

Health Security Governance and Zoonotic Diseases in Pakistan: The International Health Regulations (2005) Angle

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Abstract

International Health Regulations (IHRs 2005) is an important initiative against the spread of zoonotic diseases. It obliges all Member States to legislate and execute laws for ensuring the health security of their citizens. Pakistan is a signatory and has framed rules and laws to protect its citizens against such diseases but it has a long way to go in terms of execution, capacity and implementation. This article reviews the IHRs (2005) and how certain provinces of Pakistan are more vulnerable (like Khyber Pakhtunkhwa) than others against the perilous spread of infectious diseases.

Key words: Swine Flu, Congo Virus, Health Security, Governance, International Health Regulations, Pakistan, Afghanistan.

Introduction

Zoonotic diseases,¹ such as Congo, Swine Flu, Bird Flu, and Ebola, have been spreading all over the world at an alarming pace. The international community is not only sensitive to the increasing threat they pose, but is also endeavouring to prevent and cure them. Various codes of conduct have been constituted for this purpose. International Health Regulations (IHRs) (2005) is an important initiative against the spread of zoonotic diseases. It obliges all member states to legislate and execute national laws for ensuring the health security of their citizens.

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¹ Zoonosis or Zoonotic diseases are viral diseases transmitted from infected animals to human beings. Quoted in Amir Ullah Khan, "Biosecurity Puzzles and Prospects: Case Study of District Peshawar and District Bannu," (PhD diss., School of Politics & International Relations, Quaid-i-Azam University, Islamabad, 2017), 194.

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Pakistan signed IHRs (2005) in June 2007 and since then has been trying to implement these health regulations. However, a critical examination of Pakistan's compliance with IHRs (2005) reveals that the Government has failed to implement a few fundamental provisions of this Regulation. Therefore, the people of Pakistan are vulnerable to many lethal and infectious diseases. The outbreak of diseases such as Congo Fever, Ebola, and Swine Flu cannot be ruled out in the country. The existential health security threats, given poor preventive, control, and response mechanisms, make the situation even more perilous. It is imperative that both the central and provincial governments implement IHRs (2005) in letter and spirit for the safety of the people of Pakistan.

This article critically examines existing health governance from the global level to specifically looking at the national and provincial (local) level in Pakistan.² It tries to identify the prevailing gaps which are hindering adequate implementation of IHRs (2005), and recommends the future course of action needed to prevent the spread of such diseases in the country.

Divided into four sections, the first section explores the conceptual framework of health and security. It is followed by discussion on the global and national legal mechanisms to protect the people of Pakistan against zoonotic diseases. In the third section, three zoonotic diseases – Congo, Ebola, and Swine Flu – have been briefly discussed to critically analyse the existential human health security threats emanating from them. The final section spells out the major obstacles which hinder the execution of laws at Pakistan's national and provincial levels. It also provides a few recommendations to improve the health security apparatus in Pakistan.

Conceptualising Health Security

An outbreak of disease in one part of the planet can pose an existential threat to people of the entire world. The traditional security paradigm

² "Health Sector after 18th Amendment," *Dawn*, July 10, 2011, <https://www.dawn.com/news/643043>. Prior to the Eighteenth Amendment, the Federal Government controlled the health sector in Pakistan. After its passage in April 2010, this sector was devolved to the federating units in 2011. However, the Federal Government still exercises influence in this area to comply with global health regulations and also to guide the provinces to do so accordingly.

views infectious diseases as a tool/weapon of warfare.³ Pathogens can be used against opponent forces during war. Terrorising an adversary by the use of microbes, viruses, bacteria, or toxins is an old phenomenon. The viruses, bacteria, or toxins have been employed to cause death or disease either in humans, animals, or plants to achieve political or social aims.⁴ A review of literature reveals that in primitive societies, infectious diseases were considered the 'cheapest weapons' to harm one's enemies. For example, Germany employed *Bacillus anthracis* and *Burkholderia mallei*⁵ - the causative agents of Anthrax (most common in wild and domestic herbivores like antelopes, camels, cattle, goats and sheep, but also in people exposed to tissue from infected animals, to contaminated animal products) and Glanders (a destructive and contagious bacterial disease of horses that can be transmitted to humans), to infect Romanian sheep which were being transported to Russia.⁶

Europe's trade with other nations during the 19th Century exposed them to numerous alien infectious disease and microbes.⁷ The significance of economic cooperation and vulnerability to infectious diseases resulted in global cooperation for framing regulations to ensure the health security of people everywhere. In this context, a few prominent individuals like Dr Gro Harlem Brundtland (three-time Prime Minister of Norway 1981; 1986-1989; 1990-1997; and former Director General of the World Health Organization 1998-2003) and Richard Holbrooke (former United States Ambassador to the United Nations 1999-2001) played a significant role in making health security a part of international foreign policy. Brundtland coined the term 'global health security' during her tenure at the World Health Organization (WHO). She emphatically argued the significance of public health keeping in view globalisation and chances of rapid transmission of disease from one corner of the world to another corner.

³ Colin McInnes, "Health" in *Security Studies: An Introduction*, 2nd ed., ed. Paul D. Williams (London: Routledge, 2013), 324.

⁴ Syra S. Madad, "Bioterrorism: An Emerging Global Health Threat," *Journal of Bioterrorism & Biodefense: Past, Present and Future* 5, no. 1 (2014): 1, <https://www.omicsonline.org/open-access/bioterrorism-an-emerging-global-health-threat.pdf>; I. W. Fong, and Ken Alibek, eds., *Bioterrorism and Infectious Agents: A New Dilemma for the 21st Century* (New York: Springer, 2005).

⁵ V. M. Kalia, "BioTerrorism: Threat Perception," in *Bio-Terrorism and Bio-Defence*, eds. P. R. Chari and Subha Chandran (New Delhi: Manohar, 2005), 83.

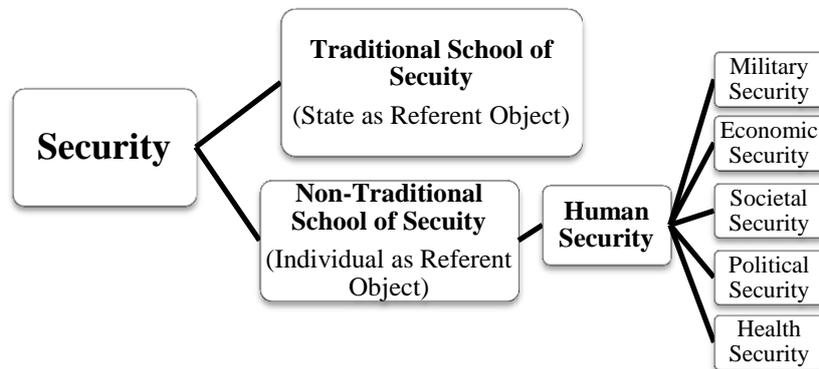
⁶ Ibid.

