

Prevention of Avian Influenza: Consultation on Long Term Direction to Minimise the Risk of Human Infection



Health, Welfare and Food Bureau
The Government of the Hong Kong Special Administrative Region

April 2004

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Chapter 1 Introduction and Background

1.1 Hong Kong has experienced four highly pathogenic H5N1 avian influenza outbreaks in poultry since 1997. Human infection of H5N1 was detected in the 1997 outbreak in which 18 persons developed the disease, of whom 6 died. That incident caused great alarm amongst the local and international community, as it was the first time that an avian influenza virus was transmitted directly to humans causing severe illness with high mortality. On avian influenza, we spent a total of \$246 million for compensation and ex-gratia allowances to the live poultry traders, waived rental charges amounting to \$27 million and incurred operational expenses of \$45 million to control the outbreaks.

1.2 Since the 1997 outbreak, the Government has put in place a comprehensive preventive and surveillance programme to reduce the risk of recurrence of an avian influenza outbreak. This preventive and surveillance programme has evolved to meet the changing patterns of infection in domesticated poultry and wild and migratory birds. The annual recurrent expenditure of this programme was about \$39 million for the financial year 2002-03. Details of Government expenses on avian influenza are at Annex A. Yet, the daily exposure of the general population to about 100,000 live poultry during transportation and at wholesale and retail outlets remains a continuing risk for human health in view of the propensity of the H5N1 avian influenza virus to mutate and reassort with genes of other species, and presence of other avian influenza viruses.

1.3 From time to time, there have been calls from sectors of the community that central slaughtering should be considered to eliminate the close contact between the public and live poultry. However, other members of the community who have strong attachment to the eating habit of consuming freshly slaughtered chickens have expressed reservations. The live poultry trade also objects strongly to the proposal, noting that central slaughtering will not in itself eliminate the

occurrence of an avian influenza outbreak. Views have been divided in previous discussions on the subject.

1.4 Some recent incidents have added new perspectives to the avian influenza problem. The SARS experience has demonstrated how our densely populated and built-up urban setting provides an environment for amplification of infectious disease and how detrimental a major disease outbreak can be to the well being of the community as a whole. The public health risk posed by avian influenza is a problem that we need to address. The Report on Measures to Improve Environmental Hygiene in Hong Kong published by the Team Clean (“Team Clean Report”) has identified four broad options to upgrade the current preventive measures against human infection by avian influenza viruses.

1.5 Since the Team Clean Report, the Government has been conducting scientific, technical and financial assessments of various options and collecting opinions from the public and the relevant trades. Recently, the major outbreaks of H5N1 (a highly pathogenic avian influenza) in poultry across Asia in rapid succession over a very short time frame is an indication that the virus is widespread in the region and is likely to be endemic. Sporadic outbreaks in the future are likely. The human infections in Vietnam and Thailand have also aroused great concerns over the risk of avian influenza viruses jumping across species to infect humans.

1.6 The Government shares the public’s feeling that an early decision on the subject will be desirable. Against the above background, this paper sets out the Government’s analysis of the current situation and its long-term vision to further protect public health from avian influenza. The Government believes that a clear direction established on the basis of public consensus will facilitate more efficient implementation of the measures to be adopted.

Chapter 2 The Government's Long-term Vision

2.1 Past experience has shown that the principal mode of transmission of avian influenza virus from poultry to human is through contact with the poultry or their faeces. Hence, the most effective way to minimize the health risk posed by avian influenza is to reduce as far as possible the contact between human and live poultry. In Hong Kong, besides members of the trade who are in frequent contact with live poultry, consumers can also come into contact with live poultry easily because it is sold in retail outlets. The Government holds the view that there is an urgent need to minimize the contact between people and live poultry.

2.2 Since the publication of Team Clean Report last summer, views on whether live poultry should be banned from the retail outlets have been divided. On the one hand, the supporters of this policy direction consider protection of public health as the top priority. On the other, there are those who oppose the policy direction for a wide variety of reasons. Some consider that the existing measures to prevent avian influenza outbreak are effective enough. Some are unwilling to change their eating habits. Some are concerned about the livelihood of members of the live poultry trade.

2.3 Having considered the different points of view and taking into account the widespread outbreak of avian influenza in neighbouring regions recently, the Government has confirmed our policy that protection of public health should and must remain our number one priority. Our long-term vision is to sustain the goal of zero infection and transmission in Hong Kong. To achieve this long-term vision, it is our policy to separate humans from live poultry and our mission to minimize the contact between the public and live poultry through various means. We aim to achieve this in phases by imposing restrictions on the retail sale of live poultry at the initial stage.

2.4 The Government has considered carefully those views opposed to restricting live poultry sale at retail outlets. Whilst we agree that the measures to prevent avian influenza put into place since 1998 have been effective so far, these measures are not foolproof. The risk of an avian influenza outbreak and of the flu strains jumping from poultry to human continues to exist. The consequence of human infection is severe as avian influenza H5N1 is a highly fatal disease. In the next two chapters, a summary of the measures to prevent avian influenza will be followed by an analysis of the potential health risk despite these measures.

2.5 There is an urgent need for the existing modus operandi of the live poultry trade, especially at the retail end, to change as and when the supply of live poultry from the Mainland is resumed after the outbreak situation in the region has become stabilized. In this regard, some immediate and medium term improvement measures to reduce the potential threat of avian influenza to humans are outlined in Chapter 5. We believe that restricting the retail sale of live poultry will not necessarily mean that the eating habits of the community have to change drastically. In Chapter 6, we shall outline two possible strategic approaches: 'cold chain' and 'freshly slaughtered chickens'. For the latter approach, consumers may still be able to purchase freshly slaughtered chickens from some retail outlets or have them delivered to their homes/restaurants.

2.6 Some members of the trade may be able to switch to the new mode of operation under this new policy direction. However, some of them may quit the trade altogether and would need financial assistance. The Government is prepared to implement measures to facilitate members of the trade to switch to the new mode of operation and to provide some form of financial assistance to those who are in need.

2.7 Public support is essential for the successful implementation of the Government's long-term vision. The purpose of this consultation exercise is to seek the community's views on the appropriate options to achieve the Government's policy direction of separating humans from live poultry. The Government will then consider the views received and go ahead with developing the implementation details and the operational requirements of the preferred strategic approach.

Chapter 3 Measures adopted in Hong Kong against Avian Influenza since 1998

3.1 Since 1998, measures have been implemented at all levels to guard against the occurrence of an avian influenza outbreak in Hong Kong. Our efforts are centred on reducing the risk of introduction of highly pathogenic avian influenza viruses into the poultry populations along our supply chain, the establishment of a foothold of avian influenza viruses in our markets, and mutation and reassortment of avian influenza viruses into any lethal strain that may pose potential threat to public health.

