

National Security and The Menace of The Nipah Virus, 1998 – 2000: The Malaysian Experience

Ancaman Penyakit Nipah Terhadap Sekuriti Negara, 1998 – 2000: Pengalaman Malaysia

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ABSTRACT

In 1998, Malaysian mainly pig farming community was bombarded with the tragedy of a new infectious disease. The emergence of this new virus in the world has dealt a major blow to Malaysia. The superficiality of understanding the Nipah Virus has disrupted public well-being. Simultaneously, the frailty caused by the spread of infectious disease has changed the perspective of how national security is viewed. Thereby, the national security defence no longer focuses on the demarcation aspect of the area alone, but also involves every individual living in the supposed area. Thus, this article examines the menace of the Nipah virus outbreak posed on national security between 1998 and 2000. The Nipah virus was first recognized in Malaysia. The Government as the main actor had no comprehensive plan when faced with this new disease. While the main requirement needed in overcoming epidemics requires sustainable prevention. This article uses historical methodology, which emphasizes on qualitative method in the form of descriptive analytics. Primary and secondary sources was used throughout the process of data accumulation, for instance Guidelines of Nipah Infection MOH/K/EPI/19.99(GU), parliament hansard, periodicals, books and articles. The findings show the Nipah outbreak managed to threaten national security, however the capability of the Nipah epidemic to achieve this threat was not solely dependent on high mortality rates, but on other aspects as well, such as, economic disruption and public panic. Government preparedness in health infrastructure, through declaring infectious zones, biosecurity steps, disinfections, and public awareness campaigns yielded effective results in controlling the Nipah outbreak.

Keywords: Disease; disinfection; infectious; mortality; outbreak

ABSTRAK

Pada tahun 1998, masyarakat Malaysia khususnya komuniti ternakan babi di Malaysia telah digemparkan dengan tragedi penularan penyakit berjangkit baru. Kewujudan virus asing yang pertama kali ditemui di dunia itu telah memberi satu tamparan hebat kepada Malaysia. Kedangkalan pemahaman tentang penyakit Nipah telah mengganggu kesejahteraan awam. Dalam masa yang sama, kepincangan yang berlaku kesan daripada penularan wabak penyakit berjangkit ini telah mengubah sudut pandang dimensi keselamatan negara. Hal ini demikian, benteng pertahanan negara tidak lagi tertumpu kepada aspek persempadanan kawasan semata-mata, sebaliknya turut melibatkan setiap individu yang mendiami sesebuah kawasan. Bagi maksud tersebut, artikel ini berusaha mengupas sejauh mana ancaman penyakit Nipah berupaya mengancam keselamatan negara antara tahun 1998 hingga 2000. Buat pertama kalinya penyakit nipah dikesan di Malaysia. Berkesinambungan daripada hal tersebut, aktor utama iaitu kerajaan tidak mempunyai perancangan rapi pada peringkat awal semasa berhadapan dengan serangan penyakit baru muncul ini, sedangkan keperluan utama mengatasi wabak epidemik memerlukan langkah pencegahan yang mampan. Perbincangan artikel mengguna pakai metodologi sejarah, menerusi kaedah kualitatif yang berbentuk deksriptif-analitik. Kajian menggunakan sumber primer dan sekunder misalnya Garis Panduan Pengurusan dan Laporan Susulan Jangkitan Penyakit Nipah MOH/K/EPI/19.99(GU), penyata parlimen, akhbar, buku dan artikel. Hasil kajian mendapati ancaman penyakit nipah berhasil menggugat sekuriti negara, walau bagaimanapun, keupayaan penyakit nipah menggugat sekuriti negara tidak bergantung sepenuhnya kepada kadar mortaliti yang tinggi sahaja tetapi didorong oleh aspek lain seperti mengganggu gugat ekonomi dan kebolehan mencetuskan panik. Ketersediaan kerajaan dari segi infrastruktur kesihatan seperti pengisytiharan kawasan jangkitan, langkah biosekuriti, disinfeksi dan kempen kesedaran awam akhirnya menampakkan keberkesanan dalam pengawalan penyakit nipah.

Keywords: Disinfeksi; jangkitan; mortaliti; penyakit; wabak

INTRODUCTION

The British colonization of Malaya had made Malaysia inherit most of the administration and governance from the British which include public health sectors. Thereby, despite the country's independence, Malaysia still uses the act of infectious diseases inherited from the British era. The existing law on infectious diseases was adopted until an Infectious Diseases Prevention and Control Act (Act 342) was introduced in 1988. Aside from that, prior to the early 20th century, issues of infectious disease were still associated with social problems. For instance, the depravity of infectious diseases in Malaya such as cholera, venereal disease, and malaria was often linked to labour productivity and other social problems. However, the change in the national security dimension at the end of the 20th century has caused the issue of infectious diseases to change from social problems to national security problems. Globally, the issue of national security threats due to infectious diseases is also supported by Vice President of the United National Security Council Al Gore and the National Intelligence Council for the Intelligence Agency. Meanwhile, in Malaysia, this change in landscape was evident when the issue of infectious diseases was first placed under the National Security Council through Directive No. 20 on Policy and Mechanism of Disaster Management and Relief in 1997.