⁷ McInnes, "Health," 326-327.

Likewise, Holbrook's efforts to place HIV/AIDS on the UN Security Council agenda earned him the title of 'champion of securitisation of HIV/AIDS'.⁸

The Non-traditional School of Security (NSS) assigns primacy to an individual's security.⁹ Health Security comes under the umbrella of NSS.¹⁰ Barry Buzan conceptualised security as a broader perspective encompassing political, economic, societal, and environmental aspects rather than just focusing on military security (Figure 1):¹¹

Figure-1
Mapping Health Security



Source: Authors' own compilation.

⁸ Ibid.

⁹ Pauline Kerr, "Human Security," in *Contemporary Security Studies*, ed. Alan Collins (Oxford: Oxford University Press, 2013), 104; See also for details Robert W. Cox, "Social Forces, State and World Orders: Beyond International Relations Theory," *Millennium: Journal of International Studies* 10, no. 2 (1981): 126-155; Sverre Lodgaard, "Human Security: Concept and Operationalisation" (Goa: Centre for Peace and Development Studies, n.d.), <http://www.cpdindia.org/conceptandoperationalization.htm>.

¹⁰ J. Peter Burgess and Jonas Gräns, "Human Security," in *Contemporary Security and Strategy*, 3rd ed., ed. Craig A. Synder (New York: Palgrave Macmillan, 2012), 91.

¹¹ Barry Buzan, "Human Security in International Perspective," in *The Asia Pacific in the New Millennium: Political and Security Challenges*, eds. Mely C. Anthony and Mohamed Jawar Hasan (Kuala Lumpur: Institute of Strategic and International Studies, 2001), 583; Ralf Emmers, "Securitisation," in *Contemporary Security Studies*, 4th ed., ed. Alan Collins (Oxford: Oxford University Press, 2016); and Eric Herring, "Historical Materialism," in *Contemporary Security Studies*, 4th ed., ed. Alan Collins (Oxford: Oxford University Press, 2016), 44-57; Kerr, "Human Security," 110; Barry Buzan, Ole Wæver and Jaap de Wilde, *Security: A New Framework for Analysis* (Boulder: Lynne Rienner Publishers, 1998).

According to the Copenhagen School of Security Studies, the very basis of NSS is J. L. Austin's Speech Act Theory which outlines that the utterance of words and their ultimate acceptance by the audience gives meaning to various things.¹² Ole Wæver borrowed this theory from Austin.¹³ He opines that 'societal security' is challenged when society (being the audience) perceives a threat to its existence or identity.¹⁴ Simply put, this theory states that the 'audience' in any society gives meaning to words as an existential threat. The securitising agents also take cognisance of such threats as referent objects¹⁵ and allocate and mobilise resources for its security against the functional actors.¹⁶ In case of health security, if the audience in a society considers a particular disease caused by microbes, virus, bacteria, or toxins as life threatening, and concerned government agencies recognise this, then such a threat will be interpreted as a human health security threat.¹⁷ Therefore, threats are inter-subjective concepts shared and held in common to understand action and behaviour (Figure 2):¹⁸

¹² Ken Booth, *Theory of World Security*, Cambridge Studies in International Relations, no. 5 (Cambridge: Cambridge University Press, 2007), 222; Ole Wæver, "On Securitisation and Desecuritisation," in *On Security*, ed. Ronnie D. Lipschutz (New York: Columbia University Press, 1995), 46-86.

¹³ Amir Ullah Khan, "GWOt, FATA, and Non-Traditional Security Threat: A Case Study of Polio in NWA," *Regional Studies* 32, no. 3 (2014): 63.

¹⁴ Ole Wæver, Barry Buzan, Morten Kelstrup and Pierre Lemaitor, eds., *Identity, Migration and the New Security Agenda in Europe* (London: Printer Publishers, 1993), 23; David Mutimer, "Beyond Strategy: Critical Thinking on the New Security Studies," in *Contemporary Security and Strategy*, 3rd ed., ed. Craig A. Synder (New York: Palgrave Macmillan, 2011), 51.

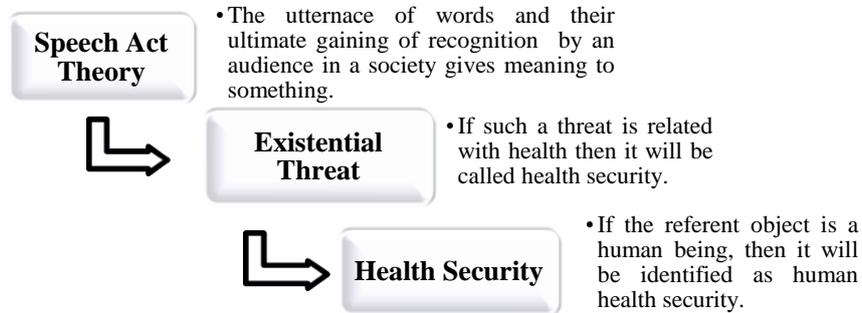
¹⁵ Buzan, Wæver and Wilde, *Security: A New Framework for Analysis*, 36; Emmers, "Securitisation," 132; Amir Ullah Khan, "GWOt, FATA, and Non-Traditional Security Threat," 63. Referent object is anything to that an existential threat is posed despite its legitimate claim of survival. Securitising actors are those actors which are responsible to ensure security of such a referent object.

¹⁶ Emmers, "Securitisation," 136. Functional agents are those who pose threats to referent objects.

¹⁷ Ted Hopf, "The Promise of Constructivism in International Relations Theory," *International Security* 23, no. 1 (1998): 171-200 (173); Christine Agius, "Social Constructivism," in *Contemporary Security Studies*, 3rd ed., ed. Alan Collins (Oxford: Oxford University Press, 2012), 91.

¹⁸ Ibid.

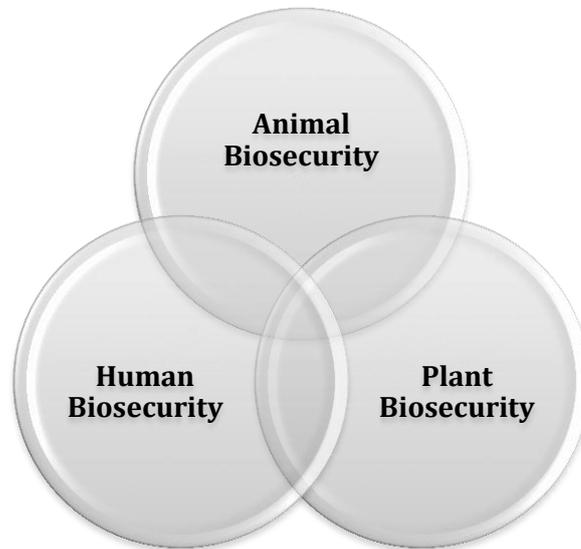
Figure-2
Fundamentals of Non-traditional Security Paradigm



Source: Authors' own compilation.

