

Term paper: Group 10

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Abstract: The bird flu in China not only have the negative impact in China but also have the positive impact to Thailand to export more of the frozen chicken, increasing in Thailand export stock and growth of the economic of Thailand because China need to kill their chicken to prevent the spreading of the disease and reduce the fear of people to consume the chicken dishes. Moreover, some restaurants have faced the lower customers and lost in their income so China want to import more fresh frozen chicken from another countries which one of those countries is Thailand. At the beginning of this years, our world is faced the new disease which is COVID-19 and it is one of the factor that affect the economy but it didn't affect to the frozen chicken exports of Thailand to China.

Frozen chicken exports from Thailand to China during the Bird flu epidemic.

All of Xiamen's fresh poultry trade was halted amid the panic of the H7N9 avian influenza virus on Jan. 12, 2015, all districts in Xiamen had halted the trade of live poultry. Amid fears of the spread of the H7N9 avian influenza virus and the start of high rates of respiratory infections in winter. According to data, 84 percent of patients infected with the H7N9 avian influenza virus were exposed to live poultry, and 77 percent of those cases lived in the market where live poultry was found. The Xiamen Disease Prevention and Control Center said the H7N9 avian influenza virus can be prevented, controlled and treated. However, controlling / blocking the transmission route remains the best way to control the spread of disease. People living in Xiamen can call reports of the illegal live poultry trade. The new H7N9 avian influenza virus, transmitted from human to human, was first reported in China in March 2013 and in Xiamen, first reported in January 2014 and After that Two more recent cases of H7N9 avian influenza virus were confirmed again in December 2014, including the presence of H7N9 avian influenza virus cases in the city of Xiamen, there are in total 5 cases in 2014. Moreover, the poultry industry in Xiamen was hit hard by the H7N9 avian influenza virus outbreak. At this stage, there have been several cases of the H7N9 avian influenza virus outbreak in Xiamen. It has had a serious impact on the poultry business in the city over the past few weeks. According to news reports, urban poultry prices such as chickens, ducks, geese, pigeons, quail and other domestic poultry have plummeted as more consumers have been reluctant to consume poultry since the outbreak of the H7N9 bird flu virus, some restaurants and restaurants have even stopped selling poultry dishes. With these main reasons This causes the price and consumption of poultry to decline. The local restaurant business owner said, "Even though poultry prices are declining, the prices of poultry are falling. But only a handful of poultry traders still go to the city's wholesale markets. Causing slowdown in poultry sales in local agricultural markets " and experts at Xiamen's Center for Disease Control and Prevention confirmed that two cases of H7N9 avian influenza virus were found last month in the city of Xiamen. As a result, the total number of people infected with H7N9 avian influenza virus in Xiamen in 2014 was 5. In terms of the live poultry trade volume, the live poultry trade has almost halved. Originally, the sale of 7,000 was reduced to about 5,000, and the latest data showed that on Jan. 6, 2015, the trade volume of live poultry has dropped to only 3,000.

The H7N9 bird flu slows the poultry market in China. Loss of income 10 billion yuan. Many counties in china Several provinces in eastern China have been infected with the H7N9 strain of bird

flu. The new strain of bird flu has spread to northern China, with the Chinese authorities having already found one infected with the new strain in Beijing. The incident in China has had a serious impact on poultry of business in china. Chinese authorities report that due to the fact that many areas in China have caused the H7N9 avian influenza strain, China's poultry market has declined significantly, with parts of China canceling the trade of poultry and poultry farmers have started slaughtering poultry to deter it. Epidemic Statistics from the Chinese Poultry Industry Association revealed that The Chinese chicken market lost 20-30 million yuan a day and the chicken market lost 100 million yuan or more per day. Loss of up to 10 billion yuan during the one-week period, as well as the number of infected people and provinces with new strains of avian influenza have increased. The bird flu will affect other businesses as well, including food, tourism, airlines and logistics. To prevent the H7N9 strain of avian influenza, the Thai Business Information Center in China recommends that all Thai citizens in China avoid contact with poultry and birds, especially dead poultry and birds. If it necessary to eat poultry or poultry eggs, it must be cooked. In addition, if anyone have a cold, especially had been in contact with poultry, they should seek immediate medical attention.