3.2 To reduce the chance of infection of H5 avian influenza in chickens, the Agriculture, Fisheries and Conservation Department (AFCD) introduced a vaccination programme for all local chicken farms in June 2003. The Government also secured the Mainland's agreement and co-operation to vaccinate all chickens for export to Hong Kong. All the chickens available in the market have been vaccinated against H5 avian influenza.

3.3 For local farms, AFCD conducts tests on the antibody level of vaccinated chickens to ensure that the vaccine is effective in protecting our poultry against the disease. Prior to sale, each batch of chickens is also subject to inspection and testing. AFCD has also imposed tightened biosecurity measures to prevent the introduction of avian influenza viruses to farms. This includes the requirement that all farms should be bird-proof to prevent the introduction of viruses by wild birds.

3.4 As for imported chickens, they must come from registered farms recognized by the Mainland authority. Each consignment of imported chickens must be accompanied by a health certificate. The Food and Environmental Hygiene Department (FEHD) implements the import control programme which includes testing of the antibody level

of imported chickens, dead and sick poultry monitoring and random testing of poultry for H5 virus.

3.5 As waterfowl are natural carriers of avian influenza viruses, all waterfowl in Hong Kong must be centrally slaughtered and no live waterfowl are allowed to be sold in retail outlets. In addition, we require that waterfowl offal be separately and individually packed to prevent cross-contamination. To prevent the mixing of different types of AI viruses that may result in reassortment into deadly viruses, a segregation policy based on risk assessment has been implemented. All live quail must be segregated from live chickens from farms/import level to retail outlets and as a result there is now no more live quail farming and retail sale in Hong Kong.

3.6 At the retail and wholesale levels, FEHD implements two rest days per month at retail outlets to reduce the viral load there, if any, and there are also four matching rest days per month in the wholesale market. Both AFCD and FEHD have imposed stringent hygiene requirements on the wholesale and retail markets. These include the requirement to thoroughly cleanse and disinfect transport cages and vehicles everyday, cleanse faecal trays at retail outlets after operation everyday, no overcrowding of live chickens in the cages, etc. In addition, FEHD also requires poultry retailers to surrender all live poultry for disposal on detection of even one dead bird with H5 virus isolated. The concerned outlet is then thoroughly cleansed and disinfected.

3.7 We have put in place a comprehensive and sensitive avian influenza surveillance programme to detect the presence of any avian influenza viruses in the environment and the possible re-assortment of the viruses. It covers local chicken farms, imported chickens, the wholesale market, retail outlets, wild birds, and waterfowl in recreational parks and pet birds available for sale in the market. This

enables us to guard against any mutation or re-assortment of avian influenza viruses that may impact on human health.

3.8 Recently, a number of additional precautionary measures have been introduced in response to the outbreak situation in Asia. These include stepped up inspections and surveillance along the whole supply chain of live poultry, temporary suspension of all imports of live birds, including pet birds and poultry, and poultry meat from avian influenza infected places including the Mainland, strengthened personal protection of all poultry and pet bird handlers, stepped up human health surveillance and precautionary measures to protect the exposure of viruses from wild birds, etc. Details of these measures are at [Annex B](#). Our stringent control has gained credibility amongst the international community with the Centers for Disease Control and Prevention (CDC) of the United States lifting the ban on Hong Kong on 10 March 2004 so that Hong Kong stands out as an avian influenza infection free city in the region. A notice issued by the CDC to lift the ban on birds and bird products imported from Hong Kong to the United States is at [Annex C](#).

3.9 According to the World Health Organization, the risk of having H5N1 virus to become endemic amongst poultry in the region is very high and that it would take a long while before the outbreak situation is over. International public and animal health authorities have advised countries and places in the region to remain vigilant in the surveillance and preventive efforts against the disease. Since chilled and frozen poultry impose relatively lesser risk to human health, we have resumed processing of applications for import of chilled and frozen poultry from the Mainland since 11 March 2004 and the first batch of such products were imported into Hong Kong on 22 March 2004. Given the higher risk to human health posed by close contact between humans and live poultry in our retail outlets, we need to take a more cautious approach in considering when to resume the import of live poultry from the Mainland and public health should always take

precedence in the deliberations of the matter. We have started to discuss with the Mainland authorities about the criteria and conditions for the import resumption.

Chapter 4 The Potential Threat of Avian Influenza

4.1 Avian influenza viruses are Influenza A viruses. Currently, there are 15 known H types and 9 known N types. Avian influenza viruses have been found in wild aquatic birds with all 15 known H types and all 9 known N types, whereas other species including humans, pigs and horses that are infected with influenza A viruses have only been infected with a limited number of H or N types. The characteristics and pathogenicity of each strain of avian influenza viruses are different.

4.2 Avian influenza viruses have a tendency to undergo spontaneous changes in genetic composition as they replicate in animals. Furthermore, they are able to reassort with other influenza viruses and develop into new strains. There is concern from international health authorities, including the World Health Organization, that if the new strain acquired genes from human influenza viruses, it might become readily transmissible from person to person and give rise to an influenza pandemic.

4.3 Not every strain of avian influenza viruses will infect humans, but there is a risk that the viruses may pose serious threat to public health. In Hong Kong, the first documented incident where avian influenza virus jumped across species to infect humans is the 1997 outbreak involving H5N1 infection in 18 persons with six deaths. Another incident occurred in February 2003 where two persons returning from outside Hong Kong were confirmed to be infected with H5N1 and one of them died subsequently.

4.4 Two other avian influenza viruses have also been reported to cause illness in humans. An outbreak of highly pathogenic H7N7 avian influenza occurred in the Netherlands in February 2003, resulting in one death and illness in over 80 other humans. Mild cases of H9N2

avian influenza infection were also found in two children in 1999 and one child in 2003 in Hong Kong.

4.5 The recent epidemics of avian influenza in poultry in Asia is unprecedented and a cause for alarm. Since mid-December 2003, a total of ten countries and places in the Region have been affected. These include South Korea, Japan, Vietnam, Thailand, Cambodia, Pakistan, Mainland, Taiwan, Indonesia and Laos. Laboratory-confirmed human cases have so far been identified in Vietnam and Thailand, both with very widespread outbreaks in poultry. As of 24 March 2004, 34 cases of H5N1 infection have been confirmed in these two countries, of whom 23 have died. Again H5N1 showed itself to be a highly fatal disease with mortality as high as 60-70%. Unfortunately, many who died were young children.

4.6 According to the World Health Organization, several countries with outbreaks in poultry have weak health infrastructures and a weak capacity for the detection of cases, particularly in rural areas where the majority of domestic birds are raised. Capacity to diagnose a difficult disease such as H5N1 is also weak. Moreover, as the clinical material published so far indicates, the full clinical spectrum of H5N1 illness is unknown. Milder cases of illness could be occurring, yet fail to reach the attention of health care staff. For all these reasons, the current number of laboratory-confirmed cases cannot be taken as an accurate indication of the magnitude of the present or potential threat to human health. In fact, the epidemics in poultry and possible widespread presence of the virus in the environment increase opportunities for human exposure and infection. There have been increasing concerns that the incident may lead to the emergence of a new influenza virus strain, resulting in an influenza pandemic.

