



中国环境健康项目研究中心

The China Environmental Health Project

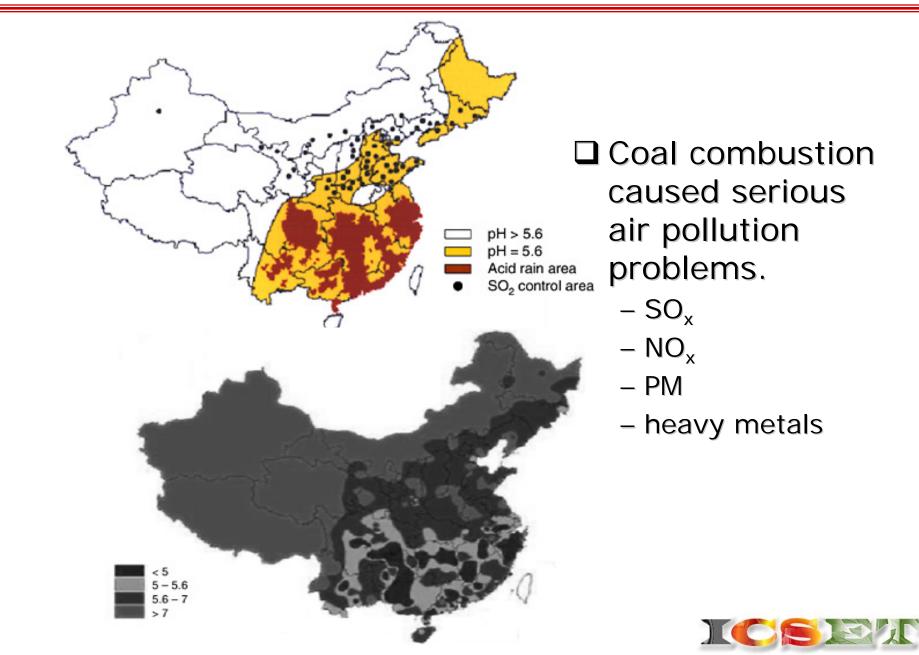


Background

Other 2% □ China is the biggest producer Gasoline and disel and consumer of oil 15% coal around the world. Coke 7% - 2.11 billion tons of coal in production in 2005; Coal 76% - more than 70% to total energy in China from coal combustion.



SOx, NOx and pH value of soil



Huainan, Energy Base of China

- Huainan City, Anhui Province
 - Energy base of eastern China
 - so called "Fuel Power Three Gorges" in China (2400 MW, 2400 MW, and 1150 MW)
 - Production of 100 million tons of coal in 2005
 - One of two sites on
 Energy Future and
 Air Pollution in urban
 China and the United
 Stats Program



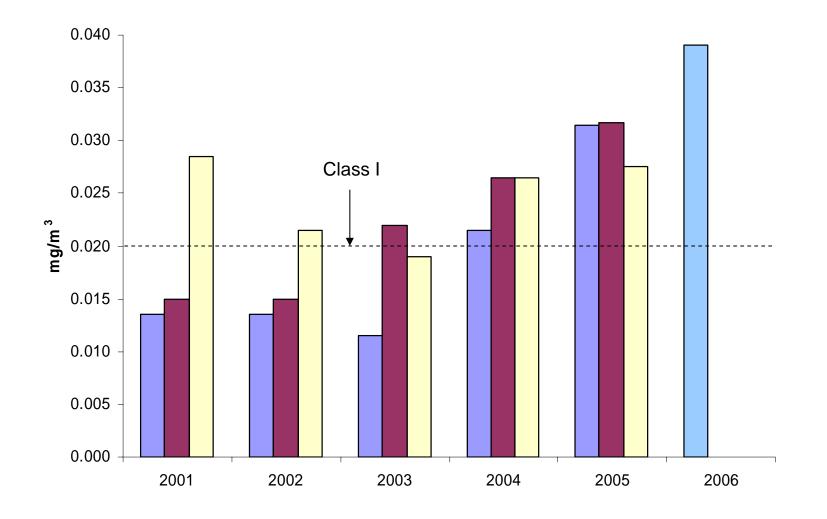


Environmental Problems in Huainan

- Ambient air pollution from coal combustion (11 million tons coal burned in 2004)
- Fly ash stockpile capacity (6.6 million tons fly ash in 2004)
- Sinking area due to coal exploration (130 square kilometer in 2004)

