

UK-China Cooperation in Agricultural Research and Innovation Workshop: Review and Prospect

(9:30 -12:30, 28 November 2022, MS Teams)

Summary of Report

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In the context of the global challenges of climate change, food security and carbon neutrality, British/Chinese cooperation in agricultural research and innovation to facilitate a transition to sustainable production is becoming increasingly important. An online workshop was held on 28 November 2022 with funding support from the Foreign, Commonwealth & Development Office (FCDO) via the British Embassy Beijing. It aimed to: provide an overview of previous achievements and challenges of bilateral cooperation; identify good practices, mechanisms and priority areas for future cooperation and develop collective voices and recommendations to both UKRI and its Chinese counterparts.

The event was jointly organised by University of Nottingham, The James Hutton Institute, the N8 AgriFood Group and the Consortium of Future Rural Studies (CFRS) with 30 attendees from 21 research institutes, universities, agribusiness companies, UKRI and the British Embassy Beijing; (see list of attendees in Annex 1). The workshop started from three keynote speeches, to provide the big picture about achievements, challenges and opportunities of bilateral cooperation. This was followed by two rounds of small group parallel discussion allowing all attendees to share their experiences, opinions and suggestions. The event ended with collective voices, consents and recommendations for joint action (see programme in Annex 2).

This report summarises the key messages, collective voices and consents from the event through five parts: 1) importance of bilateral cooperation in the new era; 2) achievements and good practices from the past; 3) challenges and barriers to cooperation with lessons to be learnt; 4) priorities and new mechanisms for future cooperation; 5) follow-up actions.

I. Importance of bilateral cooperation in the new era

Taking into account global challenges, post-Covid recovery and the changing political atmosphere, all attendees expressed their high recognition and strong demand of the need to maintain and enhance UK-China cooperation in agricultural research and innovation from various perspectives.

- By questioning “why is bilateral cooperation important for both sides?”, Professor Steven Banwart, Dean for Global Development and Director of Global Food and Environment Institute at Leeds University, emphasised the importance for China to develop a knowledge equality network across the global north and south to tackle three linked global challenges: food security, environmental sustainability, and dietary health. For bilateral cooperation, supply chains management and food safety standards need upgrading.
- Focusing on the interconnection between food and environment security, Dr Jonathan Snape, Head of James Hutton Limited, explained the importance of China in “global challenges and global solutions” based upon his observation and experience of business engagement in China’s potato sector, the largest country in potato production in the world.

He explained the need, value and potential of bilateral cooperation to cope with challenges and opportunities in this sector relating to low yields (less than a half per ha compared with the European and North American average) and the importance of countering soil and water pollution in China. Stakeholder engagement is key to deep bilateral research with collaboration allowing better understanding of complexity, and helping to develop constructive solutions.

- Noting the fact that near a half of the world's smallholder farmers live in China, Dr. Bin Wu, Founder and Acting Director of the Consortium of Future Rural Studies (CFRS), the PI of this project, based in the University of Nottingham highlighted the potential power of triangular cooperation between UK, China and other developing countries to form a global-local knowledge system to understand local challenges and good practices in the global south. He used two completed projects as examples to illustrate the roles of the social sciences in facilitating bilateral, interdisciplinary and stakeholder engaged research collaboration.
- Similarly, Professor Feng Zhang, The Regional Director of East and South-East Asia at CABI shared his experience of bilateral cooperation over the past two decades to illustrate the value and increasing impact of bilateral cooperation when contributing to sustainable agricultural and rural development in both Southeast Asia and Africa.

