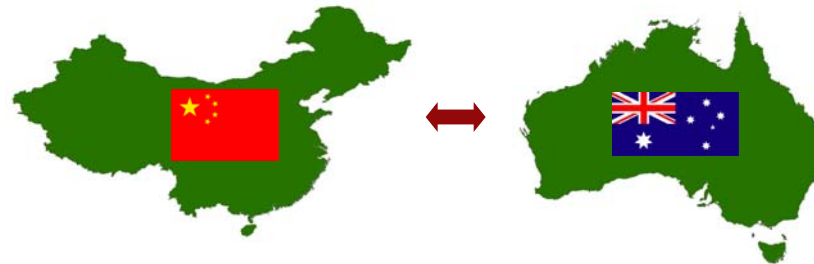




**Australian Government**  
**Geoscience Australia**

# **China-Australia Cooperation on Geological Storage A summary of Phase 1**



Rick Causebrook

Geoscience Australia

CAGS 1 Symposium

Beijing 16<sup>th</sup> – 18<sup>th</sup> April 2012

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**China Australia Geological Storage of CO<sub>2</sub>**

**中澳二氧化碳地质封存**



# About CAGS

- CAGS is a bilateral project between China and Australia
- Jointly managed by:
  - **Geoscience Australia**, Department of Resources, Energy and Tourism
  - the **Administrative Centre for China's Agenda 21**, Ministry of Science and Technology
- To assist in the development and deployment of CCS technology in China and Australia through capacity building and research
- Complements other international CCS capacity building and research programs (EU-China, USA-China, ...)



**Australian Government**  
**Geoscience Australia**



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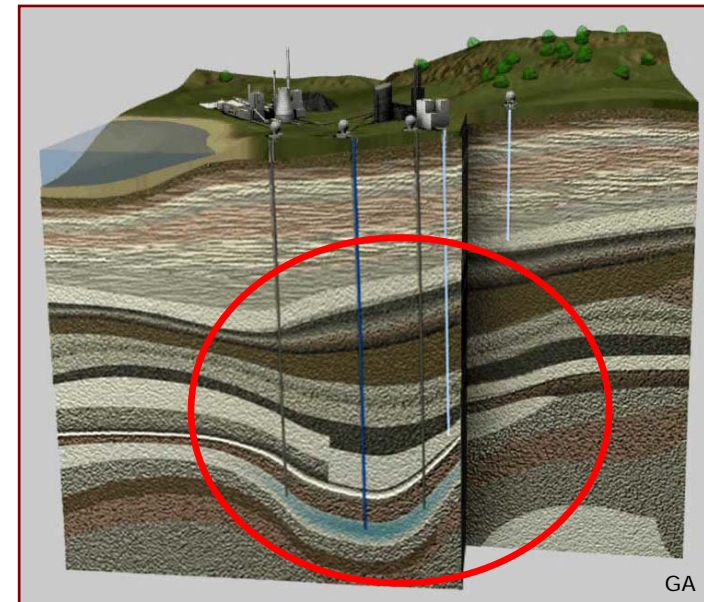
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# Program aims

The focus for CAGS is on **geological storage** of CO<sub>2</sub>, including utilisation and storage through enhanced oil recovery (EOR)

- Build skills and capacity in storage assessment and characterisation
- Increase knowledge of geology and storage opportunities in China
- Promote networking and collaboration between Australian and Chinese organisations and within China
- Exchange knowledge and skills
- Promote CCS as one of the technologies that can reduce CO<sub>2</sub> emissions



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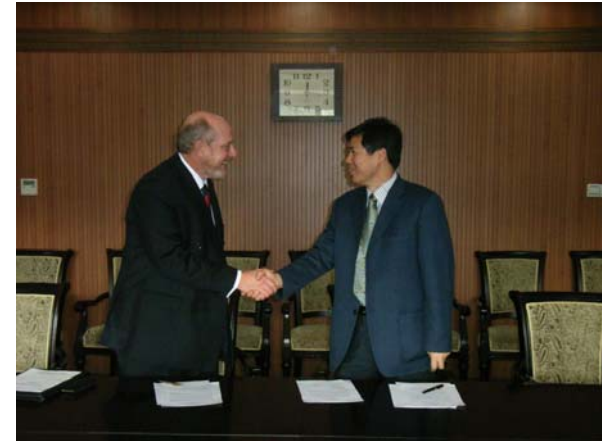
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# Program development

- Australia and China share reliance on fossil fuels & both need to reduce CO<sub>2</sub> emissions
- Developed by GA and ACCA21 between 2008-2009
- Supported through the Asia Pacific Partnership on Clean Development and Climate (now concluded)
- Funded by the Australian Government, Department of Resources, Energy and Tourism, with in-kind contributions from Australian and Chinese agencies
- Total funding: **AUD 2.86 million**
- Program run time **mid-2009 to December 2011**