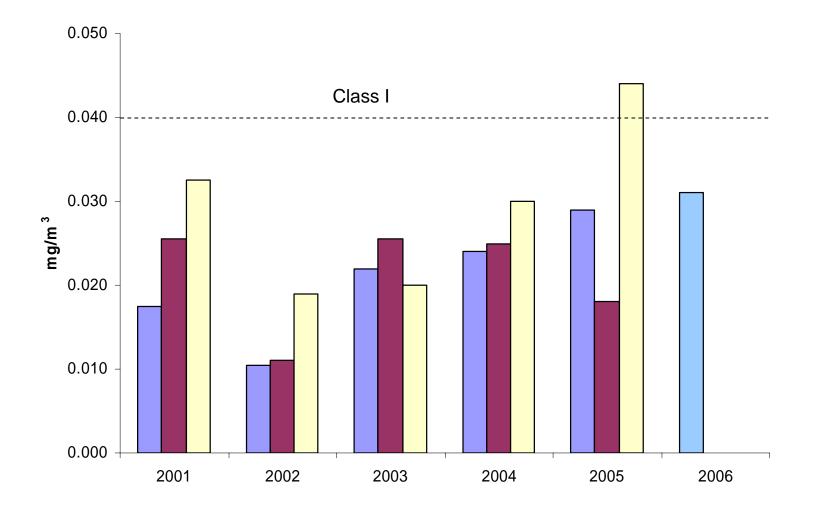


Annual Average SO₂ Concentrations



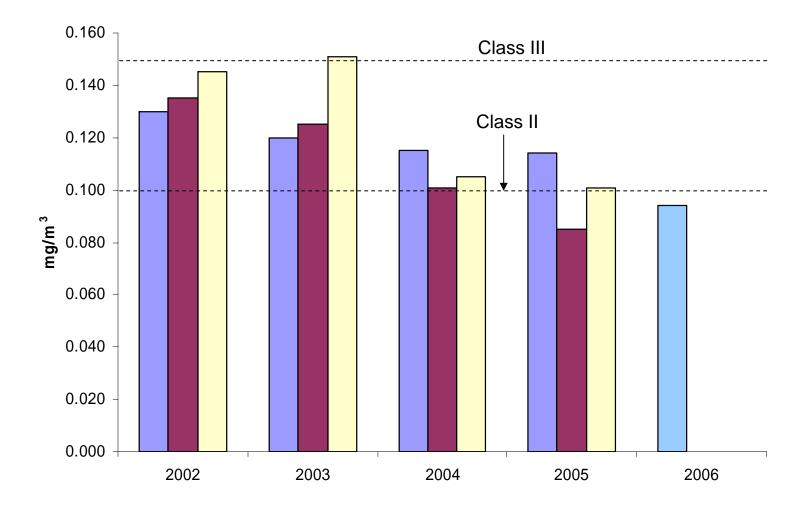


Annual Average NO₂ Concentrations



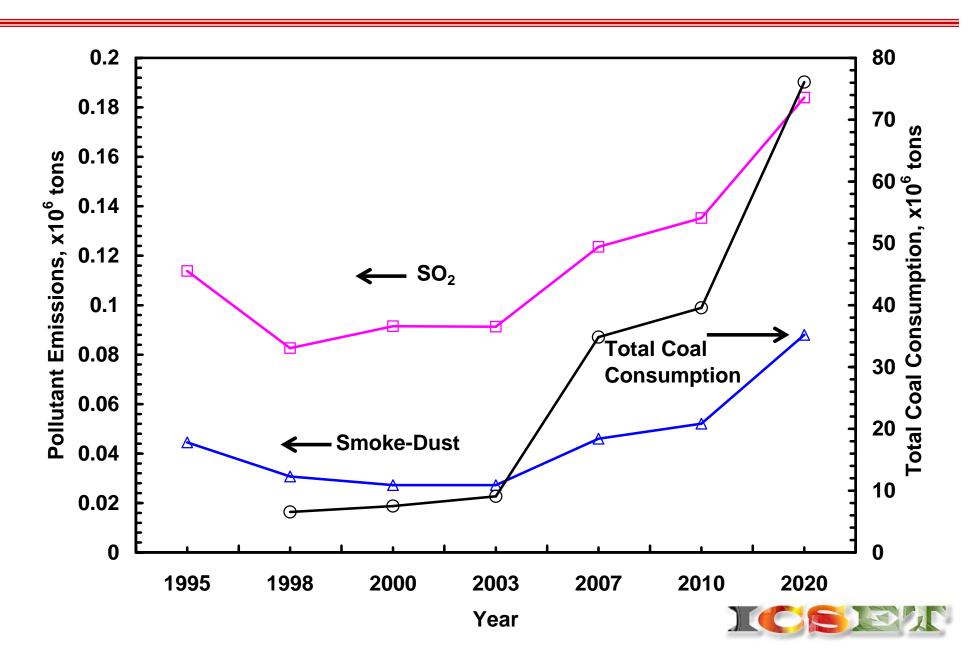


Annual Average PM₁₀ Concentrations





Pollution Emissions in Huainan



Project Objectives

- Improve Huainan's monitoring system for SO_x, NO_x, PM₁₀ and other air toxins resulting from coal-fired power and chemical plants
- Train and educate Chinese scholars in the latest environmental technologies;
- Reduce the coal-burning related health problems
- Ensure quality of life and residence through cooperation between WKU and Chinese partners



Participant: ICSET

- Institute for Combustion Science and Environmental Technology (ICSET): extensive experience in the study of coal combustion, waster material incineration and pollutant emissions;
 - funding from government agencies: DOE, USDA, NASA, DOD, EPA and NSF
 - funding from organizations: EPRI, ICCI
 - funding from industrial: power industries and others