Table. 1

| Month | Outbreaks (%) | Species of Domestic Poultry | Deaths (Feature) | Destroyed (Feature) |
|-----------|---------------|-----------------------------|------------------|---------------------|
| January | 17 (16.04%) | Chicken, duck, and goose | 51,638 | 1,295,494 |
| February | 39 (36.79%) | Chicken & goose | 131,029 | 4,131,160 |
| March | 3 (2.83%) | Chicken | 1062 | 9558 |
| April | 1 (0.94%) | Chicken | 1500 | 1679 |
| May | 2 (1.89%) | Duck & goose | 11,632 | 66,331 |
| June | 6 (5.66%) | Chicken, duck, and goose | 14,799 | 2,393,358 |
| July | 1 (0.94%) | Chicken | 3045 | 356,976 |
| August | 2 (1.89%) | Chicken | 1938 | 295,805 |
| September | 3 (2.83%) | Chicken & duck | 11,815 | 234,920 |
| October | 4 (3.77%) | Chicken, duck, and goose | 12,655 | 6,138,323 |
| November | 22 (20.75%) | Chicken, duck, and goose | 133,777 | 15,799,404 |
| December | 6 (5.66%) | Chicken, duck, and goose | 8873 | 194,930 |

From the table 1, the outbreaks of HPAI H5N1 in domestic poultry mainly took place in the cold season, with four months (November, December, January and February), accounting for 79.2% (84/106) of all outbreaks, while a few appeared in warm months, with July, August, and September accounting for only 5.7% (6/106) of all outbreaks.

Recently, an outbreak of H5N1 bird flu occurred again in the beginning of this years in Hunan Province, bordering Hubei Province. The epicenter of the novel coronavirus outbreak Nearly 20,000 poultry have been killed. The South China Morning Post reported on February 1, 2020 that an outbreak of the 'H5N1' (H5N1) avian influenza virus (H5N1) in Hunan, which is in adjacent to the south of Hubei Province which is the epicenter of the novel coronavirus 2019 outbreak that is spreading across China and dozens of countries around the world. China's agriculture ministry released a statement on Saturday. The outbreak occurred on a farm in Chuangqing County of Chaoyang, where 7,850 chickens were killed, but over 4,500 of them died from H5N1, while local authorities decided to kill 17,828 of poultry in the same region.

China is now the number 2 export market for Thai frozen and chilled chicken products to the world market. (It is second only to Japan) after China reopened the import market for Thai chilled and frozen chicken from Thailand in April 2018 after export suspension was suspended since 2004 due to an avian influenza outbreak in Thailand. Currently, Thailand's position in the Chinese market is

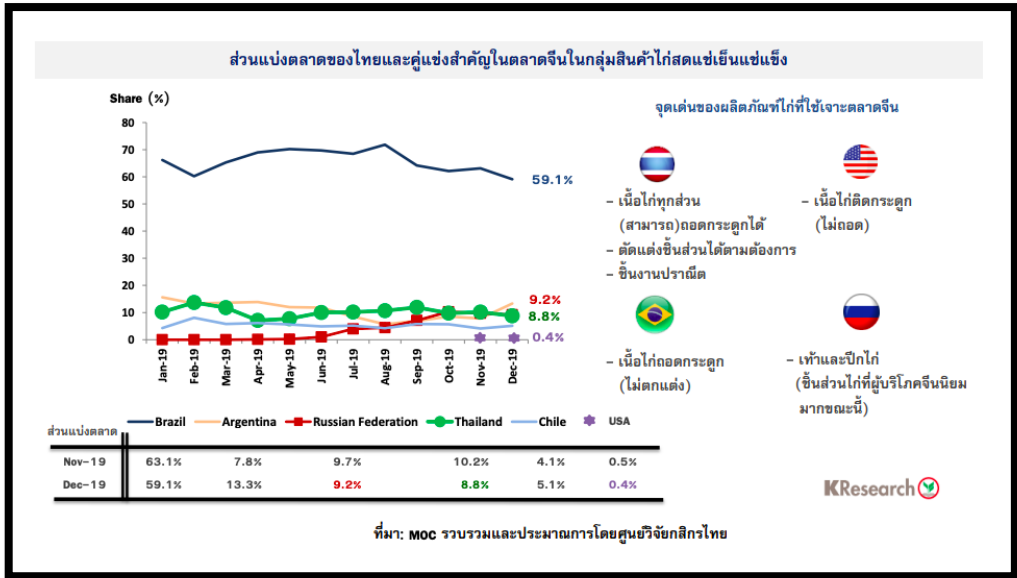
China's No. 4 exporter of chilled and frozen fresh chicken and has grown by 252.0 percent in 2019, so China is the market for frozen chicken that is important to Thailand and despite facing the COVID-19 epidemic in China since January 2020, China has continued to have orders for frozen and chilled chicken from Thailand. For the year 2020, the Kasikorn Research Center has a view on the direction of the export of chilled and frozen chicken to China.

