LinkTADs

D5.3 Roadmap for Strengthening EU-China Animal Health Research Cooperation

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D5.3

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01

Introduction

1 Introduction

1.1 Objectives of the Report

This document is developed as part of the "LinkTADs – Linking Epidemiology and Laboratory Research on Trans-boundary Animal Diseases and Zoonoses in China and EU" project funded by the European Community's Seventh Framework Programme (FP7/2007-2013) under grant agreement no. 613804.

This document aims to present the results from both Policy Consultation Events (face-to-face and virtual) and policy surveys conducted with EU and Chinese policy makers, under the framework of Work Package 5 (WP5) – Supporting Policy Dialogue.

The rest of the document is structured into three chapters:

- The second chapter presents a brief summary of the revelations from each Policy Consultation Event;
- The third chapter presents the results of policy surveys;
- The fourth chapter presents the main conclusions and recommendations gathered from both events and survey.

Additionally, a section of Annexe is included, aiming to present the original questionnaire.

1.2 Abstract

Due to its aim to link the EU-China research in epidemiology and laboratory sciences on trans-boundary animal diseases and zoonoses and facilitate the international research collaboration, LinkTADs has put forth the following efforts in promoting policy dialogue while simultaneously pushing research cooperation between EU and China.

In WP5, the consortium has conducted research on the mapping of ongoing bilateral policy dialogues between the EU and China in animal diseases (D5.1) and designed & organized five policy events (face-to-face meetings and webinars) on the hot topics of common interest in China. The details of the events are presented in D5.2 and the main findings of those events are summarized in section 2.

During the implementation of WP5, the consortium felt inadequate expression of opinions from stakeholders, because many of them, especially policy makers, were not willing to express their opinion in such informal occasions as LinkTADs policy events. Therefore, the consortium designed and conducted an anonymous questionnaire survey to the EU and Chinese stakeholders to collect their opinion on EU-China cooperation and future opportunities. Opinions on EU-China research and policy in TADs and LinkTADs have been collected. The results of the survey are summarized in section 3.

Based on the revelations from the policy events and feedback from the survey, the consortium has concluded recommendations to further strengthen the EU-China cooperation in animal health field in the forthcoming years from both policy and research aspects. The recommendations are summarized in section 4 of the report.

Acronyms

BBSRC – Biotechnology and Biological Sciences Research Council

CAAS – China Academy of Agricultural Sciences

DIC – Department of International Cooperation

EU – European Union

EC – European Commission

FAO - Food and Agriculture Organization

MoST - Ministry of Science and Technology, PRC

OIE - World Organisation for Animal Health

SHVRI – Shanghai Veterinary Research Institute

IRC – International Research Consortium

VB– Veterinary Bureau

VoIP – Voice over Internet Protocol

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02.

Summary of the Policy Dialogue Meetings

2 Summary of the Policy Dialogue Meetings

In total, five policy consultation meetings were organized, including two face-to-face meetings and three webinars as listed in Table 1 **Error! Reference source not found.**below. The topics of the events were carefully selected, including Prevention and Control Tools, policy of African Swine Fever, Rabies, Influenza A, as well as general topics on Research Coordination, Veterinary Laboratory Systems and Policy. The meetings brought together 260 relevant stakeholders to discuss topics of joint interest for China and the EU in the areas of animal health and food security.

In addition to well-prepared presentations, fruitful discussions were conducted during each meeting and comments from both the EU and China sides have been collected and analysed to set the broader outline for the forthcoming years.

Table 1 List of policy dialogue consultation events

No.	Topic	Date	Location
	Face-to-face meetings		
1	African swine fever (ASF) Policy Event – Lessons learnt from Europe and policy challenges for Asia	17/11/2014	Beijing, China
2	Veterinary Laboratory Systems and Policy	14/10/2015	Vienna, Austria
	Web-based meetings		
3	Webinar on Rabies prevention and control tools in Asia	30/06/2015	Web based
4	Webinar on Research Coordination	13/10/2015	Web based
5	Webinar on Surveillance and Epidemiology of Influenza A (H7N9)	21/03/2016	Web based

The following subsections present a summary of each event.

1) Face-to-face Meetings

2.1. African swine fever (ASF)– Lessons learnt from Europe and policy challenges for Asia

Experts and policy makers from FAO, Europe, China and other countries in Asia discussed the main challenges and control strategies in Europe and the experiences that can be learned by Asian countries, especially China. From the meeting, the consortium recognized that the situation of African swine fever (ASF) has considerably worsened over the past several years throughout the world. Current global ASF virus circulation has led to the highest risk ever for the disease to enter Asia, particularly China, as China has very strong connections with ASF-infected countries. To control

the risk of ASF in the region, communications and research cooperation have to be strengthened and international efforts should be coordinated. The awareness on disease prevention, recognition and reporting of all stakeholders has to be further raised by dissemination actions and trainings. Periodic systematic risk assessments would be necessary to estimate hotspots, spreading trends and most likely pathway(s) of ASFV entry into the region. Further funding for technical assistance needs to be explored, to assess the status of ASF policy in the different countries in the region.

2.2. Veterinary Laboratory Systems and Policy

Experts from FAO, GARC and OIE introduced the current status of rabies control and the challenges to the world, especially to China. From the meeting, the consortium concluded that China is a large country and it has an existing system but with some duplication/triplications linked to the number of laboratories. Furthermore, Chinese labs have the instruments necessary but unfortunately they lack well trained staff. To improve, China needs to re-evaluate the laboratory system, standardize activities, and requires more management (using more European standards). To further progress, an international meeting in China that includes many Chinese officers could be helpful. The participation and agreement of government officials are crucial for any changes of the current system. The information sharing system is not real time in China, and it will be very important inside and outside of the country. Moreover, there are still obstacles in research mobility, i.e. the researchers and government officials are restricted to travel abroad for meetings.