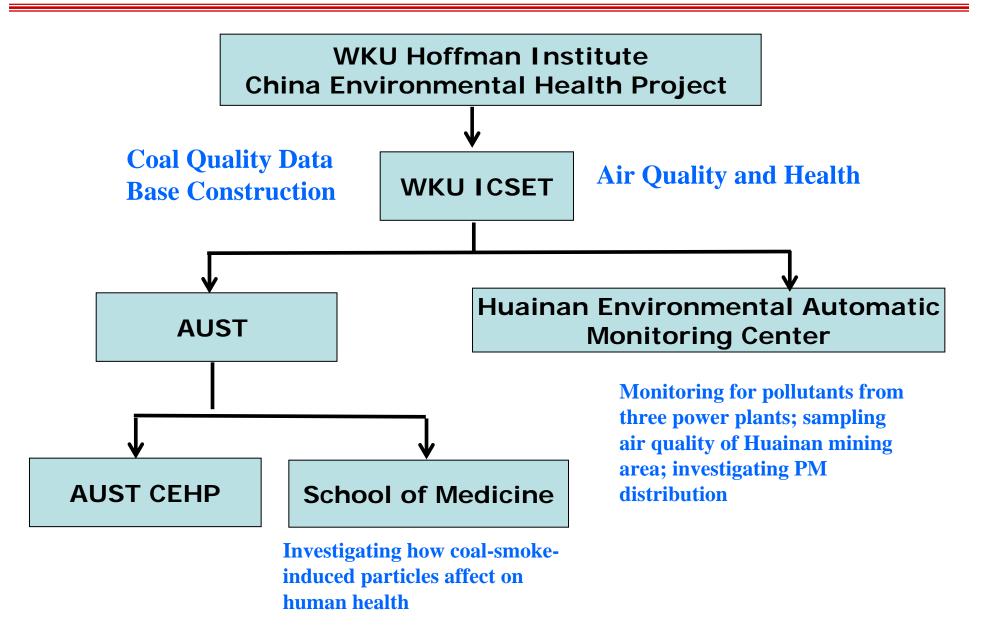


ICSET Work Scope

- Provide state-of-the-art technologies to train Chinese scholars and students about sampling and analysis of various pollutants;
- □ Ensure all measurement results and data quality.
- Hold a related workshop for Chinese scholars.
- Co-sponsor short course on the health impacts of coal in China.



Project Structure and Scope



Participant: AUST

- Anhui University of Science and Technology (AUST): located in Huainai, accomplished significant achievements in cleaner coal technology and protection from occupational disease:
 - Huainan Environmental Protection Agency will cooperate with Research Center of Environmental Science and Engineering of AUST, School of Medicine of AUST;
 - Huainan Environmental Automatic Monitoring Center (HEAM) will provide database and partial equipment for AUST research.



AUST Work Plan (2007-2008)

- Monitoring air quality (SOx,NOx,PM₁₀) and other gas species of the city every 30-minute at five different local stations surrounding the city and three power; Utilizing the air emission data to establish the air quality model using BENMAP software.
- Investigating the effect of PM on the public health of residence of Huainan city. Two representative hospitals and communities will be selected.
- Setting up new classes and workshop at AUST and community.

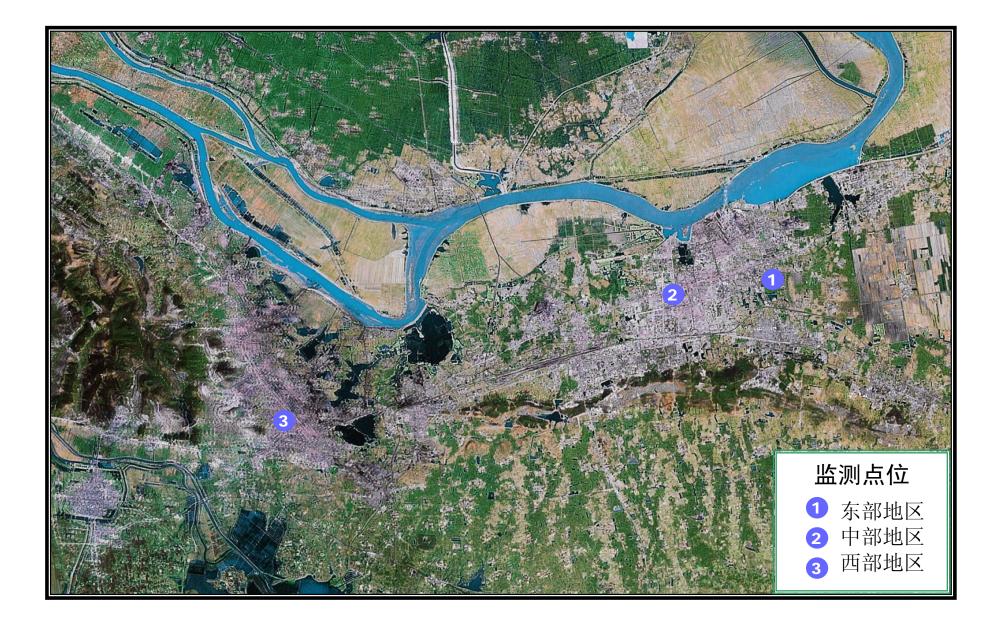


Expected Results

- Obtain accurate data on the coal-burn caused pollutant in Huainan;
- Provide fundamental understanding and important information of ground-level air pollution for local policy makers;
- Share with Chinese partners US regulatory environmental and compliance policies, such as self-reporting, emissions trading and tax-related incentives, coupled with tough enforcement.
- Allow public aware of public health problems, further improve public health problems caused by coal consumption.
- Adopt the new type of monitoring in Huainan in the near future.



