant life or health, each Member shall avoid arbitrary or unjustifiable distinctions in the levels it considers to be appropriate in different situations, if such distinctions result in discrimination or a disguised restriction on international trade. Members shall cooperate in the Committee, in accordance with paragraphs 1, 2 and 3 of Article 12, to develop guidelines to further the practical implementation of this provision. In developing the guidelines, the Committee shall take into account all relevant factors, including the exceptional character of human health risks to which people voluntarily expose themselves.

6. Without prejudice to paragraph 2 of Article 3, when establishing or maintaining sanitary or phytosanitary measures to achieve the appropriate level of sanitary or phytosanitary protection, Members shall ensure that such measures are not more trade-restrictive than required to achieve their appropriate level of sanitary or phytosanitary protection, taking into account technical and economic feasibility.[227]

7. In cases where relevant scientific evidence is insufficient, a Member may provisionally adopt sanitary or phytosanitary measures on the basis of available pertinent information, including that from the relevant international organizations as well as from sanitary or phytosanitary measures applied by other Members. In such circumstances, Members shall seek to obtain the additional information necessary for a more objective assessment of risk and review the sanitary or phytosanitary measure accordingly within a reasonable period of time.

8. When a Member has reason to believe that a specific sanitary or phytosanitary measure introduced or maintained by another Member is constraining, or has the potential to constrain, its exports and the measure is not based on the relevant international standards, guidelines or recommendations, or such standards, guidelines or recommendations do not exist, an explanation of the reasons for such sanitary or phytosanitary measure may be requested and shall be provided by the Member maintaining the measure.

Article 6

Adaptation to Regional Conditions, Including Pest- or Disease-Free Areas and Areas of Low Pest or Disease Prevalence

1. Members shall ensure that their sanitary or phytosanitary measures are adapted to the sanitary or phytosanitary characteristics of the area - whether all of a country, part of a country, or all or parts of several countries - from which the product originated and to which the product is destined. In assessing the sanitary or phytosanitary characteristics of a region, Members shall take into account, *inter alia*, the level of prevalence of specific

[227] For purposes of paragraph 6 of Article 5, a measure is not more trade-restrictive than required unless there is another measure, reasonably available taking into account technical and economic feasibility, that achieves the appropriate level of sanitary or phytosanitary protection and is significantly less restrictive to trade.

diseases or pests, the existence of eradication or control programmes, and appropriate criteria or guidelines which may be developed by the relevant international organizations.

2. Members shall, in particular, recognize the concepts of pest- or disease-free areas and areas of low pest or disease prevalence. Determination of such areas shall be based on factors such as geography, ecosystems, epidemiological surveillance, and the effectiveness of sanitary or phytosanitary controls.

3. Exporting Members claiming that areas within their territories are pest- or disease-free areas or areas of low pest or disease prevalence shall provide the necessary evidence thereof in order to objectively demonstrate to the importing Member that such areas are, and are likely to remain, pest- or disease-free areas or areas of low pest or disease prevalence, respectively. For this purpose, reasonable access shall be given, upon request, to the importing Member for inspection, testing and other relevant procedures.

Article 7

Transparency

Members shall notify changes in their sanitary or phytosanitary measures and shall provide information on their sanitary or phytosanitary measures in accordance with the provisions of Annex B.

Article 8

Control, Inspection and Approval Procedures

Members shall observe the provisions of Annex C in the operation of control, inspection and approval procedures, including national systems for approving the use of additives or for establishing tolerances for contaminants in foods, beverages or feedstuffs, and otherwise ensure that their procedures are not inconsistent with the provisions of this Agreement.

Article 9

Technical Assistance

1. Members agree to facilitate the provision of technical assistance to other Members, especially developing country Members, either bilaterally or through the appropriate international organizations. Such assistance may be, *inter alia*, in the areas of processing technologies, research and infrastructure, including in the establishment of national regulatory bodies, and may take the form of advice, credits, donations and grants, including for the purpose of seeking technical expertise, training and equipment to allow such countries to adjust to, and comply with, sanitary or phytosanitary measures

necessary to achieve the appropriate level of sanitary or phytosanitary protection in their export markets.