II. Achievement and good practices in the past

This event offered a good opportunity for attendees from different sectors (research institutes, universities, agribusiness companies, etc) and background (e.g. natural and social sciences, researchers and managers) to share their views and experiences around achievements and good practices in collaborative bilateral projects. The breakout sessions with relatively low numbers in each group allowed all attendees to express their views and thus aided the development of a collective voice and consent around future cooperation both internally (within UK research institutions and universities) and externally (with Chinese counterparts and beyond). A number of key consents could be drawn as follows:

- 1) *Development of mutual trust for long term cooperation.* It was recognised that the most important achievement from previous bilateral cooperation is, perhaps, the mutual trust built between British and Chinese academia. These relationships, which have been accumulated over a long period (10 years or longer), provide a sound foundation for successful project design and delivery, which will be continuous in terms of research collaboration and academic outcomes although hampered without further funding support.
- 2) *Bottom-up perspectives through bilateral exchange and training of young talent.* For long term fruitful cooperation, many attendees (e.g. N8 Group, JIC) shared their successful stories about bottom-up process of bilateral cooperation through joint workshops with Chinese counterparts and collaboration with research visits and/or formalised training for early career researchers (ECRs) including PhD students. Examples include the development and progression of the NERC-NSFC Newton Critical-Zone programme and the development of the CAS-JIC Centre of Excellence for Plant and Microbial Science (CEPAMS).
- 3) *Company participation linking local communities with external markets.* The participation of agribusiness companies, both British and Chinese, plays an important role in mediating between academic researchers farmers and external markets facilitating innovation. For example, attendees highly appreciated a case presented by Allied Peak Ltd (who specialise in cow breeding and husbandry) who have successfully established two research and demonstration bases in two provinces of North China providing vocational training and technological support to local farmers. Such bases, according to Mr Charles Crofton-Atkins, Managing Director of Allied Peak Ltd, provide opportunity for bilateral researchers to design integrated research projects to understand “the modernisation of farming systems and rural economic development linked to inform policy makers and funding partners of impact.”
- 4) *Integration of agricultural research and education for bilateral cooperation.* Perhaps the best example here was an impressive case where the Royal Agricultural University (RAU) successfully designed and delivered a number of joint curricula/degree courses with

Chinese universities, and then went on to develop joint research projects and local experimental bases allowing long term cooperation. Such cooperation, according to a RAU alumna, is mutual beneficial to both sides because “it’s important China advances and shows global sustainability leadership.”

- 5) *Approach and pathway of social science participation for bilateral cooperation.* It is clear that the participation of social sciences should become a key element of bilateral cooperation in order to better understand and access rural communities. This will identify local challenges, needs, resources and intrinsic dynamics facilitating interfaces with external interventions both governmental agencies and non-government entities (e.g. research institutes and industrial companies). In this regard, Dr Bin Wu, PI of this project shared his systematic innovation approach noting successful application to two bilateral project design and implementation projects: supporting cooperatives to empower small farmers in China (GCRF) and systematic innovation for food security and rural sustainability in China (Newton ECR Link).

III. Challenges and barriers against bilateral cooperation to be addressed

The event identified a number of key challenges or barriers to be addressed for future cooperation:

- 1) *Alternative mechanisms for bilateral funding support.* While the completed Newton Fund has made great contribution to bilateral cooperation, there was concern about what alternative mechanisms will be available in the near future to maintain the momentum of bilateral cooperation. In addition to issues around the Covid pandemic and political factors, there was significant concern that without relatively rapid provision of funding there will be a negative impact on the interaction between many institutions both academic and business related. In particular it was felt that this would affect younger researchers restricting their research and career development. The clarification of a roadmap for bilateral funding mechanisms is needed urgently.
- 2) *Money transfer across the border.* Many attendees experienced that bilateral research projects were hampered by difficulties relating to movement of research funding across national borders despite signed agreement. There is no doubt that removing such constrictions would significantly enhance bilateral cooperation.
- 3) *Cross-border sharing of research data and information.* Another barrier for bilateral cooperation was observed to be the sharing or transfer of research data (such as bio-samples or data) or third-party data (e.g. geographic information) for joint analysis. Currently this appears to be a “grey area” with variety in approach and uncertainty experienced amongst participants.
- 4) *Imbalance in talent exchange.* Compared with strong demand from Chinese researchers and students for research and training experience in the UK, it appears that British ECRs lack interest to conduct empirical research and training in China. This represents an important constraint for bilateral cooperation. A joint effort is needed from both sides to encourage and invite more British young scholars to visit and conduct research in China
- 5) *Segregation between research, industry and education.* Bilateral cooperation in agricultural research and innovation could be enhanced and amplified if the segregation of three sectors (research, trade and higher education) was reduced especially this would be beneficial to both countries. The necessity of cross-sector cooperation was illustrated by a quote from an attendee: “there is a lot of talk about research but what about education and action? There’s a limit to what can be accomplished with a research paper. Research should inform decision making with academics also training the next generation”.
- 6) *Participation of multiple stakeholders to enhance social impact.* In connection with above issue, lacking of multiple stakeholders’ participation in bilateral project design and delivery is an important factor responsible for many bilateral projects with little social impact except publications. So it calls for a balance between publications and beneficials of multiple stakeholders especially small farmers and rural communities in the future.

