



Annual Report 2011

sain

UK-China
Sustainable Agriculture
Innovation Network

We are pleased to present the Annual Report (2011) of UK China Sustainable Agriculture Innovation Network (SAIN). This is the third year which SAIN has been in full operation.

01. Preface	06. SAIN in action	22. The ways SAIN makes a difference
02. Highlights	10. SAIN research portfolio	23. Look into 2012
03. SAIN in brief	20. Information and communication	24. News from SAIN members
05. Our journey to date	21. Networking & Stakeholder Engagement	

01. Preface

SAIN is a unique mechanism established by the Chinese and UK Governments in 2008 to provide a coherent framework for carrying out sustainable agriculture cooperation activities. Its objectives are to stimulate innovative thinking and research on all aspects of sustainable agriculture; to communicate information on sustainable agriculture issues and disseminate best practice to key audiences; and to contribute to global sustainability through wider sharing of expertise between developed and emerging economies.

Both China and the UK are determined to move to a low carbon economy and to contribute to global sustainable development. In China, the Government committed to reduce carbon intensity per unit of GDP by 40 – 45 per cent from 2005 levels by 2020, while in the UK, the Climate Change Act 2008 set out a target at least 80% (below 1990 levels) reduction in all greenhouse gas (GHG) emissions by 2050. Agriculture can play an important role in achieving the low carbon goals of these two countries.

The world is facing an unprecedented challenge of feeding a growing population, likely to reach 9 billion by 2050. Agriculture needs to move to a more resilient and efficient system with high-production and with less impact on the environment. The challenge China is facing is even more

intense. Chinese agriculture needs to feed over 1.3 billion people and 1.5 billion by 2030. Chinese agriculture is also constrained by limitations of arable land, climate change impacts such as extreme weather events, water scarcity and biodiversity loss. China started its 12th five year plan in 2011 with ambitious targets to produce over 540 million tonnes of food per year, increase fertiliser and water use efficiency and to strengthen the resilience of China's agriculture to climate change impacts and other disasters.

Through the innovative cooperation mechanism of SAIN, researchers and policy makers in China and the UK are hand-in-hand tackling these challenges. The activities undertaken in 2011, as highlighted in this report, include implementation of six jointly funded research projects, publication of high quality journal papers and book chapters, communication of research findings to policy makers, and engagement with a wide range of stakeholders and international initiatives. Over forty universities, research institutes and industry sector organisations are now networked through SAIN. SAIN's achievements are encouraging and we look forward to achieving more in the years to come.



Niu Dun
Vice Minister
Ministry of Agriculture (MoA)



Sir Bob Watson
Chief Scientific Adviser
Department of Environment, Food and
Rural Affairs (Defra)

02. Highlights

2011 has been another productive year for the China-UK Sustainable Agriculture Innovation Network (SAIN). Key achievements during the year include:

Completion of three projects

- A review of Manure Use in China (MUC)
- Developing a catchment management template to mitigate non-point source pollution in China
- The future of food and farming - Foresight Report's implications for China

Second Governing Board meeting held in London on 24th May

The Board welcomed SAIN's progress since last Board meeting in 2009; endorsed SAIN's private sector engagement strategy; agreed the plan for streamlining SAIN's governance structure; agreed SAIN Work Plan 2011/12

Chinese SAIN delegation visited UK

The delegation, led by Vice Minister Niu Dun, visited British Sugar's factory in Wissington, some of the delegation members also visited University of East Anglia and Rothamsted Research prior and after SAIN Governing Board meeting

Publications produced

Two policy briefs

- No3. Greenhouse-gas emissions from energy use in the water sector
- No4. The importance of China's crop wild relatives for the future of food and farming

Five journal papers

- Rothausen S and Conway D. Greenhouse-gas emissions from energy use in the water sector, *Nature Climate Change* 1, 210-219
- Yan, X.Y et al. Direct measurement of soil organic carbon content change in the croplands of China. *Global Change Biology* 17, 1487-1496
- Cheng, K et al. Carbon footprint of China's crop production – an estimation using agro-statistics data over 1993–2007. *Agriculture, Ecosystems and Environment* 142, 231-237
- Ford-Lloyd, B.V et al. Crop Wild Relatives Undervalued, Underutilized and under Threat? *BioScience*, 61(7). pp. 559-565
- Nigel Maxted et al. Toward the Systematic Conservation of Global Crop Wild Relative Diversity. *Crop Science*, 52 (2). pp. 774-785

Two book chapters

- Yuelai Lu et al. Sustaining China's Agriculture in a Changing Climate: A Multidisciplinary Action through UK – China Cooperation. In: Wollenberg E et al. (eds). 2011. *Climate Change Mitigation and Agriculture*. London: Earthscan, pp347-359
- David Norse et al. Integrated nutrient management as a key contributor to China's low-carbon agriculture

SAIN and project findings presentations at international conferences

- David Powlson at Royal Society Conference 'Reducing Greenhouse Gas Emissions from Agriculture', 28 February, London
- Yuelai Lu at CGIAR 2nd Science Forum 'The Agriculture–Environment Nexus', 17–19 October, Beijing
- David Norse at 'International Conference on Climate Change and Food Security' 6-8 November, Beijing
- David Norse at 'SCOPE International Forum on Environmental Development', 28-30 November 2011, Yixing

Significant networking and stakeholder engagement

Over 40 leading universities, research institutes and industry sector organisations in China and the UK now formally networked through SAIN.

Extending SAIN through various communication and information sharing activities

Including regular e-newsletters (SAIN Update), website, flyers, promoting SAIN at various events and more.



03.

SAIN in brief

Who we are

The UK-China Sustainable Agriculture Innovation Network (SAIN) has been established to provide a coherent framework for the development and implementation of China-UK collaboration on sustainable agriculture and food security, set up by MoA, Defra and DfID in 2008.