2. Where substantial investments are required in order for an exporting developing country Member to fulfil the sanitary or phytosanitary requirements of an importing Member, the latter shall consider providing such technical assistance as will permit the developing country Member to maintain and expand its market access opportunities for the product involved.

Article 10

Special and Differential Treatment

1. In the preparation and application of sanitary or phytosanitary measures, Members shall take account of the special needs of developing country Members, and in particular of the least-developed country Members.

2. Where the appropriate level of sanitary or phytosanitary protection allows scope for the phased introduction of new sanitary or phytosanitary measures, longer time-frames for compliance should be accorded on products of interest to developing country Members so as to maintain opportunities for their exports.

3. With a view to ensuring that developing country Members are able to comply with the provisions of this Agreement, the Committee is enabled to grant to such countries, upon request, specified, time-limited exceptions in whole or in part from obligations under this Agreement, taking into account their financial, trade and development needs.

4. Members should encourage and facilitate the active participation of developing country Members in the relevant international organizations.

Article 11

Consultations and Dispute Settlement

1. The provisions of Articles XXII and XXIII of GATT 1994 as elaborated and applied by the Dispute Settlement Understanding shall apply to consultations and the settlement of disputes under this Agreement, except as otherwise specifically provided herein.

2. In a dispute under this Agreement involving scientific or technical issues, a panel should seek advice from experts chosen by the panel in consultation with the parties to the dispute. To this end, the panel may, when it deems it appropriate, establish an

advisory technical experts group, or consult the relevant international organizations, at the request of either party to the dispute or on its own initiative.

3. Nothing in this Agreement shall impair the rights of Members under other international agreements, including the right to resort to the good offices or dispute settlement mechanisms of other international organizations or established under any international agreement.

Article 12

Administration

1. A Committee on Sanitary and Phytosanitary Measures is hereby established to provide a regular forum for consultations. It shall carry out the functions necessary to implement the provisions of this Agreement and the furtherance of its objectives, in particular with respect to harmonization. The Committee shall reach its decisions by consensus.

2. The Committee shall encourage and facilitate ad hoc consultations or negotiations among Members on specific sanitary or phytosanitary issues. The Committee shall encourage the use of international standards, guidelines or recommendations by all Members and, in this regard, shall sponsor technical consultation and study with the objective of increasing coordination and integration between international and national systems and approaches for approving the use of food additives or for establishing tolerances for contaminants in foods, beverages or feedstuffs.

3. The Committee shall maintain close contact with the relevant international organizations in the field of sanitary and phytosanitary protection, especially with the Codex Alimentarius Commission, the International Office of Epizootics, and the Secretariat of the International Plant Protection Convention, with the objective of securing the best available scientific and technical advice for the administration of this Agreement and in order to ensure that unnecessary duplication of effort is avoided.

4. The Committee shall develop a procedure to monitor the process of international harmonization and the use of international standards, guidelines or recommendations. For this purpose, the Committee should, in conjunction with the relevant international organizations, establish a list of international standards, guidelines or recommendations relating to sanitary or phytosanitary measures which the Committee determines to have a major trade impact. The list should include an indication by Members of those international standards, guidelines or recommendations which they apply as conditions for import or on the basis of which imported products conforming to these standards can enjoy access to their markets. For those cases in which a Member does not apply an international standard, guideline or recommendation as a condition for import, the Member should provide an indication of the reason therefor, and, in particular, whether it considers that the standard is not stringent enough to provide the appropriate level of

sanitary or phytosanitary protection. If a Member revises its position, following its indication of the use of a standard, guideline or recommendation as a condition for import, it should provide an explanation for its change and so inform the Secretariat as well as the relevant international organizations, unless such notification and explanation is given according to the procedures of Annex B.

5. In order to avoid unnecessary duplication, the Committee may decide, as appropriate, to use the information generated by the procedures, particularly for notification, which are in operation in the relevant international organizations.