Figure 2 helps one understand health security and the concepts related to it. It also enables one to understand the referent object, securitising actors, functional agents and audience with reference to a particular disease. Human beings are basic units in the ecosystem. Biotic and abiotic factors are created for their facilitation and utility. In other words, plants and animals are created in nature for the benefit of human beings. Any change in the ecosystem has direct impact on humanity's life and health. Infectious plants and animal biosecurity, therefore, have direct impact on *homo sapiens* or human biosecurity. Human beings are omnivorous and rely on both plants and animals for their food. Health security policymakers, therefore, take cognisance of animal health security and its impact on human beings – the referent object. The global health community linked animal health with human health security. Figure 3 manifests the interconnectivity between animal, plant, and human health security:

Figure-3
Various Dimensions of Biosecurity



Source: Authors' own compilation.

Historical Background of Health Security Governance: From an International and Pakistan-Centric Lens

According to the WHO:

Global health security is composed of those proactive and reactive activities mandatory to lessen a threat to acute public health events that jeopardise the collective health of populations living across the world irrespective of geographical distinction.¹⁹

Human health security is, thus, a global concern. The international community has realised the devastating impact of deadly zoonotic diseases, particularly in developing countries; and framed different

¹⁹ WHO, *The World Health Report 2007—A Safer Future: Global Public Health Security in the 21st Century* (Geneva: World Health Organization, 2007), http://www.who.int/whr/2007/whr07_en.pdf?ua=1; Suman M. Paranjape and David R. Franz, "Implementing the Global Health Security Agenda: Lessons from Global Health and Security Programs," *Health Security* 13, no. 1(2015): 9-19.

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regulatory laws and established institutions to ensure a healthy society – free from diseases caused by either viruses, bacteria or other pathogens.

Between 1851 and the end of the century, eight conventions were held to discuss the spread of infectious diseases across national boundaries. The beginning of the 20th Century witnessed the establishment of several institutions for enforcing those conventions, including the precursor of the present Pan American Health Organization (PAHO).

In 1920, Rinderpest occurred unexpectedly in Belgium, as a result of zebus, originating from India and destined for Brazil, transiting via the port of Antwerp. Despite the inevitable slowness of the negotiations undertaken through diplomatic channels, 28 States obtained an international agreement on January 25, 1924. The ratification of this 1924 Agreement led to the creation of the Office International des Epizooties (OIE) based in Paris.²⁰

The United Nations has taken several steps to ensure health security. The General Assembly passed the ‘United Nations General Assembly Resolution A/RES/68/98’, on December 11, 2013, aimed at drawing intimate connection between the foreign policy of a state and global health because prior to this Resolution, health was not part of any country’s foreign policy. For the first time, it was made mandatory to place health security on the national foreign policy agenda. The Resolution urged Member States to take into account health issues while formulating their foreign policies. Keeping in view the shattering impact of HIV/AIDS, the Resolution ordains for the elimination of this threat. It also endorsed best physical and mental health, high living standards, access to sufficient food, clothing and housing. The Resolution is a step towards ensuring global health governance based on principles of fundamental rights, rule of law, good governance and people-centric policies.²¹

In 1948, the WHO was constituted. In 1951, WHO Member States adopted the International Sanitary Regulations. In 1969, the nomenclature

²⁰ OIE, “History” (Paris: World Organisation for Animal Health, International des Epizooties (OIE), n.d.), accessed April 13, 2017, <http://www.oie.int/about-us/history/>.

²¹ United Nations General Assembly, Resolution 68/98, “Global Health and Foreign Policy,” February 7, 2014, http://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/68/98.

of these regulations was changed to ‘International Health Regulations’. These regulations were amended in 1973 and 1981 respectively. The IHRs originally aimed to monitor and control six severe infectious diseases: Cholera, Plague, Yellow Fever, Smallpox, Relapsing Fever and Typhus.

Articles 21(a) and 22 of the Constitution of WHO empowers the World Health Assembly (WHA) to adopt code of conduct for the prevention of spread of disease in the world and binds Member States to take all necessary measures in such a case.²² The 3rd WHA endorsed the eradication of Smallpox across the world and abolished the condition of vaccination for travellers on May 8, 1980.²³ Articles 2 to 13 of IHRs 1969 hold the health administration of the each member state responsible for sharing news of outbreak of a disease and subsequent information about it with the WHO.²⁴ These regulations exempted a person from medical examination charges for vaccination certificate for diseases²⁵ enumerated in these regulations.²⁶

The 22nd WHA adopted International Health Regulations (IHRs) on July 25, 1969.²⁷ Under Article 2 of IHRs, each signatory state is bound to implement provisions of IHRs. The signatory is also bound to communicate information about outbreak of any disease to WHO within 24 hours.²⁸ IHRs are a global health security contract among 196 nation-states. The signatories of IHRs are also bound to ensure safeguard against the international spread of disease in collaboration with WHO.

The success of IHRs depends on national capacities to detect, assess, report and respond to public health events before they cross borders. 40 Member States had achieved the required core capacities by

²² WHO, *International Health Regulations (2005)*, 2nd ed. (Geneva: World Health Organization, 2008), vii, http://apps.who.int/iris/bitstream/10665/43883/1/9789241580410_eng.pdf.

²³ WHO, *International Health Regulations (1969)*, 3rd ed. (Geneva: World Health Organization, 1983), 6, <http://www.who.int/csr/ihr/ihr1969.pdf>; World Health Assembly (WHA) Resolution, 33.4.

²⁴ WHO, *International Health Regulations (1969)*, 10-13.

²⁵ Part-V of WHO, *International Health Regulations (1969)* deals with special provisions relating to each of the diseases subject to the Regulations. This Part consists of three chapters; Chapter I—Plague (Articles 50 to 60), Chapter II—Cholera (Articles 61 to 64), and Chapter I—Yellow Fever (Articles 65 to 75).

²⁶ WHO, *International Health Regulations (1969)*, 37.

²⁷ WHO, *International Health Regulations (1969)*, 5; WHO, *Twenty-Sixth World Health Assembly: Official Records of the World Health Organization*, no. 209 (Geneva: World Health Organization, 1973), 22, http://apps.who.int/iris/bitstream/10665/85858/1/Official_record209_eng.pdf.

²⁸ WHO, *International Health Regulations (1969)*, 16-17.

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the target date of June 2012.²⁹ After the emergence of lethal infectious health scares like Severe Acute Respiratory Syndrome (SARS), the global health community after thorough deliberations amended the IHRs 1969.