First and foremost, in terms of epidemiology, infectious diseases mean the spread of disease infection either from humans to humans or animals to humans caused by parasitic and pathogenic organisms. The interaction between the host and the pathogen leads to the emergence of infectious diseases. Besides, from a legal approach infectious disease means any disease that has been specified in the "First Schedule" of the Prevention and Control of Infectious Diseases Act 1988. Furthermore, the basic concept of security is clearly specified in this section to ensure its complexity is comprehensible. The transformation in the dimension of security concept began at the end of the Cold War (Bakri 2018: 194). At the early stage, the concept of security was only seen through national sovereignty and territorial integrity. Only a handful of scholars consider that the security concept should be seen more comprehensively, covering the military, politics, economy, society, and environment (Buzan 1991: 432; Ramli & Zainus 2017: 16). This development moved from the acceptance of non-traditional security threats, in addition to the

emergence of the human security concept. Thus, the widespread dimension of national security in recent times has led the world to begin seeing infectious diseases, environmental pollution, transnational crime, and the movement of the world's population as a form of threat. For the first time, the United Nations (UN) introduced the human security concept in the Human Development Report 1994 (Report 1 1994: 22). Human security is divided into two sections: firstly, protection from infectious disease, starvation, oppression, and secondly, protection from threats to daily life (Report 1 1994: 22). The UN lists seven forms of threats to human security, such as economic security, food security, health security, environment security, personal security, community security, and political security (Report 1 1994: 24-25; Andika & Aizat 2020: 29). The idea of human security is seen to be in line with the goal of the UN to achieve peace through human development and security. In addition, this view of a multidimensional approach to security was also supported by the former Secretary General of the United Nations, Koffi Annan. According to Koffi, "... growing consensus that collective security can no longer be narrowly defined as the absence of armed conflict between or within States (Report 7 2002: 7)." Meanwhile, the Commission on Human Security's has defined human safety as:

"... to protect the vital core of all human lives in ways that enhance human freedom and human fulfilment. Human security means protecting fundamental freedoms-freedoms that are the essence of life. It means protecting people from critical (severe) and pervasive (widespread) threats and situations. It means creating political, social, environmental, economic, military and cultural systems that together give people the building blocks of survival, livelihood and dignity."

(Report 8 2003: 4)

This statement, therefore, illustrates that human security can only be achieved if the human quality of life is guaranteed and does not feel threatened. An emphasis on individual freedom has also been given, in defining the concept of human security as agreed in the United Nations Development Report 1994 (Anita 2013: 88). Therefore, to evaluate the extent of the Nipah virus threatened national security, this paper utilises several indicators to measure the threat levels. Firstly, the mortality rate that Nipah, virus caused; secondly, threats to economic stability; and thirdly, panic among society. Finally, government preparedness in control measures is evaluated through present infrastructure while facing infectious diseases.

RESEARCH BACKGROUND

As in other countries, Malaysia was not exempt from the threat of infectious diseases. A century prior, Malaysia was hit by the Spanish Flu plagues (Manderson 1996: 31). This epidemic recorded a death toll of 34, 644 cases (Kai 2007: 229). The spread of infectious diseases foreign to Malaya proved that it did cross geographical borders. However, the origin of the Spanish Flu, and how it spread to even Malaya, is still an ongoing polemic. The Malayan Tribune forwarded a number of possible origins of the plague. Among them were Manchuria and Vladivostok via Hong Kong, from India and Sri Lanka, and probably from Spain through the Philippines (Kai 2007: 226). According to an epidemiologist from the Science University of Malaysia, Dr Chan Chee Koon, an epidemic as bad as the Spanish Flu might occur again, if any emerging infectious disease in this country is not properly managed (Star 1 May 2009). Around 79 years later, Malaysia for the first time was hit with a new infectious disease, yet experienced by any other country. The Nipah virus was said to have first emerged in September 1998 and occurred in four localities started in the Kinta District of Perak (North-western, Peninsular Malaysia-approximately 190 km away from Kuala Lumpur (The Capital of Malaysia) followed by Sikamat and Bukit Pelandok in Negeri Sembilan (West coast, Peninsular Malaysia-69 km from Kuala Lumpur) before it moved to Sungai Buloh, Selangor (West coast, Peninsular Malaysia-around 29 km from Kuala Lumpur) on 27 May 1999 (Report 6 2000: 11).