As the following details

- The situation of the COVID-19 and H5N1 epidemic in China is likely to be improved in a favorable direction for Thai exports to China in 2020: China has now announced that the COVID-19 outbreak in China has reached its peak. This is reflected in the number of new infections that have continued to decline. This sent a positive signal to control of the epidemic in China. After China has a strong anti-epidemic measures in the past 1-2 months. This covers the closure of major cargo terminals to control the outbreak of disease. (Between 24 Jan -13 Feb ago) until affecting both domestic and international shipping of China. This includes food products such as Thai chilled and frozen chicken, causing transportation delays and delays. However, the easing situation has prompted China to resume its transportation system since February 14 and caused the chicken Thai frozen chicken products have been routed to the Chinese market once again. The routes of Thai exports of frozen and frozen chicken products go to China after China reopens the market to Thailand. It will be transported by boat through the port of Chiang Saen of Thailand. Only to Guan Lei Port, Yunnan Province It will then be distributed to various counties. Nationwide by land transport.
- Thai exports of chilled and frozen chicken to China in the second half of the year continue to support chicken production and processing plants waiting to be officially announced for export to China. China does not erupt again. At the latest, no later than the third quarter of 2020, China should officially announce the registration of 12 more Thai chicken production and processing plants to be exported to China after they have been inspecting factories in Thailand. In 2019, one of the reasons why China is expected to expedite registration approval for Thai factories is Consumer concerns with domestic food products during the outbreak of COVID-19, H5N1 that led Chinese authorities to order the slaughter of more than 18,000 chickens, as well as the African swine cholera situation or ASF that has not yet recovered in China. As a result, China not only has to expand production, but needs to import more types of meat products. Imported frozen and chilled chicken products are another option that consumers are expected to give a good response from last year. This is reflected in the trend of Chinese chicken imports that the US Department of Agriculture or USDA estimates that in 2020 it will reach 7.5 hundred thousand tons or expand 20.0 percent.