淮南市环境空气自动监测点位图



Huainan City Map with Major Power Plants Indicated



FT.PP: Fengtai Power Plant;TJA.PP: Tianjia'an Power Plant;

PW.PP: Pengwei Power Plant;

LH.PP: Luohe Power Plant.

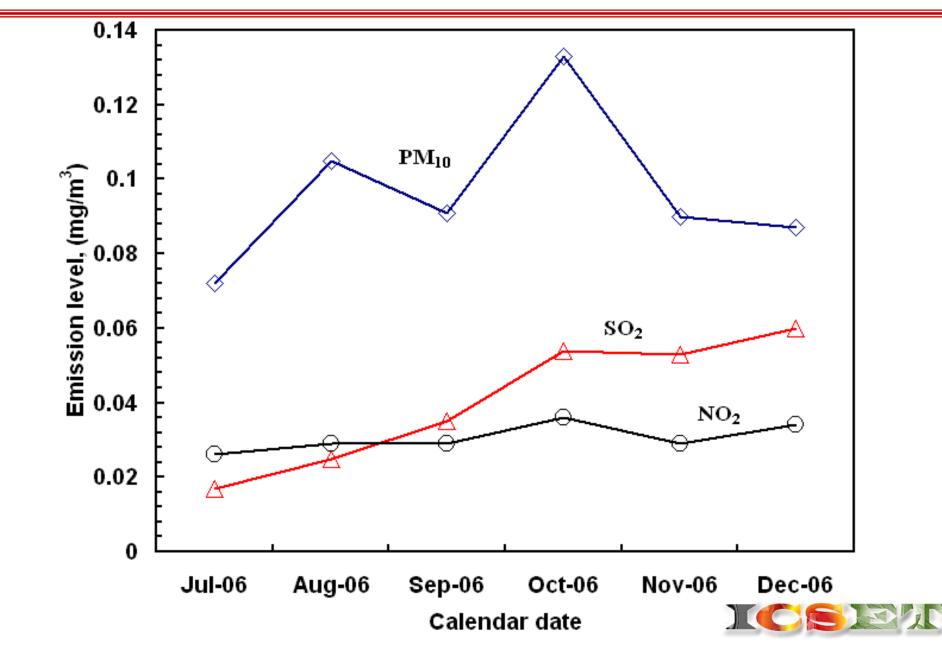


Huainan Auto Environmental Monitoring System





Measured Emission levels of SO2, NO2 and PM in 2006



Emission Levels of SO2, NO2 and PM in 2007

环境空气质量变化趋势图 (2006年10月~2007年9月)

0.140^{mg/m³} ┣━ 可吸入颗粒物 ━━━ 二氧化硫 ━━━ 二氧化氮 0.120 0.100 0.080 0.060 0.040 0.020 0.000 时间

2007年3月

2006年10月 2006年11月 2006年12月

2007年1月

2007年2月

2007年4月

2007年6月

2007年5月

2007年8月

2007年9月

2007年7月

Tianjia'an Power Plant



Department of Environmental Science and Engineering, Anhui University of Science and Technology

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进行了讨论和落实。 潘伟平博士还与课题组成员一道前往田家庵电厂、平圩电厂参观和调研,落实项 目研究所需要的采样事宜。