The name Nipah virus was named after the Sungai Nipah village, hit by this disease. This is similar to the origin of the Hendra virus, named after the Hendra suburb in Brisbane, Australia. The Nipah virus was discovered by a researcher from University of Malaya WHO Collaborating Centre for Arboviruses for Western Pacific Region, Dr Chua Kaw Bing (Parliament Hansard 3 May 1999: 3). Following this discovery, on 5 March 1999, the Nipah virus sample was flown to the United States with Dr Chua Kaw Bing before the Centre for Disease Control (CDC) informed Professor Lam Sai Kit that the virus resembled the Hendra virus. Discovery of the patient specimen was collected from a Nipah victim, Pau Ee Loong (Star 25 January 2013). The CDC on 12 March 1999 later confirmed the virus is in the paramyxovirus category, under the Henda-like virus sub-category (Parliament Hansard 12 April

1999: 18). As soon as the main source of Nipah infection was identified, the government took action and culled all pigs in the village from 21 March to 24 April 1999. This operation involved an average of 1,630 people on the duty per day. While a total number of the government personnel involved in the operations were around 47,435 people including those from Health Department, the Armed Forces, Police, Veterinary Services Department, Public Works Department, Fire and Rescue Department, Welfare Services Department and Local Authority of Malaysia (Report 3 2001: 14). According to Lau Ah Chiew, among the residents that remained during the plague, they described the Sungai Nipah village as a “ghost town” (Star 25 January 2013). After this emergence and spread in Malaysia for the first time, a few years later, Nipah was reported in other countries such as Singapore, Bangladesh, India, and the Philippines. Severely, in Bangladesh the disease emerged eight times, while in India it emerged three times. These countries also recorded human-to-human transmission cases, which did not happen in Malaysia. Citing the Director General of the Malaysian Veterinary Services, Datuk Dr Abd Aziz Jamaluddin on the spread of Nipah in 2011 “... this disease had a large impact on national security and economy, and it is important for DVS to take steps to ensure this disease no longer spreads across the country ...” (Report 2 2011: V). This statement further strengthens the reality that the Nipah virus did threaten national security.

LITERATURE REVIEW

Direct research on the Nipah virus in the historical discipline could not be identified, as the history of 20th century epidemics was insignificant among historians. However, undeniably many studies on infectious diseases were carried out by previous scholars. Among them is the research by Kai Khiun Liew, although the research did not focus on the Nipah, but a study on one of the plagues of the 20th century. This writing clearly described the contemporary situation during the Spanish Flu in Malaya. For instance, the closing of schools and cinemas, estates and villages were deserted, corpses spread on the roads, and the frequency of funerals increased (Kai 2007: 222). The situation manifested the instability of societal life. The trend of epidemiology and demography of infectious diseases are outlined in the discussion. As a result, it was discovered the residents in villages were more

vulnerable to disease compared to urban residents, due to their higher mortality rate in rural areas. Aside from the administrators, society also contributed financial and healthcare aid to affected communities. Various facilities and infrastructure upgrades were introduced by the colonial government during the Spanish Flu outbreak. However, it was seen as unable to meet the demands of the time. These elements were seen to forward the infectious diseases' capability to affect national security. However, it was not clearly described as a threat to national security, as the human security element only emerged in 1994. Fatan Hamamah, among others, discussed infectious diseases around the 1980s and 1990s, especially in Malaysia, through evaluating causes of transmission, prevention measures, and development of direction (Fatan 2005). Fatan opines that the government's effort to draft health policies must consider a number of aspects, such as epidemiology approach, health ecology, and socio-culture. The capability of infectious disease leads to social, economic, and political flaws, even though the space of discussion is not linked to national security. For previous studies involving public health and national security, one writing is identified, an article titled "*Penyakit Berjangkit: Isu Kesihatan Awam dalam Aspek Sekuriti* (Infectious Disease: Public Health Issues in the Aspect of Security)" (Anita & Rohani 2012). In an effort to protect health and human security, legal approach is necessary, thus more effective and specific legal provisions are suggested. These measures are important to ensure public health and national security are maintained. This study analyses the issue of public health in the national security aspect from a legal perspective, and the objective of this study is public health, without focusing specifically on infectious diseases.

Next, Lam Sai Kit and Chua Kaw Bing are key figures in the study on the Nipah virus. These two experts were direct players during the Nipah epidemic. A number of studies have been published, among them "Nipah Virus Encephalitis Outbreak in Malaysia", although the article fully focuses on the clinical aspect and laboratory discoveries, but they also covered government action (Lam & Chua 2002). The researchers, at the early stage, admitted the negative implication of Nipah virus on humanity, especially in economic losses, but this aspect was not discussed in detail. Chua also emphasised the importance of systematic crisis management to minimise the socio-economic impact and reduce