IV Priority areas and recommendations of new mechanisms for future cooperation

A number of priority areas for future cooperation were recommended from the group discussion:

- Climate change and pathways to zero carbon
- Food safety standards, cropping for nutrition and community health
- Agri-food system transition and modernisation with lower environmental impact
- Interface with national priorities in 14-5 strategic plans or rural revitalisation strategies.

Based upon the sharing of challenges and good practices, a number of policy recommendations emerged from attendees to aid development of new mechanisms or funding programmes as follows:

- 1) New mechanisms or integrated commercial programmes for bilateral cooperation across UKRI, InnovateUK, DIT, DEFRA and FCDO to bring together resources and opportunities to maximise benefits and impacts to not only China and the UK across all aspects (e.g. S&T, economy, society, environment), but also SDGs in the global south;
- 2) Programmes for the participation of social scientists and multiple stakeholders, especially companies, to address local challenges and good practice relating to smallholder farmers in poorer areas of China.
- 3) More funding opportunities for British scholars and ECRs, including research students, to visit and conduct empirical studies in China to better understand the complexity, challenges, good practices and pathways of bilateral cooperation and social impact;
- 4) New funding programme to match or interface with the Chinese Scholarship Council (CSC) overseas scholarship programme for joint research and training of Chinese visiting scholars and PhD students in the UK.
- 5) Support new consortia to bring together natural and social scientists with industrial participants via regular workshops or webinars to share good practices and facilitate communication and cooperation, internally (among British institutions) and externally (with Chinese partners) for bilateral cooperation.

V What are next?

- 1) The group will promote participation in an questionnaire surveys [online](#) or offline (survey deadline **16 December 2022**). For those who prefer to fill questionnaire on paper, a word version (**attached document**) is available to be returned to stxyz53@nottingham.ac.uk. Wide dissemination of the questionnaire is appreciated.
- 2) Depending upon the responses from the attendees of this workshop and key stakeholders (UKRI, institutes and companies), a 2nd online workshop may be organised in January or February 2023 for the purposes of: collecting comments on an joint research report drafted by the Chinese Academy of Agricultural Sciences and the University of Nottingham; continuing the discussion of a pathway to establish a platform allowing virtual networking for regular communication (webinar series) and an action plan among UK research institutions, industrial stakeholders and other interested parties for bilateral cooperation.
- 3) Should you be interested to attend the 2nd workshop, please send an expression of interest (EoI) to Ning Zhang (aqxnz1@exmail.nottingham.ac.uk) with a copy to Dr Bin Wu (bin.wu@nottingham.ac.uk) by **22 December 2022**. Your message should contain, but not be limited to, following points:
 - Background information of yourself and institute
 - Motivation and interests to join the 2nd workshop
 - What questions, resources or opportunities do you want to address or share?