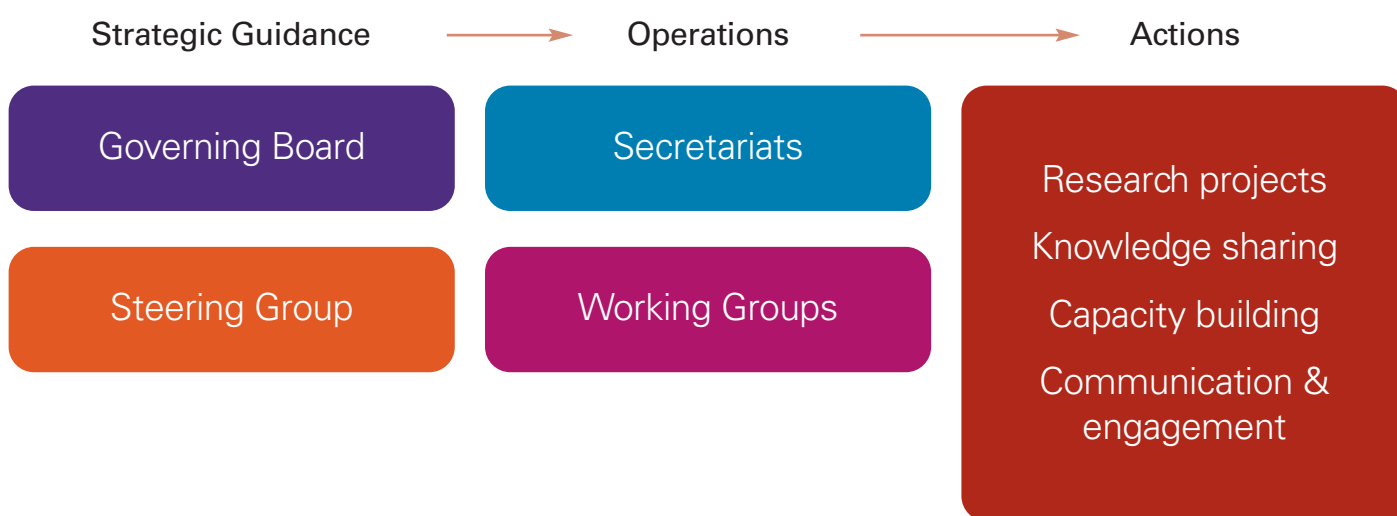
What we do

- Support UK-China cooperation in sustainable agriculture by fostering innovation in three areas:
 - policy approaches;
 - institutional mechanisms for collaborative research;
 - translating policy and science into practice.
- Stimulate innovative thinking and research on all aspects of sustainable agriculture and its relation to the local, national and global economy
- Communicate information on sustainable agriculture issues and opportunities for change, and disseminate best practices to key audiences
- Contribute to global sustainability through south-south learning and similar initiatives



04. SAIN in brief

How we work



Governing Board

- Co-chaired by Prof Bob Watson, Chief Scientific Adviser, DEFRA and Mr Niu Dun, Vice Minister, MoA.
- 15 members represent government departments, academic institutes and international organizations.

Responsibilities:

- Direction setting
- Strategic oversight
- Communication and influencing

Steering Group

- Co-chaired by Lee McDonough, Director of Farming and Food Chain Programme, DEFRA, and Liu Yingjie, Deputy Director of International Cooperation Department, MoA
- Eight members include MoA, DEFRA, DFID officials and heads of Secretariats

Responsibilities:

- act and take decisions on behalf of the Governing Board when it is unable to meet

Secretariats

- Two Secretariat Offices at the University of East Anglia in the UK, headed by Yuelai Lu, and at the Northwest A & F University in China, headed by Tong Yan'an

Responsibilities:

- Coordinate SAIN's day-to-day work
- Programme management
- Stakeholder engagement and communications
- Long-term development

Working Groups

- Four Working Groups addressing issues around nutrient management; biomass and biofuel production; climate change mitigation and adaptation; and policies for circular agriculture
- Each Working Group is co-chaired by a Chinese and British scientist

Responsibilities:

- Reviewing issues in each focus area and identifying knowledge gaps
- Preparing proposals for programmes of work
- Developing proposals for external funding to address gaps
- Implementing funded proposals

05.

Our journey to date

2005

- China-UK Partners in Science Conference, Appropriate Technologies for Sustainable Rural Development, held in Yangling, Shaanxi Province, China
- Proposal was raised to establish a platform to coordinate and strengthen agricultural cooperation between the two countries
- China-UK Sustainable Development Dialogue (SDD) launched

2006

- Research project, 'Improving livelihoods for Shaanxi farmers by reducing non-point source pollution through improved nutrient management', funded by DFID and Defra under the SDD

2007

- At project launch workshop in Sept 2007, the idea of setting up UK China cooperation mechanism was re-advocated
- David Norse and Yuelai Lu were appointed in October 2007 to lead the stakeholders consultation and to develop a Business Plan
- A Business Plan was produced through a DEFRA/DFID consultancy after wide consultations with Chinese stakeholders, bilateral agencies and international organisations.

2008

- SAIN Business Plan was accepted by the Chinese MOA, DFID and Defra in April 2008
- Governing Board, Working Groups and Chinese and UK Secretariats established
- SAIN inaugural workshop 'Circular Agriculture – Policy, Science and Technology' held in Yangling, China in November
- SAIN launched in Beijing on 11th November by Hilary Benn, Secretary of State for Defra, UK and Sun Zhengcai, Minister of Agriculture, China

2009

- Low Carbon Agriculture project launched, under Working Group 1, funded by UK Foreign and Commonwealth Office (FCO) and Chinese MOA
- Working Group Co-Chairs meeting held at UEA in March to agree research priorities for each Working Group
- First Governing Board meeting held in Beijing in July

2010

- Five research projects launched
- Two Policy Briefs arising from the Low Carbon Agriculture project produced
- China-UK high level experts seminar on Agriculture and Climate Change held in November in Beijing
- Facilitated three visits to African countries

2011

- Second Governing Board meeting held in London, May
- Completion of three projects
- Publication of five journal papers, two book chapters and two Policy Briefs
- Two capacity building training workshops held
- MoA delegation, led by Vice Minister Niu Dun, visited British Sugar's factory in Wissington, UK



06.

SAIN in Action - Key Events in the Year

SAIN becomes a primary implementer for UK China cooperation on sustainable agriculture and global food security

The Fourth UK-China Economic and Financial Dialogue meeting was held in London on 8th September 2011. The meeting was chaired by UK's Chancellor of the Exchequer George Osborne and China's Vice-Premier Wang Qishan. SAIN was listed as cooperation priority in the agreed joint policy outcomes paper: Both sides aim to maintain and develop the ongoing cooperation on sustainable agriculture development. The two sides will make full use of UK-China Sustainable

Agriculture Innovation Network (SAIN), in order to facilitate the implementation of the Action Plan for UK-China Cooperation on Food Security, explore approaches and methods of assisting other developing countries in increasing food security through UK-China cooperation, promote sustainable agricultural development of the two countries, and contribute to strengthening global food security.

Full details can be found at:
www.hmtreasury.gov.uk/int_ukchina_pop.htm



Second Governing Board meeting held in London

The second meeting of SAIN Governing Board was held in London on 24th May 2011. The meeting was chaired by Mr Niu Dun, Vice Minister of Agriculture, China, and Professor Bob Watson, Chief Scientific Adviser of Department of Food, Environment and Rural Affairs (Defra), UK. Jim Paice MP, Minister of State for Agriculture and Food, Defra, UK, attended the meeting and delivered a welcome speech.

SAIN Second Governing Board Meeting - Key Conclusions and Actions:

- i. Governing Board welcomed the good progress that had been made over the last two years in moving SAIN from its development phase into delivery mode. But there was now a need to build on the successful high quality foundations in place by taking opportunities to promote the work of SAIN more widely, to expand the network and diversify its funding sources.
- ii. SAIN should continue to work with the Foresight Office to implement the proposed Foresight follow up activities and actions in China. It should also ensure complementarity with relevant UK Government action plans, and seek specific opportunities to inform and

contribute to the current priorities, action plans and programmes of Chinese stakeholders.

