



# ADMIT

## Harmonising Adaptation and Mitigation for agriculture and water in China



### Background

Recent research suggests that food production in China could be threatened by the combined effects of climate change and other socio-economic drivers. 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 in order for China to produce enough to keep pace with population growth and the effects of other drivers such as land use change. However, production oriented policy goals often ignore wider issues of sustainability, such as the intensity of fossil fuel and water use in the sector. The agricultural sector is responsible for roughly 20% of China's annual emissions of greenhouse gases and 70% of China's total water use. Managing the intensity of fossil fuel and water use in agriculture is critical to support effective and sustainable adaptation in China.

### Purpose and objectives of the project

The ADMIT project is a joint collaboration between China and UK researching sustainable agriculture in China. The objective of the project is to estimate the 'carbon cost' of adaptation to future climate change in terms of water use in agriculture. There are three main elements to the project;

- Assessing/describing 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

On the basis discussions at the inception workshop in March 2010 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.

### Expected outputs

**Policy briefings** on high-level adaptation options for agricultural water management

**Review paper** on meta-analysis and gap identification of information availability on energy use in agricultural water management

**Technical manuals** on methodology development for carbon accounting in agricultural water use

**Research papers** based on new data on carbon use in agricultural water management

**Project reports** on results to inform selection of national level adaptation policy





## Activities 2010-2012

### Phase 1. Assessing impacts and identifying adaptation policies

Projection of climate change impacts on crop production (2020-2030)

Identification of possible adaptation policy responses to meet food demand

- Modelling of climate change impacts on agriculture and water use
- Characterising the main features of current and future agricultural policy
- Identification of sustainable adaptation options and policy responses
- Capacity building through workshops and UK-China exchanges

### Phase 2. Water use energy intensity in agriculture

Assessment of current energy and water consumption in agricultural water use

Scale up results to provincial / national level

- Meta-analysis of energy use intensity in agricultural water use
- Fieldwork and data collection at case study sites in China
- Produce estimates of provincial / national energy use in irrigation
- Public-Private lesson sharing and engagement of stakeholders

### Phase 3. Linking adaptation and mitigation in agricultural water use

Assess carbon costs of different adaptation policies in agriculture  
Prioritise adaptation policies

- Identification of useful carbon accounting methods
- Estimate carbon use associated with a range of adaptation policies
- Evaluate policies in the context of a wider range of considerations
- Policy briefs on adaptation options for agricultural water management.

## Project Partners

University of East Anglia

Cranfield University

Chinese Academy of  
Agricultural Sciences (CAAS)

Centre for Chinese Agricultural Policy (CCAP)

For more information please visit:

<http://www.sainonline.org>

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