

MIDST CZO uses critical zone science to improve decision making on land and water use in a broad range of regions in China through the development and deployment of decision support tools aligned to the needs of farmers, advisors and policy-makers.

April China Visit – Brief Summary

Who we visited: (Government)

PLACE	STAKEHOLDER/CHINESE PARTNER
Guangzhou	Guangdong Institute of Eco-Environmental Science and Technology Guangdong Agricultural Environmental Protection and Rural Energy Station Guangdong Fertiliser Office for Farming Land Representative of fertiliser company
Yingtian	Red Soil Ecological Research Station of CAS Yujiang Association for Science & Technology Yujiang Institute of Agricultural Science Representatives of large farming household
Nanjing	CAS Institute of Soil Science JAAS Institute of Agricultural Resources and Environment JAAS Office of International Collaboration Farm Land Quality and Agricultural Environment Station, Jiangsu Province
Beijing	Chinese Academy of Agricultural Sciences (CAAS); UKRI National Engineering Research Center for Information Technology in Agriculture National Agro-tech Promotion Center, MOA

What we learned about DSTs:

Many **existing agricultural DSTs** are available in the form of phone apps, WeChat public accounts and chatting groups. Touch screens are available in some villages to provide fertilisation guidance. These DSTs are mainly developed for precision agriculture or formulated fertilisers, focussing on fertiliser efficiency, rotation practice, or organic fertiliser usage to increase crop production.

Current gaps for these DSTs are:

- they have not incorporated environmental impacts (but will be soon);
- there is a missing link between soil and water.
- no data from deep layers are used.

Both b) and c) are where our CZO findings can contribute.

What we learned about stakeholders:

The **government aim** is to achieve zero-growth in mineral fertiliser usage by 2020 while also aiming at negative growth in the coming years. Most are interested in CZO data in deep soil and water, non-point pollution, heavy metal risk and GHG. For both individual and large **farming households**, profit still comes as their priority. Improving crop quality has become one of their key considerations, due to the greater awareness from the public for better crops. As a result, there is increasing need to reduce agricultural environment pollution, particularly from heavy metals, to increase soil and water quality. Note that this awareness of environment protection comes mainly from the large farming households. In addition, farmers are lacking in an agreed method for proper organic fertiliser application. Many **fertiliser companies** are keen to collaborate with scientists and government for fertiliser-related agricultural management. These companies are interested in effective fertiliser application (e.g. what fertilisers for what crops/plants and when to apply).

Dates for your diary:

Post Doc meeting with Ian Bateman. 24th May – Exeter.

Stakeholder meeting Nanjing and Guangzhou Late Autumn 2019

Short Updates

- Loess Plateau Survey – successfully completed end of March 2019
- UK Kick off Meeting – UK team met on 2nd May, the meeting report to be circulated shortly.
- China and UK teams conference call in June.

Next Steps:

Post doc meeting with Ian Bateman - Focus will be on farm level income vs. ecosystem service valuation as informed by yield/fertiliser based DSTs and environmental DSTs.