- iii. Future of SAIN is dependent on the development of a sustainable funding model. Both China and UK have major funding challenges, but agreed to explore possible sources of finance within our two Ministries and more widely, paying particular attention to those research proposals that were approved at the last Governing Board meeting but remain unfunded
- iv. Board endorsed the Private Sector Engagement Strategy. Private sector is critical to the future success of SAIN, and China and UK should explore further the private sector's level of interest in SAIN and potential topics of mutual interest with a view to establishing a good collaborative working relationship
- v. SAIN should seize opportunities, such as DFID's new Global Development Partnerships Programme, the FCO's Prosperity Strategic Programme Fund, ESPA (Ecosystem Services for Poverty Alleviation), Chinese mainstream research funds etc, and explore further potential international linkages.

Although SAIN is not a legal entity, it can help consortia with, and be part of, competitive tenders for relevant projects and programmes

- vi. Board agreed to streamline SAIN's governance arrangements to make them more light touch and appropriate. This included reviewing the membership of the Governing Board and Working Groups, holding Governing Board meetings at two yearly intervals, developing an Advisory Panel for crosscutting work or for areas that fall outside the remit of SAIN's Working Groups, and broadening the scope of SAIN's engagement to allow stakeholders to join the formal SAIN network
- vii. Board agreed the general thrust of SAIN's draft Work Programme 2011 and beyond, but also asked all involved to explore the possibilities for a 5-15 year plan for SAIN to enable longer term planning should funding for the continuation of the initiative be secured

Methodology training workshops

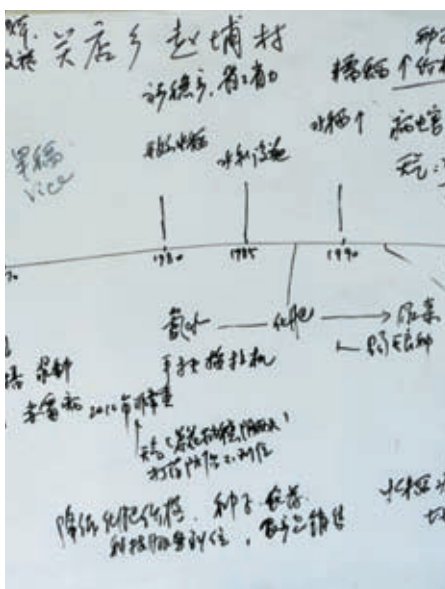
The Crop Wild Relatives (CWR) China

project 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 Climate Science training workshop

was organized by the UK Met Office Hadley Centre and Chinese Academy of Agricultural Sciences, 3-4 November in Beijing and 7-8 November in Chengdu respectively. The aim of the workshop was to give scientific and technical training necessary to use regional climate modeling system-PRECIS products and address many issues involved in its applications. The training included an introduction to the PRECIS system, constructing climate scenarios for impact studies, uncertainties in climate modeling, PRECIS system related data analysis. The workshop focused on issues about climate extremes, how to use PRECIS climate scenarios for impact studies, such as flood risk and status of crop pests assessment under climate change. One afternoon hands-on session was provided to help users to use PRECIS Utilities & Software to process and analyse the PRECIS data for the purpose of deriving climate extremes. A demonstration of how to install PRECIS Utilities & Software was given at the end of the workshop, PRECIS Utilities (pc version) were also provided for free during the workshop.



Vice Minister Niu Dun and SAIN delegation visited British Sugar factory in Wissington

On 23rd May, Chinese Vice Minister of Agriculture Niu Dun led the Chinese SAIN delegation visit to world leading sugar factory in Wissington, Norfolk. The delegation included Chinese members of SAIN and senior officials and academics of Ministry of Agriculture, Chinese Academy of Agricultural Sciences and Chinese Academy of Fishery Sciences.

The Vice Minister and delegation were shown how the world's largest sugar beet factory had been developed into a highly integrated bio-refinery. The visit also included the tour of Cornerways Nursery, Britain's largest tomato-growing glasshouse. Welcome Niu Dun and the delegation, British Sugar Chief Executive, Dr Mark Carr said: "A key challenge for the Chinese sugar industry is to continue to grow output to secure future domestic supplies, but this depends on wide scale application of modern technologies to increase productivity. These are the areas where UK and China can deliver significant and sustainable results by working together."



08. SAIN in Action - Key Events in the Year

Completion of three projects

01. Developing a catchment management template to mitigate non-point source pollution in China

The Chinese project team joined the UK team led by Dr Laurence Smith of SOAS, in holding a project completion 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, led by Prof Gao Shangbin of Agro-environmental Protection Institute, MoA, China, and Dr Laurence Smith, SOAS, University of London. 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. See project profile on page 17.

The workshop summary and presentations are available at: <http://www.watgov.org/resources.html>

02. Review Manure Use in China (MUC)

There is already clear evidence of overuse of nutrients in some parts of China and this is causing undesirable impacts on the environment. With the increasing demand for livestock products, an integrated approach to nutrient management is essential, to safeguard the environment, reduce the requirement for inorganic fertiliser production and use, and improve farmer incomes. This project set out to determine the current manure management practices, both nationally and, where appropriate, at a regional scale, and also to make an assessment of the challenges of increasing livestock numbers to future manure nutrient management. The project team assessed the current level and form of manure nutrient management advice, and also explored what barriers are currently preventing efficient manure nutrient utilisation in China.

Throughout the study, the project team maintained a list of gaps in knowledge and communication. This list was prioritised, with examples such as: improved labelling of composts; development of an integrated nutrient management system and improved approaches to the delivery of information to farmers; an improved understanding of nutrient flows and losses in Concentrated Animal Feeding Operations (CAFOs) and compost factories and development of strategies to reduce losses to water and air; the responsibility for safe utilisation of manures should lie with the producers, e.g. CAFOs; incentives to encourage mechanised manure spreading; introduction of a quality standard for advice delivery, similar to the FACTS scheme in the UK.

This project was led by David Chadwick of Rothamsted Research North Wyke and Shen Qirong of Nanjing Agricultural University. See project profile on page 12.



03. The future of food and farming - Foresight Report's implications for China

Funded by the UK Department for Business Innovation & Skills, this desk-top study was carried out by Yuelai Lu (project leader), David Norse and Tang Huajun. See project profile on page 18. The main implications of the Foresight Report on Future of Food and Farming, published by the UK Government Office for Science, are positive for China in that it raises no issues that are not already being addressed at least in part by the Government's development strategy. Moreover, the Report's 12 key priorities for action are mirrored by GOC policies formulated in the context of the 12th Five-Year Plan (FYP), which are less generic in nature than those suggested by the Report. However, this independent review highlights a number of areas of uncertainty about the challenges facing sustainable food production in China and how they can be overcome. In particular, it questions whether China can meet some of the demanding targets it has set for 2015 and 2020. A number of these targets are technically feasible but may be difficult to implement in the short- to medium-term because of institutional and socio-economic constraints. For example, the 10th and 11th FYP addressed the problems of non-point pollution from agriculture and the overuse and misuse of fertilizer but progress has been limited. Consequently, there may be a case for launching a China Foresight Analysis which like the UK Foresight Report seeks to break away from the conventional policy and technical responses of the past decade and forges new alliances between Government departments and gives greater attentions to the socio-economic determinants of sustainable agriculture.

