



**D3.3: Workshop proceedings and conclusions, list of the most relevant methods for the surveillance of diseases prioritized in this project**



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D3.3

**Workshop proceedings and conclusions, list of the most relevant methods for the surveillance of  
diseases prioritized in this project**

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Food and Agriculture  
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Food and Agriculture Organization of the United Nations



Animal Production and Health Section

Joint FAO/IAEA Programme for Nuclear Techniques in Food and Agriculture



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Royal Veterinary College



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National Veterinary Institute



Shanghai Veterinary Research Institute



Harbin Veterinary Research Institute



China Animal Health and Epidemiology Center



China Animal Disease Control Center



Sociedade Portuguesa de Inovação



Huazhong Agricultural University

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## Objectives of the workshop

The main objective of the workshop was to provide an exchange platform to allow European and Chinese scientists to share their experiences on the design and the evaluation of animal health surveillance systems from an epidemiology or a laboratory perspective, in order to identify the most suitable surveillance approaches for the priority diseases as identified in the LinkTADs project.

The specific objectives of the workshop were that, by the end of the two days, participants would:

- Be familiar with the different objectives of animal health surveillance systems;
- Understand the principal surveillance strategies used in animal health;
- Be able to identify the most relevant surveillance strategy for a given context;
- Be aware of the pitfalls of surveillance;
- Know the different steps for conducting an evaluation of a surveillance system.

## Overview of the workshop

On 13th and 14th of July 2015, a two-day workshop entitled “Animal health surveillance and the evaluation of surveillance systems” was organised in Qingdao, China. The workshop brought together 20 participants coming from both the European Union and China (seven out of the nine LinkTADs research partners were represented). Four participants belonged to international organisations, i.e. the Food and Agriculture Organization (FAO) and the World Organisation for Animal Health (OIE). Scientists involved in the RISKSUR (<http://www.fp7-risksur.eu/>) and ASFORCE (<http://asforce.org/>) projects were also represented.

During the morning sessions, scientists with national or international expertise (in either the EU or China) in the design or the evaluation of animal health surveillance systems gave presentations to expose all participants to the challenges of surveillance and the different approaches used for implementing surveillance or conducting its evaluation. Some presentations were more focused on the theory of surveillance or its evaluation, while others presented some real-life examples. The main surveillance approaches and their associated challenges that were discussed included passive surveillance, active surveillance and risk-based approaches. The organisation of some surveillance systems in Europe and China were described. The RISKSUR project as well as its main achievements were also presented. Real-life examples included the surveillance for porcine respiratory and reproductive syndrome, foot-and-mouth disease, Japanese encephalitis and African swine fever. The role of laboratories in a surveillance system was also developed from a European perspective. Participants were excited by most of the presentations and very interesting discussion often followed making it difficult to stick to the original schedule.

During the afternoon sessions, interactive discussions on the design and the evaluation of surveillance systems were stimulated using case studies focused on diseases identified as priorities in the LinkTADs project (African swine fever and highly pathogenic avian influenza). On day 1, participants were asked to design efficient surveillance components for the early detection of ASF and the monitoring of highly pathogenic avian influenza in China and to identify the main challenges linked to the implementation of these components. On day 2, participants were exposed to the RISKSUR EVAtool to become more familiar with the identification of appropriate evaluation questions and the whole process of surveillance evaluation.

## Detailed programme of the workshop

### 13<sup>th</sup> July: Design of surveillance systems

Time	Activity	Speaker
8.00 – 9.00	Registration	
9.00 – 9.30	Welcoming words and presentation of participants	Wang Shushuang (CAHEC)
9.30 – 10.15	The context, challenges and opportunities for disease surveillance in China	John Edwards (FAO/CN)
10.15 – 10.45	Foot-and-mouth disease surveillance and control in South-East Asia and China	Phillip Widders (OIE)
10.45 – 11.15	Coffee break	
11.15 – 11.30	RISKSUR: Towards a new generation of surveillance systems	Timothée Vergne (RVC)
11.30 – 12.00	Surveillance structure and strategies	Flavie Goutard (CIRAD)
12.00 – 12.30	The surveillance of PRRS in China	Xinyan Zhai (CADC)
12.30 – 13.00	Animal disease investigation and surveillance in China	Wang Youming (CAHEC)
13.00 – 14.00	Lunch	
14.00 – 15.30	Interactive activity: Designing a surveillance system for some diseases of major interest for China	Moderator: T. Vergne
15.30 – 16.00	Coffee break	
16.00 – 17.00	Interactive activity: Designing a surveillance system for some diseases of major interest for China	Moderator: T. Vergne
17.00 – 18.00	Break	
18.00 – late	Dinner	

**14<sup>th</sup> July: Design and evaluation of surveillance systems**

Time	Activity	Speaker
9.00 – 9.30	Surveillance of Japanese encephalitis in pigs and mosquitoes in China	Zhiyong Ma (SHVRI)
9.30 – 10.00	The role of veterinary laboratories in disease surveillance systems	Frederik Widen (SVA)
10.00 – 10.30	Introduction to the evaluation of surveillance	Flavie Goutard (CIRAD)
10.30 – 11.00	Estimating the sensitivity of surveillance systems for endemic diseases using capture-recapture methods	Timothée Vergne (RVC)
11.00 – 11.30	Coffee break	
11.30 – 12.00	Improving FMD surveillance in SEACFMD member countries	Phillip Widders (OIE)
12.00 – 12.30	Economic evaluation of alternative surveillance strategies for African swine fever in Europe	Timothée Vergne (RVC)
12.30 – 12.45	Presentation of the EvaTool from the RISKSUR project	Flavie Goutard (CIRAD)
12.45 – 14.00	Lunch	
14.00 – 15.30	Interactive activity: Evaluating a surveillance system	Moderator: F. Goutard
15.30 – 16.00	Coffee break	
16.00 – 17.00	Interactive activity: Evaluating a surveillance system	Moderator: F. Goutard
17.00 – 17.30	Wrap-up and conclusions	F. Goutard and T. Vergne



## Summary of group discussions on the design of surveillance

### Highly pathogenic avian influenza

#### Surveillance for avian influenza in China

The task of our group was to design a surveillance system for HPAI in China.