The 58th WHA adopted IHRs (2005) on May 23, 2007.³⁰ It came into force on June 15, 2007.³¹ The basic motives behind IHRs (2005) are: a) to adopt preventive measures through initiating public health response to protect human beings across the globe against any disease; b) to legally bind all the state parties to build such a public response mechanism; c) to collaborate with the WHO on eruption of public health emergencies, etc.³²

On February 13, 2014, more than 20 states with the assistance of WHO, the Food and Agriculture Organisation (FAO), and the World Organisation for Animal Health (OIE) laid the foundation of a 'New Global Health Security' (NGHS) agenda aimed to establish coordination among these global institutions to halt epidemics. It also aims to detect biological threats early and respond to them quickly. It deals with issues like antimicrobial resistance, food security, laboratory biosafety and biosecurity, outbreaks of diseases, timely effective diagnosis and reporting of disease, sharing of samples, emergency operation centres, rapid health response teams, and the ability to provide medicines and expertise during health emergencies.³³ Indeed, the NGHS agenda will help to implement IHRs (2005).³⁴

In compliance with global animal biosecurity laws, the Government of Pakistan also has several legislations to counter zoonotic diseases and to stop possible animal biosecurity threats. Some of the important initiatives include 'The Punjab Animal Slaughter Control Act, 1961', The North West Frontier Province Animal Contagious Diseases Act,

²⁹ Tom Inglesby and Julie E. Fischer, "Moving Ahead on the Global Health Security Agenda," *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 12, no. 2 (2014): 63-65 (64-65), http://hsrc.himmelfarb.gwu.edu/cgi/viewcontent.cgi?article=1608&context=sphhs_policy_facpubs.

³⁰ WHO, Resolution 58.3, "Fifth-Eighth World Health Assembly," May 16-25, 2005, http://apps.who.int/gb/ebwha/pdf_files/WHA58-REC1/english/A58_2005_REC1-en.pdf.

³¹ WHO, *International Health Regulations (2005)*, 1.

³² *Ibid.*

³³ Inglesby and Fischer, "Moving Ahead on the Global Health Security Agenda," 63. See also Global Health Security Agenda, 'Toward a World Safe & Secure from Infectious Disease Threats' n.d. accessed January 1, 2017, <https://www.ghsagenda.org/about>.

³⁴ Inglesby and Fischer, "Moving Ahead on the Global Health Security Agenda," 64-65.

1948’; ‘The West Pakistan Animals Slaughter Control Act, 1963’; ‘Pakistan Animal Quarantine (Import and Export of Animal and Animal Products) Ordinance, 1979’; and the ‘Pakistan Animal Quarantine (Import and Export of Animals and Animal Products) Rules, 1980’.³⁵ Here we briefly look at the ones related to KPK:

The North West Frontier Province Animal Contagious Diseases Act, 1948 discouraged organising animal markets, animal fairs, animal exhibitions or other concentrations of animals in any particular area or the traffic of infective animals or carcasses of infective animals from one place to another place.³⁶ It highlighted that the Provincial Government would regulate the routes and season/s for transportation of animals from one place to another. The Act also empowered the Provincial Government to quarantine animals. The Act also made it mandatory to clean and disinfect vehicles used for carrying animals. It also bound the owner or the Veterinary Practitioner to report affected animals to Area Inspectors. A veterinary surgeon was made responsible for examining the infected area to cancel or confirm the concerned inspector’s report. This Act also covered districts of Bannu, D. I. Khan, Hazara, Kohat, Mardan and Peshawar as its parts.³⁷

The West Pakistan Animals Slaughter Control Act, 1963 was extendable to Khyber Pakhtunkhwa (KPK)³⁸, excluding tribal areas. This Act prohibited the slaughter of useful animals like female sheep below the age of one year and six months, and a female sheep aged more than one year. It also banned the slaughter of six-month sheep but not those above four years of age, which are pregnant or fit for breeding purposes. Moreover, it banned the slaughter of any female animal, other than sheep, below three years of age, or any female animal, other than sheep, which is

³⁵ GoP, “Pakistan Animal Quarantine Ordinance, 1979,” in *The Gazette of Pakistan, September 17, 1979 Ordinance* (Government of Pakistan, 1979), http://www.vertic.org/media/National%20Legislation/Pakistan/PK_Animal_Quarantine_Ordinance_1979.pdf.

³⁶ The Act enumerated the following animal diseases, Rinder pest or Cattle Plague, Foot-and-Mouth Disease, Haemorrhagic Septicaemia, Black quarter, Anthrax, Tuberculosis, Johne’s disease, Glanders and Farcy, Epizootic Lymphangitis, Dourine, Rabies and Surra.

³⁷ See for details GoP, “The North West Frontier Province Animal Contagious Diseases Act, 1948” (Government of Pakistan, 1948).

³⁸ Formerly known as the North West Frontier Province.

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pregnant or with milk or fit for breeding purposes. A Veterinary Officer was authorised to declare the health or fitness of an animal for slaughter.³⁹

Pakistan Animal Quarantine (Import and Export of Animal and Animal Products) Ordinance, 1979 holds the Federal Government responsible for regulating the import and export of animals and their products. This Ordinance also enumerated the powers and functions of the Quarantine Officer.⁴⁰ The Federal Government framed the *Pakistan Animal Quarantine (Import and Export of Animals and Animal Products) Rules (PAQRs), 1980*.⁴¹ These rules made health certificates compulsory for the import of animals. Animals without such certificates would be disposed. Similarly, they made quarantine of all animals before their export to any country.⁴²

Situational Analysis of Zoonotic Diseases and Human Health Security

The following is a brief global and national situational analysis of the occurrence and possible threats of various zoonotic diseases like Congo Fever, Swine Flu and Ebola to identify gaps in the implementation of IHRs (2005) in Pakistan.⁴³

Congo Virus

Crimean–Congo Haemorrhagic Fever (CCHF) is a zoonotic viral disease transmittable among humans when they come in contact with infected blood or secretions of a Congo virus infected animal. Congo Fever is a

³⁹ GoP, “The West Pakistan Animals Slaughter Control Act, 1963” [West Pakistan Act III of 1963], (Government of Pakistan, 1963), <http://blncode.pitb.gov.pk/public/dr/West%20Pakistan%20Animals%20Slaughter%20Control%20Act,%201963.doc.pdf>.

⁴⁰ GoP, “Section 6,” *Pakistan Animal Quarantine (Import and Export of Animal and Animal Products) Ordinance, 1979* (Government of Pakistan, 1979).

⁴¹ Section 14 of *Pakistan Animal Quarantine Ordinance, 1979* bound the Federal Government to frame such rules.

⁴² See for further details, GoP, *Pakistan Animal Quarantine (Import and Export of Animals and Animal Products) Rules, 1980* (Government of Pakistan, 1980).

