

## **Managing Public's Complacency and Public Preparedness in Response to 2006 Avian Influenza Crisis in Turkey**

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### ***Abstract***

*Public complacency is one of the problems complicating emergency preparedness and response operations for disaster managers. Effective disaster management is possible to the extent that affected communities cooperate with disaster management. Focusing on the 2006 avian influenza crisis in Turkey, this article analyzes whether the strategies and tools used by government agencies responsible for disaster management were effective in reducing public complacency, and, thus, increasing overall perceived public preparedness and response. Specifically, communication tools used for information collection, organization and dissemination were analyzed to see whether they led increased public situational awareness and immediate public reaction to the crisis. Findings suggest that government's internal preparation and use of communication tools had an impact on the level of the information the public exposed to, while reduced complacency or public reaction to the crisis had an impact on the overall perceived public preparedness.*

### ***Key Words:***

*Bird flu, avian influenza, public emergency preparedness, emergency information management, crisis communication, crisis management.*

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## Introduction

Over last decade emergency and crisis managers across the world have faced various crises that tested their competencies. These crises have varied in scope, significance, and consequences, but all of them have implications for agencies responsible for public safety and security. Some agencies are quick enough to take lessons and implement new policies before next disasters strike, while others are characterized by problems varying from bureaucratic handicaps to incompetency and lack of experience concerning specific type of disaster. Still others face socio-economic and political problems, which complicates already critic situation and leads to more deteriorated results.

Public preparedness is one of the important issues determining safety of the populations at stake during disasters. Public complacency, on the other hand, may be one of the factors jeopardizing public preparedness before disasters. Degree of apathy in a given society is closely related to where it stands culturally between fatalism and resiliency (Douglas & Wildavsky, 1982). Among the factors having consequential impacts on the concept are government's role and preparedness level, public awareness of risk, sufficiency, and reliability of information, reputation of the source of information, conflicting and wrong societal beliefs, and socio-economic factors like poverty and level of education.

Turkish disaster management has faced several emergency cases over last decade ranging from natural disasters to terrorist attacks (Corbacioglu & Kapucu, 2005a; Mango, 2005). The cases have shown that Turkey is still struggling with inherent administrative, socio-economic and cultural problems when emergency management is considered. The most important problem in this regard is that Turkey is still far away from being a disaster-oriented and crisis-sensitive society. Although there has been a significant shift toward a risk society after the 1999 Marmara earthquake, societal attitudes towards preparedness and complacency do not change easily and show the same impact in each and every community.

Effective mitigation, preparedness, and response require a culture that is responsive to emergency risks, and management of information search, exchange and dissemination activities to build a resilient society. This article analyzes the case of Turkish disaster response to the 2006 Avian Influenza (H5N1), also known as bird flu. The topic is of crucial importance today especially because of the imminent threat of swine flu affecting several countries (Centers for Disease Control and Prevention, 2009). Focusing on the respective government policies and community response to the policies, this study examines the following research questions: Did tools and strategies utilized by Turkish district emergency managers and responsible officers help reduce public complacency and increase public awareness of risk related to avian influenza? Did the tools and strategies help prepare public before and during crisis response operations? The questions will be answered based on hypothesis testing, in which the respondents are not the public itself but the government officials that evaluate the level of public preparedness and decide respectively. It is therefore, the goal of this study to analyze perceived public preparedness, which might be viewed more accurate and objective, rather than public preparedness defined by the public itself.

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The need for cooperative society makes it imperative that governments at all levels develop the tools and strategies to promote culture of preparedness in response to crises and emergencies (Kapucu, 2008). This study will help policy makers to develop understanding about viable tools required to deal with public complacency and prepare communities before and during emergency situations and crises, as well as to understand the leverage points for improving disaster mitigation, preparedness, and response.

### **Literature Review & Theoretical Framework**

#### *The Role of Government in Managing Crisis and Emergencies*

Public sector has become the primary agent that is responsible for providing public safety during emergencies (Kapucu & Van Wart, 2006). Having weak government policies and strategies to deal with emergencies may have debilitating results. Those policies and strategies are expected to cover issues ranging from communication and coordination to actual response operations. In a way, disaster management requires a strong leadership to cope with complex environment and to make effective decisions (Kapucu & Van Wart, 2008). When disaster management is considered, it is primarily public agencies and organizations that are responsible for effective handling of the complex situation at hand.