The two main objectives of this surveillance system were defined as follows:

- Early detection of HPAI cases
- Detection of reassortment among AI virus isolates.

The geographical coverage of this surveillance system at national level should be as follows:

- South China: there are many wetlands and wild birds habitats
- LBMs: wholesale LBMs
- Other places in south China where have high density of small scale poultry farms: mixed poultry are often kept in these backyard farms

These places were chosen because of these risk factors were considered as the important ones in HPAI circulation in China:

- Waterfowl: especially ducks, because ducks can infect with HPAI with no visible clinic signs. Ducks are mainly raised in south China.
- Migratory birds: it is believed migratory birds are playing a role in HPAI spreading.
- LBMs: huge amount of live poultry are traded through LBMs in China, and the wholesale LBMs are the places with highest risk for virus reassortment.
- mixed species: chicken mixed with waterfowl can afford a grate opportunity for virus reassortment and HPAI outbreaks. It is common that farmers would have mixed poultry farm in their backyards in south China.

#### Surveillance for avian influenza in China

The surveillance system should included (at least) these components:

- **Active surveillance:** we use risk-based strategy targeting waterfowl and habitats of wild birds.
- **Passive surveillance:** case definition should be sensitive, not too precise to promote reporting, and we should timely response to most reports from field.
- Other components should also be included, such as lab network, reporting system, education projects to farmers or para-vets and database.

We should focus on detection of outbreaks in chicken, and identify isolates at clade level. In order to assure farmers' willingness to report, compensation policy should be well designed, and incentive to farmers and para-vets should be equally implemented in those areas since the cost should be small.

## African swine fever

### Surveillance for ASF in China

- **Objective of the surveillance system:** To detect the introduction of the virus in China within 1 month of introduction
- **Main risk factors** that should be considered to design a risk-based surveillance strategy:
  - Ports, airports
  - Swill feeding (small-scale farms)
  - Chinese workers in Russian/African farms (can be anywhere in the country) → Lack of data
  - African workers in Cantonese provinces (Guangdong province) → Lack of data
  - Regions with a lot of incoming pigs (Chandong province, others?)
- **Secondary risk factors:**
  - Illegal movement of pigs at the border with the Russian Federation (but populations between the infected areas and China (Kazakhstan) are mostly Muslim so probably not the most important) → low risk
  - Wildlife in provinces close to the RF but closest reported wild boar case is still more than 2000 km away from the Chinese border → low risk

### Surveillance for ASF in China

- **Main surveillance components** that should be implemented:
  - **Passive surveillance** for the whole country. There need to be a system in place to allow the report of suspicion anywhere in the country.
  - **Risk-based passive surveillance** → identify HR areas, identify HR farms → Improve awareness
- **Secondary surveillance components** that were thought to be not very efficient
  - **Active surveillance** in high-risk areas but probably not very efficient (focus on swill-feeding farms)
  - Surveillance of dead wild boar by Forestry department (but need of coordination with forestry and MOA)
  - Surveillance in ticks? But probably not very effective for early detection. Last time distribution of ticks was long time ago. Probably need update
- **Main challenges**
  - Getting data for risk assessment
  - Farmer involvement
  - Depending on province, compensation is different (need to improve the compensation policy in HR provinces)
  - Veterinarian awareness
  - Combine with CSF/HP-PRRS surveillance (at least in high-risk provinces)!!!
  - Diagnostic capacity to improve at provincial level
  - Cooperation between MOA and forestry for finding dead wild boar

## Main achievements of the workshop

The main achievements are as follows:

- Participants were presented different theoretical aspects of animal health surveillance (surveillance objectives, surveillance structure, surveillance strategies, risk-based approaches, etc.) and the evaluation of surveillance systems (evaluation question, evaluation attributes, capture-recapture, etc.);
- The role of the laboratory was discussed;
- Various real-life examples were presented from either a Chinese or a European perspective;
- Most participants were engaged actively in the discussions that followed each presentation;
- Stimulating discussions were had on the main difficulties for conducting surveillance of animal health;
- Participants worked on the design of efficient surveillance strategies for the early detection of ASF or the prevalence monitoring of highly pathogenic avian influenza and identified the main associated challenges;
- The RISKSUR project was presented to the LinkTADs partners and a potential collaboration on the application of the RISKSUR tools was discussed with some Chinese partners;
- The workshop allowed LinkTADs partners to get to know each other better, increasing the potential for future collaborations

For these reasons, it is believed that the workshop fulfilled its objectives.

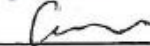


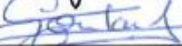

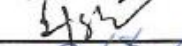
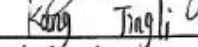


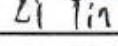

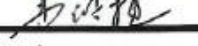
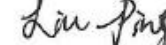
## List of participants

### LinkTADs

Workshop on animal health surveillance and the evaluation of surveillance systems

13th-14th July 2015

Qingdao, China

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## Illustrations

