UK-China Sustainable Agriculture Innovation Network (SAIN)

Update

January - March 2011

Work in Progress

CWR China held second training workshop in Beijing

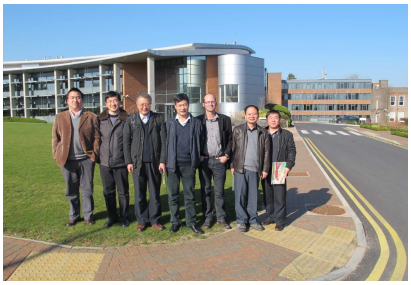
The CWR China second training workshop was convened at the Institute of Botany, Chinese Academy of Sciences (IBCAS), Beijing from 11–13 January 2011. The workshop was co-organised by the University of Birmingham (UOB), IBCAS and the China Agricultural University (CAU), hosted by IBCAS and facilitated by staff of UOB. Seventeen participants from seven organisations attended the workshop: IBCAS; Institute of Crop Science, Chinese Academy of Agricultural Sciences (CAAS); Zhengzhou Fruit Research Institute, CAAS; College of Agronomy and Biotechnology, CAU; School of Life Science, Fudan University; College of Horticulture and Landscape Architecture, Southwest University; and Wuhan Botanical Garden, Chinese Academy of Sciences. Training was provided in CWR conservation strategy planning, tax on prioritisation, ecogeographic data collation and analysis, *in situ* and *ex situ* gap analysis and complementary analysis, including the use of GIS tools (ArcGIS and DIVA GIS). Part of the workshop was dedicated to developing the methodology for prioritisation of the crop wild relative (CWR) inventory of China, as well as agreeing on the way forward for the production of the crop case study conservation strategies. As well as presentations delivered by the workshop facilitators, some of the workshop participants gave presentations about their work in the field of conservation strategy planning in China. The training provided will not only support continued work on the CWR China case studies but has contributed to capacity building within SAIN.

SAIN project findings presented at Royal Society conference

Professor David Powlson of SAIN Working Group 1 was invited to speak at Royal Society meeting, "Reducing greenhouse gas emissions from agriculture: meeting the challenges of food security and climate change", held on 28th February - 1st March 2011 in London. The title of Prof Powlson's speech was "Greenhouse gas emissions associated with nitrogen fertiliser - lessons from a situation of nitrogen excess in China". The abstract of the speech is as follows:

China produces and uses over 30% of the world's nitrogen (N) fertiliser and emits at least 30% of global nitrous oxide (N_2O). There is clear evidence that the country has "overshot" the quantity of fertiliser N required to maximise crop production and that rates applied to major grain crops could be decreased by at least 30% with no yield penalty. Greater reductions are possible for horticultural crops. N fertiliser carries a significant greenhouse gas (GHG) cost - in part from carbon dioxide (CO_2) emissions from fertiliser manufacture and in part from N_2O emissions, both direct and indirect, when applied to soil. Total emissions (manufacturing, transport, direct and indirect losses from soil) are estimated at about 12t CO_2 - equivalent per t N. A conservative estimate is that annual agricultural GHG emissions in China are in the range 1200 - 1400 Mt CO_2 equivalent, representing about 20% of total emissions from all sectors. N fertiliser is estimated to account for at least 32% of agricultural

emissions. Reducing N use by 30% would deliver a GHG emissions reduction equivalent to at least 2% of China's total emissions from all sources, in addition to numerous other benefits. To achieve this, more effective methods of delivering information to farmers are essential as are policy changes to remove incentives for the over-production and over-application of N fertiliser.