6. The Committee may, on the basis of an initiative from one of the Members, through appropriate channels invite the relevant international organizations or their subsidiary bodies to examine specific matters with respect to a particular standard, guideline or recommendation, including the basis of explanations for non-use given according to paragraph 4.

7. The Committee shall review the operation and implementation of this Agreement three years after the date of entry into force of the WTO Agreement, and thereafter as the need arises. Where appropriate, the Committee may submit to the Council for Trade in Goods proposals to amend the text of this Agreement having regard, *inter alia*, to the experience gained in its implementation.

Article 13

Implementation

Members are fully responsible under this Agreement for the observance of all obligations set forth herein. Members shall formulate and implement positive measures and mechanisms in support of the observance of the provisions of this Agreement by other than central government bodies. Members shall take such reasonable measures as may be available to them to ensure that non-governmental entities within their territories, as well as regional bodies in which relevant entities within their territories are members, comply with the relevant provisions of this Agreement. In addition, Members shall not take measures which have the effect of, directly or indirectly, requiring or encouraging such regional or non-governmental entities, or local governmental bodies, to act in a manner inconsistent with the provisions of this Agreement. Members shall ensure that they rely on the services of non-governmental entities for implementing sanitary or phytosanitary measures only if these entities comply with the provisions of this Agreement.

Article 14

Final Provisions

The least-developed country Members may delay application of the provisions of this Agreement for a period of five years following the date of entry into force of the WTO Agreement with respect to their sanitary or phytosanitary measures affecting importation or imported products. Other developing country Members may delay application of the provisions of this Agreement, other than paragraph 8 of Article 5 and Article 7, for two years following the date of entry into force of the WTO Agreement with respect to their existing sanitary or phytosanitary measures affecting importation or imported products, where such application is prevented by a lack of technical expertise, technical infrastructure or resources.

ANNEX A

DEFINITIONS[228]

1. *Sanitary or phytosanitary measure* - Any measure applied:

   (a) to protect animal or plant life or health within the territory of the Member from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms;

   (b) to protect human or animal life or health within the territory of the Member from risks arising from additives, contaminants, toxins or disease-causing organisms in foods, beverages or feedstuffs;

   (c) to protect human life or health within the territory of the Member from risks arising from diseases carried by animals, plants or products thereof, or from the entry, establishment or spread of pests; or

   (d) to prevent or limit other damage within the territory of the Member from the entry, establishment or spread of pests.

Sanitary or phytosanitary measures include all relevant laws, decrees, regulations, requirements and procedures including, *inter alia*, end product criteria; processes and production methods; testing, inspection, certification and approval procedures; quarantine treatments including relevant requirements associated with the transport of animals or plants, or with the materials necessary for their survival during transport; provisions on relevant statistical methods, sampling procedures and methods of risk assessment; and packaging and labelling requirements directly related to food safety.

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[228] For the purpose of these definitions, "animal" includes fish and wild fauna; "plant" includes forests and wild flora; "pests" include weeds; and "contaminants" include pesticide and veterinary drug residues and extraneous matter.

2. *Harmonization* - The establishment, recognition and application of common sanitary and phytosanitary measures by different Members.

3. *International standards, guidelines and recommendations*

(a) for food safety, the standards, guidelines and recommendations established by the Codex Alimentarius Commission relating to food additives, veterinary drug and pesticide residues, contaminants, methods of analysis and sampling, and codes and guidelines of hygienic practice;

(b) for animal health and zoonoses, the standards, guidelines and recommendations developed under the auspices of the International Office of Epizootics;

(c) for plant health, the international standards, guidelines and recommendations developed under the auspices of the Secretariat of the International Plant Protection Convention in cooperation with regional organizations operating within the framework of the International Plant Protection Convention; and

(d) for matters not covered by the above organizations, appropriate standards, guidelines and recommendations promulgated by other relevant international organizations open for membership to all Members, as identified by the Committee.