⁴³ International Health Regulations (2005) entered into force for Pakistan on June 15, 2007.

global phenomenon with Asia, South-Eastern Europe and Africa also affected by its effects.⁴⁴

Occurrence of Congo Fever is not alien to Pakistan. Here the isolation of this virus from a tick happened in the 1960s.⁴⁵ However, the first ever case was reported from Rawalpindi in 1976.⁴⁶ Since then, it has occurred 14 times, including nine times in the province of Balochistan.⁴⁷ In 2006, when CCHF emerged in Balochistan, it infected several butchers and dealers of livestock in Loralai.⁴⁸ In 2012, there were 61 cases, with 17 fatalities. In 2013, 16 cases were reported, including six deaths. The

⁴⁴ Junaid Saleem, Muhammad Usman, Ahmad Nadeem, Shakeel Afzal Sethi and Muhammad Salman, "Crimean-Congo Haemorrhagic Fever: A First Case from Abbottabad, Pakistan," *International Journal of Infectious Diseases* 13, no. 3 (2009): 121-123 (121), http://ac.els-cdn.com/S1201971208015026/1-s2.0-S1201971208015026-main.pdf?_tid=be9f53c6-206a-11e7-a0d4-0000aacb362&acdnat=149210302984061d383bc4a2126b6d8f55a1628030;

J. P. Gonzalez, J. L. Camicas, J. P. Cornet, and M. L. Wilson, "Biological and Clinical Responses of West African Sheep to Crimean-Congo Haemorrhagic Fever Virus Experimental Infection," *Research in Virology* 149, no. 6 (1998): 445-455;

R. Vorou, I. N. Pierrotsakos, and H. C. Maltezou, "Crimean-Congo Haemorrhagic Fever," *Current Opinion in Infectious Diseases* 20, no. 5 (2007): 495-500. Crimean-Congo Haemorrhagic Fever (CCHF) is a zoonotic viral disease. CCHF virus causes it and is an RNA virus belonging to the genus *Nairovirus* and family *Bunyaviridae*. The natural vector of this fever is *Ixodid* tick. The gene of this tick is *Hyalomma*. *Ixodid* tick makes animals and birds its host and feeds on them. It transmits the virus to its host. The secondary prey or target of this virus is a human being who is infected with the bite of this tick, or has direct contact with the blood or tissue of infected animals during slaughter. Among humans, farmers, shepherds, abattoir workers and those in close contact with infected animals are primary targets of this disease.

⁴⁵ See also Fatima Begum, C. L. Wisseman, Jr. and J. Casals, "Tick-Borne Viruses of West Pakistan, IV, Viruses Similar to or Identical with, Crimean Haemorrhagic Fever (Congo-Semunya), Wad Medani and Pak Argas 461 Isolated from Ticks of the Changa Manga Forest, Lahore District, and of Hunza, Gilgit Agency, W. Pakistan," *American Journal of Epidemiology* 92, no. 3 (1970): 197-202.

⁴⁶ M. I. Burney, A. Ghafoor, M. Saleem, P.A. Webb, and J. Casals, "Nosocomial Outbreak of Viral Haemorrhagic Fever Caused by Crimean Haemorrhagic Fever-Congo Virus in Pakistan, January 1976," *American Journal of Tropical Medicine and Hygiene* 29, no. 5 (1980): 941-947.

⁴⁷ M. N. Athar, H.Z. Baqai, M. Ahmad, M. A. Khalid, N. Bashir, A. M. Ahmad, A. H. Balouch K. Bashir, "Short Report: Crimean-Congo Haemorrhagic Fever Outbreak in Rawalpindi, Pakistan, February 2002," *American Journal of Tropical Medicine and Hygiene* 69 (2003): 284-287; B. Jamil, R. S. Hasan, A. R. Sarwari, J. Burton, R. Hewson, and C. Clegg, "Crimean-Congo Haemorrhagic Fever: Experience at a Tertiary Care Hospital in Karachi, Pakistan," *Transactions of the Royal Society of Tropical Medicine and Hygiene* 99, no. 8 (2005): 577-584.

⁴⁸ Shezad Baloch, "Congo Virus-A Fresh Challenge for Balochistan," *Express Tribune*, August 23, 2014, <http://tribune.com.pk/story/752430/congo-virus-a-fresh-challenge-for-balochistan/>.

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majority of the cases were reported from the province of Balochistan, Sindh, KPK and Punjab.

Crimean-Congo hemorrhagic fever is endemic in Pakistan and cases have been reported sporadically since 2000 and often localized outbreaks are reported in established foci.⁴⁹

By August 2014, four confirmed Congo virus infected cases in Zhob district created great stir in the circle of health officials. It claimed two lives. The infected patients belonged to Killi Blump—a far flung area of Zhob. The virus also threatened the residents of Karachi, capital of Sindh province. It claimed one life in Karachi in 2013 and 2014.⁵⁰ In Punjab, two persons died – one belonged to Lahore and another to Rawalpindi.⁵¹

By the end of September 2014, the total reported cases rose to 30 in KPK. Among these, 60 per cent of the cases were reported from Afghanistan. In KPK, these cases mainly occurred in Bannu, Peshawar and Lakki Marwat. In four months, the virus had claimed four lives in Hayatabad Medical Complex (HMC), Peshawar. One of the victims was from Manja Khel, Bannu. He was a butcher by occupation, and admitted to hospital on July 9, 2014. Two of the deceased belonged to Afghanistan. In addition to these, one of the hospital employees also fell victim to the disease while providing first aid to the Afghan patient.⁵²

⁴⁹ WHO EMRO, “Crimean-Congo Haemorrhagic Fever (CCHF) in Pakistan” (Cairo: World Health Organization Eastern Mediterranean Regional Office, June 14, 2013), <http://www.emro.who.int/surveillance-forecasting-response/outbreaks/cCHF-pakistan-june-2013.html>.

⁵⁰ “Man Dies from Congo Virus in Karachi,” *Dawn*, August 22, 2014, <http://www.dawn.com/news/1127050>.

⁵¹ “Congo Virus Claims another Life in Lahore,” *Dunya News*, last modified November 7, 2013, <http://dunyanews.tv/index.php/en/Pakistan/199746-Congo-virus-claims-another-life-in-Lahore>.

⁵² Zahir Shah Sherazi, “Fourth Patient Dies of Congo Fever in Four Months: Peshawar Hospital,” *Dawn*, July 11, 2014, <https://www.dawn.com/news/1118589>; “Deaths of Congo-Fever in Four Months in Peshawar-Hospital” *Dawn News*, July 11, 2014, <http://urdu.dawn.com/news/1006959/4-deaths-of-congo-fever-in-four-months-in-peshawar-hospital>; Asad Zia, “Occupational Hazard: Congo Haemorrhagic Fever Claims Life of HMC Staffer,” *Express Tribune*, July 7, 2014, <https://tribune.com.pk/story/732011/occupational-hazard-congo-haemorrhagic-fever-claims-life-of-hmc-staffer/>.

The virus turned into a deadly pathogen, which claimed the lives of two patients hailing from Afghanistan and admitted to HMC, Peshawar. Since January 2015 to June 24, 2015, nine Congo fever cases were reported from Afghanistan. They were admitted to HMC, Peshawar. They mainly belonged to different areas of Afghanistan like Langarhar, Qandahar, Jalalabad, and other areas adjacent to the Pak-Afghan border. By August 2, 2015 Congo virus had claimed the lives of six people.