Finally, and to place this independent review in a more global and bilateral context, it should be acknowledged that there is much to be positive about. First, much of China's past work on agricultural sustainability have had substantial global benefits, for example, it's development of improved rice cultivars. The actions in the 12th FYP are likely to continue such benefits and even widen them because of the massive investment that is going into biotechnology and the extensive support being given to national agricultural research systems in Africa. Second, China and the UK have been developing strong research and development partnerships through SAIN, the Food Security Action Plan, and numerous small collaborations that could provide an effective framework for joint follow-up activities relating to the findings of the Foresight Report.



10.

SAIN Research Portfolios

The common objectives of SAIN projects are to address the issues of increased resource use efficiency, particularly nitrogen fertilisers and manures; reduce pollution from agricultural production to air and water, including GHG emissions reduction and to increase carbon sequestration; and communicate information on agricultural climate change mitigation, adaptation and options to policy makers as well as to farmers.

The current projects under SAIN banner

Project title	Duration	Funding
Improved Nutrient Management in Agriculture - a Key to the Low Carbon Economy	April 2009 – March 2012	£426,600 by UK FCO
A review of Manure Use in China (MUC)	March 2010- September 2011	£130,195 by Defra, MOA
ADMIT: Harmonising Adaptation and MITigation for agriculture and water in China	April 2010 – March 2012	£294,935 by Defra, MOA
Estimates of future agricultural greenhouse gas emissions and mitigation in China	April 2010 – March 2013	£519,569 by Defra, MOA
Conservation for enhanced utilization of crop wild relative diversity for sustainable development and climate change mitigation	April 2010 – March 2013	£360,145 by Defra, MOA
Addressing vulnerabilities and building capacity for adaptation of agriculture to climate change in China	April 2010 – March 2013	£569,658 by Defra, MOA
Developing a catchment management template to mitigate non-point source pollution in China	January 2011 – March 2011	£87,865 by Defra, MOA
The future of food and farming - Foresight Report's implications for China	September 2011 – December 2011	£27,200 by BIS
Suitability of bio-char in China and sub-Saharan Africa: biophysical and socio-economic 'fit'	April 2012 – September 2014	£321,551 by Dfid, MoA

11.

SAIN Research Portfolios



Improved Nutrient Management in Agriculture a Key to the Low Carbon Economy

Problems to be addressed

- N fertiliser production accounts for >70% of fossil energy inputs to agriculture in China: a reduction is essential for progress to a low carbon agricultural economy
- N fertiliser production in China releases about 235 Mt CO₂ plus 39 Mt CO₂-equivalent as nitrous oxide
- Additional nitrous oxide, at least 150 Mt CO₂-equivalent, is emitted from the use of fertilisers and manures in agriculture
- These emissions represent over 20% of total CO₂ emissions from China and about 25% of global N₂O emissions from agriculture
- Large reductions in N use are achievable: it is estimated that cuts of at least 25%, and probably considerably more, are possible through application of current knowledge
- N savings will involve greater recycling and waste minimisation - key objectives in China's plans to establish a circular economy

Project objectives

- Estimating GHG emissions associated with the manufacture and use of N fertiliser in China
- Reviewing current and emerging technologies for increasing efficiency of use of N fertilizer, N from manure and manufactured organic fertilizers, building on results from the Chinese MOA's national programme 'Fertiliser Recommendations and Soil Testing'
- Assessing improved means of communicating information on rational use of N fertilisers and manures to farmers and extension staff
- Providing information to policy makers on the GHG savings possible from improved management of N in agriculture and the ways of achieving this

Project Team

Rothamsted Research:
David Powlson (project leader),
David Chadwick

University College London:
David Norse

University of East Anglia:
Yuelai Lu

China Agricultural University:
Fusuo Zhang (project leader),
Weifeng Zhang, Xiaotang Ju

**Centre for Chinese Agricultural Policy,
Chinese Academy of Sciences:**
Jikun Huang, Xiangping Jia

Key milestones in 2011

February

Project findings presented at Royal Society conference "Reducing Greenhouse Gas Emissions from Agriculture" in London, by David Powlson.

July

Provincial workshop held in Xian, Shaanxi Province.

September

International workshop on "Measures Reducing Greenhouse Gases Emission from Nitrogen Fertiliser in China" held in Beijing.

November

Project findings presented at "International Conference on Climate Change and Food Security" in Beijing, and at "SCOPE

International Forum on Environmental Development", in Yixing, China, by David Norse.

December

Third engagement meeting with NDRC officials held in Beijing.

12.

SAIN Research Portfolios



A Review of Manure Use in China (MUC)

Problems to be addressed

- Over-application of nutrients to crops via a combination of both livestock manures and inorganic fertiliser increase risks of eutrophication of surface water bodies and emissions of harmful gases to the atmosphere (mainly ammonia and nitrous oxide)
- Little or no account is made of nutrients in livestock manures in nutrient planning in Chinese farms
- There has been considerable research in the UK on the availability and value of nutrients (N, P, K) in livestock manures and the principles applied can be utilised in China
- In addition to the direct use of manures and other organic co-products such as anaerobic digestate, there is much interest in China in the development of organic fertilisers through composting procedures. This can add financial value to the material but the nutrient content and availability still needs to be assessed if knowledge-based advice is to be given to farmers

Project objectives

- To assess to what extent the nutrients in livestock manure, composted manure and anaerobic digestate are taken into account when applied to soil in selected provinces in China when planning nutrient supply to a range of crops
- Collate the information available to assist farmers in managing the nutrients in these organic resources effectively
- Explore the major barriers to utilizing the nutrients in these organic resources in an integrated way with inorganic fertilisers
- Recommend future investment to reduce these barriers and maximise use of nutrients in these organic resources, thus reducing reliance on inorganic fertilisers

Project Team

Rothamsted Research:
David Chadwick (-UK Co-Leader)

Nanjing Agricultural University:
Qirong Shen (China Co-Leader),
Guanghui Yu

Northwest A&F University:
Yan'an Tong

China Agricultural University:
Qing Chen

Key milestones in 2011

March

Study tour for six Chinese researchers in the UK.

July

Presentation to Extension Officers, Agricultural Bureau, Beijing;
Manure management: crop nutrient supply and reducing inorganic fertiliser use.

September

Presentation to researchers and policy makers of the results from the MUC Project: A Review of Manure Use in China (MUC), at The Low C Agriculture Conference, Beijing.