4.7 The preventive and surveillance measures introduced in Chapter 3 have greatly reduced the risk of occurrence of large-scale

avian influenza outbreaks in Hong Kong. However, the system is not foolproof. We cannot completely rule out the possibility of an outbreak.

4.8 Although all our chickens have been vaccinated against H5 avian influenza viruses, the tendency of the viruses to undergo mutation and reassortment warrants close surveillance. Vaccination cannot eradicate the risk that any H5N1 avian influenza virus may reassort or mutate to such an extent and virulence that it poses a threat to public health. In addition, it is important to note that not all chickens vaccinated react positively to the vaccination. The successful coverage rate normally ranges from 70 - 80%. In other words, while all our chickens have been vaccinated against H5 virus, there is always a percentage of the vaccinated chickens which remain unprotected and exposed to the incursion of the virus. Because of flock immunity, any incursion of the virus will be self-limiting and there will be no widespread deaths or outbreak among the poultry population, but these unprotected poultry remain a threat to public health. Furthermore, the H5 virus may continue to survive in the body of vaccinated chickens and undergo mutation and reassortment as circumstances allow.

4.9 Besides, the H5N2 vaccine being used would have no effect on other types of avian influenza viruses (such as H7-type highly pathogenic avian influenza viruses). The presence of H9N2 virus, which is widely prevalent in poultry in the region but does not cause high mortality amongst poultry, can also be a cause for concern. The virus has been found to jump across species to affect humans. There remains a risk that the virus may reassort with other human influenza virus to produce a lethal human pandemic strain.

4.10 Vaccination is therefore not a panacea for the avian influenza problem. We need to review our strategy and the entire system to see what further improvements should be made.

4.11 Based on the 1997 H5N1 human infections in Hong Kong and the recent human cases in Vietnam and Thailand, contact with live poultry is believed to be a major route of infection. Our preventive and surveillance programme has not effectively addressed the concern of close contacts between the public and live poultry especially during transportation and at retail outlets. As Hong Kong is so densely populated, the presence of a large quantity of live poultry at retail outlets means that the general public has the opportunity to be exposed to live poultry, including small children who appear to be most susceptible to avian influenza infection.

4.12 Hong Kong on average consumes 100 000 live chickens everyday. The daily consumption can increase up to 300 000 before Chinese New Year. Our surveillance and preventive programme has greatly reduced the risk of infection in poultry. But as long as there is still close contact between humans and live poultry, the risk to human health posed by the avian influenza virus cannot be underestimated.

4.13 Due to the previous avian influenza outbreaks in Hong Kong and the recent avian influenza epidemics in Asia, we spent a total of about \$246 million of public money as compensation and ex-gratia payments to the affected live poultry traders. More importantly, from the lessons learnt from the SARS incident, Hong Kong's economy can be hard hit by a major public health incident. The spread of SARS in Hong Kong since mid-March 2003 resulted in, on a seasonally adjusted quarter-to-quarter comparison, a 3.7% decline of our GDP in real terms over the first quarter of 2003. The blow to inbound tourism and travel-related sectors was most severe, resulting in a slump of the exports of services, which measure the sales of services (covering carriage for passengers and goods and travel-related services) to the rest of the world, by 13.9% in real terms in the second quarter of 2003 as compared with a year earlier.

4.14 Some members of the community have asked the Government to quantify the risk that can be reduced if the contact between live poultry and the public is to be eliminated. The risk assessment can only be objectively made when the pattern of reassortment and/or mutation of avian influenza viruses is discovered and fully understood. In the meantime, the assessment is guided by expert opinion which advocates a real and continuing risk. The vaccinated, but unprotected, chickens will continue to impose a threat to public health, and if any reassortment or mutation does occur leading to human infections, that may lead to huge loss of human lives. The huge social costs, including the loss of human lives, the stress brought to families and workplaces, the disruption to normal social life and so forth, are beyond measurement. The Government's position on risk is very clear. We have adopted a close to zero tolerance level. We cannot afford the loss of a single human life no matter how small that risk would appear to be. Equally, we cannot afford to experience another avian influenza outbreak that could lead to a major public health incident. To keep Hong Kong free from the threat of avian influenza, we must not be complacent as complacency is our worst enemy.

4.15 However, we acknowledge the fact that there will be social and financial costs to the community if the close contact between the public and live poultry is to be reduced. But we do believe that it would be in the overall public interest for the Government to recommend this particular policy direction in our efforts to prevent human infection from the avian influenza virus. A brief outline of the live poultry trade is at Annex D.

Chapter 5 Immediate and Medium Term Improvement Measures

5.1 In Chapter 2, we mentioned that, for the protection of public health, the present mode of operation of the live poultry trade can no longer be sustained in the future. This is because H5N1 avian influenza virus has become endemic in the region and that it is most certain to recur next year and beyond. As and when the supply of live poultry from the Mainland is resumed after the outbreak situation in the region has become stabilized, there is an urgent need for the existing modus operandi of the live poultry trade, especially at the retail end, to change in order to reduce the potential threat of avian influenza to humans.

Immediate Improvement Measures

5.2 We have therefore decided to put into place immediate improvement measures to minimize the contact between live poultry and customers at the retail markets and fresh provision shops. At the retail level, we will increase the number of rest days per month and strengthen the enforcement actions against breaches of hygiene-related tenancy/licensing conditions. All cages holding live poultry at retail outlets should either be kept at a minimum distance (say, 1 metre) or segregated from customers by means of acrylic panels depending on the configuration and size of individual outlets.

5.3 At the wholesale level, we are planning to separate the wholesale markets for local and Mainland chickens. At the farm level, we will further strengthen the biosecurity of local poultry farms to the highest standard. Those who fail to meet the new standards will not have their licences renewed. We will also review the transportation system for the conveyance of live poultry to identify opportunity for human-poultry segregation during the process.

Medium Term Improvement Measures

5.4 In the interim, we will reduce the number and density of market stalls through a voluntary buy-out package. This will provide us with the space and the room that we need to improve the current design of live poultry stalls in the retail markets. If we can re-design the live poultry retail outlets, live poultry could continue to be sold at the retail level but in a much reduced scale and under a completely new operational environment.

5.5 The poultry stalls in FEHD wet markets would be enlarged by about two to three times, comprising a retail section, an air-conditioned and properly ventilated holding area for live poultry and a scalding room. The live poultry holding area could be segregated from the customers by the erection of a transparent acrylic/glass panel carried to the full height of the stall. Except the retail section, the stall could be totally segregated on the roof and at the side from other parts of the market except through a self-closing door. There would be a need to provide a separate rear passage for transporting live poultry to the poultry holding area of the stall. A schematic drawing of the new market stall is at Annex E.