large-scale outbreak (Chua 2010: 75, 80). To this end, the need to create high-technology diagnostic laboratories is needed to expedite measures to identify emergence of infectious disease pathogens. They also briefly record the factors of transmission risks, prevention, and communication strategy during the Nipah epidemic. Based on available research, the government carried out mass culling of swine in contagion areas, which caused economic loss for pig farm operators. In fact, villagers that worked in pig farms also lost jobs and income due to the spread of Nipah. The unstable economic situation increased villager exasperation. Following this event, the government prepared a number of initiatives to revive local village economy. Furthermore, from a health infrastructure aspect, the government ensured public hospitals were able to accommodate patient needs, as the majority of society received treatment in government hospitals (Sirajoon et al. 2008: 175). As evidence, 88 per cent of Nipah patients opted for government hospital due to financial constraints, especially in prohibitive bills of private hospitals (Roziyah 2000: 81). Nevertheless, based on previous studies, most scholars focused their discussion on the epidemiology and clinical aspects. Undeniably, the socio-economic aspects were also touched upon in their discussions, but without further detail. This is because previous studies in Nipah were pioneered by medical experts and not historians. As a result, the studies were unable to advance the implication of the Nipah virus towards the social condition, especially from a security aspect.

RESEARCH METHODOLOGY

This study uses the historical research method, and like most authors in the history discipline, this study also uses the qualitative method and data analysis. Historical research is generally related to analysing the development of an event, exploring the policy and impact of past events, evaluate the causes of events and behaviours of past societies, making the qualitative approach the method of choice for the researcher. Qualitative research requires detailed observation. For this purpose, this study refers to primary and secondary sources, such as *JE/ Nipah Outbreak in Malaysia, Guidelines on the Management and Follow Up of Nipah Infection*, Parliament Hansard, periodicals, books, and articles.

RESULTS AND DISCUSSION

UNDERSTANDING THE NIPAH VIRUS

The results found that in Malaysia, the Nipah virus outbreak occurred within 35 weeks, from 29 September 1998 to 31 May 1999 (Lam 2003: 113). The first case of Nipah virus was first detected in the Kinta district of Perak however the disease was treated as Japanese Encephalitis (JE) (Sherrini & Tan 2014: 103). Hence the control measures taken upon outbreak were for JE. With that in mind, 13,031 farms and 403,837 houses were inspected then fogged while 516,618 pieces of pamphlets on JE were distributed around the community (Report 3 2001: 6). Furthermore, 128,985 people were given vaccine against JE. Few of the control measures taken on JE were lifted when they had finally discovered this outbreak is a new disease. The Nipah virus began from the negligence of swine farm operators that ignore the sanitation aspect. Livestock waste was not managed systematically, which led to the outbreak. The Nipah outbreak began in Sungai Nipah, Negeri Sembilan in the west coast of Peninsular Malaysia. Bukit Pelandok, Kampung Sawah, and Kampung Wong Seng Chow were also severely affected by the Nipah virus (Berita Harian 11 April 1999). For this reason, taking the name from the Sungai Nipah village, Dr Chua Kaw Bing as the researcher responsible for discovering the virus forwarded the matter to the Ministry of Health (MOH) authorities.

Ecological and environmental changes exposed the animals to the disease, leading to the emergence of Zoonosis. Zoonosis is an infectious disease that transmissible from animals to humans (MYSED II 2021: 19). Infection-wise, bats are identified as viral hosts with a seroprevalence of 11 to 32 per cent, with swine as amplifier hosts (Report 2 2011: 1, 7). The Nipah virus was discovered by a Malaysian researcher, Dr Chua Kaw Bing. The discovery of a new virus usually takes a long time. However, with Dr Chua Kaw Bing perseverance, discovery of the virus was accomplished within four months (Berita Harian 11 April 1999). Dr Chua Kaw Bing at that time was working at the University Hospital Kuala Lumpur (UH) thus showed role played by the teams and the university.

The involvement of UH started off when the Seremban Hospital can no longer received patients as it reached the maximum capacity. Hence some cases were referred to UH. This led to the finding of the new disease. The teams had found out the

clinical features and the unusual epidemiology of the disease does not fit JE which then decided to investigate the disease. However, few attempts to detect the virus seemed unsuccessful due to incompatible infrastructure.

“Among global health security issues, the emergence and spread of epidemic-prone infectious diseases (EIDs) is a major international concern and plays a pivotal role in the development of One Health-not least because of the significant economic impact of outbreaks. The term ‘EIDs’ has become synonymous with previously unknown infectious diseases, such as the Nipah virus in Malaysia in 1999 and SARS, which appeared suddenly in South Asia in 2003, and with known infections that are either increasing in incidence and geographic spread... ..indicates increased risks from EIDs to humans, to animals and to the environment. Such diseases require national and international approaches for effective management.”