2) Web based

2.3. Webinar on Rabies Prevention and Control Tools in Asia

Experience of rabies prevention and control tools in Asia were shared during the webinar and experts from EU and China had a discussion in the Q&A session, especially focusing on the vaccination for dogs, such as the recommended vaccination and the duration for the quarantine period of dogs moving in a trans-boundary manner. From the webinar, the consortium concluded that the training and international certification to Chinese veterinarians still needs to be promoted, especially the latest medical professional courses. Education to public on the disease and how to prevent dog bites is also important to the control of rabies.

2.4. Webinar on Research Coordination

The coordination and harmonization of the research agendas in the EU and China was discussed during the meeting. The role of international coordination through the existing international bodies of the UN (such as FAO, IAEA, and others), was specifically accented. Potential follow-up funding strategies for LinkTADs activities, such as ERA-NET (co-funding between the EU and China), or the specific calls focusing on China under H2020 were discussed and analyzed. There do exist some funding programmes in animal health between the EU and China, but the awareness of them among the researchers still has space to increase.

2.5. Webinar on Surveillance and Epidemiology of Influenza A (H7N9)

The FAO's Global Surveillance Coordinator introduced the current epidemiological knowledge of influenza A(H7N9) and the surveillance activities that have been designed and conducted. The Chinese participants also provided additional information on poultry value chains and the design of the national surveillance system in China. H7N9 is still the main disease in China, while the influenza viruses of the H5 subtype is spreading quickly in other regions because the local consumers prefer chickens of the yellow-feathered type, which are mainly implicated in H7N9 epidemiology and spread within China. Exclusive local demand for these birds and associated higher prices led to the fact that the virus has had less opportunity to spread beyond borders.

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03.

Results of the Survey

3. Results of the survey

3.1. Methodology

In order to further discuss the gaps and challenges in animal health policies and relevant collaborative research policies, a survey was carried out by the LinkTADs project team. This survey is aligned with Task 2.5, which was originally planned as 'web-based, involving a small group of key stakeholders from the EU and China to discuss existing policies in relation to animal health, zoonoses and food security'. However, the project team found it difficult to involve key policy makers from both the EU and China into a web meeting due to the importance/sensitivity of the topic, availability of good internet facilities, and time difference. As a compensation strategy, all partners decided to carry out a survey on coordination of collaboration on research and policy dialogues.

One of the key project outcomes will be the Roadmap for Strengthening EU-China Animal Health Research Cooperation, in which major findings on existing animal health policies and funding schemes in the EU and China will be discussed, and recommendations that facilitate future policy making for better collaboration will be proposed. Under this directive, the premise for conducting the interviews was based upon the following objectives:

- Increase the collaboration of EU-China research in regards to policy, research funding opportunities, and other resources;
- Identify the main animal health research policy topics (with examples) addressed when EU and China policy makers engage in bilateral dialogue;
- Identify common platforms where EU and Chinese policy makers create policy dialogue and areas for improvement in order to establish new programs; and
- Explore the opportunity for follow-up activities (a webinar/meeting/ events to be aligned with the final event) based upon answered received.

The questionnaires were developed through internal consultations between participants from FAO, RVC, and SPI. Two versions of the questionnaire were developed to address the two major fields/backgrounds to be covered: animal health research versus animal health policy. Questionnaires were also divided into four sections: communication channels, topics, barriers, and recommendations for coordination. A copy of the final questionnaire is available in the annex.

Nine interviewees were identified belonging to the following list of organisations (4 European and 4 Chinese), and guidance was sought from these organisations on whether other individuals would be available and appropriate to contact. The targeted interviewees came from national/regional level institutes/government/agencies, and have rich experience in coordinating international research/policy making in the field of animal health or animal health research.

It was decided that to ensure the timely completion of the surveys, interviews would be performed over Skype's VoIP service and recorded with MP3 Skype recorder. Interviewees were emailed to arrange a suitable time before calls were placed. EU interviews were conducted in English and ranged from 16:00-34:00 minutes. The calls were then transcribed, summarised, and returned to the interviewee in text form for final approval. Chinese participants were interviewed in Chinese through telephone, recorded upon interviewees' agreement, with responses summarised and translated into English after the interview. All interviewees were given the option to appear anonymous.

Table 2 List of interviewees

EU/China	Organization	Field
EU	EC – Research Executive Agency	Research
EU	EC – DG Research and Innovation	Research
EU	EC – DG Research and Innovation	Research
EU	Syntesa	Research
EU	STAR-IDAZ	Research
China	CAAS - SHVRI	Research
China	CAAS - DIC	Research
China	MoA - VB	Policy
China	Anonymous	Policy

3.2. Main results

3.2.1. Animal Health Research

Major programs/meetings for discussing animal health related policies

The first section on communication channels asked interviewees the following questions, with the answers summarized in table format below:

1. What are the most important channels (i.e. meetings, programmes, conferences, etc.) that are used to coordinate animal health research between the EU and China? How often do they occur? What are the actual means of communication (phone, webinars, face-to-face meetings, etc.)?

2. Do you find these dialogues useful and influential? Why?
3. Can you describe a successful story to illustrate such dialogue? You can also use examples of dialogues/programmes with other countries/regions.