December

Project report finalised and submitted.

13.

SAIN Research Portfolios



Estimates of future agricultural greenhouse gas emissions and mitigation in China

Problems to be addressed

- The challenge of reducing agricultural GHG emissions and increasing soil carbon sinks in China, whilst maintaining food security for its very large population
- The need for an evidence base, policy advice and decision support tools to allow policy implementation and knowledge exchange among scientists, policy makers and farmers

Project objectives

- Provide the evidence base, policy advice and decision support tools to reduce agricultural GHG emissions and increase soil carbon sinks in China, whilst maintaining food security
- Develop a national and regional picture of economic abatement potential from Chinese agriculture
- Explore behavioural or incentive barriers associated with obvious high potential in mitigation (and low cost) measures that are not being adopted

- Assess applicability of mitigation strategies to decrease livestock and manure emissions for different farm types
- Create a whole China model of mitigation potential for livestock and manure emissions, also considering pollution swapping
- Provide policy advice on cost effective mitigation options for soil C sequestration, and for reducing GHG emissions from croplands (dry and paddy), grasslands and livestock
- Produce database, journal publications, decision support tools and policy briefings on GHG emissions and GHG mitigation options in China's agriculture

Project Team

University of Aberdeen:
Pete Smith (UK Co-Leader)
Dali Rani Nayak

Nanjing Agricultural University:
Genxing Pan (China Co-Leader)
Weiyun Zhu, Feng Shuyi

University of Aberystwyth:
Jamie Newbold

Rothamsted Research – North Wyke:
Laura Cardenas

Lanzhou University:
Ruijun Long, Fujiang Hou, Zhibiao Nan

Zhejiang University:
Jianxin Liu

Scottish Agricultural College:
Dominic Moran

Peking University:
Jintao Xu

ISSAS, CAS:
Xiaoyuan Yan

Shenyang Agricultural University:
Liyong Xie

Fudan University:
Changming Fang

Key milestones in 2011

April

Database for CROPLAND of soil C and GHG emissions after including additional data completed.

September

Two journal papers published: Yan, X. et al. 2011. *Global Change Biology* 17, 1487-1496;
Cheng, K. et al. 2011. *Agriculture, Ecosystems and Environment* 142, 231-237.

November

Completion of meta-analysis to see how GHG mitigation and C sequestration potential of Cropland, Grassland varies for different management practices and regions.

December

Workshop to discuss policy briefing document and to discuss about the decision support tool was held at the University of Aberdeen on 1st and 2nd of December, 2011.

14.

SAIN Research Portfolios



Conservation for enhanced utilization of crop wild relative diversity for sustainable development and climate change mitigation (CWR China)

Problems to be addressed

- Crop Wild Relatives (CWR) are plant species closely related to crops, including their wild ancestors. They are recognized as critical resources for mitigating the impact of climate change because they are likely to provide the genetic diversity and adaptation needed to breed crops with greater resistance to the environmental changes brought about by the changing climate
- However, CWR diversity is itself threatened directly by climate change, as well as indirectly by increasing food insecurity resulting from climate change and other socioeconomic factors that could push agriculture into increasingly marginal land resulting in an erosion of wild plant diversity
- The challenges facing us are to ensure effective conservation of important resources on the one hand, and to enhance food security on the other through rational and sustainable use of plant genetic resources

Project objectives

- Production of a full inventory of CWR of China using a systematic approach previously developed and applied in Europe
- Identification of priority CWR species based on food security, economic importance, use potential for climate change mitigation, and threat status
- 'Gap' and climate change analysis to identify conservation needs for selected high priority crop gene pools (including rice, soybean, foxtail millet, grape, Kiwi fruit, poplar and citrus fruits)
- Publication of crop gene pool conservation strategies, including briefing papers for policy-makers
- Evaluation of CWR using novel genomic approaches to provide improved access to CWR genetic diversity for use in crop improvement, with a focus on genes likely to confer adaptation to climate change
- Development of an online information system to provide access to the CWR inventory and associated conservation and evaluation data

Project Team

University of Birmingham:
Brian Ford-Lloyd,
Nigel Maxted (UK Co-Leaders)
Shelagh Kell (Project Manager)

China Agricultural University:
Kang Dingming (China Co-leader)

Institute of Botany, Chinese Academy of Sciences:
Ma Keping, Ge Song, Wei Wei

Fudan University:
Lu Baorong

Chinese Academy of Agricultural Sciences:
Qiu Lijuan

Key milestones in 2011

January

Second CWR conservation training workshop held in Beijing.

March

Priority CWR species groups identified.

September

Ecogeographic data collated for crop gene pool case studies in rice, soybean, foxtail millet, grape, poplar and citrus.

December

Laboratory work for the identification of target candidate genes for climate change related stress tolerance in rice completed.

15.

SAIN Research Portfolios



Addressing vulnerabilities and building capacity for adaptation of agriculture to climate change in China

Problems to be addressed

- Climate change is a key driver of change in agricultural systems in China and is closely linked with the causes and alleviation of poverty
- However, because of the complexity of agricultural systems, many key knowledge gaps remain, such as: crop responses to elevated CO₂ conditions; farmer perception of climate change and their communication and adaptation strategies; and crop disease threats
- Through a structured programme of knowledge exchange using research training and established networks developed through previous research, this project will address the skills needs of two major stakeholder groups – adaptation researchers in China and Chinese farming communities vulnerable to climate change – in order to enhance UK-China collaboration targeted to improve the adaptation of Chinese agriculture to climate change

Project objectives

- The overall objective of the project is to foster joint research and knowledge exchange between Chinese and UK researchers concerned with adaptation of agricultural systems to climate change and the promotion of sustainable food systems. The specific objectives are:
- Communicating issues of sustainability of farming systems to key stakeholders: farming communities, researchers and policy-makers
 - Exploring information flows within farming communities concerned with the perception of climate change and possible adaptation options, and linking these with research
 - Building capacity of researchers and farming communities to adapt to climate change

Project Team

Walker Institute for Climate System Research, University of Reading:
Tim Wheeler (UK Co-Leader), Flipa House

University of Leeds:
David Howlett

Rothamsted Research:
Bruce Fitter, Hongju Zhao

Meteorological Office Hadley Centre:
David Hein

CAB International:
Qiaoqiao Zhang

Chinese Academy of Agricultural Sciences:
Lin Erda (China Co-Leader), Ju Hui, Liu Shengyi

Anhui Academy of Agricultural Sciences:
Binjie Gan

Inner Mongolia Academy of Agricultural Sciences:
Ziqin Li

Key milestones in 2011

June

Mobile version of website completed.

July

Workshops held in Huangshen and Hulinbeier

September

Facebook page set up

November

Climate change scenarios training workshops held in Beijing and Chengdu.

December

Meeting of UK SAIN investigators

16.