The primary role of disaster management agencies is to ensure that mitigation, preparedness, response and recovery stages of disaster management are addressed and implemented in a way that public is sufficiently prepared for emergency and crisis situations (Celik, 2007; Kapucu, Berman, & Wang, 2008). While response and recovery stages are relatively more complex in nature and scope, mitigation and preparedness stages have their own importance of preventing further or larger disasters. The first issue that should be discussed in terms effective crisis management is the competence or preparedness level of government agencies responsible for provision of public security (Batuk et al., 2004; Celik, 2007; Kapucu 2006). Internally, they should have viable and comprehensive plans to implement during emergency situations (Light, 2008). These plans should follow non-routine decision-making and solution-providing techniques (Ulmer, Sellnow, & Seeger, 2007). What is more, the plans and guidance should be supported by sufficient resources, whether in terms of personnel, technology or resources needed for field operations. Indeed, “[e]ven emergency managers are not immune from preparedness paralysis” (Emergency Preparedness Institute, 2007, p. 2).

While public agencies at all levels of government are required to deal with public safety in times of disasters and crises (Light, 2008), though, it is not an easy task for them to address the whole situation completely. This is the case because dealing with emergency is a two-side process, requiring input of both the citizens and the responding agencies. The role of responsible disaster management entities before and during disasters is not only to provide necessary services to impacted communities, but also to involve those communities in constructive process to minimize the impacts of the disasters through

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cooperation. In other words, emergency managers are to find effective and efficient ways to reach out to disaster-impacted communities and prevent further deteriorations or foster cooperation through publicly informed and instructed procedures. This, however, is all a function of how governments deal with information management mechanisms to use necessary and appropriate information during disasters (Kapucu 2006; Tierney, 2000).

### *Crisis Information Management*

Crisis information management is a concept that should be addressed with additional attention, especially because of dynamic and complex nature of disasters (Comfort, 1999; Corbacioglu & Kapucu, 2006) characterized by lack of time, high level of uncertainty and decreased ability to perform thorough analysis for decision-making. Search for information during such complex and disruptive times in order to reduce uncertainty becomes imperative (Seeger, Sellnow, & Ulmer, 2003). The mechanism is a tool to deal with complexities of disasters with two primary goals in mind. The first goal is to proceed and use information for organizational or agency level decision-making during crisis or emergencies (Smart & Vertinsky, 1977). This goal envisions prevention of information load, timely provision of accurate, relevant and reliable information, classification of received information, and its use in decision-making process requiring quick and effective actions (Danielsson & Ohlsson, 1999; Fischhoff, 2006; Kapucu, Berman, & Wang, 2008). The second goal envisions the use of this very information to educate public and increase public awareness. Timely and accurate collection, organization and dissemination of information is one of the important pre-requisites of effective crisis information management and ability to act in a timely manner (Brown & Miller, 2000; Comfort & Kapucu, 2006; Kettl, 2004).

All three steps need deliberate organizational strategies and tools as well as capacity to obtain, process, and deliver information in the presentable, comprehensive, yet usable format (Comfort & Kapucu, 2006), especially when the audience is the public. Communication, thus, constitutes an important issue when disaster management is concerned, and necessary tools, technology and strategies should be in place to better handle disasters and minimize loss of life and property (Coombs, 1999; Kapucu, Berman, & Wang, 2008). Government organizations responsible for public security should utilize every possible tool to communicate about the crisis as early as possible regardless of the amount of information they have at hand. Effective crisis communication involves taking into account the interests and demands of stakeholders (Ulmer, Sellnow, & Seeger, 2007). It envisions effective communications with at-risk population, which is to be directed by best practices and current research (Robert Wood Johnson Foundation, 2008). Crisis communication is also effective when “[i]t provides specific details on how to prepare, and where to get further information; it comes from many different sources that are trusted; it is disseminated through different media, such as television and brochures is disseminated frequently; and the information across different sources is consistent” (McClure, 2006, p. 17; Mileti & Darlington, 1995).