4. *Risk assessment* - The evaluation of the likelihood of entry, establishment or spread of a pest or disease within the territory of an importing Member according to the sanitary or phytosanitary measures which might be applied, and of the associated potential biological and economic consequences; or the evaluation of the potential for adverse effects on human or animal health arising from the presence of additives, contaminants, toxins or disease-causing organisms in food, beverages or feedstuffs.

5. *Appropriate level of sanitary or phytosanitary protection* - The level of protection deemed appropriate by the Member establishing a sanitary or phytosanitary measure to protect human, animal or plant life or health within its territory.

NOTE: Many Members otherwise refer to this concept as the "acceptable level of risk".

6. *Pest- or disease-free area* - An area, whether all of a country, part of a country, or all or parts of several countries, as identified by the competent authorities, in which a specific pest or disease does not occur.

NOTE: A pest- or disease-free area may surround, be surrounded by, or be adjacent to an area - whether within part of a country or in a geographic region which includes parts of or all of several countries -in which a specific pest or disease is known to occur but is

subject to regional control measures such as the establishment of protection, surveillance and buffer zones which will confine or eradicate the pest or disease in question.

7. *Area of low pest or disease prevalence* - An area, whether all of a country, part of a country, or all or parts of several countries, as identified by the competent authorities, in which a specific pest or disease occurs at low levels and which is subject to effective surveillance, control or eradication measures.

ANNEX B

TRANSPARENCY OF SANITARY AND PHYTOSANITARY REGULATIONS

Publication of regulations

1. Members shall ensure that all sanitary and phytosanitary regulations[229] which have been adopted are published promptly in such a manner as to enable interested Members to become acquainted with them.

2. Except in urgent circumstances, Members shall allow a reasonable interval between the publication of a sanitary or phytosanitary regulation and its entry into force in order to allow time for producers in exporting Members, and particularly in developing country Members, to adapt their products and methods of production to the requirements of the importing Member.

Enquiry points

3. Each Member shall ensure that one enquiry point exists which is responsible for the provision of answers to all reasonable questions from interested Members as well as for the provision of relevant documents regarding:

(a) any sanitary or phytosanitary regulations adopted or proposed within its territory;

(b) any control and inspection procedures, production and quarantine treatment, pesticide tolerance and food additive approval procedures, which are operated within its territory;

(c) risk assessment procedures, factors taken into consideration, as well as the determination of the appropriate level of sanitary or phytosanitary protection;

(d) the membership and participation of the Member, or of relevant bodies within its territory, in international and regional sanitary and phytosanitary

[229] Sanitary and phytosanitary measures such as laws, decrees or ordinances which are applicable generally.

organizations and systems, as well as in bilateral and multilateral agreements and arrangements within the scope of this Agreement, and the texts of such agreements and arrangements.

4. Members shall ensure that where copies of documents are requested by interested Members, they are supplied at the same price (if any), apart from the cost of delivery, as to the nationals[230] of the Member concerned.

Notification procedures

5. Whenever an international standard, guideline or recommendation does not exist or the content of a proposed sanitary or phytosanitary regulation is not substantially the same as the content of an international standard, guideline or recommendation, and if the regulation may have a significant effect on trade of other Members, Members shall:

(a) publish a notice at an early stage in such a manner as to enable interested Members to become acquainted with the proposal to introduce a particular regulation;

(b) notify other Members, through the Secretariat, of the products to be covered by the regulation together with a brief indication of the objective and rationale of the proposed regulation. Such notifications shall take place at an early stage, when amendments can still be introduced and comments taken into account;

(c) provide upon request to other Members copies of the proposed regulation and, whenever possible, identify the parts which in substance deviate from international standards, guidelines or recommendations;

(d) without discrimination, allow reasonable time for other Members to make comments in writing, discuss these comments upon request, and take the comments and the results of the discussions into account.