5.6 A few FEHD markets will also be identified to undergo re-configuration works so that modelled design of new live poultry market stalls will be provided as a pilot scheme.

5.7 Due to the space and design constraints of individual FEHD market premises, not every market can be re-configured to meet the new stall design and operational requirements. An initial assessment is that there will be a significant reduction in the number of markets which could meet the new requirements for accommodating poultry stalls. As a result, the number of live poultry market stalls will be substantially

reduced. The number of live poultry permitted to be stocked in each stall would also be subject to strict enforcement.

5.8 A ballpark figure of the estimated capital expenditure of the conversion works is about \$500,000 per poultry stall, including the cost of providing separate passageways and reconfiguring the loading and unloading bays. The estimated annual recurrent cost for electricity and maintenance is about \$123,000 per stall. The conversion works and the restructuring of the live poultry retail sector will also take time to complete.

5.9 As for the live poultry stalls outside FEHD wet markets, the stallholders would be required to liaise with their landlords to change the configuration of their stalls to meet the new requirements within a reasonable period. Those who fail to meet the requirements will not be allowed to continue their business.

5.10 Whether the segregation of customers from live poultry will be effective after the above conversion works will rely on the strict self-discipline and good practices of the poultry traders. For example, live poultry traders and their workers should strictly observe good hygiene practices to prevent contamination of the retail section. It should be acknowledged that this interim improvement measure of allowing live poultry to be sold in newly designed retail outlets would be less desirable from a risk management perspective than the longer term strategic approaches as mentioned in Chapter 6 below.

Chapter 6 Strategy to Reduce the Contact between the Public and Live Poultry

6.1 We fully understand that avian influenza viruses exist in the nature and we cannot eradicate the risk that they may affect the poultry population. Our primary concern is the great exposure of our densely populated community to a large amount of live poultry everyday in Hong Kong. The recent epidemics of H5N1 highly pathogenic avian influenza in Asia have fully demonstrated the potential threat of avian influenza to human health. We need to take preemptive measures to prevent Hong Kong from being affected by an avian influenza outbreak that might affect humans. When considering an effective strategy to address the problem, the need to protect public health should always take precedence.

6.2 To minimize the potential health risk as far as possible, our major policy direction is to separate humans from live poultry. Our mission is to restrict the retail sale of live poultry so as to minimize the contact between the public and live poultry. At the same time, we fully understand that this policy direction will trigger a change in the eating habits of our community and affect the livelihood of persons engaged in the live poultry trade.

6.3 Public support is therefore absolutely essential to achieve our long-term vision and our policy direction. We have identified two major strategic approaches. They are –

- A. The concept of “cold-chain” for all poultry meat for sale at retail outlets; and
- B. “Freshly slaughtered poultry” at retail outlets with complete segregation between consumers and live poultry.

An analysis of each strategic approach is set out in the following paragraphs.

Approach A

6.4 If the “cold chain” approach is to be pursued, the slaughtering process could be conducted in one slaughterhouse. Dressed poultry will have to undergo a chilling process in the slaughterhouse, and be kept under the cold chain throughout packaging, transportation and sale to ensure their wholesomeness. The food safety of poultry products can be safeguarded through inspections by meat hygiene personnel in the slaughterhouse before release to the retail outlets.

6.5 A rough estimate of the capital expenditure required for building a central slaughterhouse with a processing capacity of 100 000 live poultry per day is about \$200 million. In addition, there will be a need to offer some form of financial assistance or a buy-out package for those operators in the trade who are directly affected by the new approach and/or unable to switch to the new mode of operation.

6.6 The close contact between the general public and live poultry will be eliminated to a greater extent under this Approach than in Approach B. Previous H5N1 human infection cases showed clearly that humans contracted the disease through contact with live poultry. Eliminating the exposure of the community to live poultry at the retail end will reduce the risk of having the virus jumping across species to infect humans. There will still be occupational exposure of the persons working in local farms and the slaughtering facilities. The risk can be managed by requiring all persons working in local farms and slaughterhouses to wear appropriate protective clothing, to observe good personal hygiene and to comply with prescribed work procedures.

Approach B

6.7 If the “freshly slaughtered chickens” option is to be pursued, the slaughtering process will be conducted in a few regional slaughtering hubs. In the hubs, there will be retail outlets separate from the poultry storage and culling areas. Consumers would have a choice of purchasing either chilled chickens or freshly slaughtered chickens. The dressed poultry may not undergo a chilling process, and may be allowed to be sold as freshly slaughtered chickens. Identification marks such as non-reusable and unique wing or neck tags will be attached to the poultry to show the date of slaughtering. Customers may purchase these freshly slaughtered chickens from these outlets, or have them delivered to their homes/restaurants. In the latter case, the freshly slaughtered chickens would be required to be transported by vehicles with refrigeration facilities. Unlike chilled chickens going through the “cold-chain”, these freshly slaughtered chickens cannot stay wholesome for a long period and must be sold on the day of slaughter. They are required to be kept in chillers while being displayed for sale at the slaughtering hubs. In parallel with this Approach, we will continue to implement the medium-term improvement measures as mentioned in paragraph 5.5 of Chapter 5 with a view to providing a smaller number of retail outlets selling live poultry.

6.8 Compared to having only one slaughterhouse under Approach A, this arrangement of having several slaughter places may give rise to a higher exposure of human contact as live poultry will have to be transported through different parts of the territory.

6.9 The capital cost of building a slaughterhouse for freshly slaughtered chickens will be less than \$200 million if chilling facilities are not required. However, given that there will be several, not one, slaughterhouses, the total capital cost will likely end up higher. It is

not possible to make an estimate of the total cost at this stage, without taking a decision on the number and location of these slaughterhouses. As in the case of the “cold-chain” approach, there is a need to offer some form of financial assistance or a buy-out package to those operators who are directly affected by and/or unable to adapt to the new mode of operation.

6.10 In the long term, we intend to remove existing poultry farms from populated areas and locate them in more remote areas. This would have the advantage of segregating further live poultry from human and of facilitating disease management. Subject to identification of suitable sites, we will consider providing financial assistance in the form of loans for poultry farmers to move their farms into these areas and to re-model their farms along modern and much higher standards. We will also review the transportation system for delivering live poultry to retail outlets with a view to minimizing the contact between humans and live poultry.

Sustainability Assessment

6.11 The proposals would reduce potential health hazards posed by avian influenza among our densely populated community. In general, therefore, the policy direction contributes to the sustainability principle of providing a living and working environment and pursuing policies which promote and protect the physical and mental health and safety of the people of Hong Kong.