Congo virus has gained currency as an epidemic next to polio in FATA and Khyber Pakhtunkhwa. It is a real health security threat to the people of these areas. The sheep exported from Afghanistan are the carriers of this infectious tick. These infected sheep are the main source of causing Congo Fever in Balochistan, Punjab and Khyber Pakhtunkhwa.⁵³

Ebola

Ebola, like Congo Fever, is a contagious zoonotic disease. It has a high fatality rate. Its primary referent objects are human beings. Its incubation period ranges from eight to ten days. Fever, headache, vomiting, diarrhoea, rash and bleeding are the symptoms of this ailment. Ebola virus is one of the most attractive pathogenic weapons. Since 1976 to 2013, Ebola virus posed severe health security risks for sub-Saharan Africa. The fatality rate ranged from 30-90 per cent. The first confirmed reported case on August 26, 1976 near Ebola River valley was from Zaire.⁵⁴ Since 1976 to 2013, the WHO reported 1716 Ebola virus affected people in this area.⁵⁵ On April 10, 2014 WHO declared three African countries—Guinea, Liberia and Sierra Leone as the most affected areas in terms of spread of Ebola.⁵⁶ On December 6, 2013 a two-year child, his relatives and a

⁵³ Qaiser Butt, "Another Outbreak?: Congo Virus Threatens Lives, Warn Doctors," *Express Tribune*, October 7, 2013, <https://tribune.com.pk/story/614554/another-outbreak-congo-virus-threatens-lives-warn-doctors/>. Remarks of Dr Muhammad Najeeb Khan Durrani, Senior Surveillance Coordinator Communicable Diseases, Islamabad.

⁵⁴ Now known as Democratic Republic of Congo.

⁵⁵ Ram Kumar Dhaked, "Re-Emergence of Zaire Ebola Virus Disease: Lessons to be Learnt," *Journal of Bioterrorism & Biodefense* 6, no. 2 (2014): 1 <https://www.omicsonline.org/open-access/reemergence-of-zaire-ebola-virus-disease-lessons-to-be-learnt-2157-2526.1000e116.pdf>.

⁵⁶ "Ebola Cases Rising Faster than Ability to Contain Them: WHO," *Express Tribune*, September 12, 2014, <http://tribune.com.pk/story/761350/ebola-cases-rising-faster-than-ability-to-contain-them-who/>.

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medical attendee died from it. The WHO reported 2127 suspected cases, including 1145 deaths due to this virus.⁵⁷

The Ebola virus is also perceived as a possible health security risk in Pakistan in general, and in KPK in particular. The provincial administration in KPK has deputed a medical team from Khyber Teaching Hospital in Bacha Khan Airport to prevent the spread of Ebola virus in the province. The provincial health department has warned all the district health authorities about the possible risks of Ebola. Establishment of isolation wards has been suggested in three major hospitals—Khyber Teaching Hospital, Lady Reading Hospital and Hayatabad Medical Complex—in Peshawar.⁵⁸

Swine Flu

Swine flu is also a zoonotic disease. The WHO declared an ‘international public health emergency’ when Swine Flu cases occurred with an accelerated pace. The first ever case was reported in a 4-year old child in Mexico on March 28, 2009. However, this disease infected 30,000 people in 74 countries on June 11, 2009.⁵⁹ According to Stefan Elbe:

Swine Flu is an existential threat to national security because it has a high death toll and can trigger significant economic disruption.⁶⁰

The WHO reported that Swine Flu infected 10,582 people by end of December 2009 in more than 208 countries. Western and Central Asian countries like Kazakhstan, Kyrgyzstan, Afghanistan, Oman and Israel, and in South Asia, northern India, Nepal, Sri Lanka and the Maldives are

⁵⁷ Dhaked, “Re-Emergence of Zaire Ebola Virus Disease: Lessons to be Learnt,” 1.

⁵⁸ “Preventive Measures: Health Officials Deputed at BKIA to Screen for Ebola Virus,” *Express Tribune*, October 28, 2014, <https://tribune.com.pk/story/782501/preventive-measures-health-officials-deputed-at-bkia-to-screen-for-ebola-virus/>.

⁵⁹ Colin McInnes, “Health,” 328.

⁶⁰ Stefan Elbe, “Health and Security,” in ed. Alan Collins, *Contemporary Security Studies* (Oxford: Oxford University Press, 2016), 334.

under continuous threat from this virus.⁶¹ In India, 23,000 Swine Flu cases (including 300 deaths) were reported in Gujrat in 2015.⁶²

In Pakistan, the first case of Swine Flu was reported in 2009.⁶³ It claimed the lives of two people in district Swabi of KPK province, and infected six other residents of this district. Out of these six cases, it infected a nurse in the local hospital of Swabi.⁶⁴ Similarly, it claimed the lives of two patients in Peshawar - one from Peshawar and the other from Swabi. Over the previous year, 128 patients suspected of suffering from Swine Flu, including Afghan refugees, were admitted to tertiary hospitals in Peshawar. 39 were diagnosed with the flu and 28 of them belonged to Swabi.⁶⁵

Zoonotic Diseases, Human Health Security and IHRs: The Challenges

Discussed below are the global, regional, national, local and individual level challenges to human health security due to non-compliance with the IHRs (2005).

Global Challenges

At the global level, the first obstacle in the implementation of IHRs is the absence of mechanisms to enforce such laws. IHRs bind each Member State to formulate health security laws for their respective citizens. However, the main hindrance is the lack of sanction for Member States in case of its failure to notify the WHO of any public health emergency situation or failure in terms of surveillance, reporting and response (SRR).

⁶¹ "Global Swine Flu Pandemic Deaths Pass 10,000: WHO," *Dawn*, December 18, 2009, <http://www.dawn.com/news/935811/global-swine-flu-pandemic-deaths-pass-10-000-who>.

⁶² "Swine Flu Alert," *Dawn*, March 7, 2015, <http://www.dawn.com/news/1167839>.

⁶³ Muhammad Qasim, "Awareness Needed to Avoid Swine Flu Outbreak," *News International*, January 10, 2016, <https://www.thenews.com.pk/print/89160-Awareness-needed-to-avoid-swine-flu-outbreak>.

⁶⁴ Umer Farooq, "Swine Flu Patients Advised to Hunt for Antiviral Meds," *Express Tribune*, December 15, 2015, <https://tribune.com.pk/story/1010101/h1n1-virus-swine-flu-patients-advised-to-hunt-for-antiviral-meds/>.

⁶⁵ "2 Die of Swine Flu in Peshawar," *News International*, January 28, 2016, <https://www.thenews.com.pk/print/94257-2-die-of-swine-flu-in-Peshawar>.