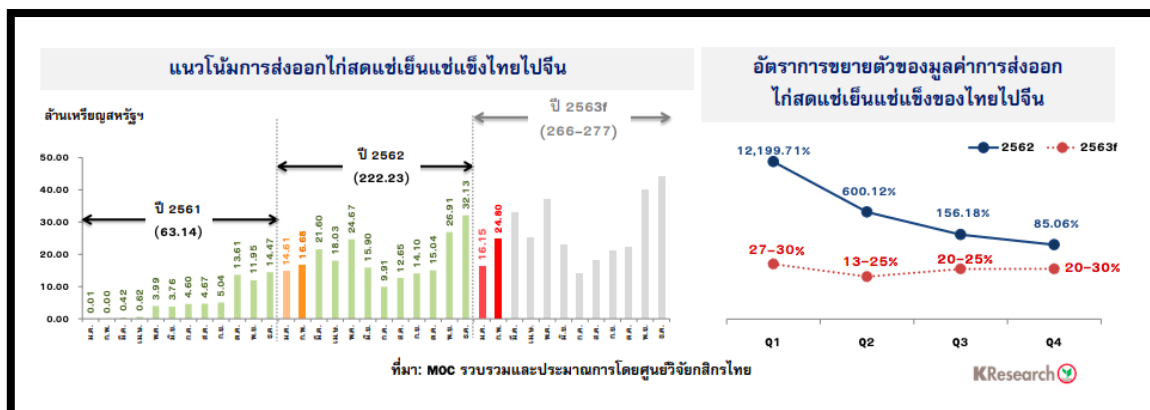


Thai frozen and frozen chicken exports to China in the first half of 2020 are likely to grow but may slow down from 31.4 percent in the first two months (YoY), or about \$ 41.0 million. The growth was driven in part because importers in China had already placed pre-orders in 1Q20, ahead of the Lunar New Year and shut down the country. While orders for the second quarter of 2020 after the opening gradually came and continued until full of Thai production capacity of the 16 factories producing chilled and frozen chicken for export due to the declining Chinese inventory. At present, Chinese customs have issued new trade measures to support the import of agricultural and food products from abroad to be able to enter the country more quickly which chicken products are classified as a product that has the merit because it is a food product that is essential to consumption in China, however, the situation of COVID-19 in Thailand with the number of infected people has increased. As a result, the government sector is required to enact an Emergency Decree on Public Administration in Emergency Situations 2005 between March 26 and April 30, 2020 and the lockdown in many provinces Border closure. Including taking care of traveling across provinces and across the border to contain the COVID-19 epidemic, there may be some impact on the production and logistics of the Chinese market, due to more stringent inspection processes and procedures, including the limited time-limit product transfer permission, etc. Therefore, the Kasikorn Research Center has a cautious view on the export of Thai chilled and frozen chicken to China in the second quarter growth in the first half of the year may grow by 20-25% (YoY). Therefore, with production capacity expected to increase from 12 plants plus a year-end delivery season. So it is expected that overall Thai frozen and frozen chicken exports in the second half of the year should grow by 20-25 percent (YoY) for a continuation from half of the first year. Although Thailand's export direction of frozen and frozen chicken to China this year is still positive. But the Kasikorn Research Center sees the difference and a challenging factor for Thailand's exports of chilled and frozen chicken to China this year which is more intense competition in the Chinese market from opening the market to new competitors in order to enter the chicken market in China which risks being won for market share. In particular, competing with the same competitor that has fully returned to China this year, for example, the US after China opened the market for import again since November 2019 with 172 certified factories. This allows the export of chicken products to be marketed in China, as well as Russia as a promising new competitor because it has a leapfrog increasing market share after the Chinese authorities allowed Russian chicken products to be marketed in China from April 2019 from at least 23 certified factories, reinforcing the competitive pressures in the Chinese market to another level. In the past, Thailand had to face major competitors in the market already.



China's economic slowdown may affect consumer purchasing power because of the outbreak of the bird flu or avian flu that affecting people's lives society and economic development of China. In particular, the economic activity faced a huge stagnation that affected the supply chain of all industries around the world. The Kasikorn Research Center estimates that China's economic growth in 2020 may slow down to a 1-3 percent range from 6.1 percent in 2019. In addition, It is a consumer product that is essential to life and it is difficult to find other products to replace, so the demand will still be available but it may be reduced during the Chinese control of the outbreak and making important customer groups such as restaurants cannot open for normal operation causing the demand for products at that time to decrease combined with the purchasing power of consumers this year, which is still under the economic slowdown. So it is causing you to be more careful about your spending.

The above factors reflect that despite the high demand for chicken for consumption in the Chinese market but the Thai prospects to penetrate the Chinese market this year are also challenging. Open for regular service and the Chinese authorities can prevent and control the outbreak respectively. As well as the production for exports from Thailand was not affected by bird flu and government measures that may intensify preliminary, the Kasikorn Research Center expects that in 2020, Thailand will have a chance to export fresh, chilled and frozen chicken to China worth 266-277 million US dollars, growing 20-25 percent (YoY), despite the sluggish growth from the previous year. This is partly due to the very high previous year's base effect but it is a good growth rate and is considered one of the exports that can continue to be in the Chinese market this year.



Thai chicken export stocks have benefited after China ordered to eliminate more than 1.8 thousand poultry from the bird flu outbreak. Since February 2020, the share price of GFPT Plc. (GFPT) rose to a high in the morning at Bt12.80, up 3.2% DoD, before slowing the heat in the afternoon. The shares of Charoen Pokphand Foods (CPF) and Thai Foods Group Plc. (TFG) were down 6.67% DoD and 3.98% DoD. In short-term view, SCBS believes that the outbreak of bird flu in China will drive up chicken prices. As the supply of chickens in China decreased causing China to import more chicken from foreign countries and this will be a positive effect for entrepreneurs who export Thai chicken meat. In particular, companies that have been registered to export chickens to China are both GFPT and TFG, while CPF, despite being a chicken exporter to China, has been able to export chicken to China but the company has a chicken factory in China and it accounts for 21.6% of the total revenue from animal feed sales to China in 2018, which makes CPF potentially negatively impacted by this avian influenza outbreak. There must be a short-term increase in chicken prices due to the impact of bird flu in China. This will be a supporting factor for the operating results of the fresh chicken business. Including following the announcement of the 2019 performance, which is expected to be announced before 2 March 2020. Long-term view, we will have to monitor the baht direction. Recently, we began to see signs of weakness in comparison with many currencies. This will be a supporting factor for the performance of export operators as well as tracking the cost of animal feed such as corn, soybean meal, fish meal and rice bran, etc., which is the main cost of animal farming business. In addition, GFPT Plc. (GFPT) accounts for 76% of revenue from chicken meat products. Thai Foods Group Public Company Limited (TFG) has a 63% revenue share from chicken meat products. Charoen Pokphand Foods Plc. (CPF) accounts for 20-30% of income from chicken meat products.