6.12 Nevertheless, some issues would require further examination, including the impact on the livelihood of live chicken traders and transport operators, relative competitiveness of the markets between local chilled chickens and local chicken farming vis-a-vis imported chilled chickens, receptiveness of our local population to a new mode of operation of the retail poultry market, etc. To this end, a full

sustainability assessment would be carried out when implementation and operational details are developed following public consultation.

Chapter 7 Views Sought

7.1 We invite you to let us have your views on the following options as a means to achieve the policy objective of separating humans from live poultry –

- (a) Whether the concept of “cold-chain” should be applied to the sale of poultry meat at retail outlets; and
- (b) Whether “freshly slaughtered chickens” should replace the sale of live poultry at retail outlets.

7.2 Please send your comments by letter, facsimile or e-mail to the Health, Welfare and Food Bureau, Government Secretariat at the following address on or before 2 July 2004:

Health, Welfare and Food Bureau
10/F., Citibank Tower
3 Garden Road
Hong Kong
Facsimile : 2136 3282
E-mail address : avian_flu@hwfb.gov.hk

7.3 We will take full account of the views received during the consultation period before finalizing the strategic approach to achieve our policy direction and objective of separating humans from live poultry. We will then proceed to develop the implementation details and operational requirements of the strategic approach.

7.4 Any person submitting views and comments should be aware that the Government may publish all or part of the views and comments received and disclose the identity of the source in such manner as the

Government considers appropriate, unless he/she requests any part of the views and comments and/or his/her identity be treated in confidence.

Glossary

Central slaughtering

This refers to the slaughtering and processing of poultry collectively at a slaughtering plant.

Chilled poultry

Chilled poultry refer to poultry which have undergone a chilling process at the point of slaughter to bring the entire poultry (both inside and outside) to a temperature between 0 and 4 . Chilling process will not damage the meat cells of the poultry and hence can retain the quality and water content of the meat. This is different from frozen poultry which have undergone a freezing process to bring the entire poultry to a frozen state, usually kept at -18 .

Cold chain

Cold chain refers to a system used for keeping and distributing chilled poultry in good condition. It consists of a series of storage and transport links, all of which are designed to keep the chilled poultry at the correct temperature (0 to 4) until they reach the user.

Freshly slaughtered chickens

Freshly slaughtered chickens refer to chickens slaughtered on the same date and have not undergone any chilling process at the point of slaughter to bring the entire chickens between 0 and 4 .

Highly pathogenic avian influenza

Avian influenza viruses can be classified into low pathogenic (LPAI) and highly pathogenic (HPAI) forms based on genetic characteristics, the pathogenicity they exhibit to live poultry and molecular structure. All three of these criteria may be assessed independently or in conjunction with each other. Most avian influenza virus strains are

LPAI and typically cause little or no clinical signs in infected birds. However, some LPAI virus strains are capable of mutating under field conditions into HPAI viruses. HPAI is an extremely infectious and fatal disease in birds. It can strike poultry quickly without any infection warning signs. Once established, the disease can spread rapidly from flock to flock.

Influenza A

Type A Influenza is one of the three main groups of influenza viruses. The other two groups are Type B and C viruses. Avian influenza H5N1 belongs to Type A. It can at times cross from one species to another.

Influenza pandemic

An influenza pandemic occurs when a new influenza virus appears against which the human population has no immunity, resulting in several, simultaneous epidemics worldwide with enormous numbers of deaths and illness.

Mutation

It is a process where genetic changes occur when influenza viruses multiply.

Reassortment

It is a process where influenza viruses mix and match their genetic material. It is believed to occur when a human or animal is infected with two different influenza A viruses. Reassortment results in the emergence of a new strain of virus which may have pandemic potential.

Government expenses on avian influenza

I. Compensation, ex-gratia payment and waiver of rental charges due to avian influenza outbreaks

Year	Compensation and ex-gratia payment (\$)	Waiver of rental charges (\$)	Total (\$)
1997-98	90,408,730	12,448,650	102,857,380
2001	88,645,001	7,429,759	96,074,760
2002	23,561,619	N.A.	23,561,619
2004	43,470,000	6,991,000	50,461,000
Total	246,085,350	26,869,409	272,954,759

II. Recurrent expenditure of avian influenza preventive and surveillance programme

	2001-02	2002-03
	(\$)	(\$)
Agriculture, Fisheries and Conservation Department		
Inspection of local farms	1,750,000	12,600,000
Laboratory tests	7,050,000	4,600,000
Wholesale market surveillance	200,000	200,000
Food and Environmental Hygiene Department		
Import control	8,680,000	8,960,000
Retail market surveillance (including market rest day)	15,400,000	12,300,000
Total :	33,080,000	38,660,000

**Precautionary measures
implemented in Hong Kong
in view of the recent H5N1 epidemics in Asia**

- (a) Temporary suspension of all imports of live birds, including pet birds and poultry, and poultry meat from the places affected by avian influenza including the Mainland;
- (b) Stepping up our monitoring programme for travellers at the border control points;
- (c) Requiring medical practitioners to notify the Department of Health of human cases of influenza A(H5) under the Quarantine and Prevention of Disease Ordinance (Cap. 141);
- (d) Conducting enhanced surveillance of influenza virus among human population;
- (e) Closure of the Mai Po Nature Reserve and walk-in aviaries in recreational parks to minimise the contact between the public and wild birds;
- (f) Enhancing the surveillance programme of wild birds and birds at recreational parks, increasing the collection of faeces from wild birds for laboratory testing and stepping up inspections of pet bird shops;
- (g) Testing by the Hospital Authority/Department of Health on influenza viruses for patients to check if the case is related to avian influenza;
- (h) Issuance of advisories and warning notices to schools, kindergartens, child care centres and nurseries to take measures to prevent children from coming into contact with live birds;

- (i) Raising community awareness and educating the public about preventive measures against contracting the disease;
- (j) Establishment of a formal liaison mechanism with the Mainland for the exchange of information on animal diseases;
- (k) Temporary suspension of processing applications for the importation of pet birds pending the development of avian influenza in the region;
- (l) Compulsory requirement for all workers in the poultry retail outlets to wear protective clothing through the appropriate licensing and management authorities;
- (m) Offer of free vaccination to all poultry and pet bird workers as well as those who work in the related trades;
- (n) Increasing and enhancing the inspections by AFCD and FEHD staff on farms, the wholesale market and retail outlets;
- (o) Enhancing our surveillance programme by increasing the number of swab tests on chickens to detect the presence of the virus; and
- (p) Door-to-door collection of dead chickens from local farms to better monitor the dead chicken situation.

ORDER OF THE CENTERS FOR DISEASE CONTROL AND PREVENTION,
DEPARTMENT OF HEALTH AND HUMAN SERVICES

ACTION: Amendment of February 4, 2004 order to lift the embargo of birds and bird products imported from Hong Kong Special Administrative Region (Hong Kong).