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*Public Preparedness vs. Public Complacency*

The communication-related policies and tools are aimed at letting the public be aware of their personal responsibilities, as well as at provision of self-reliance and confidence through immediate actions that should be taken before and during emergency situations (Perry, 1985; Tierney, Lindell, & Perry, 2001; Waugh, 2000). This is mainly achieved through elimination and prevention of public complacency by effective government intervention (Wang & Kapucu, 2007), if any, which should ultimately lead to public disaster preparedness. Public complacency is regarded as one of the handicaps to community resiliency when public health emergency preparedness is considered (Robert Wood Johnson Foundation, 2008). There are several reasons for this including, denial of seriousness and possibility of risk and public misjudgment about relative significance of threats (McClure, 2006). The reasons may also include belief that disaster will not impact them, concern about cost and time needed to get prepared, and lack of knowledge about what to do (Emergency Preparedness Institute, 2007).

Accurate and timely information is one of the factors to increase public preparedness during crises (Kapucu, Berman, & Wang, 2008). Most of related communication, in fact, should be starting from the mitigation stage with the involvement of not only public health officials, but also other agencies and entities responsible for communicating and implementing crisis-related information and instructions (Public Health and Law Enforcement Emergency Preparedness Workgroup, 2008). Based on the literature review the following hypotheses were developed:

H1: Communication strategies and tools (IC), (IO), (ID), as well as government and agency level preparedness (GAP) lead to public's exposure to information (EI) (Celik, 2007; Nigg, 1995).

H2: Public's exposure to information (EI) about the crisis leads to public situational awareness (SA) (Kapucu, 2008; Kapucu, Berman, & Wang, 2008; Ulmer, Sellnow, & Seeger, 2007).

H3: Public situational awareness (SA) about the risk and nature of the crisis leads to public response (PR) through deliberate actions (Kapucu, 2008; Pacific Disaster Center, 2005).

H4: Communication strategies and tools (IC), (IO), (ID), as well as government and agency level preparedness (GAP) would lead to ultimate public reaction, hence reduced complacency (PRRC) (Celik, 2007; Kapucu, Berman, & Wang, 2008).

H5: Exposure to information (EI), ensuing in situational awareness (SA) and ultimate public response (PR) on overall would result in public preparedness (PP) (Kapucu, 2008).

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### Background Information

The avian influenza case was a critical agenda in the world during last decade. Nevertheless, it was not a new phenomenon at all. Throughout the twentieth century there were several instances of similar pandemic illnesses that resulted in millions of deaths (WHO, 2005). The H1N1 virus is estimated to have killed around 40 million people between 1918 and 1919. There were several other cases between 1957 and 1958 (H2N2), between 1968 and 1969 (H3N2), and again H1N1 between 1977 and 1978 that had consequential results on large populations. The most important characteristic of the viruses affiliated with these pandemic cases is that these viruses easily adjust themselves to new genetic structure, and, thus, can quickly mutate (CDC, 2006; Turkish Ministry of Health, 2006).

The case that is known today as avian influenza was mostly detected after 1996. Until 1996, there were only three reported cases of human-related infections by the disease (H7N7). In 1997, a bird-specific virus H5N1 was detected in 18 people in Hong Kong, 6 of which died of the infection. In 1999, a lowly-pathogenic virus H9N2 was reported again in Hong Kong and China. The virus H5N1 was again detected in a family returning from China to Hong Kong in 2003. The same year there were several reported cases of avian influenza in other countries of the world, which meant the illness was on the way to be pandemic (CDC, 2006). Holland, for example, reported a detection of highly-pathogenic H7N7 avian influenza virus with a total of 260 infection cases. By 2004 February, eight Asian countries were affected; in 2005 several other countries including Turkey were added to the list of H5N1-affected countries. Between 2003 and 2006, several Eurasian countries ranging from Korea to East Europe were affected by the spread of the virus. A total of 385 cases with 243 deaths were reported by World Health Organization between December 2003 and January 2008 (WHO, 2008). While the virus was rarely reported to be infectious from human to human, it did not spread to a second person from the infected one (European Center for Disease Prevention and Control, 2006; Turkish Ministry of Health, 2006).