Example Programme	Form of Communication	Frequency	Influential or Not, Why?	
Food, Agriculture, and Biotechnology (FAB) Taskforce	Video conference Face to face for higher level Email (less formal)	Every 2months	Yes	Issues are resolved beforehand by working first at higher level. Discuss issues with CAAS, who forward decisions made to all their institutes.When work done at the project level, already have a common understanding.
NA	Meetings	no specific example	Yes	Able to communicate clearly, Chinese colleagues follow through very well once things are clear and agreed upon. Can also meet with higher level individuals this way.
NA	Emails	NA	No	Can be tricky to use
NA	Phone	NA	No	Language barrier amplified
FAB Taskforce	Face to face workshops	Once yearly	Yes	transparent and open dialogue, well-structured and well-established
FAB Taskforce	Web workshops	Regular basis	Yes	NA
LinkTADs	Face to face	Once	Yes	NA
STAR-IDAZ	Face to face in Consortium and Regional Network meetings	1-2x per year	Face to face in Consortium and Regional Network meetings	Level of penetration could be improved by involving more of the research institutes in China (geographic)
STAR-IDAZ	Email	>monthly	NA	NA
PRRS and ESVV conference etc;	Face to face	Once per year	Yes	NA
STAR-IDAZ			Yes	Global program and TADs are global
LinkTADs			Yes	
Conferences	Face to face	20x yearly	Yes	Direct
Exchanges	Face to face	14x yearly	Yes	Direct
Projects	Face to face	Frequent	Yes	Lack of facilities
Projects	Telephone	5/year	Slightly	NA
Projects	Web-meeting	Rare	Slightly	NA

FAB Taskforce	Face to face	Annually since 2011	Yes	NA
FAB Taskforce	Online video conference	Only if face to face unavailable	Yes	NA
Delegation visiting	Face to face	1-2x yearly China to EU; 2-3x yearly EU to China	Yes	NA

Face-to-face was the most preferred form of communication by participants due to the possibility of having direct conversations and the ability to meet with higher ranking officials. Some individuals noted that language difficulties were amplified when talking over the phone, but both phone and email offer the abilities to communicate quickly and on an ad-hoc basis which is often not possible with in-person meetings. Both EU and Chinese researchers were quick to mention the Food, Agriculture, and Biotechnology Taskforce (FAB) as the programme which first comes to mind when working with each other on animal research.

Interviewees were also asked to provide specific examples of successful stories to illustrate how certain communication channels have favourably enhanced animal health research. These examples can be found below:

Research Executive Agency - European Commission

"When we do a call for proposals we look for independent experts, and some topics focus specifically on China, for example legume protein imports. In this case there would then be a Chinese expert required, but the process (of finding an expert) is difficult for us to perform every 2 months when we meet for the FAB Taskforce video conference. Therefore we requested CAAS find Chinese experts and now we have a large successful database of experts (to facilitate EC call), so our message was distributed well by them."

European Commission

"The International Research Consortium (IRC)which grew out of STAR-IDAZ (is an example of a success story). This is research funders, not researchers." https://ec.europa.eu/programmes/horizon2020/en/news/international-partners-launch-new-international-research-consortium-work-together-animal-health

Syntesa

"In one program we had there was a Chinese team that consisted of 2 individuals (a high ranking officer within the research community, and then an operational professor), who both contributed significantly to the success of the project, they looked at potential barriers to implementation of the program across various fields in China on our behalf."

DG Research and Innovation - European Commission

"Via the FAB Taskforce we have come to good terms with Chinese colleagues to identify areas of common interest in order to prepare research topics in H2020. The FAB Taskforce operates under the umbrella of the EU-China Agreement for Science and Technology Cooperation. A Joint Declaration on EU-China FAB cooperation was signed by four EU Commissioners and the President of the Chinese Academy of Agricultural Sciences in November 2013. The

FAB Task force is charged with the concrete definition of priorities agreed as an instrument for cooperation. It monitors the implementation of joint activities and prepares the ground for future cooperation. Joint priorities are identified through extensive consultation of European and Chinese stakeholders. Then, topics in Horizon 2020 work programme are jointly designed by the Task Force and implemented by the European Commission Research Executive Agency. Our Chinese counterparts, mainly the Chinese Academy of Agricultural Sciences (CAAS) and the Ministry of Science and Technology (MoST), have developed a funding mechanism to support successful Chinese partners that are selected out of the proposals presented to H2020. Still, the general principles governing funding for third countries for H2020 remain in place, meaning that projects are selected by the European Commission and that EU funding is directed to participants from the EU and Associated countries only, whereas Chinese participants will be funded by Chinese authorities. An important achievement is the agreement reached with MoST to establish a co-funding mechanism on their side to support the participation of Chinese entities into H2020 projects. We can say that the co-funding mechanism is very important result and part of the bilateral dialogue."

"I also have some experience, more project based than programme based, with Russia. Both international collaboration for research and innovation with Russia and China are going well. Even though they are different partners for research and innovation because of their geopolitical and epidemiological situations in the context of animal health, it is still interesting and positive to see that we have the capacity within Europe to liaise with other big geographical regions that pose opportunities and challenges for animal health. We don't have any particular flagship with Russia in research and innovation in the area."

Coordinator – STAR-IDAZ

"With China never taken it that far I would say, but for another example, when Bluetongue spread to North Europe, we scheduled a meeting to bring everyone together across different N Europe countries to identify research gaps."

Shanghai Veterinary Research Institute- CAAS

On the collaboration with a Japanese institute on veterinary parasitology research:

"A joint lab has been established in 2013, and each year there are over 10 times of exchanges between the two labs, and good joint publications were generated. The partnership was built due to several Chinese PhD students/young professionals had been studied in the Japanese lab and came back to SHVRI with collaborations/joint publications. The collaborations are successful because these two labs have similar research and technical level and have complementary advantages. Also they have good mechanisms to share their research results/outcomes."

