

When Pasteur went to China

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Last October, French President Jacques Chirac inaugurated the Institut Pasteur of Shanghai-Chinese Academy of Sciences (IPS-CAS). Professor Vincent Deubel will be the institute's Director – the first time in China that a scientific institution will be run by a foreigner.

Since 1977, Deubel's work has been devoted to viruses responsible for emerging haemorrhagic fevers and encephalitis (yellow fever, dengue, West Nile, Lassa, Nipah and Ebola). He is studying virulence, the interactions of viruses with their host cells and the immune responses to viral infections. He also focuses his work on the epidemiology, diagnosis and the development of vaccines for these viruses.

Public health problems

The aim of the Institut Pasteur Shanghai is to provide solutions to the major public health problems that endemic and emerging diseases represent to Asia and the rest of the world. 'The opening of an Institut Pasteur in Shanghai is the result of a common wish between the Chinese Academy of Science and the Shanghai government to develop an Infectious Diseases Centre, following the SARS outbreak and facing the possible risk of the avian flu pandemic', says Deubel. Basic and applied research on HIV/AIDS, hepatitis, encephalitis and hemorrhagic fevers, as well as on emerging viruses such as SARS and avian influenza viruses or bird flu, will be developed. 'An important part of our work will be dedicated to respiratory diseases, focussing on issues ranging from diagnosis to the development of vaccines for humans and animals', added Deubel.

According to the World Health Organisation (WHO), 10% of the Chinese population are Hepatitis B carriers, while 850,000 people are living with HIV/AIDS. 'AIDS and Hepatitis are a major cause of death in China and are costly', says Deubel. 'We intend to develop new therapies and vaccines', he added. Recently, the SARS and Avian flu outbreaks were a timely reminder of the potential health and economic impact that infectious diseases, including new emerging diseases, can cause.

SARS and avian flu

Although the agent responsible for the SARS syndrome is known to be a new corona virus (SARS-CoV), our knowledge about the epidemiology and ecology of this viral infection and clinical expressions of the disease remains limited. Transmission from animal to human has now been confirmed, but many facets remain unknown.

According to the WHO, resurgence of SARS remains a distinct possibility and does not allow for complacency. The Asian Development Bank estimated that the impact of the SARS epidemic was about US\$18 billion in terms of GDP (0.8 percent) or US\$59 billion in terms of business losses (measured as total final expenditures).

Regarding the avian flu, the WHO thinks that public health agencies need to engage in discussions with pharmaceutical companies to explore areas of common interest in vaccine development and identify areas where support is needed. So far, only two companies, Aventis Pasteur and Chiron, have taken work on a pandemic vaccine

significantly forward by producing small batches of vaccine for use in clinical trials.

The World's biggest country

China is the world's biggest country and its economy is now the world's second largest (measured at purchasing-power parity). The country joined the World Trade Organisation in 2001. Foreign firms, dreaming of China's 1.3 billion potential consumers, invested US\$57 billion in China in 2003. China is attracting a lot of attention, however, the health care system did not follow the rapid economic growth.



When the WHO ranked the public-health systems in 2000, China was placed 144 out of 191 countries, behind some of Africa's poorest.

According to the World Bank, China has lifted 400m people out of severe poverty in the past twenty years, but millions have fallen into it as a result of health care costs. Millions of others are dying because they cannot afford health care. Together with Chinese economic development came changes in the epidemiology of disease patterns, diseases once declared tamed have been making a comeback, and new viruses have emerged. These are new challenges where the IPS-CAS can contribute.