Official responses to avian flu threats: Perspectives of the local cadres

The SARS crisis of 2003 was a warning for government officials, who then learned to view the threat of avian flu in a whole new light (Kaufman [2006](#)). After taking lessons from the SARS experience, local cadres consider the next possible epidemic as a major source of social instability and are fully aware of the cost of any detain response. Despite a insufficiency of firm evidence that a pandemic was imminent, officials and staff members of the county Bureau of Public Health felt that whether they could successfully administer prevention measures was a matter of life and death (*xingming jiaoguan*). Not only were their careers at stake this time, but also the welfare of their friends and family. After receiving the administrative order from the State Council, the county government quickly activated to wage a large-scale disease prevention campaign in a manner reminiscent of the mass sanitation movements that took place during the Maoist era.

To illustrate his strong will and commitment to public welfare, the Mayor of Haining established a special task force in November 2005 to distribute with the threat of avian flu. Work teams were organized in all the townships within the county to meet the challenge. All the work teams were arranged by the township chiefs in an effort to ensure accountability. To complement the certification coming from public health officials, a special fund is funded for epidemic prevention and disease control. During an interview, Mr Xu Wenjie, the chief officer of Haining's Animal Husbandry and Veterinary Station reported that as long as he could illustrate the need for disease prevention, a set amount of money would be allocated to the Station. His administrative superiors in charge of public health would pay unexpected visits to chicken farms and market fairs to collect reliable information via on-the-spot investigations. The government's special fund was also allocated to cover the total cost of immunization for all live chickens in the district using the vaccine against avian flu and Newcastle disease developed by the Harbin Veterinary Research Institute.

In addition to the financial support from the country and municipal authorities, the professionalism of the Epidemic Prevention Team comprises highly trained technical experts from animal husbandry agencies. (Together with the Office of Agricultural Economics) and the Center for Disease Control in the area (together with the District Health Office). Surprisingly, the Epidemic Prevention Station, an office that has become marginalized after the death of the public community, has provided a corporate base for introducing grassroots prevention mechanisms. In addition to those assigned to be 'watchmen' in every town of Haining, some villagers have volunteered to act as investigators who watch for signs of viral infection around the chicken farm. And behind the houses of the villagers raising poultry, shortly after their appearance, these amateur followers were classified as technically trained teams. The new mechanism has been set up in 181 villages in the county. 200 village inspectors regularly visit all chicken farms and poultry factories to ensure suspicious illnesses are identified immediately.

Confronting the risk: Views from the chicken farm owners

During interviews with local chicken farm and poultry factory owners, the interviewer will most likely ask the following questions: Are you and your business affected by the threat of bird flu? In what way? What are you most afraid of? Most informants tell them that they are more afraid of hearing any news related to the spread of the virus than they are dealing with the real threat of the disease. They explained that any bad news aired on TV would result in a significant drop in prices since nobody would dare to eat or raise chickens while such news reports were circulating. For example, an owner of a household chicken farm who had an annual production of 1 million breeding chickens told us that he was a victim of media-generated public fear concerning food safety. The price for a single breeding chicken dropped from 1.7 yuan in July to 0.2 yuan in December 2005. The farmer had to bury many of the breeding chickens alive even though none of them were infected.

Among the major losers were agricultural households producing broilers. The price of broilers per unit fell from 6.4 yuan per kg in the summer of 2005 to just 3.6 yuan per kg in the first half of November 2005. At that time, many broiler farmers intended to pull broilers from the market. There was only one owner who thought that if he stayed, he could make a huge profit later. With the prospect of rising prices in the future, he bought 30,000 broilers in October. But the market situation continued to deteriorate through the fall and speculators eventually lost 100,000 yuan.