Department of International Cooperation - CAAS

In 2011, EU-China taskforce on Food, Agriculture and Biotechnology (FAB) has been established among MoST, DG-RTD, DG-AGR and CAAS. Annual meetings were held either in EU or in China and frequent long-distance communication is taking place through Email/calls/video conferences. During EU-China taskforce meetings, a list of key areas for EU-China cooperation was drafted and was integrated into the new calls for H2020 program, including reducing AMU in animal production system. The taskforce is led by MoST and DG-RTD, while CAAS is providing technical support. When deciding new calls, CAAS will choose experts from its institutes who are currently/ were previously holding an EU-China (FP7/H2020) project. However, currently only 3 experts in the animal health area (presumably less than 1/10) has been involved in the experts committee."

Most interesting animal health research topics

The second section asked interviewees the following concerning animal health topics, the answers can be found in Table 3:

- What were the main animal health research topics that were addressed in EU-China dialogues during the last few years? Why were they considered as a priority?
- In your opinion, which specific animal health research topic(s) should be part of future bilateral cooperation? Why should they be considered as a priority?

Table 3List of Most Interesting Animal Health Research Topics

Topic	Why considered a priority?	Now/Future	Institute	EU/China
Biological contamination of crops with mycotoxins	Big issue in China, but also Europe Affects humans and animals	Now	EC - REA	EU
Legume imports	Both regions are net importers of legumes Nutritional obstacles can be overcome if gene databanks are shared, improving animal feed yield	Now	EC - REA	EU
Circular economy (organic waste to biogas plant for energy + bioplastics)	Sustainability from creation of products with multiple uses (ex: plants providing animal feed and bioplastics at same time)	Future	EC – DG R&I	EU
Vaccinology	Jointly chosen in workshops from 2013 onwards	Now	EC – DG R&I	EU
Animal feeding	Jointly chosen in workshops from 2013 onwards	Now	EC – DG R&I	EU
Antimicrobial resistance in high intensity livestock systems	This is a guess, but we partner closely with China to jointly choose topics, and this is important to their industry.Howeverits importance is not unique to EU-China AH research, but the entire globe	Future	EC – DG R&I	EU
Specific diseases (ex: avian influenza)	Capacity building as China switches to more intensive agriculture	Future	EC – DG R&I	EU
Sustainable production	Importance is not unique to EU-China AH research, but the entire globe	Future	EC – DG R&I	EU
Surveillance and risk assessment	Importance is not unique to EU-China AH research, but the entire globe	Future	EC – DG R&I	EU
Overuse of antibiotics	Result of intensification of agriculture	Now	Syntesa	EU
Monitoring technology	Early detection helps reduce need to eradicate a disease, which can be difficult As salaries in China increase there is a growth in automatic technologies As farms grow there is greater incentive to detect disease early	Future	Syntesa	EU
Animal welfare	Lots of knowledge in Europe and growing need in China with larger operations	Future	Syntesa	EU
Vaccine development	Alternative to antibiotics and of course to fight diseases (TADs)	Now	EC – DG R&I	EU
Animal feeding	Resilience for animal production and health	Now	EC – DG R&I	EU
Alternative production systems	Lower use of antibiotics, examine effect on animal health and welfare	Now	EC – DG R&I	EU

Zoonotic TADs	Capacity building as China switches to more intensive agriculture	Future	EC – DG R&I	EU
Diseases of pigs in general	High density systems growing in China	Now	STAR-IDAZ	EU
High fever disease, Porcine epidemic diarrhea, viral diseases of pigs in general	Situations, as elsewhere, always evolving	Now	STAR-IDAZ	EU
Avian influenza (poultry sciences)	Evolving disease situation in China and growth of high density systems	Future	STAR-IDAZ	EU
Vaccinology and immunology	Strong science base in China so in a position to collaborate as equals	Future	STAR-IDAZ	EU
Vaccine development	Still considered most powerful/commonly accepted tool for animal disease control	Now	DIC-CAAS	China
Other applied research on animal disease prevention and control techniques.	The role of CAAS studies: - 70% applied research - 30% fundamental research (aiming for generating new applied research)	Now	DIC-CAAS	China
Animal/plant disease control/prevention	NA	Now	DIC-CAAS	EU and China
Urban-Agriculture	NA	Now	DIC-CAAS	EU and China
Crop breeding	NA	Now	DIC-CAAS	EU and China
The management of water resources in agriculture	NA	Now	DIC-CAAS	EU and China

There were multiple unique topics mentioned which corresponded directly to the interviewees' individual areas of work, such as legume imports or monitoring technologies. However, topics related to antimicrobial resistance (AMR), such as vaccine development and the overuse of antibiotics, were mentioned a total of 7 times by both European and Chinese researchers from a variety of organisations. Interestingly, some interviewees mentioned AMR as a growing topic (future impact) while others considered it to be a topic currently being addressed.

Major barriers and/or issues

The third set of questions asked interviewees about possible barriers to collaboration:

- What do you consider as major barriers in terms of AH research coordination between the EU and China?
- Are there any current initiatives to try overcoming them? In your opinion, is there any other actions should be taken to overcome them?

The results of those questions are summarized in Table 4.