(Merilyn 2019: 26-27)

As a result, international assistance was sought, and the virus was sent to CDC Atlanta. Dr Chua Kaw Bing was the man who were given the responsibility to hand carry the virus to United States when the UH were unable to get a courier or airline company to accept the consignment (Report 3 2001: 63). The confirmation of this Nipah virus discovery involved cooperation with the Division of Arbovirus-borne Diseases, Center for Disease Control and Prevention (CDC), at CDC Fort Collins and CDC Atlanta. Before the virus reached Atlanta, they had their first pit stop at CDC Fort Collins and found out the possibility that it was a paramyxovirus by using electron microscopy (EM). In Atlanta by using immuno-fluorescence (IF) it was confirmed the virus reacted with Hendra antibody (Report 3 2001: 63). It was then announced to the public by MOH on 19 March 1999 that the outbreak cause by a new virus in paramyxovirus category (Berita Harian 11 April 1999). This on the other hand shows the collaboration of UH, various divisions of the MOH, Ministry of Agriculture especially Department of Veterinary Services, and other organizations involved local or international participation. The participation of international agencies are a manifestation of Malaysia’s diplomatic relations with other nations.

At the early stage, patient diagnosis and method of treatment were still in a trial phase. Patients were considered as ‘lab rats’ due to the novelty of the virus. During the outbreak in Malaysia, the virus incubation period was between ten and fifteen days (Report 3 2001: 2). The infected exhibited symptoms such as fever, headache, altered sensorium, drowsiness,

fits, jerky movements, weakness of the limbs, chills, myalgia, lethargy, giddiness and in some cases, rigors (Report 3 2001: 2, 30). Within one week, 14 to 29 per cent of patients exhibit additional symptoms such as respiratory problems, and the problem is detected through urinary excretion and respiratory tract secretions (Ksiazek et al. 2011: 177). Treatment methods at the early stages were similar to treatment for Japanese Encephalitis (JE) virus patients. This was because Nipah is in the same category as JE. The Nipah outbreak began around February 1999, when the same disease was detected in both humans and animals in transmission areas were also found in other areas (Lam et al. 2002: S48). This situation means the outbreak was no longer endemic, but epidemic in nature, in March 1999, 11 cases and 1 death of encephalitis and respiratory problems were reported in Singapore (Lam et al. 2002: S48). The cases involved farm workers that handled swine. Investigations showed the workers handled swine from the transmission areas in Malaysia. The climax of the disease happened in March 1999, with a record of 268 human infection cases, with 105 deaths (Chua et al. 2000: 802). The increasing death count and cases among patients of this mysterious virus led to multiple speculations, confusions, and unexpected effects that then threatened national security.

NIPAH VIRUS AND ITS THREAT

Public health was the key to regional security. The transformation on the security dimension made infectious diseases as one element in evaluating national security. For this reason, to assess the capability of Nipah to threaten national security, three main indicators were selected: mortality rate, jeopardy to economic stability, and capability to cause panic. Throughout human civilisation, mortality rate caused by infectious disease goes beyond deaths rate by war (Fidler 2003: 807). Therefore, measurement of degree of threat begins with measuring the first element. In Malaysia, the mortality rate caused in infectious diseases often surpassed the charts. The Year of Life Lost recorded the number of deaths at 222,833 cases, or in third place (Lim et al. 2014: 2). The high mortality rate caused by Nipah was related to the presence of the virus in the stored cerebrospinal fluid (CSF) and the central nervous system (CNS) of the patient (Chua et al. 2000: 803). The brain of the Nipah virus patient will be the most affected organs followed

by lung, heart and kidney. Nipah also caused acute infections and clinical relapse among patients. As there is possible clinical relapse of the disease Nipah virus patients need to undergo follow up at least in one year time after discharged. However, the follow up schedule set by the MOH should be done in 7 sessions accordingly. Nipah virus is also categorised as a Biosafety level-4 organism, with a death percentage was 38.5 per cent among humans which caused 109 deaths out of 283 cases (Report 3 2001: 12). It was evident when many cases of deaths were recorded due to Nipah virus infection reported in Kampung Sungai Nipah in early March 1999, which causes 11 deaths in Negeri Sembilan at that moment (Chua 2000: 803). The number of death cases increases drastically within two days where 28 more death cases were reported in the same area (Utusan Malaysia 20 March 1999). Until January 1999, in Negeri Sembilan, there were a total of 80 death cases reported and 12 clinical relapse cases were reported after a year of follow-up treatment was given to the patient. The high fatality rate and the long-term morbidity of the Nipah virus shows how virulent this virus is.