Turkey was among countries that took precautions and implemented several steps to prevent pandemic infection with the avian influenza. Affiliation with International Influenza Monitoring entities, establishment of Influenza Scientific Consultation Council, and the 2004 avian influenza-related circular notice No. 4273 were some of the actions taken by Turkish Health Ministry between 2003 and 2005. The notice aimed at establishing public awareness and providing relevant procedures to provincial governments' health directories. In July 2005, the National Influenza Pandemic Preparedness Plan was prepared, which envisioned distribution of necessary medicine and adjustment of relevant infrastructure across the country (Beyazit, 2005; Buzgan & Uzan, 2006). In this regard, health agencies were provided instructions on anti-virus procedures and strategies, as well as the ways to observe and monitor the country-wide situation. Public was informed via brochures, newspapers, television and other mass media tools (Turkish

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Ministry of Health, 2006). However, the National Influenza Plan was at preliminary stage and could not be sufficiently localized at the time of the influenza break out (WHO, 2006). As a result, although a crisis committee was created quickly, healthcare workers felt anxious and ill-prepared due to a lack of clarity about their responsibilities in emergency disease plans (Sarikaya & Erbaydar, 2007).

It is also important to note that Ministry of Agriculture and Rural Affairs did not sufficiently acknowledge the public about avian influenza cases observed after the first breakout in Manyas, especially because of the fear that poultry sector could have been negatively affected until the late December 2005. Meanwhile, especially the Health Ministry along with district governorates and related directorates attempted to acknowledge people and officials for a possible health crisis. It was especially after the human cases by the first week of January 2006 that intensity and effectiveness of these efforts increased and people started to understand the level of risk they were exposed to. The media also played very important role in this process. However, The Health Ministry took the necessary steps to increase the capacity of local health infrastructures in local communities shortly after the start of the crisis (7-10 days) (Corbacioglu & Celik, 2008).

Turkey was among the countries that were severely impacted the first case of avian influenza with H5N1 virus in Turkey was detected on October 5th of 2005 in western part of the country in Manyas district of Balikesir province. Next official reports surprisingly came from the eastern parts of the country – Sanliurfa, Igdirdir, and Agri that gradually accumulated a health crisis in very early 2006. There were a total of 4 reported deaths related to the avian influenza H5N1 virus, all from the Dogubeyazit district of Agri Province. The virus infected birds (wild or domestic) in more than 50 provinces. The virus generally affected rural communities that were in close contact with domestic birds, and was detected in birds in 254 points (mostly in small villages and neighborhoods) that were parts of many districts ('ilçe' in Turkish) under provinces (Ministry of Agriculture and Rural Affairs, 2006).

Such wide spread of avian influenza resulted in additional 2006 permanent circular notice No. 2006/8 that envisioned establishment of coordination centers in provinces and reinforcement of public information strategies and tools. Governments at national, provincial, and district levels were facing a new type of epidemic illness that needed effective mitigation, preparedness, and recovery strategies. The situation was further complicated by relatively centralized and hierarchical disaster management structure in Turkey (Ganapati, 2008), which posed limitations on provincial and district level agencies' capacity to effectively respond to the crisis (Corbacioglu & Kapucu, 2006). Since most of the success in regard to these disaster management steps was dependent on the level of public awareness, it was important to develop effective information collection, organization, and dissemination tools and strategies to prevent further fatalities. It is, therefore, imperative to invest into district and local level public disaster preparedness education (Pacific Disaster Center, 2005).

## Methodology

### *Data*

Following the outbreak of the disease in Turkey throughout 2005 and 2006<sup>1</sup>, a survey was administered to reflect the experiences and practices of the officials responsible for management of crises of similar nature. It aimed at understanding the role of government and the level of government preparedness, its communication strategies and management tools to reduce public complacency and foster public preparedness. The survey was sent to districts with at least three reports of bird death as a result of infection as well as districts in which human cases were observed. The survey was sent to five types of organizations in 55 districts of 33 provinces in Turkey. These organizations were district governorate, district health directorate, district agriculture directorate, district hospital administration, and district municipality.

102 organizations from 29 different districts of 18 different provinces replied to the survey. The study excluded provincial centers, and only covers districts that were affected by avian influenza. Most of the respondents (94%) were either high-level responsible officials (47.6%) or responsible officials (43.7%) for crisis management in their own agency. Majority of those officials (61.2%) were employed in public sector at least ten years, and 42.9% of the respondents were employed in their respective agency at least five years. 40.5% of respondents reported at least 3 years, 65.5% reported at least 2 years, and 95.2% reported at least 1 year of service in disaster management sphere. 14.6% of responding agencies reported that they did not have disaster management unit, while 65.2% reported 6 or more personnel were employed in their disaster management unit (see appendix B). No follow-up interviews were conducted to support the surveys. It is our belief that surveys would reflect the most accurate numbers and statements, because of relative impartiality of the respondents in comparison with the citizens that may reflect biased or emotional tenets.