Table 4 List of Major Barriers/Issues

Major barriers/issues	How to improve	Institute	EU/China
Patenting (IPR more in general) policies and approach	FAB taskforce is perfect place to discuss this Using success stories, especially those of a bottom-up nature, to inspire future change	EC - REA	EU
Open access policies (Europe is not the forerunner, but China seems significantly behind Europe in adopting this method)	NA	EC - REA	EU
Sharing of information and data	Programs like IRC and STAR-IDAZ	EC – DG R&I	EU
Better mapping of who is responsible for what in China, especially since AH can involve such an array of topics spread across ministries	NA	EC – DG R&I	EU
Language	-Not specific to China Students should begin to learn some Chinese -Understanding that "need to know English" naturally causes some resentment	Syntesa; EC – DG R&I	EU

Major barriers/issues	How to improve	Institute	EU/China
	in those who are not fully comfortable with English -Younger generation are able to speak English better		
Culture	Younger people learn not only languages, but also are open to new cultures, so will be improved on its own to some degree	Syntesa	EU
Differences in perception of intellectual property and how to protect them	-We are open to discussion, but policy fields do not fall within our direct mandate in the Commission - Relies on confidence in each other and requires longer time of partnership before it will change -Programs like IRC and STAR-IDAZ	EC – DG R&I; STAR-IDAZ; EC – DG R&I	EU
Access to Chinese public procurements and grants	Ongoing discussions and one of the key targets	EC – DG R&I	EU
Having correct contacts		STAR-IDAZ	EU
Access to wider AH research community	EC and BBSRC (Biotechnology and Biological Sciences Research Council) have talked to CAAS about how to coordinate AH research moving forward	STAR-IDAZ	EU
Process for travelling abroad is complicated	This should be considered when designing the activities of the project	AH-CAAS	China
Mirroring funding from MoST is difficult to apply and costs a lot of time	-Maybe higher level of coordination with MoST -MoST is completing the funding mechanisms, it should be better in 2017	AH-CAAS; DIC-CAAS	China

There were a vast array of barriers offered by interviewees, including property rights, funding, and cultural challenges. The perception of property rights was the most commonly given answer by the EU side (3/5) followed by language barriers (2/5). Difficulty with mirroring funding from the Ministry of Science and Technology was mentioned by each of the Chinese participants (2/2).EU and Chinese interviewees were both hopeful that improvements could be found to the barriers, and indicated that several modifications to areas such as funding and access to the research community are already well under way. Some also pointed out that many barriers in place, such as language issues, are not specific to EU-China partnerships. Though there was a high degree of agreement that intellectual property rights are a major barrier, one interviewee noted that with time the EU and China will likely gain greater trust in each other, which should help to remedy difficulties in this area.

3.2.2. Animal Health Policy

Channels for AH policy coordination

Those interviewees working in policy were asked a similar set of questions which were modified to target their unique perspectives. Unfortunately there were no individuals representing the EU who agreed to an interview. The questions asked are displayed below, followed by the responses of the two Chinese interviewees in Table 5:

- What are the most important channels (i.e. meetings, programmes, conferences, etc.) that are used to discuss AH policy coordination between the EU and China, especially in terms of international cooperation?
- How often do they occur?
- What are the actual means of communication (phone, webinars, face-to-face meetings, etc.)?
- Do you find these dialogues useful and influential? Why?
- Can you describe a successful story to illustrate such dialogue? You can also use examples of dialogues/programmes with other countries/regions.

Table 5 Channels for AH Policy Coordination

Example Programme	Form of Communication	Frequency	Influential or Not, Why?	
NA	Face-to-face	50-60 times/year	Yes	Direct communication
NA	Online/telephone	unknown	Yes in certain situations	If urgent or not possibly to arrange face-to-face meetings, but presents increased language problems.
EU-China trade project (phase I and II)	Face-to-face	NA	Yes	NA
NA	Face-to-face	Frequent	Yes	Direct communication
Training	Face-to-face	Frequent	Yes	Direct communication
Exchanges (normally happen based on	Face-to-face	Less frequent	Yes	NA

Example Programme	Form of Communication	Frequency	Influential or Not, Why?	
communications during meeting/trainings)				
Online/telephone meetings	Online/telephone	Frequent	Yes in certain situations	If urgent or not possibly to arrange face-to-face meetings, but presents increased language problems.
Projects	Face-to-face	NA	Yes	NA

Face to face was again the most preferred method of communication (6/8 responses) while increased language difficulties was listed as the primary reason that online/telephone communication were less successful.

Interviewees were also asked to provide specific examples of successful stories to illustrate how certain communication channels have favourably enhanced animal health policy, which can be found below.

Anonymous

"China field veterinary epidemiology training program and relevant activities were funded by EU-China trade project. It brought professionals from EU institutes including RVC, CIRAD and FLI.

It has successfully trained over 100 trainees and has generated a group of local teachers. It has been well recognized by Chinese authority and receives funding support from government every year"

VB - MoA

"In regards to international animal product trade, after face-to-face communication and coordination, China sent delegations to France (for Newcastle disease and AI) and Ireland (for BSE) to carry out risk assessment for China to import relevant animal products from these countries. After assessment, Chinese government lifted its ban. It is extremely important that the communication and coordination took place so that the visit, risk assessment and following activities were initiated."

Most interesting animal health policy topics

The second section asked interviewees the following concerning animal health topics, the answers can be found in Table 6:

- What were the main animal health policy topics that were addressed in EU-China dialogues during the last few years? Why were they considered as a priority?
- In your opinion, which specific animal health policy topic(s) should be part of future bilateral dialogues? Why should they be considered as a priority?

Table 6 Most Interesting Animal Health Policy Topics

Topic	Reason	EU/China
International animal produce trade policy coordination regarding important infectious diseases, such as BSE and ASF.	NA	EU and China
AMR	Still at the stage of experience sharing and communication.	EU and China
AMR	Global one health issue with great impact.	China
International trade of animal product	The application of risk analysis. Value chains Policy making—EU has a more matured technology and standard system to ensure good practice in animal production and food safety. China would like to learn from EU experience and to identify the key control points for animal diseases.	China
Food safety	Hot topic in the future, closely related to trade.	China

Major barriers and/or issues for policy

The third set of questions asked interviewees about possible barriers to collaboration:

- What do you consider as major barriers in terms of AH policy coordination between EU and China?
- Are there any current initiatives to try overcoming them? In your opinion, is there any other actions should be taken to overcome them?