Citing the Director General of the Malaysian Veterinary Services, Datuk Dr Abd Aziz Jamaluddin on the spread of Nipah in 2011 "...this disease had a large impact on national security and economy, and it is important for DVS to take steps to ensure this disease no longer spreads across the country ...". (Report 2 2011: V). This statement reinforces the fact that Nipah disease is indeed a threat to the country's economy if it is not addressed appropriately. Thus, from economic instability aspect, an observation of a number of sources found the Nipah outbreak greatly affected the national swine industry, especially among the Chinese community (Lim 2001: 146). According to the distribution of reported cases and fatal cases by ethnic group in Negeri Sembilan from September 1998 to December 1999, 157 reported cases were the Chinese ethnic, 45 cases were the Indian ethnic group, and 29 cases consists of other ethnic group (Report 3 2001: 25). The Nipah epidemic wiped out the pig-farming industry, costing millions of ringgit (Star 14 April 2013). In 1998, it was recorded that the pig-farming industry involved 2100 operators, with 2.3 million livestock affected. The national annual output was estimated at US\$400 million, with a total export of around US\$100 million. The epidemic also witnessed declining demands for pork up to 30 per cent, and Singapore was among the countries that blocked the

entry of pork supplies from Malaysia since March 1999 (Hiromi et al. 2006: 1). The following is a table

on the production and consumption of pig livestock products from 1998 to 2000 in Malaysia:

TABLE 1. Production and Consumption of Pig Livestock Products 1998-2000 in Malaysia and Percentage of Self Sufficiency (SS)

	Parameters	1998	1999	2000
Pork	Production (tonnes)	262 910	149 420	148 410
	Consumption (tonnes)	191 150	177 390	187 500
	Per capita consumption (kg)	31	27	29
	SS (%)	137.5	83.7	79.2

Source: Adapted from Loh, T. C., (Eds.), (2002), *Protein Sources for the Animal Feed Industry: Expert Consultation and Workshop*, Food and Agriculture Organization of the United Nations.

Based on the table, the percentage of self-sufficiency of pig livestock decreased from 137.5 per cent in 1998 to 79.2 per cent in 2000. This was caused by the mass culling of swine to curb the spread of Nipah. On average, the national pork consumption per capita as a diet was around 29 kilogrammes per year. Farm operators, staff, and pork sellers were most affected by the Nipah virus. The Nipah virus was said to have affected 317,900 workers in this sector (Lam 2003: 117). This situation grew more severe when the government decided to eradicate all pigs in infected areas. Based on the claims of pig farmers when they sued the government for damages, the total loss incurred by pig farmers was estimated around RM74 million for the loss of pigs, RM61 million for destruction of farm facilities, RM1.1 million for medical costs, and RM185,000 for funeral expenses (Utusan Malaysia 31 October 2008). At the same time, the Nipah outbreak also affected the national tourism industry (Report 4 1999: 34). Economic instability and loss of income caused the affected groups to struggle to begin a new life. To exacerbate the situation, pig farm operators and workers have little additional skills and low education levels. After the end of the epidemic, the government recommended the farmers that wished to restart pig farming to choose areas far away from towns and orchards, and ensure the presence of 'buffer zones' (Lam 2003: 117). In addition, the Nipah outbreak also transformed the paradigm of the local pig industry.

Moreover, panic is also another indication to measure the degree threat of Nipah to national security. In the context of national security via human security, it is assumed humans would not feel threatened if only they were fully provided with quality-of-life guarantees (Anita 2013: 88; Aishah 2013: 12). The Nipah threat, which caused mass panic, has affected individual freedoms as defined

in the national security concept. The experiences of pig-culling, the severe conditions of patients, incurred losses, and time sacrificed were felt by residents following the Nipah tragedy. The residents prefer not to relive the event (Berita Harian 14 March 2001). The outbreak caused anxiety and fear across the country (Lam 2003: 113; Puteh et al. 2022:140). During the government-led pig-culling operations, residents began leaving the villages to save themselves from infection (Berita Harian 4 April 2007). 11,000 villagers were relocated on 19 March 1999 before special task force carried out their pig-culling operation to ensure no interruptions (Berita Harian 20 March 1999). In addition, a number of villagers searched for new settlements, revolted by the stench of millions of swine carcasses. It was also recorded that approximately 618 families, 111 shops, few schools, banks and other services need to be closed and evacuated during the outbreak to allow mass pig culling to be conducted which then resulted to not only loss of income to the business involved but their emotional well-being. The conditions of the villagers proved true the statement of Ramesh Thakur, "Anything which degrades their quality of life... is a security threat" (Anita 2013: 88). Besides, an indication of panic can also be measured by actions implemented by the government. For example, the statements issued by the country's top leader could be used as an indication of the level of danger. As for Nipah virus, it was proven with the statements issued by Deputy Prime Minister (Datuk Seri Abdullah Ahmad Badawi) after chairing the first Cabinet Committee Meeting on the JE/Nipah Prevention outbreak. It was stated that the outbreak was considered an emergency (Berita Harian 3 May 1999). Furthermore, the Centres for Disease Control and Prevention (CDC) based in Atlanta had classified Nipah outbreak as a 'potential bio-terror weapon' (Sun 26 September 2002).