SUMMARY: On February 4, 2004, the Centers for Disease Control and Prevention (CDC) issued an order immediately banning the import of all birds (Class: Aves) from specified Southeast Asian countries, subject to limited exemptions for pet birds and certain bird-derived products. CDC took this step because birds from these affected countries potentially can infect humans with avian influenza (Influenza A [(H5N1)]). The February 4 order complemented a similar action taken by the U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS). CDC and APHIS are now lifting the embargo of birds and bird products from Hong Kong because of the documented public health and animal health measures taken by Hong Kong officials to prevent spread of the outbreak within Hong Kong and the lack of avian influenza cases in Hong Kong's domestic and wild bird populations. All other portions of the February 4, 2004 order remain in effect until further notice.

DATES: This action is effective on March 10, 2004 and will remain in effect until further notice.

SUPPLEMENTARY INFORMATION:

Background


On January 19, 2004, a single peregrine falcon was found dead near a residential development in Hong Kong. The bird carcass was submitted to public health authorities and was found to be positive for Influenza A (H5N1) by laboratory tests. On January 26, 2004, the Office of International Epizootics, an international organization that reports the occurrence of animal diseases detected worldwide, listed Hong Kong among the countries in which an outbreak of avian influenza was occurring. CDC and APHIS subsequently issued embargoes of birds and bird products imported from these countries, including Hong Kong.

The Hong Kong Health, Welfare, and Food Bureau provided information to CDC and APHIS documenting their avian influenza surveillance and prevention and control measures. According to the Secretary for Health, Welfare, and Food, on January 30, 2004, Hong Kong suspended importation of all live birds from countries affected by the outbreak. Hong Kong also has imposed a vaccination, inspection, and surveillance program for poultry farms, live poultry markets, and pet bird dealers; implemented measures to prevent spread of the virus through human traffic across the border; and required local poultry farms to implement strict biosecurity programs. In addition, according to the Secretary for Health, Welfare, and Food, there have been no additional cases of Influenza A (H5N1) in birds in Hong Kong since the positive peregrine falcon.

Given the documented absence of Influenza A (H5N1) in infected birds in Hong Kong and the strict control measures in place in Hong Kong to guard against new introduction of avian influenza, CDC is lifting the embargo of birds and bird products imported from Hong Kong. APHIS-imposed disease control measures, including a 30-day quarantine, are not affected by this order and will remain in place as directed by APHIS.

Immediate Action

Therefore, pursuant to 42 CFR 71.32(b), the February 4, 2004 order is amended to lift the embargo of birds and products derived from birds (including hatching eggs) imported from Hong Kong by removing Hong Kong from the list of countries subject to the order. All other portions of the February 4, 2004 order shall remain in effect until further notice. The February 4, 2004 order may be further amended as necessary as the situation develops, for example, to add or remove more countries subject to the embargo.



Julie Louise Gerberding, M.D., M.P.H.
Director, Centers for Disease Control and
Prevention

The Live Poultry Trade in Hong Kong

There are 151 licensed local chicken farms and 134 farms are currently under active operation. Before the recent H5N1 avian influenza outbreak in the Mainland and the temporary suspension of the importation of Mainland live poultry, local farms supplied about 30 000 live chickens to the market each day. The rest of the market demand (about 70 000 live chickens) is met by import from the Mainland. After the suspension of the importation, local farms now supply about 30 000 live chickens to the market a day. Besides, there are also 48 licensed pigeon farms in Hong Kong, of which 40 are under active operation. There are no other types of live poultry farming in Hong Kong.

2. Live chickens and other land-based poultry must be traded through the Cheung Sha Wan Temporary Wholesale Poultry Market. There are 77 wholesalers trading in the wholesale market operating 86 stalls. Some wholesalers trade only imported live poultry, whereas some trade both imported and local poultry. Live ducks and geese are traded and centrally slaughtered at the Western Wholesale Food Market. At present, there is only one live duck and geese wholesaler operating in that wholesale market.

3. Transport operators must obtain permission from AFCD before they are allowed to enter the wholesale markets to unload and load live poultry. There are about 380 transport operators in the trade.

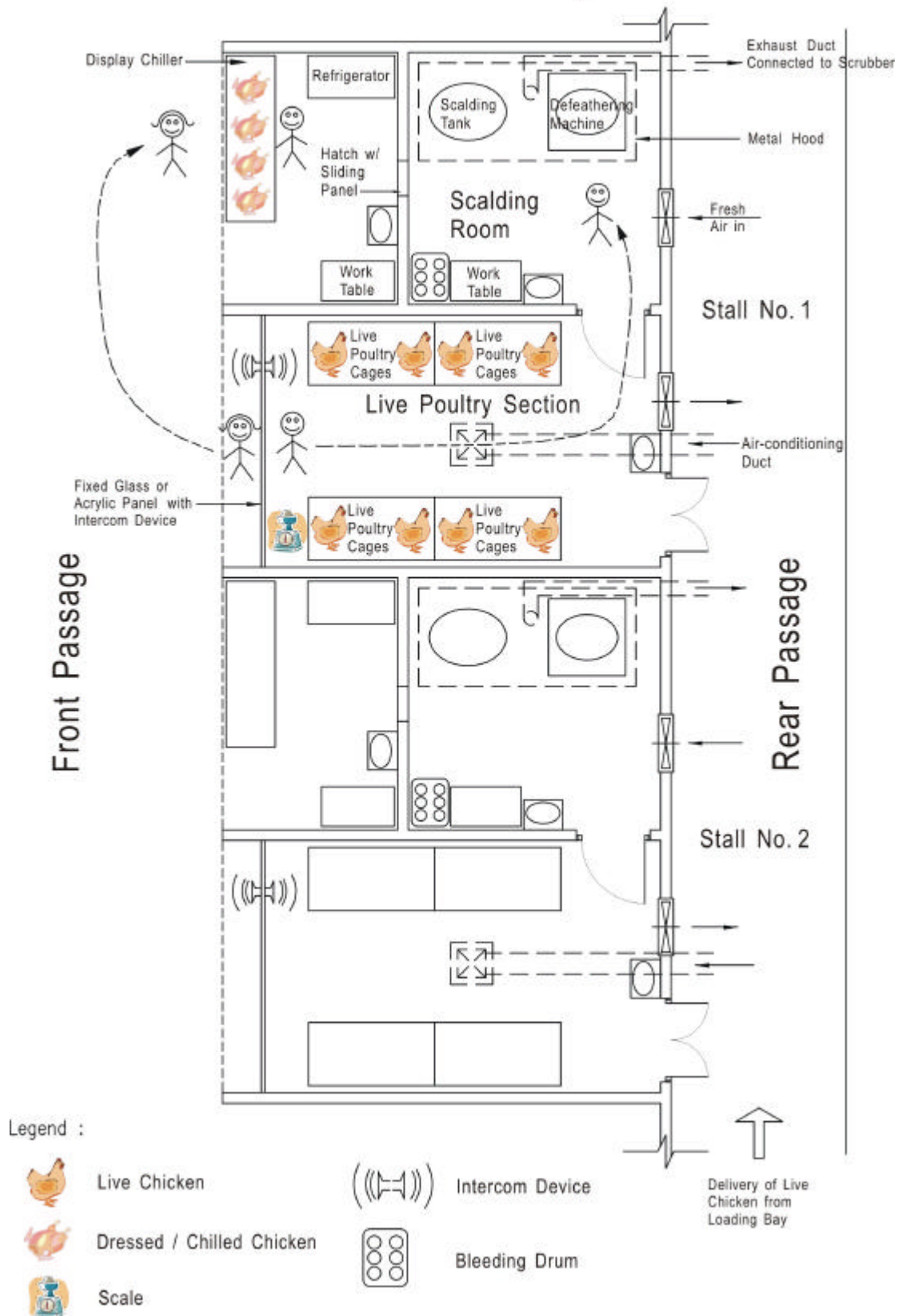
4. There are at present 819 retail outlets selling live poultry in the territory. Of these, 452 are in the wet markets managed by FEHD, 221 are in the wet markets managed by the Housing Authority and Housing Society, whereas the remaining 146 are individual shops at street levels