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In addition, any adjudication mechanism is also lacking in the execution of IHRs.⁶⁶

There is also poor coordination within the global disease surveillance network. The IHRs provide a framework for a worldwide coordination-mechanism to detect and control diseases in the developing countries of Asia, Africa, and Latin America. In many countries of these regions, the paucity of trained health workers - laboratory and public health - is a chronic issue. Policymakers in such countries are not paying much heed to comply with basic strategies for mutual coordination. The dependence of WHO on its Members for information-sharing and coordination related with public health issues is another deterrent in countering health security threats. Member States of IHRs always look to the WHO to design health security strategies to build their capacities to cope with any pandemic.

Regional Challenges

Pakistan is confronted with several regional challenges to counter zoonotic diseases and safeguard its citizens from such health security threats.

Afghanistan shares a long border with KPK and people cross this border frequently. Afghanistan has been a victim of Congo Virus, and because of this, the Fever has been spreading to KPK and its adjacent areas. In other words, Afghanistan 'exports' Congo Virus to adjacent border areas of Pakistan because infected Afghan citizens visit these areas, often for treatment or if unaware of carrying the virus to visit family or relatives. July 10 to October 22, 2008 was a health security risk period when 30 cases of Congo Fever were reported in four provinces of the western region of Afghanistan.⁶⁷

Illegal transportation of animals between Pakistan and Afghanistan has also aggravated the situation. In this regard:

⁶⁶ David P. Fidler, "Return of the Fourth Horseman: Emerging Infectious Diseases and International Law," *Minnesota Law Review* 81, no. 771 (1997): 773-868 (774-75, 793), <http://www.repository.law.indiana.edu/cgi/viewcontent.cgi?article=1744&context=facpub>. It is the unintentional violation of Article 5 of IHR.

⁶⁷ J. Mofleh and A. Z. Ahmad, "Crimean-Congo Haemorrhagic Fever Outbreak Investigation in the Western Region of Afghanistan in 2008," *Eastern Mediterranean Health Journal* 18, no. 5 (2012): 522-526 (524), <http://www.emro.who.int/emhj-volume-18-2012/issue-5/article-17.html>.

There are some animal quarantine issues in tribal areas. Pakistan shares a very long porous border with Afghanistan. Kabul depends on Pakistan for animals and vice versa. So, there is large scale illegal transportation of smuggled animals between the two neighbouring countries.⁶⁸

The mobility of nomadic tribes from Afghanistan and other areas is also a severe health security threat, particularly to the people of KPK:

Nomads are a threat to the local population of KPK. While migrating from one place to another, they bring herds of animals along. It is difficult to stop the movement of these nomads. They are generally unaware about the significance of vaccinating their animals against various diseases. Disease is, therefore, transmitted through their cattle.⁶⁹

Prevalence of Swine Flu in India is also an existential health security threat to the people of Pakistan. 2013 became a fatal year when 444 people out of 13, 000 Swine Flu virus infected patients lost their lives. Similarly, during 2014, this virus claimed the lives of 1000 and infected above 20,000 people; and in 2015, the lives of 1731 people out of 30,000 reported cases in India.⁷⁰

National and Provincial Challenges

The Federal Government and Provincial Governments are confronted with political and constitutional issues that directly and indirectly affect human health security in the country in general and KPK in particular.

The Provincial Government of KPK has failed to monitor trade and travel routes due to constitutional geographical restraints. Territorially, the Constitution divides Pakistan into different geographical administrative units: Federally Administered Tribal Areas (FATA), Frontier Regions (FRs), Provincially Administered Tribal Areas (PATA), and Settled Areas. FATA sharing a common border does not fall under the

⁶⁸ Dr Muhammad Ilyas quoted in Amir Ullah Khan, "Biosecurity Puzzles and Prospect" (PhD diss., School of Politics & International Relations, Quaid-i-Azam University, 2016), 198.

⁶⁹ Ibid.

⁷⁰ Qasim, "Awareness Needed to Avoid Swine Flu Outbreak."

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constitutional jurisdiction of KPK's Government. This border is notorious for smuggled goods, including illegal transportation of animals.⁷¹ In settled areas, PAQRs of 1980 are followed to some extent. However, these rules are not practically implemented in tribal areas of Pakistan.

Another challenge is the weak capacity of the Provincial Government of KPK particularly to treat and prevent spread of zoonotic diseases due to scarcity of anti-viral medicines. The District Government has failed to provide personal protective equipment, anti-viral medicines and manpower. Vaccines are hardly available or are expired. The unavailability of vaccines with the KPK Provincial Health Directorate is also a matter of grave concern.⁷² The provision under IHRs (2005) for cleaning and disinfecting animal carrying vehicles is also not implemented.

The provision under *The West Pakistan Animals Slaughter Control Act, 1963* that prohibits the slaughter of immature sheep is grossly violated across the country. Immature sheep are freely slaughtered in privately-run slaughter houses due to poor monitoring mechanisms. Lack of proper arrangements to dispose laboratory wastes is also serious problem. It is alarming that there is only one high tech laboratory-National Institute of Health in Islamabad to diagnose Swine Flu in the country.⁷³

The Provincial Government of KPK has enacted *The North-West Frontier Province Agricultural and Livestock Produce Markets Act, 2007* to exercise control over agricultural and livestock products. It provides for establishment of market committees for this purpose.⁷⁴ However, it is not implemented in letter and spirit.

Lack of follow-up is another chronic problem in Pakistan. In case of Congo Fever, this is not possible, because many cases of zoonotic diseases are reported in Afghan nationals where the health infrastructure is extremely poor due to the country's prevailing anarchical situation. They

⁷¹ GoP, "Article 1," *The Constitution of Pakistan, 1973* (Government of Pakistan, 1973). FATA are under direct control of the Federal Government. FRs are semi-tribal areas. PATA are under the control of Provincial Governments. However, the President also plays a role in some cases. Settled Areas are governed under the Provincial Government.

⁷² Farooq, "Swine Flu Patients Advised to Hunt for Antiviral Meds."

⁷³ Hassaan Ahmed, "16 Dead as Punjab Hit Hard by Swine Flu," *Pakistan Today*, January 20, 2016, <http://www.pakistantoday.com.pk/2016/01/01city/lahore/16-dead-as-punjab-hit-hard-by-swine-flu/>.

⁷⁴ See for details GoP, *The North-West Frontier Province Agricultural and Livestock Produce Markets Act, 2007* (Government of Pakistan, 2007).

frequently migrate to their native country. Nevertheless, the local monitoring mechanism fails to identify infected individuals, for example of Congo Virus. This is a gross violation of Article 5 (1) of IHRs (2005) that binds each signatory country to develop, strengthen and maintain an effective surveillance system.