SAIN Research Portfolios



ADMIT: Harmonising ADaptation and MITigation for agriculture and water in China

Problems to be addressed

- Recent research on climate change in China suggests that the interactive effects of climate change and other socio-economic drivers could lead to significant decreases in total production by the 2040s
- Water availability plays a particularly significant role in limiting potential crop production, due to the combined effects of higher crop water requirements and increasing demand for non-agricultural use of water
- Successful adaptation policies based on sustained improvements in agricultural technology and crop yields will be essential for China to produce enough to keep pace with population growth and the effects of other drivers such as land use change
- Such production-oriented policy goals should not ignore wider issues of sustainability, such as the intensity of fossil fuel and water use in the sector

Project objectives

- The overall objective of the project is to estimate the 'carbon cost' of adaptation to future climate change in terms of water use in agriculture. Specifically, the project will address the following objectives:
- Assessing and describing the main impacts of climate change on agriculture in China and deriving adaptation policy scenarios to sustain agricultural production in China
 - Developing preliminary estimates of energy consumption in agricultural water use, using case study data
 - Linking adaptation policies with energy use. The project will focus on a time horizon out to the 2030s, and use China's current national planning to provide the framework for the definition of socio-economic and policy scenarios

Project Team

University of East Anglia:
Declan Conway (UK co-leader),
Sabrina Rothausen

Cranfield University:
Ian Holman

Chinese Academy of
Agricultural Sciences:
Lin Erda (China co-leader)

Centre for Chinese Agricultural Policy,
Chinese Academy of Sciences:
Wang Jinxia

Key milestones in 2011

April

Monitoring and Evaluation of the project progress and performance was carried out.

June

A small workshop held in Beijing to develop low carbon pathways for agricultural water management to achieve national goals in China.

July

Review published in Nature Climate Change July 2011 Vol. 1 No. 4.

August

Policy Brief on "Greenhouse-gas emissions from energy use in the water sector" published.

November

Workshop on 'Policy Scenarios for harmonising water and energy use for irrigation in China' held in Beijing.

17.

SAIN Research Portfolios



Developing a catchment management template to mitigate non-point source pollution in China

Problems to be addressed

Agriculture is the major source of water pollution by nutrients in China. According to the results of the national pollution survey released in February 2010, agriculture is responsible for up to 67 percent of the 423,200 tons of phosphorus discharged and 57 percent of the 4.7 million tons of nitrogen discharged into water. In June 2010, the Chinese Ministry of Agriculture issued a guideline requesting further strengthen of non-point source pollution control in key catchments with intensive agriculture. Suggested actions included promoting circular agricultural technologies; reducing chemical input; planning the location of intensive livestock farms; improving non-point pollution monitoring; and agricultural eco-service compensation.

Project objectives

To develop a catchment management 'template' that encompasses use of bioregional planning to provide guidance on how to implement appropriate land use and land and water management, policy approaches and governance arrangements. The 'template' seeks to meet the need to integrate process, governance and science, enabling an assessment of necessary data and analytical tools to develop a plan, together with supporting stakeholder engagement, governance arrangements, education programmes, economic incentives, regulatory instruments and other policy options.

Project Team

School of Oriental and African Studies:
Laurence Smith (UK co-leader),
Peter Hazell

Independent consultant:
Alex Inman

Kingston University, London:
Hadrian Cook

University of East Anglia:
Kevin Hiscock, Tobias Kruegera

Agro-Environmental Protection Institution, MoA:
Gao Shangbin (China co-leader),
Yang Dianlin, Lai Xin, Zhang Guilong,
Zhao Jianning, Song Xiaolong

China Agricultural University:
Wu Wenliang, Meng Fanqiao

Northwest Agricultural and Forestry University:
Li Lutang

South China Agricultural University:
Luo Shiming, Zhang Jiaen, Li Huashou

Key milestones in 2011

March

Workshop held in University of East Anglia; Field visit to Defra's Test and Demonstration Catchment of Wensum.

June

Project working papers and final report completed.

October

Laurence Smith, Hadrian Cook and Kevin Hiscock visited circular agricultural research stations in Suzhou, Jiangsu Province and Hantai, Shandong Province; Lectures delivered to post graduates and researchers in Agro-environmental Protection Institute and China Agricultural University.

18.

SAIN Research Portfolios



The future of food and farming - Foresight Report's implications for China

Problems to be addressed

The Foresight report on Global Future of Food and Farming, released in January 2011, 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. It suggests a number of objectives and a range of policy and technological recommendations on how they may be achieved drawing on UK and international experience. These suggestions now need to be tailored to the resource base and socio-economic situations of China and other key countries.

Sustaining China's farming and food system is essential for the realization of Millennium Development Goals (MDG) and the stabilization of global food market. Although China is perhaps the greatest food security success of the latter decades of the 20th Century it now faces multiple challenges. These include increasing food demand due to population and income growth, limitation and degradation of natural resource base (land, water, energy), and climate change – all challenges that are addressed by the Foresight Report.

Project objectives

The main objectives of this study are four fold. First, to relate the global evidence on sustainable future food and farming provided by the Foresight report to the Chinese context. Second, to highlight particular issues and successful policy and technological responses that could contribute to China's effort in sustaining the food and farming system. Third, to identify potential areas for UK-China collaboration through existing mechanisms e.g. SAIN and the UK-China Food Security Action Plan. Finally, to discuss how progress on these objectives could benefit the rest of the world.

Project Team

University of East Anglia:
Yuelai Lu (Project leader)

University College London:
David Norse

Chinese Academy of Agricultural Sciences:
Tang Huajun

Key milestones in 2011

October

Chinese version of Foresight Report Executive Summary completed.

December

Project completed and final report submitted.

19.

Information and Communication

Websites

SAIN main bilingual website
www.sainonline.org
www.sainonline.org/English.html

SAIN project bilingual websites
www.sainclimatechange.org
www.sainclimatechange.org/indexch.asp
www.cwrchina.ibcas.ac.cn

SAIN Update

- Published quarterly
- Reports on SAIN progress
- Communication with stakeholders
- Share information within and beyond the SAIN network

SAIN Policy Briefs

Bilingual policy briefs are produced by each project team to communicate SAIN project findings and policy implications to non-academic audiences and policy makers.

Publications in 2011

Policy Brief No 3

Greenhouse-gas Emissions from Energy Use in the Water Sector

This brief profiles key knowledge gaps and management issues identified through a comprehensive review of energy use and greenhouse gas (GHG) emissions from energy use in the water sector. The key needs are:

1. a greater understanding of water-energy relationships
2. improved data collection and sharing of information on energy use in the sector
3. development of standardised tools and mechanisms that facilitate carbon accounting and reduction across the water sector
4. greater integration of energy use within water resource management and climate change adaptation planning

Policy Brief No 4

The importance of China's crop wild relatives for the future of food and farming

Crop wild relatives (CWR), the focus of the SAIN project 'CWR China', are wild plant species genetically related to crops that contain adaptive traits which can be used for crop improvement through the development of new varieties; therefore the conservation of CWR genetic diversity is critical for food security and economic stability. This Policy Brief argues that without baseline data on numbers and distribution of CWR in China, threats to their future survival and opportunities for their enhanced use in crop improvement cannot be assessed. The CWR China project is now providing the baseline data to inform future CWR conservation and use policy in China, and should in future take in environmental and land use policy as well.