### *Measurement*

To determine the relationship between or impact of one variable on another, this study utilized index variables. Before designing index variables, several adjustments were made in terms of variable recoding and transformation. The questions that had the Likert scale with "very important," "important," "less important," "unimportant," "not used," and "I don't know/I cannot answer" were re-coded in the form of "very important," "important," "not used/I don't know/I cannot answer," "less important," "unimportant." This recoding was aimed to reduce dispersion of responses and to establish a more balanced Likert scale. After recoding, a factor analysis was performed for each set of close-

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1 It was especially after the human cases by the first week of January 2006 that the intensity and effectiveness of the efforts increased (Corbacioglu & Celik, 2008).



ly variables. Factor analysis was useful in determining and eliminating the variables otherwise deemed related within a set of variables used to construct an index variable. Lastly, reliability analysis was performed for each set of variables ultimately chosen for construction of index variables. The Cronbach's Alpha value was calculated for each index variable to determine how reliable the indices were.

The study had two sets of independent index variables and one ultimate dependent variable (See Appendix A). The first set comprised independent variables, while the second set was a dependent variable affected by the first set, on the one hand, and a set of independent variables that were assumed to affect the ultimate dependent variable, on the other. The first set constituted the variables describing *government role*. This set comprised four index variables: information collection, information organization, information dissemination, and government preparedness. For convenience and theoretical purposes, the first three indices were grouped under communication. The Cronbach's Alpha value for information collection was .755 (acceptable), for information organization .740 (acceptable), and for information dissemination .774 (acceptable). Respective value for government preparedness index was .851 (good). All of the values were at acceptable and/or good level for further analyses. This first set of variables was analyzed to see how effective and prepared the government was in terms of its responsibility to educate and prepare public during the crisis.

The second set of variables meant to represent the level of public complacency, and comprises three index variables, which were exposure to information, situational awareness and public response. The Cronbach's Alpha value for exposure to information was .717 (acceptable), for situational awareness .811 (good), and for public response .853 (good). In regard to this set of variables, effective government communication tools and government preparedness were expected to result in public reaction and response, and, thus, in reduced public complacency. In other words, the first set of variables was expected to affect second set of variables in positive direction. In addition to this relationship, there was an expectation of causal relationship between the three index variables of this set. Specifically, exposure to information was expected to affect the level of situational awareness, which, in turn, was expected to affect the level of public response to the crisis situation.

The third single dependent variable, *public preparedness*, was an index variable. The Cronbach's Alpha value for this index was .839 (good). This ultimate dependent variable is expected to be influenced by second set of variables, namely, the level of public complacency. It was assumed that reduced public complacency would have an impact on the level of public preparedness by increasing it.

### **Findings and Discussions**

While the role of government before and during disaster and crisis situations is of much significance in terms of provision and implementation of mitigation, preparedness, response and recovery operations, it is not sufficient to get effective results just by relying

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on government's actions. It is likewise the level of public awareness and, thus, preparedness, that will determine the scope and seriousness of the disaster consequences. Government is dependent on public's implicit or explicit cooperation with district and local government officials, which is possible only through well informed and adequately prepared public. This, in turn, is based on how much government invests into communication tools and strategies to educate and prepare the public. Unless government takes necessary actions to deliberately increase public involvement in preparedness and response, public will remain uninformed and far from being pro-active.

To analyze the relationship between the variables of developed hypotheses, regression analysis was the main method to test the impact of independent variables on dependent variables. Because of multiplicity of independent variables, multiple regression was used to account for more than once factors impacting the dependent variable. Assumptions of normality, linearity and homoscedasticity (equal variance of error around dependent variable) were checked and, generally speaking, all of the pre-requisites for regression analysis were met. Following are the interpretations of the regression results in line with the developed hypotheses:

The first hypothesis proved to be statistically significant (below .05) with the high R-square value of .668 (See Table 1).

H1: Communication strategies and tools (IC), (IO), (ID), as well as government and agency level preparedness (GAP) lead to public's exposure to information (EI).