The department of Animal Quarantine in the country is responsible for countering the threats posed by zoonotic diseases. However, its role is deplorable due to some structural and functional issues. First, it has infrastructure problems. It functions in a rented building. It is also deficient in proper well-equipped laboratories and proper animal quarantine houses.⁷⁵ Second, lack of skilled and trained staff in the animal quarantine department is a constant concern. The existing staff is not adequately qualified and their numbers are not enough to handle animal biosecurity threats.⁷⁶ Moreover, animal slaughter houses are imminent threats to human beings. These are located in populated areas. The people in these vicinities are exposed to diseases caused by the animal wastes. There is no proper mechanism to dispose such waste.⁷⁷

There are many illegal butcher houses in the district of Peshawar. The district administration does not have the record and details of such privately run non-registered slaughterhouses. Occasionally dealers bring dead cows, buffaloes and goats to these unregistered slaughterhouses and sell them on comparatively low prices.

For a Safer Pakistan: What More Can Be Done?

Since the passage of the Eighteenth Amendment in the Constitution of Pakistan, the health sector has become the responsibility of the provincial governments in the country. It is, therefore, their primary responsibility to take necessary steps to cope with looming threats emanating from zoonotic diseases to human health. Presently, people living in KPK in particular and other regions of Pakistan in general are vulnerable to zoonotic diseases. The people of KPK are more exposed to zoonotic diseases due to a porous border with Afghanistan. Nevertheless, the prevention from zoonotic diseases is possible by introducing some preliminary reforms in the realm of animal biosecurity.

⁷⁵ Amir "Biosecurity Puzzles and Prospects," 195-196.

⁷⁶ Ibid.

⁷⁷ Ibid.

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An encouraging sign of the KPK Government is that it is cognizant of the dangerous consequences of zoonotic diseases and thereby in collaboration with the District Administration and Provincial Disaster Management Authority (PDMA) has taken a few initiatives for the prevention of infectious diseases in the province.⁷⁸

The political administration in the province responded seriously to Congo Fever. Dr Meher Taj Roghani, Adviser to the KPK Chief Minister, directed concerned quarters to take initiatives and launch public awareness campaigns to cope with any possibility of its outbreak.⁷⁹ The government also deputed veterinary staff at officially set up cattle-markets to spray animals to control ticks.⁸⁰ In addition, Deputy Commissioner Peshawar has issued directives to the Livestock Department to launch anti-Congo fumigation in houses and cattle markets. In addition, butchers have been asked through the Butchers' Association to wear gloves and masks. The PDMA has also published public awareness advertisements in newspapers. It launched a special campaign in 22 districts, in which 532 livestock staff members participated. In 2014, the Provincial Government of KPK created 133 check-posts to vaccinate incoming and outgoing animals on Eid-ul-Azha (Sacrifice Feast)⁸¹ in 2014.

However, these steps are unsatisfactory and have been short-term in nature. More concrete steps are needed to counter such health security threats. For instance, the Government should create a special fund for the prevention of zoonotic diseases like Congo. Professional health officials are posted in rural areas, both are vulnerable to zoonotic diseases. The Government needs to take proper initiative to control the vectors causing the various diseases discussed above. Proper surveillance process could be introduced, and specialist doctors appointed in hospitals of each major city. Medicines to treat zoonotic diseases should be available at affordable, subsidised prices.

There is need of collaboration among various institutions like Livestock and Dairy Development Research, Livestock and Agriculture,

⁷⁸ Intikhab Amir, "KP Govt's belated Move to Prevent Congo Fever," *Dawn*, October 15, 2013, <http://www.dawn.com/news/1049901>.

⁷⁹ Ibid.

⁸⁰ Ibid.

⁸¹ Editor's Note: The second of two Muslim religious festivals celebrated worldwide each year.

Animal Quarantine Department, and Directorate of Health Services etc.⁸² In addition, specialist laboratory technicians should be appointed in each major hospital of every province. Separate wards for diseases like Swine Flu, Ebola and Congo Fever should be designated in these hospitals.

Awareness programmes about zoonotic diseases need to be launched nationwide through print and electronic media. The public needs to take steps and cooperate with the district\local administrations to point out butchers and mafia involved in selling sick animals in the market. Proper arrangement for educating people about the utility of AQA needs to be made through seminars. Debates in various academic institutions need to be launched. Courses in Life Sciences could be introduced in line with Animal Biosecurity.

For KPK and Balochistan in particular, Provincial Governments should seriously conduct vaccination of nomadic tribes' animals to prevent spread of zoonotic diseases. The Federal Government can also execute similar programmes in areas which fall under its jurisdiction. The Animal Quarantine Acts (AQA) and the Agricultural and Livestock Produce Market Act, 2007 need to be implemented in the country simultaneously and uniformly.

Strict surveillance of unauthorised trade routes should be ensured. In Pakistan, the traders choose two types of trade routes: authorised and unauthorised. On authorised routes, Quarantine Acts are implemented in letter and spirit. In Settled Areas, there are Animal Quarantine Houses where animals are kept for medical observation for several days, and sick animals are vaccinated properly. They are issued health certificates, and truck numbers are noted. A Sealing Confirmation Certificate (SCC) is also issued.

Border Inspection Posts (BIPs) need to be established along with deputing quarantine staff to ensure the implementation of existing quarantine laws at least on authorised trade routes. Custom authorities on the borders should assist Animal Quarantine teams to ensure quarantine of animals and birds. In addition, custom authorities in Pakistan and Afghanistan should not allow entry of animals or birds unless properly quarantined. They should check all the required documents. On unauthorised routes, the Frontier Corps and political administration with

⁸² It is worth mentioning that Animal Quarantine Department is still a federal subject. However, agriculture sector is a provincial subject.

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the help of levies should take necessary steps to prevent the smuggling of animals and birds.

The Government should ensure the provision of infrastructure facilities to the Animal Quarantine Department because these are earnestly required. There should be proper well-equipped laboratories, with well-trained staff. The personnel employed in the Animal Quarantine Department should be inducted after pre-service and also given frequent in-service training and study of modern techniques and courses. There should be proper mechanism of their accountability, and promotions should be based strictly on performance.

Conclusion

Pakistan is vulnerable to infectious diseases due to the lack of efficient health security laws, poor execution of concerned existing laws, and institutional capacity to counter zoonotic threats. Diseases such as Congo Virus, Swine Flu and Ebola have created a health security dilemma in the country. Moreover, the transmission of zoonotic diseases from neighbouring countries, especially Afghanistan and India are multiplying challenges for national health governance. Policymakers need to adopt dual institutional integrated mechanisms (horizontal and vertical) to counter health security challenges for future generations. Top-bottom and bottom-up approaches should be applied. Local governments, provincial and national institutions should be engaged in formulation of a health security policy. In the context of top-bottom approach, an effective and efficient monitoring mechanism needs to be introduced. More precisely, Local Government institutions should be engaged to implement health security laws in letter and spirit. Simultaneously, the Federal and Provincial Governments should devise a comprehensive Health Security Strategy in the light of International Health Regulations (2005) and update Acts like the Epidemic Diseases Act, 1897; Epidemic Diseases Act, 1958, Epidemic Diseases (Amendment) Act, 2011, and the Public Health (Emergency Provisions) Ordinance, 1944. ■