20. Information and Communication

Journal papers

Rothausen S and Conway D. 2011. Greenhouse-gas emissions from energy use in the water sector. *Nature Climate Change*, *Nature Climate Change* 1, 210–219, doi:10.1038/nclimate1147

Yan, X.Y., Cai, Z., Wang, S.W. & Smith, P. 2011. Direct measurement of soil organic carbon content change in the croplands of China. *Global Change Biology* 17, 1487-1496. doi: 10.1111/j.1365-2486.2010.02286.x

Cheng, K., Pan, G., Smith, P., Luo, T., Li, L.Q., Zheng, J.W., Zhang, X.H., Han, X.J. & Yan, M. 2011. Carbon footprint of China's crop production – an estimation using agro-statistics data over 1993–2007. *Agriculture, Ecosystems and Environment* 142, 231-237. doi:10.1016/j.agee.2011.05.012.

Ford-Lloyd, B.V., Schmidt, M., Armstrong, S.J., Barazani, O., Engels, J., Hadas, R., Hammer, K., Kell, S.P., Kang, D., Khoshbakht, K., Li, Y., Long, C., Lu, B., Ma, K., Nguyen, V.T., Qiu, L., Ge, S., Wei, W., Zhang, Z. and Maxted, N. 2011. Crop wild relatives—undervalued, underutilized and under threat? *Bioscience* 61(7), 559–565.

Maxted, N., Kell, S., Ford-Lloyd, B., Dulloo, E. and Toledo, Á. 2011. Toward the systematic conservation of global crop wild relative diversity. *Crop Science*, 52 (2). pp. 774-785.



Book chapters

Lu, Y., Powlson, D., Norse, D., Chadwick, D., Conway, D., Ford-Lloyd, B., Maxted, N., Smith, P and Wheeler, T. 2011. Sustaining China's agriculture in a changing climate: A multidisciplinary action through UK – China cooperation. In: Wollenberg E, Nihart A, Tapio-Biström M-L, Grieg-Gran M (eds). 2011. *Climate Change Mitigation and Agriculture*. London: Earthscan, pp203-214.

Norse, D., Powlson, D and Lu, Y. 2011. Integrated nutrient management as a key contributor to China's low-carbon agriculture. In: Wollenberg E, Nihart A, Tapio-Biström M-L, Grieg-Gran M (eds). 2011. *Climate Change Mitigation and Agriculture*. London: Earthscan, pp347-359.

Presentations at international conferences

- Greenhouse gas emissions associated with nitrogen fertiliser – lessons from a situation of nitrogen excess in China, by David Powlson at Royal Society Conference 'Reducing Greenhouse Gas Emissions from Agriculture', 28 February, London
- Sustaining Agriculture in a Changing Climate - Actions through UK–China cooperation, by Yuelai Lu at CGIAR 2nd Science Forum 'The Agriculture–Environment Nexus', 17–19 October, Beijing
- Increasing food security and minimising greenhouse gas emissions through improved nitrogen management – lessons from the Chinese experience, by David Norse at 'International Conference on Climate Change and Food Security' 6-8 November, Beijing
- Low carbon agriculture: Objectives and policy pathways by David Norse at 'SCOPE International Forum on Environmental Development', 28-30 November 2011, Yixing, China



21.

Networking & Stakeholder Engagement

Academic exchanges

SAIN Secretariat has facilitated a number of academic exchanges this year, including:

- 26th May 2011, led by Vice President, Prof Wu Pute, a delegation from Northwest A&F University (NAFU) visited University of East Anglia. A joint seminar was held jointly with UEA's Water Security Research Centre (WSRC) and a MoU on research cooperation was signed between UEA's WSRC and NAFU's Water Saving and Irrigation Centre
- 8-15th October 2011, Working Group 4 members Laurence Smith, Kevin Hiscock and Hadrian Cook visited the Agro-Environmental Protection Institute (AEPI) in Tianjin and China Agricultural University in Beijing and their research stations in Shandong Province and Jiangsu provinces
- 23-28th October 2011, Ren Tianzhi, Liu Hongbin and Zai Limie from Chinese Academy of Agricultural Sciences visited Rothamsted Research, University of East Anglia and Wensum Test Demonstration Catchment in Norfolk
- 27-29th October 2011, Ge Xianping, Min Kuanhong, Xie Jun and Zhu Jian of Freshwater Fish Research Centre (FFRC) of Chinese Academy of Fishery Sciences visited the Centre for Environment, Fisheries & Aquaculture Science (Cefas) at Weymouth, Test Valley Trout Ltd in Hampshire and University College London

Joint workshop with FCRN on livestock consumption in China

Sponsored by World Society of Animal Protection, SAIN and Food Climate Change Research Network (FCRN) jointly held a workshop on 'Consuming livestock: food security, climate change, livelihoods and animal welfare' in Beijing on 7-9th June.

The purpose of this workshop was to bring together UK and Chinese researchers from across a range of disciplines, to focus on the relationship between the growth in livestock production and consumption and a range of key issues. These include:

- Livestock-related greenhouse gas (GHG) emissions
- Human nutrition (over- and under-nutrition)
- Animal welfare
- Livelihoods and employment.

At the workshop, UK and Chinese perspectives on these issues were explored with a view to developing a future programme of collaborative research.

SAIN WG4 and Agro-Environmental Protection Institute organised the workshop.

Working with Private Sector

SAIN's Private Sector Engagement Strategy was approved by Governing Board in May 2011. It is envisaged that engaging the private sector in SAIN's work might focus on:

- Awareness-raising on agricultural environmental impact and sustainable solutions
- Development and implementation of guidance on the integration of sustainability considerations into business and farming practice
- Promoting sustainable consumption, eg. through facilitating consumer choice based on producers' sustainable performance, such as carbon (and water) footprint labelling

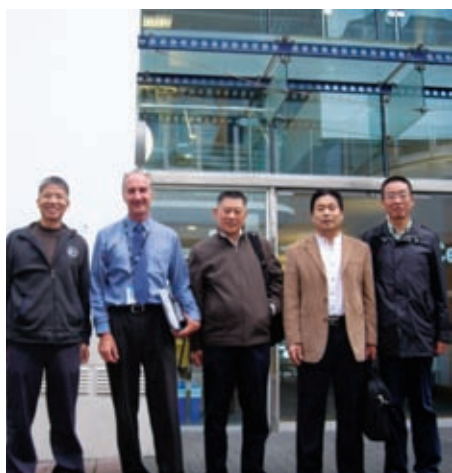
- Promoting sustainable agricultural production through demonstration and whole system performance assessment
- Guidance and tools to assist farmers/producers in implementing good agricultural practice
- Partnerships to facilitate knowledge-sharing with regard to good agriculture practice
- Knowledge transfer to other developing countries on all subjects relevant to SAIN's objectives

Working with International Initiatives

SAIN has been actively engaging in international initiatives to contribute to global sustainable development.