Table 7 Major Barriers/Issues for Policy

Major barriers/issues	How to improve	Institute	EU/China
Limited chance for going abroad.	Invite international experts to China	Anonymous	China
Channels for information about: 1) Updated EU policy (trade) 2) Opportunities for applying new project	Currently way of getting information is international conference and personal communication	Anonymous	EU
Funding	EU funding Mirroring funding from China (MoST)	Anonymous	EU China
Different financial systems in the EU and China	When designing new projects, the different financial systems in EU and China should be fully considered	Anonymous	EU and China

Major barriers/issues	How to improve	Institute	EU/China
Currently there is no EU-China project like the EU-China trade project to support further policy dialogue	VB has communicated with EU delegation in China for future opportunities; EU indicated that there are some new project opportunities, but VB is not sure about how to initiate and implement.	MoA - VB	China
Currently VB is having a problem with signing a fundamental document with EU countries: Inter-governmental agreement on animal health and quarantine'. It seems that China cannot sign it neither with EU nor with individual countries. Similar issues happen due to unclear collaborative mechanism with EU/EU countries.	Need to liaise with key persons in EU and individual countries who is clear about the relevant laws/regulations/rules.	MoA - VB	China and EU
The lack of official channels for China to receive updated EU policies, especially those new orders related to trade. For now the Chinese officials often receive information updated through international meetings/ personal communication, which is unstable.	EU provides official info channels to China.	MoA - VB	EU

3.2.3. Advice to LinkTADs

The final question asked both sets of individuals about what could be done to help improve the coordination process. The importance of face-to-face meetings was stressed by many of the Chinese participants. On the European side there was lots of interest to involve LinkTADs in future meetings and discussions, especially due to its unique position in directly combining the interests of the EU and China, rather than the global focus of many other projects. As the project draws to a close, it is hoped that LinkTADs' legacy may be its wealth of experiences to act as best practises in future EU-China negotiations and meetings, as well as any networks it can establish which may carry forward. Copies of the responses are shown below:

Research Executive Agency - European Commission

"I think using the idea of success stories in order to have a good example to serve for other aspects is best. Without thinking too much on how trying to solve things at theoretical level, practical examples can help open the door. Not sure of the best way to disseminate these stories. Perhaps use existing platforms you have on scientific research, as well as those of the EC."

European Commission

"Would be helpful to have LinkTADs involved in workshops, should feature into discussions, under the FAB Taskforce. Structurally to include LinkTADs in the FAB at taskforce is probably not appropriate, but certainly LinkTADs should feature into discussions when deciding topic ideas."

"STAR-IDAZ and IRC, this structure could also facilitate Chinese sharing of info on animal health research activities, but that is up to China of course. But might be useful for LinkTADs to be in contact with the IRC, there are probably aspects discussed within LinkTADs that are relevant on a global perspective and could be shared."

Syntesa

"One thing I've seen that seems good is to bring transparency to funding mechanisms, both sides feel confused (Chinese colleagues to Euro system, and I have no clue how to access Chinese funding as a European). Bringing clarity into different options, how to access, what requirements are there, how to go about it and what approach to take to access funding mechanisms would be really helpful"

"It is helpful to have exchanges: what they are doing in Brussels these days with European partners is that those who want research partners are encouraged to meet. Something similar with Chinese partners would be quite interesting. I realise to organise this by the end of year when LinkTADs is over is not possible, but even planting the seedlings to have the EU commission consider it would be helpful."

DG Research and Innovation - European Commission

"There is an opportunity for LinkTADs to provide hands on identification of priority areas for AH research in a sense that could serve as an independent and transparent platform or project in which the priorities can be discussed between the different experts."

"Instruments to use would naturally depend on the LinkTADs tools available after the end of EU funding this year. Even the possibility of having a network already established to use informally ad-hoc when needed to consult on priorities would be a useful mechanism to provide insights into which priorities should be thought of in the future. For our taskforce in particular, AH is just one of many components. With high level discussions, work priorities are going to be discussed at that level where AH is one of many components in the area addressed by the FAB. LinkTADs is important for having bilateral group collaboration pre-established that keeps knowledge and priorities in the domain of AH."

Coordinator – STAR-IDAZ

"Good thing about LinkTADs is that it focuses on linking China and Europe, whereas STAR-IDAZ links globally. It would be great if moving forward LinkTADs is party to any future discussions that STAR-IDAZ has involving China."

AH - CAAS

"Face to face communication is the best way for EU-China joint research coordination. Research institutes would like to further deepen the collaboration with EU research institutes and universities, and there is also interest to explore opportunities to collaborate with industries in various ways."

Anonymous

"As the most direct way of communication with less chance of misinterpreting, face to face communication is the best way for EU-China policy dialogue. EU is expected to have a better, regular communication tool to inform Chinese counterparts about the updates of its policy and new project opportunities."

VB

"Face to face communication is the best way for EU-China policy dialogue. VB is hoping for a future project as the previous EU-China trade project which continues provide platform for EU-China policy dialogue (prefer EU funding). VB also hopes that long-term training can be provided to technicians/experts/officials in governmental-owned institutes who provide technical support to decision-making. The topics mentioned including: exotic animal diseases, risk assessment, epidemiology and evidence based policy making."