Annex 1: List of attendees

Prefix	Name	Affiliation	Job Title
Representatives of key stakeholders and event organisers			
Prof.	Steven BANWART	University of Leeds	Dean of Global Development
Prof.	Lesley TORRANCE	hutton.ac.uk	Director of Science
Prof.	Andrew SALTER	University of Nottingham	Director of Future Food Beacon
Ms.	Min ROSE	UoN Ningbo China	Director of Knowledge exchange
Dr.	Simon KERLEY	NERC, UKRI	Head of Terrestrial Ecosystems
Ms.	Jingjing JIANG	British Embassy Beijing	Coordinator of project
Prof.	Tim DANIELL	University of Sheffield	N8 Agrifood chair in soil microbiology
Dr.	Jonathan SNAPE	James Hutton Ltd	CEO of James Hutton Ltd
Dr.	Peter NOY	University of Nottingham	Ass director of FFB
Dr.	Bin WU	University of Nottingham	Senior research fellow
Mr.	Ning ZHANG	University of Nottingham	PhD Candidate
Other Attendees			
Prof.	Ari SADANADOM	Durham University	Professor in Dep. of Biosciences
Prof.	Xianmin CHANG	Royal Agric University	Associate Pro-Vice-Chancellor
Prof.	Xiangming XU	NIAB	Director of Research
Prof.	Lynn FREWER	Newcastle University	Professor, Food and Society
Prof.	Caroline DEAN	John Innes Centre	Group leader
Prof.	Liz BAGGS	University of Edinburgh	Chair of Food and Env. Security
Dr.	Feng ZHANG	CABI	Director, East & Southeast Asia
Mr.	Charles Crofton-Atkins	Allied Peak Ltd	Managing Director
Dr.	Yiliang DING	JOHN INNES CENTRE	Group leader
Dr.	Roy NEILSON	James Hutton Institute	Group Leader - Plant Soil Interactions
Dr.	Masoud SHIRALI	AFBI	Head of Genetics
Dr.	Ketao ZHANG	Queen Mary University	Lecturer in Robotics
Dr.	Kin Wing CHAN	University of Exeter	Welcome Research Fellow
Dr.	Chengyuan LIU	Loughborough University	Lecturer in safety-critical control
Prof.	Zulin ZHANG	James Hutton Institute	Senior Research Scientist
Dr.	Mo TIAN	University of Nottingham	Assistant Professor
Dr.	Baojiang GENG	University of Nottingham	Visiting scholars of SAU
Ms.	Jing ZHANG	Lancaster University	Researcher
Miss	Zhangling CHEN	University of Leeds	PhD student

Annex 2: Workshop programme

Session I: Keynote speeches

- Why is bilateral cooperation important for both sides? Prof Steve Banwart, University of Leeds
- How to make successful bilateral collaborations? Dr. Jonathan Snape, James Hutton Limited
- Systematic innovation approach for agricultural bilateral cooperation, Dr. Bin Wu, UoN

Session II: Share experiences and lessons for past

- Self-introduction and project experience
- What are good practices or mechanisms to be shared?
- What challenges arose in those projects or what lessons can be learnt?

Session III: Priorities and mechanisms in future

- What priority areas do you recommend and why?
- What mechanisms recommend to the funders?
- What can we do to enhance institutional partnership?

Session V Wrap-up and conclusion

- What most important achievements or points do you want to highlight?
- What are key messages which can pass to UKRI, FCDO & other funders?
- What are your suggestions to enhance cooperation internally and externally?

Annex 3: Online questionnaire Surveys (QR code and weblink)

https://forms.office.com/Pages/ResponsePage.aspx?id=7qe9Z4D970GskTWEGCkKHpZu_7Lyq3xKu3b7bCvNGIZUOTBYWFMUzJaWUFEQVVMTEg0REFKWkNGTC4u



Annex 4: Relevant resources

Centre for Effective Innovation in Agriculture: <https://www.ceiagri.org/>

Consortium of Future Rural Studies (CFRS): <https://www.nottingham.ac.uk/business/who-we-are/centres-and-institutes/hqi/research/cfrs/index.aspx>

A blog for an International Forum of Future Rural Studies (IFFRS): *Building global-local knowledge community for development practices in the global south:*

<https://blogs.nottingham.ac.uk/ingenuitylab/2022/11/02/building-a-global-local-knowledge-community-for-development-practices-in-the-global-south/>

Research report: *Systematic Innovation Approach for Future Rural Studies in the Global South: A Research Report on Building a Platform for UK-China ECR Collaboration,*

<https://www.nottingham.ac.uk/business/who-we-are/centres-and-institutes/hqi/documents/frs-research-report.pdf>