URGENCY OF GOVERNMENT RESPONSE DURING THE OUTBREAK

Government early misdiagnosis of the Nipah virus as Japanese Encephalitis led to losses, casualties, and exposed government unpreparedness. However, as soon as the true source of the disease was identified, the government immediately took initiatives. To ensure the Nipah virus was contained, the government implemented isolation, and allowed only six hospitals to receive Nipah patients: the University Hospital, the Ipoh Hospital, the Hospital Fatimah, Ipoh, the Port Dickson Hospital, the Seremban Hospital, and the Hospital Kuala Lumpur (Utusan Malaysia 6 August 1999). The patients were also placed in special wards and were monitored closely by special teams that include medical specialists, medical officers, physiotherapists, occupational therapists, counsellors and nurses (Report 3 2001: 2). Those steps were to ensure minimal exposure

to Nipah virus. In treatment, at the early stages, the most effective method for patients was the Intensive Symptomatic Care. According to Thomas, treatment for infected patients depended on supportive care (Thomas 2011: 178). It could be concluded that there was no definitive treatment for Nipah patients. In some cases, anti-viral Ribavirin was given to patients. However, medication reactions depended on patient's health conditions (Ksiazek et al. 2011: 178). In addition, during the Nipah epidemic, experts from many countries participated to study the virus, including the CDC and WHO experts from Japan (Berita Harian 26 May 1999; Parliament Hansard 21 April 1999: 101). Meanwhile, a local Nipah investigation team was formed, consisting of medical experts from the Faculty of Medicine, University of Malaya, led by Professor C.T. Tan. The team consisted of medical experts in various fields:

TABLE 2. Members of the Nipah Virus Encephalitis Investigation Team

Field of Study	Expert(s)
Virologists	Dr Chua Kaw Bing Dr Lam Sai Kit Dr Sazaly Abu Bakar Dr Chang Li Yen
Neurologists	Dr Tan Chong Tin (Team Leader) Dr Goh Khean Jin Dr Chong Heng Thay Dr Chew Nee Kong Dr Tan Kay Sin Dr Vimalan Ramasundram
Pathologists	Dr Wong Kum Thong
Radiologists	Dr Sazilah Ahmad Sarji Dr Norlisah Ramli
Infectious Diseases	Dr Adeeba Kamarulzaman
Intensive Care	Dr Patrick Tan SK

Source: Adapted from Merdeka Award, (2008), *Past Recipients: Health, Science and Technology*.

In fact, when Bangladesh was hit with the Nipah epidemic, this team was responsible as WHO consultants and help contain the disease. In 2008, the team won the Merdeka Award (Star 25 August 2008).

Besides on assessing government preparedness against Nipah, preventive measures taken were also considered. Firstly, if Nipah cases was identified in pig farms, the government declared them as infected areas. Likewise, the farmers were quickly evacuated from the infected farms. The law enforcement through the Prevention and Control of Infectious Disease Act 1998 on Declaration of Infected Local

Area were issued. Hence under this Act, 12 infected villages were identified in Negeri Sembilan, such as Kampong Bukit Pelandok, Kampong Sawah, Kampong Chuah, Kampong Baru Sungai Nipah, Ladang Site A, Ladang Site C, Ladang Mambau, Ladang Lukut, Ladang Kebun Jimah, Ladang Linggi, Ladang Senggala, Ladang Sikamat and a few other areas located in Selangor and Perak (Report 3 2001: 15). The area involved was a five-mile radius around the declared infected area, the moment the report was issued (Report 2 2011: 10). Adjacent farms were labelled as high-risk, with total culling carried out in infected pig farms. The relocation of livestock between farms was totally prohibited during the

Nipah outbreak (Lim 2016: 202). The declared control areas were placed under the full control of authorities with a 30-day quarantine period (Report 2 2011: 10). During the Nipah outbreak, the acting Inspector-General of Police, Tan Sri Norian Mai, stated that authorities increased security control measures in infected areas to prevent any adverse incident (Berita Harian 9 July 1999).

Later, assessment of government preparedness is done through government ability to allocate millions of ringgits to ensure the well-being of the nation and its people. The government allocated US\$35 million to compensate for 1.1 million destroyed pigs, while an estimated US\$136 million was spent for programmes under the Department of Veterinary Services Malaysia (Report 5 2002: 5). For this purpose, it was necessary for the introduction of a Cabinet Taskforce, as the epidemic demanded immediate and precise decision-making. The Cabinet Task Force was formed on 17 March 1999 and the first meeting that was held on 18 March 1999 was chaired by the Minister of Health. The meeting involved minister from Agriculture, Housing and Local Government, Deputy Home Affairs, and the Deputy Information Minister. After the second meeting was held on 24 March 1999, the meeting decided to also comprise few others minister those were Transport Minister, Public Works Minister, Science, Technology and Environmental Minister, Primary Industries Minister, Finance Minister and Domestic Trade and Consumer Affairs Minister to be part of the cabinet task force (Report 3 2001: 67).