To our surprise, most poultry farmers remained confident throughout the crisis. Their attitude came from years of experiences raising chickens, ducks and geese, and from their ability to tell a sick bird from a healthy one at a mere glance. Nevertheless, they are highly vigilant during their defense campaigns and work closely with local animal houses and veterinary stations. The chicken farmers' compliance and co-operation with the local public health demonstrated the acceptance of a medicalized model of poultry breeding. Farmers began to view the difficulties sorting as medical problems with medical solutions and depend on professional veterinary interventions during the prevention campaigns. Some of the chicken farmers showed themselves to be the quick learners in recognizing the different anatomical characteristics of a 'plagued chicken' compared to a chicken infected with the avian virus. They claimed that if necessary they would rather destroy 1000 innocent birds instead of releasing one suspicious bird. This remarkable level of support from the chicken farmers of Haining was very important for securing the first line of defence against the spread of the virus in Haining. At the same time, with the spread of mass media across the country, the official public information campaign has increased awareness and has been successful in shifting farmers' behavior throughout the crisis.

Learning to live with danger: Farmers' attitude and behaviours throughout the avian flu

Why farmers (Especially chicken farmers) and residents of Haining willing to cooperate with government officials during the bird flu crisis? In an effort to tackle this question, it's almost impossible to get an honest answer, because "for every 100 people there are 100 ways of thinking and reasoning" as the locals say. Initially the varied responses we received made it difficult to perform an adequate analysis of the behavioural patterns. However, through repeated visits and frequent discussions, the following common attitudes toward epidemic prevention in local communities that can be identified.

Most farmers take preventive measures after receiving news about bird flu. Their sources can be official, as the instruction communicated through speaker services and TV news, or be informal, as well as rumors circulating in tea houses or restaurants. The rapid spread of breaking news about the avian influenza pandemic has almost led to a sharp drop in poultry prices. Local governments have begun to use damage control efforts to support the poultry industry, a key source of income for Haining's economy, in fear of the negative effects of public fears. After the avian flu alert was lifted, the officials of the County Bureau of Agricultural Economics motivated its kitchen staff to purchase chickens from local sources in order to set an example for the rest of the County. Yet many suspicious town residents were unwilling to buy local chickens.

Meanwhile, we learned from our informants that repeated and repetitive news coverage started to have a cry-wolf effect on some farmers who saw no signs of any chicken disease. An elderly villager told us that when he and his fellow villagers first heard about avian flu, they took it very grimly and stopped eating any kind of poultry almost immediately. Later on, they became worried about what they had been told about the possible spread of the flu virus because they only trust in what they saw with their own eyes. When they found that nothing had actually happened to any of the chickens and ducks roaming free in the farm and the backyards of their friends of villagers, they lost patience and decided to continue the routine consumption of poultry. Some less wealthy of villagers and migrant workers were particularly tempted by the low prices of the chickens at the local markets.

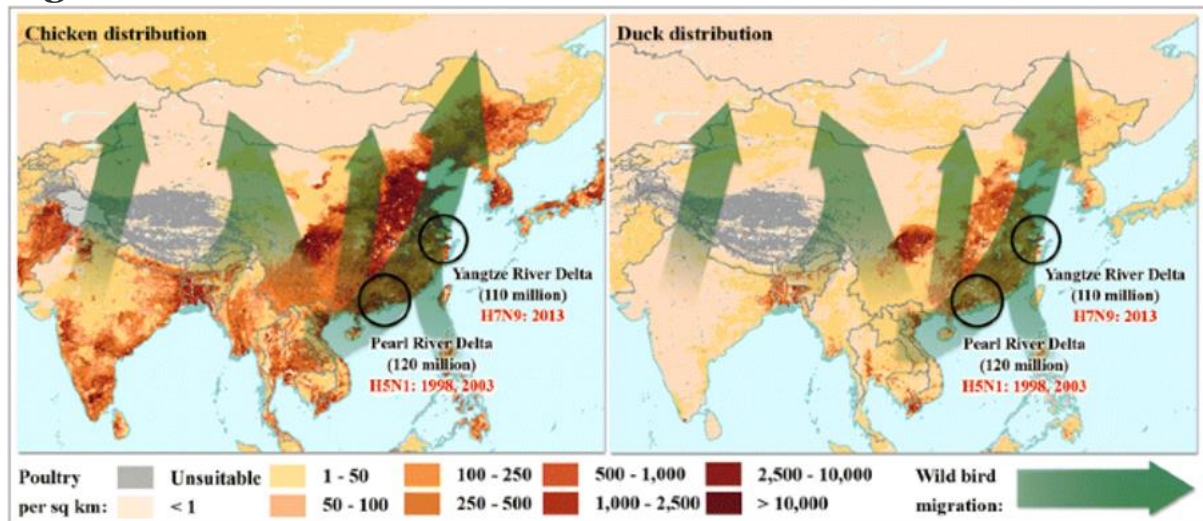
China's economic growth rate over the past 25 years has been outstanding. True per capita GDP. (In line with purchasing power parity) increased from US \$ 1516 in 1990 to US \$ 12608 in 2014, an average annual growth rate of over 9%. Although this has created the resources needed to improve biosafety and health care. But it also increases the chance of disease and transmission. The presence of the corridors of important migratory birds. (The main cause for the spread of Influenzas) Habitats that promote the mixing of wild and domestic birds and the enormous demand for fresh meat increase the likelihood of disease. At the same time, urbanization and growth in international trade and travel increase the likelihood of an epidemic. In 1990, only a quarter of the Chinese population lived in cities. Nowaday, over 54% of them are urban, and by 2030 there will be at least one billion people, or 70% of the population. In 1990, only a quarter of the Chinese population lived in cities. Nowaday, over 54% of them are urban, and by 2030 there will be at least one billion people, or 70% of the population. Between 1990 and 2015, China's exports to the rest of the world increased by about 17% annually, and although exports during this period were dominated by manufacturers but exports of food and live animals are growing at a slightly lower rate. More importantly, for China, which is at risk of global disease, imports of food and live animals were 7-8 times greater than their exports in 1990 and have since grown around 15% annually.