Dr Yanhe Ma, Director-General, Department of Social Development, and Dr Clinton Foster, Chief, Petroleum and Marine Division, 2008



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# Partners & participants



National  
Development  
and Reform  
Commission



Department  
of Resources,  
Energy and  
Tourism

CUP  
IGG (CAS)

IRSM  
(CAS)

CGS

CAEP  
(MEP)

Tsinghua U

SCSIO  
(CAS)

Petroleum,  
power  
industry &  
others

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Australian Government  
Geoscience Australia

CO2CRC

GCCSI

CSIRO

ASP/UA

UNSW

State  
geological  
surveys

International  
experts

Petroleum,  
power  
industry &  
others

COACH

NZEC

USA

& Others

Australia-  
China JCG

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# CAGS Program

## Capacity Building

- ✓ Workshops (3)
- ✓ Summer Schools (2)
- ✓ Visiting scholars (9)
- Study Tour (Oct '11)
- ✓ Conferences (22)
- ✓ Website & Networks
- Publications (Mar '12)

## Research

- ✓ Research Project 1
- ✓ Research Project 2
- ✓ Research Project 3

**Final  
Symposium  
1<sup>st</sup> Qtr 2012**



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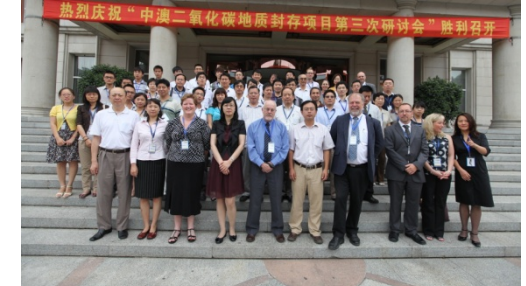
# Capacity building

## Workshops

- 3 Technical Workshops: Canberra (Jan 2010), Wuhan (Oct 2010), Changchun (Jul 2011)
- Topics included all aspects of geological storage
- 154 participants attended at least 1 workshop
- **51 Chinese organisations** and **21 Australian / Int'l organisations** have participated at least once

## CCS Schools

- 2 CCS Schools: Wuhan (Oct 2010), Sanya (Aug 2011)
- Graduate students and early career professionals
- Geological storage topics through presentations, discussions & exercises
- Total: approx. **100 students** from China and Australia



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# Capacity building

## Visiting scholar program

- 5 Chinese researchers and 4 senior students have spent 1 - 6 months at Australian institutions
- ACCA21, CAS, Tsinghua Uni, CGS, CUP, CAEP, CUMT
- GA, CO2CRC, Uni of Adelaide, CSIRO, UQ

## CCS conference support

- 22 Chinese researchers and students have attended major CCS conferences in: USA, Netherlands, Australia, Austria

## Information sharing and networking

- CAGS Website [www.cagsinfo.net](http://www.cagsinfo.net) & newsletters
- All presentations & materials available online
- Facilitating networking groups



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# Research

## Project 1: Site selection methodology and criteria of CO<sub>2</sub> geological storage

- China Geological Survey, Chinese Academy of Sciences (IGG, IRSM), Tsinghua University

## Project 2: Selection criteria of oil/gas reservoirs for CO<sub>2</sub> EOR and storage

- China University of Petroleum (Beijing)

## Project 3: Study of the environmental impact and risk management of CO<sub>2</sub> storage

- Chinese Academy of Environmental Planning, Chinese Academy of Sciences (IRSM), Tsinghua University, China Geological Survey



Image courtesy of Mr Luo Shu



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# Outcomes – so far...

## We have:

- Developed a storage capacity assessment methodology for Chinese Basins;
- Completed of three successful research projects;
- Completed several successful capacity-building activities.



## Resulting in:

- Extensive engagement of, networking between, and exchange of knowledge and skills between Chinese and Australian organisations and researchers;
- Promotion of collaborative research in CCS between Chinese institutions and between Chinese and Australian institutions;
- Development of awareness and skills in geological storage of CO<sub>2</sub> in Chinese and Australian students and early career professionals;
- Widespread promotion of CCS as one of the technologies that can reduce CO<sub>2</sub> emissions.

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# CAGS Phase 1 “Wrap-Up” Symposium Beijing April 16-18<sup>th</sup> 2012



- Presentations of the results of the research projects.
- Reviews of the status of CCS in Australia and China
- Reports from visiting International Experts.

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# Next Steps for CAGS



## Phase 2 In Planning

A\$1.4 Funding confirmed under the Joint Co-ordination Group on Clean Coal Technology

- Approx. 2 years continuing the mix of programs which have been successful in phase 1, including:
  - Research projects
  - Workshops and schools
  - Visiting Scholar Fellowships

Detailed programme to be developed between ACCA 21 and GA

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Questions?



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