in private buildings. Except those operating in FEHD markets, other retailers must obtain fresh provision shop licences.

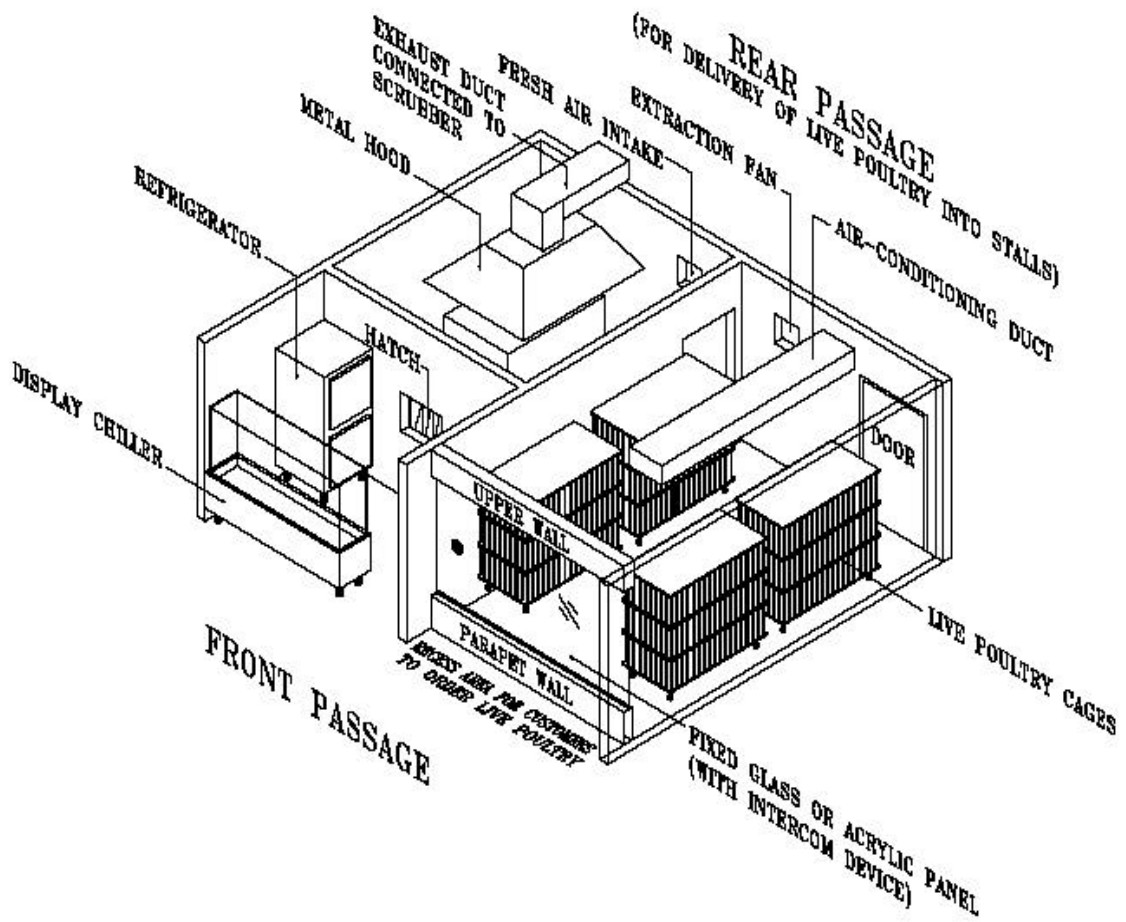
5. There are other supporting service suppliers to the live poultry trade. These include 32 feed suppliers, 20 farm equipment suppliers and 10 veterinary drugs suppliers. These suppliers do not only serve live poultry production but also other livestock and agricultural production.

6. The establishments in the live poultry trade are of small-scale and most farm operations are family-based. On average, each poultry establishment employs from 1 to 10 workers. Many of the workers are not employed on permanent terms. The total number of persons engaged in the live poultry trade is around 6,500. They account for about 0.18 % of Hong Kong's total employment.

Schematic Design of a New Market Poultry Stall



3-D View of the Schematic Design of a New Market Poultry Stall



預防禽流感： 減低人類感染風險的 長遠方針

Prevention of Avian Influenza: Long Term Direction to Minimise the Risk of Human Infection



香港特別行政區政府
衛生福利及食物局

Health, Welfare and Food Bureau
The Government of the Hong Kong
Special Administrative Region