In addition, there are few main policies endorsed by the task force which were to assign roles and duties of the Ministers, designated and culled swine in the outbreak locality, formed the Humanitarian Trust Relief Fund to assist the involved pig farmers, conducted surveillance of all pig farms and culled pigs infected with Nipah virus and lastly to vaccinate high risk groups (Report 3 2001: 68). Aside from the taskforce, a 24-hour operations room was also set up during the Nipah outbreak (Report 5 2002: 40). The National Operations Room operated for 24 hours to ensure information reached the public in general. There was hotline provided comprises three phone line with two officers on duty per shift to encourage two ways communication between the communities and authorities. The highest call recorded was on 30 March 1999 with 167 calls and the lowest call recorded was on 19 April 1999 with only 70 calls received by the hotline (Report 3 2001: 80). With this National Operations Room come State Operations

Room in charge by State Director of Health. The formation of State Operations Room was to ensure coordination and policies implemented align with the national level.

To determine Nipah-free pig farms and contaminated pig farms, the government issued certificates and set procedural standards (Zaidah 2018: 107). After livestock was confirmed negative after two Nipah virus tests, the farm operators qualified for the certificates (Parliament Handsard 20 April 1999: 75). On 21 April 1999, distribution of certificates began for the first time after the launch of the National Swine Surveillance Programme. This programme was introduced by the government to contain the spread of Nipah, implemented in 90 days in stages. Through this programme, the responsible parties must monitor pig abattoirs and ensure follow-up investigation on Nipah-infected pig farms. This programme also oversaw the large-scale swine culling in three phases. 900,000 pigs were culled in the first phase, while 172,000 pigs were culled in the second stage (New Straits Times 7 August 1999). The culling more than 1.1 million pigs involved the police and military.

Biosecurity measures were emphasised during swine culling, with members equipped with personal protective equipment before entering infected areas. After the pigs were shot, the carcasses were buried in a large hole near the infected areas. The protective equipment used during the task force were protective eye goggles or face shield, HEPA or PAPR mask, surgical gloves, coveralls, long sleeve, knee-high protective boots and laboratory gown. After the pigs were shot, the carcasses were buried in a large hole near the infected areas. Germ disinfection were carried out in premises and burial sites with chlorinated lime and detergents (Report 5 2002: 42). To conclude, before leaving the farms those involved need to ensure all equipment used need to disinfect appropriately including tires and wheels of the vehicles used. Biosecurity measures were also taken by the government to ensure proper maintenance of farm infrastructure. To reduce the risk of Nipah outbreak, the government set periodic disinfections in pig farms, and required livestock operators to ensure the farms are always clean. Periodic cleaning was found to prevent infections. The Department of Veterinary Services also carried out public awareness campaigns to ensure society obtained the right information, and raised awareness on the importance of environmental sanitation, especially among farm operators.

Aside from biosecurity measures, intensive health education was also conducted in school. While for the public in general a website and hotline were set up to ensure all information's reached the community. There were also distribution of pamphlets, posters, and health education materials available in various languages. 121,500 pamphlets were distributed throughout the outbreak and the pamphlets describe the origin of Nipah virus, how it can be transmitted to human, prevention and control steps taken. The pamphlets were distributed among the community and the most targeted groups were farmers, farm workers, abattoir workers, lorry driver and attendants. In addition, since the occurrence of the outbreak our local newspapers give the highest concern in covering the issues. Especially matters pertaining pigs compensate, people evacuated from the outbreak areas and curative and preventive control measures taken by the authorities.

The government also prepared several initiatives to upgrade the existing infrastructure hence strengthen technical capability in controlling disease surveillance in emerging and re-emerging of infectious disease. A number of Biosecurity Level (BSL) 3 laboratories were build to be prepared for future outbreak at the same time to strengthen biosecurity level in specified hospital mortuary facilities and services in the country. The government opted to revive the local economy in enhancing community income, and finally the Department of Veterinary Services Malaysia listed this disease in the Notifiable Disease List according to the Animals Act 1953 Section 31 (1) (Report 2 2011: 1).

CONCLUSION

The findings highlight the period between 1998 and 2000 as a challenging time for the government and the community in the Nipah outbreak areas. This new and novel virus in the world was a difficult time for Malaysia, with deaths reaching the hundreds. The transformation of the security dimension, which witnessed the diversity of additional dimensions led to the assessment of a new perspective, in measuring the capability of diseases to threaten national security. The Nipah outbreak led to a decline in productivity of the swine industry due to their health effects on humans, the national economy was affected, and the lack of understanding towards

Nipah virus threatened public welfare. This meant national and human security was hampered during this period. Later, an assessment on government preparedness is made, and the success of local experts and institutions discover the Nipah virus, of government initiatives and machinery deserve to be recorded in national history. Hence, government preparedness to overcome infectious diseases could not be denied, even with early missteps during prevention. Thus, to ensure such an outbreak is not repeated in Malaysia, the government must prepare more sustainable policies. For instance, they must enforce standard procedures on livestock farms and set up farms in open areas far from the local communities. In summary, the country should be prepared for any disease that might break out any time.

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