**Regression Analysis Results of Hypothesis Testing**

**Table 1 - Regression Results for Exposure to Information**

	Beta (Standardized Coefficients)	Significance (P-value)
Constant		.022**
Government/Agency Preparedness	.809	.000***
Information Collection	.041	.589
Information Organization	-.031	.713
Information Dissemination	.018	.829
R-square	.668	
Adjusted R-square	.650	
F Probability	.000***	
N	85	

\* p<.10      \*\* p<.05      \*\*\* p<.01

The results suggest that when government uses information management tools and strategies, and when government is crisis-sensitive and emergency-prepared, public is better educated and more exposed to relevant information about crisis situation. Turkish district governments paid serious attention in determining appropriate communication tools and information management strategies to reach out to public and inform people about upcoming threat before and during the avian influenza crisis<sup>2</sup>. What is more, the high Beta coefficient for GAP lets us draw conclusion about the importance of internal,

rather than external environment of disaster management agencies. The second hypothesis proved to be statistically significant but only at the p-value below .10, though the strength of the relationship is very low – .041 (See Table 2).

H2: Public's exposure to information (EI) about the crisis leads to public situational awareness (SA).

**Table 2 - Regression Results for Situational Awareness**

	Beta (Standardized Coefficients)	Significance (P-value)
Constant		.000***
Exposure to Information	.203	.065*
R-square	.041	
Adjusted R-square	.029	
F Probability	.065*	
N	85	

\* p<.10      \*\* p<.05      \*\*\* p<.01

The results suggest that despite fact that exposure to information about crisis and emergency situation does not lead to situational awareness. This fact does not prevent public's deliberate adherence and obeying to instructions provided by respective governments. In other words, public situational awareness is not a pre-requisite for deliberate and conscious response to crisis situation. Nevertheless, the very weak relationship shown by the R-square value of this analysis does not allow making strong arguments in support of the hypothesis. The third hypothesis proved to be statistically significant (below .05), but with the low R-square value of .139 (See Table 3).

H3: Public situational awareness (SA) about the risk and nature of the crisis leads to public response (PR) through deliberate actions.

**Table 3 - Regression Results for Public Response**

	Beta (Standardized Coefficients)	Significance (P-value)
Constant		.000***
Situational Awareness	.372	.000***
R-square	.139	
Adjusted R-square	.129	
F Probability	.000***	
N	90	

\* p<.10      \*\* p<.05      \*\*\* p<.01

Though the R-square value is relatively low in this analysis, it can be said that situational awareness still does affect the scope of public's response. The results also show the need to look for other factors that may impact public perception, since the SA index had only two

2 Although avian influenza started to infect birds in late 2005, it turned out to be a health crisis after causing human deaths in early January 2006.

variables. The proof of this hypothesis, though, again supports conventional belief about the role of public situational awareness for immediate actions to be taken by impacted citizens. It is through deliberate analysis, reasoning and judgment that people decide to change their attitudes and actions in line with instructions provided by government authorities, or their knowledge and intuition. The fourth hypothesis proved to be statistically significant (below .05), but again with the low R-square value of .262 (See Table 4).

H4: Communication strategies and tools (IC), (IO), (ID), as well as government and agency level preparedness (GAP) would lead to ultimate public reaction, hence reduced complacency (PRRC).

**Table 4 - Regression Results for Public Reaction/Reduced Complacency**

	Beta (Standardized Coefficients)	Significance (P-value)
Constant		.000***
Government/Agency Preparedness	.520	.000***
Information Collection	-.014	.906
Information Organization	-.222	.098
Information Dissemination	.112	.399
R-square	.262	
Adjusted R-square	.218	
F Probability	.000***	
N	81	