LinkTADs

04.

Conclusions and recommendations

4. Conclusions and recommendations

Based on the comments and results from the policy dialogue meetings and surveys to stakeholders, the consortium has formulated suggestions on EU-China cooperation in trans-boundary animal diseases and zoonoses in the forthcoming years. There exists a strong will for LinkTADs to provide leadership in building a network that will exist past the end of 2016, and indeed, LinkTADs' Focal Point Network has identified and developed a user group of researchers and end users who will support the activities implemented in the EU and China, and regularly exchange information and knowledge in order to strengthen the coordination between ongoing activities. The Focal Point Network is an informal support network to assist Chinese and European scientists in the field of coordinated animal health and food security to share information and raise their awareness of cooperation opportunities. There are certainly areas which require improvement, and a concluded LinkTADs project will be insufficient on its own in managing future animal health partnerships between the EU and China. Although the interviewees represent only a small percentage of those involved in EU-China collaboration, both sides appear motivated to improve relations and look for solutions to current barriers.

4.1. Aspect of Policy

Though there are several examples provided by interviewees of successful bilateral cooperation programmes, there remains both room for improvement and a sufficient appetite to achieve further success. Sustainable policy dialogue can be better achieved through long-term training provided to technicians/experts/officials in government-owned institutes who provide technical support to decision-making. More transparent communication channels are also welcomed, and it was specifically indicated that Chinese counterparts would like clear and easy access to information about updates on policy changes and new project opportunities. More specific actions could include the establishment of new projects that can benefit both sides and that are more feasible in terms of project management (finance/ operation/reporting), involved industries (R&D, farms, manufacturers) and dedicate sufficient time towards better matching research institutes before projects begin.

Besides the training of professionals, policy related to public education is also important for the prevention and control of TADs such as bird flu and swine fever. It is suggested that the government assign greater attention to the public advocacy activities related to zoonosis and animal disease prevention and control. Public awareness and the changing of people's behaviour are extremely important to help mitigate the risks of introduction and the spreading of most TADs. The advocacy activity should be tailored to suit the interest and the knowledge level of each targeted social group while targeting high-level policy makers.

Informal communication through the internet (including email, web workshops, and online conferences) is considered as a good complimentary tool when it's difficult to have frequent face-to-face communications. Unfortunately language barriers multiply when using these tools. It is suggested to have the policies to ensure there are resources from both sides to strengthen the language and communication skills of the young professionals/governmental officials and expose them to multilingual and multicultural environments as much as possible through meetings, workshops, trainings, and exchange programmes.

Other barriers include disharmonized patent policy and relevant intellectual property management policies which currently hinder cooperation between the EU and China. This is mainly due to the intellectual property management policies and a system in China that is still under development and therefore falls behind that found in EU counterparts. It is recommended that relevant policies should be reviewed for the mirroring funding mechanisms, simplified application procedures and the transparency of relevant information. This may be facilitated by establishing an official online platform/channel where the researchers from the EU and China get easy access to updated information about policies, funding opportunities, and research partnerships.

4.2. Aspect of research

There is an undeniable attraction linking China's large agricultural sector to European expertise in agricultural technologies, and many successful examples of both public and private partnerships exist. There are unfortunately aspects limiting the amount cooperation currently occurring in the field of animal health between the EU and China. EC has already designed projects supporting the research cooperation with China in Horizon 2020, but so far from the China side there is only the Co-Funding Mechanism from MoST to support the Chinese participants to those projects, which is quite limited in budget and supporting range. To further promote and strengthen EU-China research cooperation, it is recommended for the EC to negotiate with other funding organizations (NSFC, CAS, CAAS, etc.) to broaden the funding channels in China for H2020 projects, as well as other future EU-China projects.

Researchers from both sides would like to see transparency brought to funding mechanisms in respect to requirements needed and approaches to take when access to funds is located. LinkTADs does provide a "Find Funding" tool to help in this regard, listing funding available based on grant type, activity, or country of work. There are also other EU initiatives that provide relevant information services to general researchers in the EU, such as Dragon-Star Plus, which collects and publish co-funding programmes between China and EU/Member States monthly. European researchers are eager to have partnerships created through LinkTADs carry on into future collaborations after the end of the project. There is consensus that more trust is required between the two region's institutions and governments, and successful stories of previous programs and partnerships are one of the best ways from which to achieve these results.

From the Chinese side, the European private sector is another field which may lead to benefits for the two regions, providing another source of funding which may compliment the government sector. The future of animal health research looks to be centred more around the discussion of AMR and its related fields, combined with the changing landscape of China's economy, and with it the possibility to further mirror funding and the identification of EU partner and design projects that can complement their respective advantages. Therefore, relevant animal health research strategies should enable intensive and in-depth communication to find suitable matches between the EU and China (such as the FAB Taskforce), that can be provide a platform for long-term and regular discussion to design the framework of future collaborative projects.

4.3. Summary of Recommendations

Though it has become common practise for researchers and policy makers to try and accomplish their work within the confines of existing rules, there is a definite need to work to improve the restrictions currently limiting the success of EU-China partnership. It is hoped that these recommendations can be used as a tool to push for change in the future while those individuals currently engaged in EU-China partnership strive to find successes under the restrictions of today's procedures. A variety of laboratory related proposals have already been put forth under the WP4 Workshop in Vienna, Austria in October 2015. There, it was noted that to improve China needs to re-evaluate the laboratory system, standardize activities, and requires more management (using more European standards) to help avoid duplications/triplications in laboratories and hire better trained staff. To further progress, an international meeting in China that includes many Chinese officers would be helpful. It was further recommended that China can learn more from other countries/OIE and FAO reference centres, as well as from other laboratory networks because at the moment, information sharing system is not real time, and this sharing will be very important inside and outside of the country. Other suggestions included the easing of travel restrictions for government scientists in order to increase their willingness to participate in international collaborations, as well as improvements to access of web-based tools, websites, and questionnaires amongst Chinese researchers who are often limited in the level of participation they can offer while in the country.