Chinese members of MUC project visited the UK

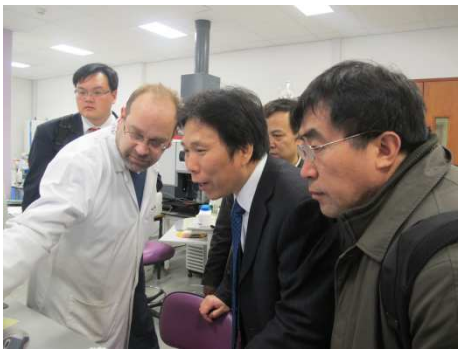
Six Chinese collaborators from the SAIN MUC project team visited the UK between the 6th and 12th March 2011. The objectives of the visit were to:

- review progress with the SAIN MUC project
- describe and demonstrate typical manure management practices and advice in the UK
- introduce current research on manure management issues in the UK
- describe current legislation affecting manure management

During their stay, the members visited soil archive and long-term experimental plots at Rothamsted Research; composting plant at Wolverhampton; a mixed livestock farm with traditional manure management practices and a large dairy farm with slurry separator and lagoon in southwest England, and manure related R&D facilities in RRes-North Wyke. Dr David Chadwick, the UK project coordinator, hosted the visit.

Workshop on "Measures to Mitigate Non-point Source Water Pollution in China" Held in UEA, Norwich

The Chinese project team, led by Prof Gao Shangbin, joined UK team led by Dr Laurence Smith of SOAS held project workshop on "Measures to Mitigate Non-point Source Water Pollution in China" on 18th March in University of East Anglia (UEA).



This workshop is part of a scoping study on "*Developing a catchment management template to mitigate non-point source pollution in China*", funded by UK Department of Environment, Food and Rural Affairs (Defra) and Chinese Ministry of Agriculture. The purpose of the study is to provide guidance on how to implement appropriate land use and land and water management to mitigate non-point source pollution in China. The guidance aims to integrate process, governance and science, enabling an assessment of necessary data and analytical tools to develop a plan, together with supporting stakeholder engagement, education programmes, economic incentives, regulatory instruments and governance arrangements.

Before the workshop, Chinese members visited the School of Environmental Studies at UEA, as well as monitoring system of Wensum Demonstration and Test Catchment coordinated by Dr Kevin Hiscock of UEA.

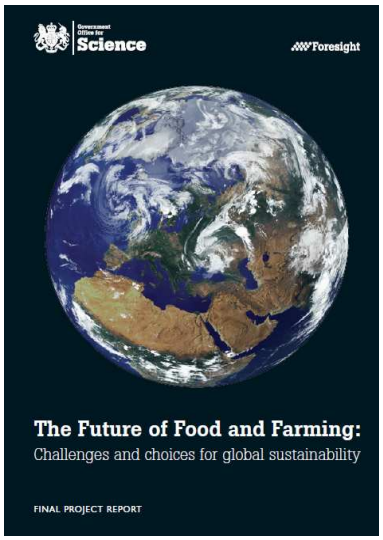
You can read the workshop summary and presentations at: http://www.watergov.org/resources.html

Forthcoming Events

- SAIN's second Governing Board meeting will be held in London on 23rd - 24th May.
- SAIN-FCRN joint workshop on "Consuming Livestock: Food Security, Climate Change, Livelihoods and Animal Welfare" to be held in Beijing on 7-8 June.

Other News

Foresight Project on Food and Farming Released Final Report



The UK government committed research *Global Food and Farming Futures* released the final report "The Future of Food and Farming: Challenges and choices for global sustainability" on 24th January in London.

The Project explores the increasing pressures on the global food system between now and 2050. The Report highlights the decisions that policy makers need to take today, and in the years ahead, to ensure that a global population rising to nine billion or more can be fed sustainably and equitably.

The Foresight report makes a compelling case for urgent action to redesign the global food system to meet the challenge of feeding the world over the next 40 years.

The Project analysed five key challenges for the future:

A. *Balancing future demand and supply sustainably* – to ensure that food supplies are affordable.
B. *Ensuring that there is adequate stability in food prices* – and protecting the most vulnerable from the volatility that does occur.
C. *Achieving global access to food and ending hunger* - this recognises that producing enough food in the world so that everyone can potentially be fed is not the same thing as ensuring food security for all.
D. *Managing* the contribution of the food system to the mitigation of climate change.
E. *Maintaining* biodiversity and ecosystem services while feeding the world.