\* p<.10    \*\* p<.05    \*\*\* p<.01

Contrary to the individual analyses of relationships between the indexes of PRRC, the results show that government crisis-related policies did result in overall public reaction to the crisis, and, thus, reduced public complacency. The absence of situation awareness (Hypothesis 2) and controversial existence of public response (Hypothesis 3) tell about psychological and social attitudes of relevant society, in which people tend to adhere to widely accepted and implemented norms even if they are hardly aware of the actual reasons for those actions along with failure to localize emergency or crisis response plans and comparatively limited information campaign before the crisis. In other words, people may have simply been acting based on the exposure to information per se, without any understanding of the seriousness and level of the risk and threat of the avian influenza. Responses to open ended questions account low socio-economic and educational background of rural communities along with some wrong beliefs that include perceptions such as perceive death of infected birds as harmless to humans or a result of international conspiracy to finish rural poultry may be influential for the complacency of public. Moreover, poor people did not want to give up their essential food or economic source. As confirmed by a Food and Agriculture Organization's report (2006), families, especially in rural areas and with limited financial opportunities, depended on poultry as a food and economic source. That may be why it is not surprising that the results for the second hypothesis have a very low proportion of explanation. The fourth hypothesis was supported by the survey results, though the relationship is weak. Taken all together, there might be other factors that would have an impact on public's reaction towards government strategies and

programs to educate public and to foster immediate action to be taken.

Lastly, the fifth hypothesis proved to be statistically significant (below .05) with the moderate R-square value of .420 (See Table 5).

H5: Exposure to information (EI), ensuing in situational awareness (SA) and ultimate public response (PR) on overall would result in public preparedness (PP).

**Table 5 - Regression Results for Public Preparedness**

	Beta (Standardized Coefficients)	Significance (P-value)
Constant		.003***
Exposure to Information	.536	.000***
Situational Awareness	.068	.471
Public Response	.178	.078*
R-square	.420	
Adjusted R-square	.328	
F Probability	.000***	
N	85	

\* p<.10    \*\* p<.05    \*\*\* p<.01

The last hypothesis was again supported, and the relationship is moderate. This finding has policy implications for emergency managers and government officers responsible for providing public security. Public preparedness is closely related to their knowledge about, awareness of, and reaction to the risk and threat of the disaster. Therefore, in case of health crisis like avian influenza, which generally develops gradually, it is important for government to discuss and develop most effective communication tools to educate public so that the scope of disaster is minimized, and the public takes appropriate actions to protect themselves against further threats.

While public complacency is inherently all about public's apprehensions and perceptions, it is also government strategies and resources that affect the level of public apathy or public preparedness. This is inevitably related to the nature of avian influenza-related risk and threat message delivered to public and the scope it has been disseminated.

Certain limitations to this study exist, though. The first limitation is the fact that the study evaluates the results of survey that were distributed to relevant government officers, and no citizen survey was administered, which means the study is based on perceptions of those very government officers. While the survey instrument may reflect the actual situation on public's side, it may be political and biased in terms of government agencies' responses in regard to strategies and issues undertaken by them. Their perception, though, is very important and consequential, if not completely objective, in structuring the policies and programs related to disasters and crises, and those decisions are made based on accumulated experience and expertise over years. The second limitation of the study is that it is limited to health crises, and not any other form of disasters. Despite this fact, the study is very much relevant to other types of disasters when dealing with communication in times of emergency is considered. The last limitation of this study is the fact that it primarily addresses preparedness phase of disaster management and has little to

say about mitigation or response and recovery phases. Despite the fact that the avian influenza crisis was a continuing process and respondents observed the crisis as well, much of this study deals with the level of public preparedness to deal with the crisis.

### **Conclusion**

Dealing with public complacency in order to reduce the risk to local communities requires efforts of both government organizations and public. Government's management of information along with public's awareness and assessment of risk significantly affect public complacency. The use of information to educate public and increase its awareness through timely and accurate collection, organization and dissemination of information is an important pre-requisite for minimizing the risk. The communication-related policies and tools must let people be aware of their personal responsibilities, as well as help provision of self-reliance and confidence through immediate actions before and during emergency situations. The avian influenza breakout that started in late 2005 and turned out to be a health crisis in early 2006 indicate that the information tools and strategies utilized by Turkish district government officers have proved relatively helpful especially for the period shortly after the crisis. The intensification of information Campaign after the crisis may also explain the weak relationship between the "public's exposure to information" and "public situational awareness" as revealed by the research findings.

Public situational awareness about the risk and nature of crisis increases public response through deliberate actions. However, while communication tools and government capacity are important factors contributing to effective disaster management, additional efforts should be invested into analysis of the factors affecting public awareness – a pre-requisite for public reaction to take necessary precautions and ultimate public preparedness. Especially socio-economic and educational background of people in Turkish rural communities are influential in increasing complacency. Families, especially in rural areas and with limited financial opportunities, depend on poultry as a food and economic source. Moreover, the wrong beliefs that perceive death of infected birds as harmless to humans or a result of international conspiracy to finish rural poultry can also be influential.