The recommendations from this study are sorted below into those aimed at either or both of the research and policy fields.

Both Research and Policy:

- Though obviously not always practical, in-person meetings are still the most preferred form of interaction for both European and Chinese researchers and should be prioritised where possible;
- Numerous successful exchanges have occurred between the two regions over the past several years, going a long way in building trust between both organisations and governments. These exchanges should be encouraged, as though they may not result in direct success, the building of trust can limit many other barriers currently hampering overall success between the regions.

Research

- There is a need for more transparency on the funding mechanisms and processes for China and greater synchronization between the EU and China related to funding programmes to ensure there will be no delay with the start of the project because funds in China have not been released;
- There is a need to have Chinese funds guaranteed from the beginning (with a clear budgetary value) to improve the security of programme fulfilment;
- More funding channels in China to be explored to support the EU-China cooperation in Horizon 2020 projects;
- Clear lists of research priorities should be formulated for each region;

- Those on the European side are sometimes frustrated by the inability to work directly with Chinese partners at the decision making level, and therefore higher level officials should be made available or clearer transparency provided on how to advance requests;
- Significance of language barriers appears to be lessening in future generations but their impact on applications for funding and joint proposals should not be ignored
- The primary barrier to collaboration is how to manage regional differences related to intellectual property rights, thus more work should be directly focussed on harmonising this aspect of research between the two regions.

Policy

- Similar to EU research concerns, Chinese policy makers find it difficult to liaise with key persons in EU region, thus a clearer path for communication with those necessary should be provided;
- An improvement on the EU side is required to provide an official information channel for Chinese policy makers to receive updates on EU policy changes without having to participate in international meetings or engaging in personal communication.
- Create other funding sources in China for animal health research, as currently having all efforts channelled through MoST is very inefficient. A good example would be the British Council, which works with many different partners in China, not only MoST.
- It is recommended to engage with industry colleagues, for example by involving them as full partners in a project.

The STAR-IDAZ IRC has also formulated its own related set recommendations associated directly with streamlining access to relevant information, harmonising data and samples, and improving coordination of research activities on priority topics. These recommendations are aimed at stimulating and coordinating basic and applied research by promoting links between existing resources, and encouraging translational, strategic and applied research. Furthermore, it is essential to strengthen the links between academia and industry, so that industry better capitalizes on strong academic research results to translate these into new diagnostic tools, vaccines, therapeutic and disease control strategies. It will enable the development of a durable coordinated research effort on the major infectious diseases (including production-related diseases and zoonoses) of animals (including aquatic animals) by involving existing and future key players through. Their recommendations include the following:

• Greater sharing of information between (trans)national programmes.

• Development of links between ongoing research programmes on priority diseases, with sharing of information and resources and creation of critical mass.

• Better coordination of existing national programmes across the partner organisations.

• Development of a common agenda based on identified, shared priorities.

• Building animal health research capacity by addressing identified gaps in research capacity to ensure adequate provision globally.

LinkTADs

05.

Annexes

A. Annex

A.1. Questionnaire

ANIMAL HEALTH RESEARCH COORDINATION

COMMUNICATION CHANNELS

- What are the most important channels (i.e. meetings, programmes, conferences, etc.) that are used to coordinate animal health research between the EU and China? How often do they occur? What are the actual means of communication (phone, webinars, face-to-face meetings, etc.)?
- Do you find these dialogues useful and influential? Why?
- Can you describe a successful story to illustrate such dialogue? You can also use examples of dialogues/programmes with other countries/regions.

TOPICS

- What were the main animal health research topics that were addressed in EU-China dialogues during the last few years? Why were they considered as a priority?
- In your opinion, which specific animal health research topic(s) should be part of future bilateral cooperation? Why should they be considered as a priority?

BARRIERS

- What do you consider as major barriers in terms of AH research coordination between EU and China?
- Are there any current initiatives to try overcoming them? In your opinion, is there any other actions should be taken to overcome them?

LINKTADS

- What could be done to assist in this coordination process? [*for the interviewer to keep in mind, this could be meetings, webinars, conferences, surveys (with who? when? etc.)*]

ANIMAL HEALTH POLICY COORDINATION

COMMUNICATION CHANNELS

- What are the most important channels (i.e. meetings, programmes, conferences, etc.) that are used to discuss AH policy coordination between the EU and China, especially in terms of international cooperation?
- How often do they occur?
- What are the actual means of communication (phone, webinars, face-to-face meetings, etc.)?
- Do you find these dialogues useful and influential? Why?
- Can you describe a successful story to illustrate such dialogue? You can also use examples of dialogues/programmes with other countries/regions.

TOPICS

- What were the main animal health policy topics that were addressed in EU-China dialogues during the last few years? [the interviewee needs give quite specific answers, not only "the dairy sector"] Why were they considered as a priority?
- In your opinion, which specific animal health policy topic(s) should be part of future bilateral dialogues? Why should they be considered as a priority?

BARRIERS

- What do you consider as major barriers in terms of AH policy coordination between EU and China?
- Are there any current initiatives to try overcoming them? In your opinion, is there any other actions should be taken to overcome them?

LINKTADS

- What could be done to assist in this coordination process? [*for the interviewer to keep in mind, this could be meetings, webinars, conferences, surveys (with who? when? etc.)*]