Urbanization and disease spread

Urban growth and changing agricultural conditions have shaped infectious disease ecosystems in China since at least the Tang Dynasty. (Seventh-tenth century CEOs) Creating and connecting reservoirs of pathogens and vectors. However, the speed and extent of urbanization over the past three decades have been significantly higher than at any other period in the past, creating a primarily urban population for the first time in China's history. The rate of urbanization has also been significantly higher than that of other industrialized and industrializing countries. For instance, in 1979, at the start of its own economic liberalization program, India had an urbanization level of 18.6 % compared to China's 22.7 %. Today, China's urbanization has reached 54.4 % compared to India's 32.4 %.

In China, this has expanded the contact between humans, wildlife and livestock. Urbanization and land-use change, along with an increase in meat consumption, have brought wildlife reservoirs closer to livestock and people. In particular, the emergence of the HPAI species that is more likely in southern China, where growing urban affluent populations have driven increases in poultry production and land-use changes, which make Humans, pets and wildlife have come closer together (Fig. 1).

Fig. 1



Sources Generalized bird migration routes adapted from Fang et al. (2008);

poultry distribution data from Robinson et al. (2014)

Intersection of chickens and ducks, dense human population. (Concentrated due to urbanization) and migratory birds increase the likelihood of transmission between strains and the emergence of new influenza strains.

Changes in the patterns of natural soil cover, agriculture and buildings, as well as in the biological and biological flux, among them, also affect the risk of disease to people. A large and growing population of livestock, especially poultry, which is spread across China, is an ideal place for viral mutations and inter-strains of influenza transmission, especially between wild and domestic birds. China has also crossed several migratory routes, allowing large numbers of waterfowl and other birds to carry avian influenza in and out of the country. Throughout East Asia, densely cultivated land is inhabited by poultry and ducks, but it is also home to water birds, as well as the HPAI (Fig. 1). The number of strains infected as a result of the recent avian influenza outbreak suggests that the risk of

the epidemic is increasing. Livestock population is also an indicator for pathogens entering the human population. For example, raising poultry in China's urban and suburban areas increases the likelihood of H5N1 transmission.

The risk of pathogens spread from diseases contracted in wet markets is exacerbated by the concentration and interconnection of human populations associated with urbanization. The urban wet market is now recognized as the starting point for H7N9 infection. The high density of people makes cities, particularly the large cities that have appeared rapidly in China, force multipliers of pathogen transmission. Patel and Burke argue that the outbreak of SARS in Hong Kong in 2002 and 2003 “demonstrated how dense urban living could ignite a global health crisis.” The early stage of the SARS epidemic involved its spread through the interconnected metropolises of the Pearl River Delta (PRD). The PRD was also an epicenter for HPAI H5N1 and remains a potential hotspot for other influenza systems , although this has not yet been reflected in local public health policies.

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