The research has also indicated communication strategies and tools along with disaster management's preparedness lead public reaction, thus, reduced complacency. Moreover, situational awareness and ultimate public response affects public preparedness. However, public preparedness is closely related to public's knowledge and response to the risk they are exposed to disasters. Turkish case of avian influenza has revealed that the virus detected in early October 2005 created a health crisis in very early January 2006. Such gradual development indicates the importance of government's role to discuss and develop most effective communication tools to educate public through a culture of transparency so that the scope of disaster is minimized, and the public takes appropriate actions to protect themselves against further threats. The concept is especially important today when communities across the world face the threat of swine flu pandemic.

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Research findings suggest that policy makers need to take steps for managing information effectively before and after similar health related crisis. Policies regarding effective surveillance of virus, cooperation between critical actors such as Agriculture and Rural Affairs Ministry, Health Ministry and local districts, as well as timely acknowledgement of public to increase its awareness of risk through constant information flow can help decrease public complacency and increase public preparedness. Moreover, policy makers also need to coordinate disaster policies with social, economical, and educational policies of a specific community.

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## APPENDICES

### Appendix A - Theoretical Framework (Index of Dependent and Independent Variables)

#### Government Role (GR)

**Communication Tools (CT)**

- **Information collection (IC) (a=0.755)**
  - Local/national radio news
  - Local/national television news
  - Contact with village headmen
  - Contact with municipality administrators
  - Contact with leaders of civil society
  - News and reports from Ministry of Health
  - News and reports from Ministry of Agriculture
- **Information organization (IO) (a=0.740)**
  - Use of consistent and harmonious forms and phrases during contact with public
  - Notices of warning containing requests about expected attitudes and actions
  - Identification and significant account of topics to inform public
  - Deciding on the most important information affecting public's perception after filtering
- **Information dissemination (ID) (a=0.774)**
  - National and local public and private radio stations
  - National and local television stations
  - National and local newspapers

**Governm./Agency Preparedness(GAP) (a=0.851)**

- Could timely deliver needed and important news and information to other local organizations
- Could timely deliver needed and important news and information to responsible personnel
- Could timely deliver needed and important news and information to public
- Had a warning plan to immediately warn public and/or private organizations before the crisis
- Had necessary authority and support for emergency situation response operations

#### Public Reaction/Reduced Complacency (PRRC)

**Exposure to Information (EI) (a=0.717)**

- Had educated the public about directions and guidance before and after the avian influenza
- Could timely deliver needed and important news and information to public
- Could timely deliver needed and important news and information to public in easy-to-understand language
- The public was warned about the threats of the avian influenza to the widest extent possible

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**Situational Awareness (SA) (a=0.811)**

- The public was aware of the diffusing avian influenza virus within the country
- The public knew about the threats of the avian influenza

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**Public Response (PR) (a=0.853)**

- The public paid necessary attention to the warnings concerning the avian influenza
- The public obeyed official advices about protecting their life and property
- The public behaved as if there will be no negative developments in regard to the avian influenza
- Few people took necessary precautions in regard to the avian influenza
- Some segments of the society disregarded the threat of the avian influenza
- The public was indifferent about warnings and advices concerning the avian influenza threat

#### Public Preparedness (PP)

**Public Preparedness (PP) (a=0.839)**

- The residents were very well prepared against epidemic illnesses
- The residents were very well prepared against the avian influenza
- The risk of affecting people's health was minimized before the crisis
- The avian influenza's risk to result in material damage was minimized before the crisis

**Appendix B – Demographic Information about Survey Respondents****Gender**

	Frequency	Percentage	Valid Percentage
Male	91	88.3	93.8
Female	6	5.8	6.2
Total	97	94.2	100
Missing	6	5.8	

**Age**

	Frequency	Percentage	Valid Percentage
<35	26	25.2	26.8
35-44	52	50.5	53.6
45-54	15	14.6	15.5
>54	4	3.9	4.1
Total	97	94.2	100
Missing	6	5.8	

**Education**

	Frequency	Percentage	Valid Percentage
High School	9	8.7	9.7
Bachelor	45	43.7	48.4
Master's	28	27.2	30.1
Doctoral	11	10.7	11.8
Total	93	90.3	100
Missing	10	9.7	