SAIN is a partner to Global Partnership on Nutrient Management (GPNM) which is a global platform to steer dialogues and actions to promote effective nutrient management. Based on the partnership, SAIN and GPNM will share the knowledge and tools in sustainable nutrient management to reduce greenhouse gas emission and water pollution.

SAIN has in partnership with PISCES (Policy Innovation Systems for Clean Energy Security, funded by Dfid) developed a research proposal to assess the suitability of biochar in China and sub-Saharan Africa, to explore biophysical and livelihood fit of biochar as an alternative energy as well as soil conditioner. The proposal has been approved by Dfid and will start in April 2012 for 30 months. The project will work in China, Ghana and other PISCES focus countries, including India, Kenya, Sri Lanka and Tanzania. This project will strengthen SAIN's capacity to contribute to global development.



22.

The Ways SAIN Makes a Difference

SAIN has established a solid platform for taking forward joint China-UK policy priorities on sustainable agriculture and food security. By focussing on policy innovation, translating policy and science into practice on the ground, and sharing research and expertise, SAIN can have a direct impact on sustainable agriculture and food security in both countries.

Support tools and evidence for policy makers and practitioners

SAIN projects emphasise the development of support tools and provision of evidence for policy making and guided implementation of good practice. Some examples of the tools being developed include:

- Inventory of technologies for improving the management of N (from chemical fertilisers and manures) to increase efficiency of use and decrease losses
- GHG emissions inventory for various cropping systems
- Economic assessment of the marginal abatement cost of agricultural GHG mitigation in China

Outputs such as these are explicitly designed to assist or guide agricultural practitioners (both farmers and their advisers) and policy makers in changing policies and practices in a way that favours a low carbon development path. This is one element of an overall strategy that comprises both mitigation and adaptation.

Knowledge sharing and mutual learning

One important aspect of SAIN projects is knowledge sharing and mutual learning. This includes comparison studies between China and the UK, as well as modification and application of technologies developed in the UK and Europe to the Chinese context. Examples include:

- Nutrients and manure management technologies and policies in both China and UK
- Models for inventory and systematic in situ and ex situ conservation of important crop wild relative diversity
- Building on UK and European database experience to examine how GHG emissions vary with different cropping and livestock systems in different regions

Capacity building

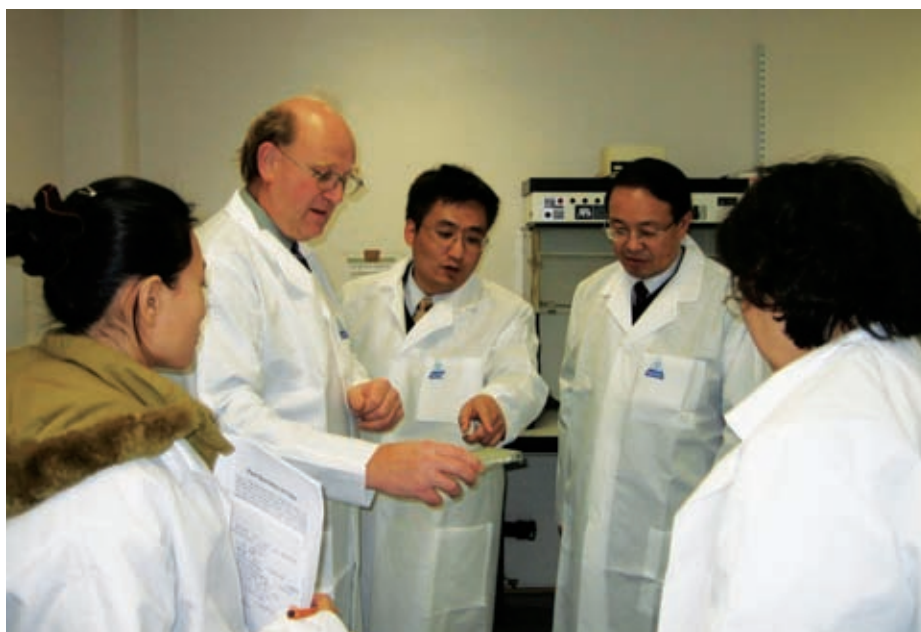
Research capacity of Chinese and UK scientists will be increased through implementing joint projects. For example:

- Chinese and UK scientists will learn to apply in botanically-rich China the crucial methodologies and principles of inventory, conservation and management of Crop Wild Relatives (CWR) resources developed and applied in UK
- A 'train the trainer' approach will be used in capacity building activities so that key researchers and leaders within farming communities will be empowered to take the role of trainer in subsequent capacity building activities after the projects finish

Communication

A variety of communication approaches will be used in SAIN projects, including:

- Policy briefs
- Dialogue with policy makers
- Farmer field schools
- Academic publication



23.

Look into 2012

In 2012-13, SAIN will continue to work toward its overall objectives:

- Stimulate innovative thinking, research and policy approaches on all aspects of sustainable agriculture
- Communicate information on sustainable agriculture and disseminate best practices to key audiences
- Contribute to global sustainability through wider sharing of expertise between developed and emerging and developing economies.

In the light of decisions made at the 2nd SAIN GB meeting, the specific objectives for 2012-13 were identified as following:

- Translate SAIN research findings into practice
- Diversify funding sources
- Respond to emerging opportunities
- Explore the possibilities for a long-term strategic plan



24.

News from SAIN members

Sir Bob Watson

Congratulations to Sir Bob Watson, Co-chair of SAIN Governing Board, Defra's Chief Scientific Adviser, who has been honoured with a knighthood in the 2012 New Year's list for his contribution to science. Prof Watson was also elected as a Fellow of the Royal Society in May 2011.

Xiangjun Yao

Yao Xiangjun left MoA in July and took up a position as Director, Office of Knowledge Exchange, Research and Extension, FAO.

John Warburton

After nearly 8 years in DFID China as Senior Environmental Adviser, John is moving to a new DFID-funded post in February 2012. John's new job is in the headquarters of the European Investment Bank in Luxembourg, as senior policy adviser on climate, environment and development.

Thanks to John Warburton and Xiangjun Yao for their enthusiasm and contribution to SAIN, particularly in its formative years. We wish them all the best in their new positions.



For more information please visit:
<http://www.sainonline.org>

or contact

In the UK:

Dr Yuelai Lu
International Development UEA
University of East Anglia
Norwich NR4 7TJ, UK

Tel: +44(0)1603 593264
Fax: +44(0)1603 591170
Email: y.lu@uea.ac.uk

In China:

Prof Tong Yanan
College of Resource and Environment
Northwest A&F University
Yangling, Shaanxi,712100,
China

Tel/Fax: +86 (0) 29 87081213
Email: tongyanan@nwsuaf.edu.cn