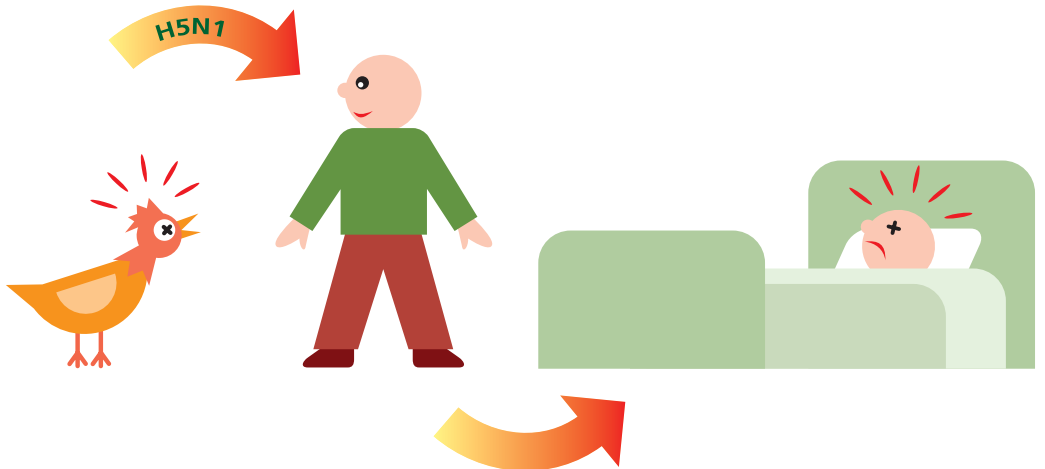


Hong Kong has experienced four highly pathogenic H5N1 avian influenza outbreaks in poultry since 1997. Human infection of H5N1 was detected in the 1997 outbreak in which 18 persons developed the disease, of whom six died subsequently. On avian influenza, the Administration spent a total of \$246 million for compensation and ex-gratia allowances to the live poultry traders, waived rental charges amounting to \$27 million and incurred operational

expenses of \$45 million to control previous outbreaks. In 2002-03, our recurrent expenditure on the preventive and surveillance programme was about \$39 million.

The recent outbreaks of avian influenza in poultry across Asia are unprecedented and the human infections in Vietnam and Thailand have aroused great concerns over the risk of avian influenza viruses jumping across species to infect humans. Chances are high that avian influenza would become endemic in poultry in the region. Hong Kong will be susceptible to avian influenza outbreaks again in the future unless additional preventive measures are to be adopted.

The current preventive and surveillance measures to guard against avian influenza are not foolproof. Indeed, retail outlets that sell live poultry pose the greatest risk. Though all chickens are vaccinated against H5 virus, the vaccine does not confer protection against all kinds of avian influenza viruses. Nor can it eliminate the possibility of virus reassortment. There remains a risk that humans might be infected by avian influenza.



Public health has always been a primary concern of the Government, which is committed to protecting people from infection by avian influenza. Our long-term vision is to sustain the goal of zero infection and transmission in Hong Kong. To achieve this long-term vision, it is our policy to separate humans from live poultry. Our mission is to minimise the contact between the public and live poultry through various means. The bitter lesson we learnt from last year's SARS (Severe Acute Respiratory Syndrome) outbreak is that Hong Kong cannot afford the social and economic costs of an epidemic. We must not be complacent.

To reduce the potential threat of avian influenza to humans, we will put into place various improvement measures which include –

- increasing the number of rest days per month;
- strengthening enforcement actions against breaches of hygiene-related tenancy/licensing conditions;
- requiring a minimum distance (say, one metre) to be kept between live poultry cages and customers at retail outlets or segregation of live poultry from customers by means of acrylic panels;
- planning to separate the wholesale markets for local and Mainland chickens;
- further strengthening the biosecurity of local poultry farms to the highest standard and refusing to renew the licences of those who fail to meet the new standards;
- reviewing the transportation system for the conveyance of live poultry; and
- reducing the number of live poultry stalls in retail markets through a voluntary buy-out package and redesign the stall layout to provide for segregation between customers and live poultry.



As for the live poultry stalls outside the wet markets managed by the Food and Environmental Hygiene Department, the stallholders would be required to liaise with their landlords to change the configuration of their stalls to meet the new requirements. Those who fail to meet the requirements will not be allowed to continue their business.

These improvement measures, while necessary and desirable, are insufficient in achieving our policy objective of separating humans from live poultry. We have therefore identified two major strategic approaches. They are –

Approach A All live poultry will be slaughtered and undergo chilling process in a slaughterhouse. Retail outlets would only be allowed to sell chilled poultry (“cold chain approach”). A rough estimate of the capital expenditure required for building a central slaughterhouse with a processing capacity of 100 000 live poultry per day is about \$200 million. The close contact between the general public and live poultry will be reduced to a greater extent under this Approach than in Approach B.

Approach B All live poultry will be slaughtered and dressed at regional slaughtering hubs. Consumers would have a choice of purchasing either chilled chickens or freshly slaughtered chickens. Consumers can purchase freshly slaughtered chickens from the retail outlets located at the slaughtering hubs or have them delivered to their homes/restaurants by vehicles with refrigeration facilities (“freshly slaughtered chicken approach”). Freshly slaughtered chickens cannot stay wholesome for a long period and must be sold on the day of slaughter. They are required to be kept in chillers while being displayed for sale at the slaughtering hubs. The capital cost of building a slaughtering hub for freshly slaughtered chickens will be less than \$200 million if no chilling facilities are to be provided. However, given that there will be several, not one, slaughterhouses, the total capital cost will likely end up higher.

In the long term, we intend to remove existing poultry farms from populated areas and locate them in more remote areas to further segregate live poultry from human and facilitate disease management. We will also review the transportation system for delivering live poultry to retail outlets with a view to minimising the contact between humans and live poultry.

The policy of separating humans from live poultry would impinge on the trade interests. Some form of financial assistance would have to be given to the live poultry traders affected. This would entail the formulation of a financial package in due course for the purpose of either adopting Approach A or Approach B, depending on the overall preference of the community. Details of the financial package could only be available after we have taken into account the views received during the consultation period and decided on the way forward on the matter.

We invite you to let us have your views and comments on the above-mentioned strategic proposals. We will take full account of the views received before finalising the strategic approach to achieve our policy of separating humans from live poultry. We will then proceed to develop the implementation details and operational requirements of the strategic approach. Please take a few minutes to complete the attached questionnaire and return it to us on or before 2 July 2004 by any of the following means :-

Mail Health, Welfare and Food Bureau,
10/F, Citibank Tower,
3 Garden Road, Central,
Hong Kong.

Facsimile 2136 3282

E-mail avian_flu@hwfb.gov.hk

問1 在以下兩個方案中，你會選擇那一個方案？

Q1 Which of the two proposals do you prefer?

方案A (“冰鮮鏈”方案)

Approach A (“Cold chain” approach)

方案B (“鮮宰雞”方案)

Approach B (“Freshly slaughtered chicken” approach)

問2 其他意見

Q2 Other comments

個人資料 Personal Particulars (可選擇是否填寫 *Optional*)

姓名

Name : _____

代表機構 (如有的話)

Organisation represented

(if applicable) : _____

聯絡地址

Address : _____

聯絡電話

Telephone number : _____

提出意見的人士請注意，政府可能按其認為適當的方式發表所接獲的全部或部分意見，並披露提出意見人士的身分，除非提供意見的人士要求其意見的任何部分及/或其身分保密，則作別論。

Any person submitting views and comments should beware that the Government may publish all or part of the views and comments received and disclose the identity of the source, unless he/she requests any part of the views and comments and/or his/her identity be treated in confidence.

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Health, Welfare and Food Bureau
10th floor, Citibank Tower
3 Garden Road, Central, Hong Kong