The Project has involved around 400 leading experts and stakeholders from about 35 countries across the world. The final project report was drawn upon over 100 peer-reviewed evidence papers commissioned by the project.

More details of the project can be found at:
http://www.bis.gov.uk/foresight/our-work/projects/current-projects/global-food-and-farming-futures

China Adopts 5-Year Blueprint, Aiming for Fairer, Greener Growth

On 14th March, the 12th Five-Year Plan for National Economic and Social Development was approved by the legislature, the National People's Congress (NPC). The national plan will steer the world's second largest economy into a path of fairer and greener growth in the next five years.

The world is expected to gain from a China where rising living standards will boost domestic consumption, and harsher targets on energy use will contribute more to the world's battle against global warming, according to the five-year plan.

The key agricultural and environmental targets include:

- Annual grain production capacity to be no less than 540 million tonnes;
- Farmland reserves to be no less than 1.818 billion *mu* (121.2 million ha);
- Irrigation water use efficiency increase to 0.53;
- Non-fossil fuel to account for 11.4 % of primary energy consumption;
- Water consumption per unit of value-added industrial output to be cut by 30 %;
- Energy consumption per unit of GDP to be cut by 16 %;
- Carbon dioxide emission per unit of GDP to be cut by17%;

- Forest coverage rate to rise to 21.66 percent and forest stock to increase by 600 million cubic meters;

More details see: http://news.xinhuanet.com/politics/2011-03/16/c_121193916.htm

China to Cut Heavy Metal Pollution

As part of the nation's 12th Five-Year Plan, China's State Council, on 19th February, approved the "Twelfth Five-year Plan to Combat Heavy Metal Pollution" requiring that pollution from heavy metal emissions in critical areas be reduced by 15%, compared to 2007, by the year 2015. For all other areas, the pollution levels from heavy metal emissions should not exceed the levels reached in 2007.

Survey showed at least 10% of China's arable land (40% in Pearl River Delta in Southern China) is polluted by heavy metals. It is estimated more than 12 million tones of crop output was polluted by heavy metal, which could otherwise feed 40 million people.

More details see: http://www.chinanews.com/ny/2011/04-01/2945229.shtml

CGIAR Set Up Climate Change and Food Security Commission

The Commission on Sustainable Agriculture and Climate Change was set up by the CGIAR Research Program - Climate Change, Agriculture and Food Security programme (CCAFS).

The Commission will identify what policy changes and actions are needed now to help the world achieve sustainable agriculture that contributes to food security and poverty reduction, and helps respond to climate change adaptation and mitigation goals.

The Commission is chaired by Prof Sir John Beddington, Chief Scientific Adviser to the UK Government. Prof Lin Erda, co-chair of SAIN Working Group on Climate Change, is a member of the Commission.

For more information see here: http://www.ccafs.cgiar.org/content/commission

Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication

The UN Environment Programme (UNEP) has released a report on the green economy, titled "Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication," as a key contribution of UNEP to the UN Conference on Sustainable Development (UNCSD, or Rio 2012).

The report asserts that an investment of 2% of global gross domestic product (GDP), or US$1.3 trillion per year, into 10 key sectors could trigger "greener, smarter growth" while fighting poverty, through a transition to a low-carbon, resource-efficient economy. The 10 sectors, where UNEP says investment would be key to building a green economy are: agriculture, buildings, energy supply, fisheries, forestry, and industry including energy efficiency, tourism, transport, waste management and water.

The report's key messages for agriculture are as follows:

- A Green Economy would invest from $100 billion up to $300 billion a year until 2050, in agriculture in order to feed nine billion people, while promoting better soil fertility management and sustainable water use to improve biological plant management.
- Scenarios indicate an increase in global yields for major crops by 10% over current investment strategies.
- Food waste globally is translating into 2,600 kilocalories per person per day; therefore, a transition to a Green Economy needs to address these challenges, which link to several of the sectors concerned.

You can read the full report at: http://www.unep.org/greeneconomy/