6. However, where urgent problems of health protection arise or threaten to arise for a Member, that Member may omit such of the steps enumerated in paragraph 5 of this Annex as it finds necessary, provided that the Member:

(a) immediately notifies other Members, through the Secretariat, of the particular regulation and the products covered, with a brief indication of the objective and the rationale of the regulation, including the nature of the urgent problem(s);

(b) provides, upon request, copies of the regulation to other Members;

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[230] When "nationals" are referred to in this Agreement, the term shall be deemed, in the case of a separate customs territory Member of the WTO, to mean persons, natural or legal, who are domiciled or who have a real and effective industrial or commercial establishment in that customs territory.

(c) allows other Members to make comments in writing, discusses these comments upon request, and takes the comments and the results of the discussions into account.

7. Notifications to the Secretariat shall be in English, French or Spanish.

8. Developed country Members shall, if requested by other Members, provide copies of the documents or, in case of voluminous documents, summaries of the documents covered by a specific notification in English, French or Spanish.

9. The Secretariat shall promptly circulate copies of the notification to all Members and interested international organizations and draw the attention of developing country Members to any notifications relating to products of particular interest to them.

10. Members shall designate a single central government authority as responsible for the implementation, on the national level, of the provisions concerning notification procedures according to paragraphs 5, 6, 7 and 8 of this Annex.

General reservations

11. Nothing in this Agreement shall be construed as requiring:

(a) the provision of particulars or copies of drafts or the publication of texts other than in the language of the Member except as stated in paragraph 8 of this Annex; or

(b) Members to disclose confidential information which would impede enforcement of sanitary or phytosanitary legislation or which would prejudice the legitimate commercial interests of particular enterprises.

ANNEX C

CONTROL, INSPECTION AND APPROVAL PROCEDURES[231]

1. Members shall ensure, with respect to any procedure to check and ensure the fulfilment of sanitary or phytosanitary measures, that:

(a) such procedures are undertaken and completed without undue delay and in no less favourable manner for imported products than for like domestic products;

[231] Control, inspection and approval procedures include, *inter alia*, procedures for sampling, testing and certification.

(b) the standard processing period of each procedure is published or that the anticipated processing period is communicated to the applicant upon request; when receiving an application, the competent body promptly examines the completeness of the documentation and informs the applicant in a precise and complete manner of all deficiencies; the competent body transmits as soon as possible the results of the procedure in a precise and complete manner to the applicant so that corrective action may be taken if necessary; even when the application has deficiencies, the competent body proceeds as far as practicable with the procedure if the applicant so requests; and that upon request, the applicant is informed of the stage of the procedure, with any delay being explained;

(c) information requirements are limited to what is necessary for appropriate control, inspection and approval procedures, including for approval of the use of additives or for the establishment of tolerances for contaminants in food, beverages or feedstuffs;

(d) the confidentiality of information about imported products arising from or supplied in connection with control, inspection and approval is respected in a way no less favourable than for domestic products and in such a manner that legitimate commercial interests are protected;

(e) any requirements for control, inspection and approval of individual specimens of a product are limited to what is reasonable and necessary;

(f) any fees imposed for the procedures on imported products are equitable in relation to any fees charged on like domestic products or products originating in any other Member and should be no higher than the actual cost of the service;

(g) the same criteria should be used in the siting of facilities used in the procedures and the selection of samples of imported products as for domestic products so as to minimize the inconvenience to applicants, importers, exporters or their agents;

(h) whenever specifications of a product are changed subsequent to its control and inspection in light of the applicable regulations, the procedure for the modified product is limited to what is necessary to determine whether adequate confidence exists that the product still meets the regulations concerned; and

(i) a procedure exists to review complaints concerning the operation of such procedures and to take corrective action when a complaint is justified.

Where an importing Member operates a system for the approval of the use of food additives or for the establishment of tolerances for contaminants in food, beverages or feedstuffs which prohibits or restricts access to its domestic markets for products based

on the absence of an approval, the importing Member shall consider the use of a relevant international standard as the basis for access until a final determination is made.

2. Where a sanitary or phytosanitary measure specifies control at the level of production, the Member in whose territory the production takes place shall provide the necessary assistance to facilitate such control and the work of the controlling authorities.

3. Nothing in this Agreement shall prevent Members from carrying out reasonable inspection within their own territories.

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