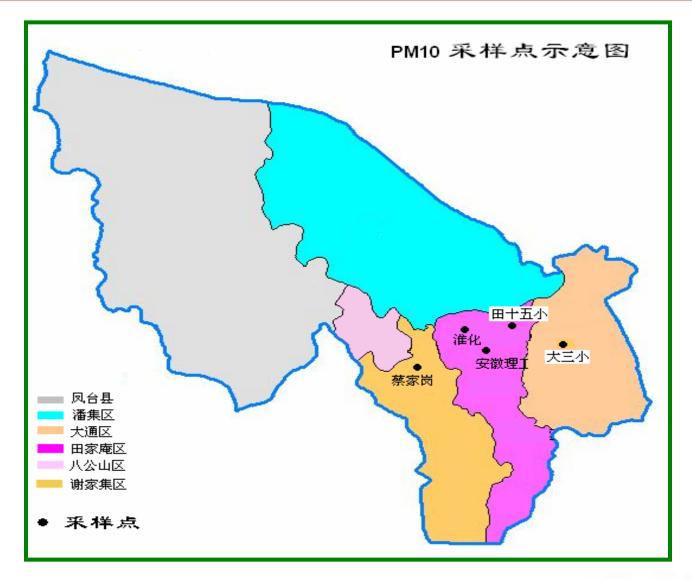
Main working of 2007

Sampling on Site



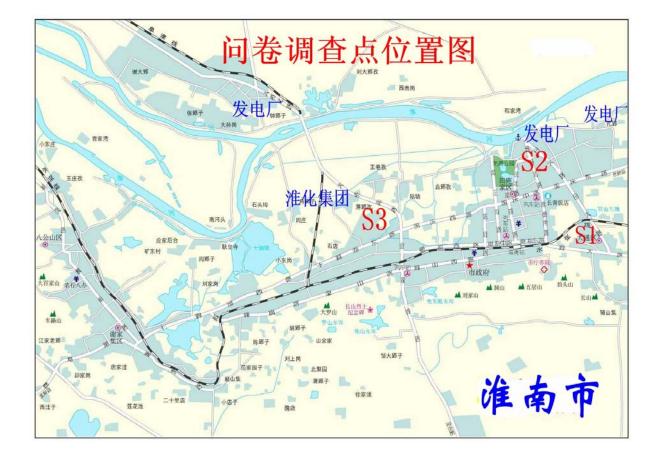
Department of Environmental Science and Engineering, Anhui University of Science and Technology

PM10 Sampling Sites Distribution in Huainan City









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首页 机构简介 政务公开	环保动态 环境质量 污染举报 环保考题 法规标准 环保宣传 生态流动 创模之窗 电子政务
欢迎悠第 位客人	环保动态>>本市环保动态>>播带平博士来准协商中美含作环境健康项目并参与环保活动 🛛 🐠 打印
THEREAM	双击鼠标左键自动滚屏,单击停止
环境保护机构 准南市环境保护局	潘伟平博士来淮协商中美合作
進南市环境保护监测站	环境健康项目并参与环保活动
淮南市环境监察支队	www.hahb.gov.cn 2007-6-6 淮南环保版权所有
A THE THE PART OF THE	
油南市环境科学研究所 点面	击重看详细内容 1日至4日,美国西肯塔基大学教授潘伟平博士应邀来到淮南,就中美合作环
环保政务公开	境健康项目研究前期工作进行协商,并参于我市环保工作。 。 8-2日下午 在中教理工士学家论中心上送会议家学生了中美会作环境健康项目
职能职责 领导介绍	6月2日下午,在安徽理工大学实验中心七楼会议室举行了中美合作环境健康项目 的第四次课题组会议,潘伟平博士和董众兵副市长对两国环保学者合作给予较高评
监督规范 通知公告	价,市环保局、科技局、安徽理工大学和医院、企业的其他项目组成员共同协商合作
力事程序 工作情况	事宜。讨论的范围包括出席第11届海峡两岸环境保护学术会议,课题研究每季度进展
下载专区 行政处罚	总结报告的具体要求;组织元素分析仪器使用方法的培训和举行公共健康方面的专题
环境保护专题	研讨会安排,采样方法的培训,组团赴美国访问和举行专题研讨会,环境与健康基本
全业环境行为信息公开	情况的合作调查。
专项行动整治 建设项目审批	6月3日,潘伟平博士在董众兵副市长的陪同下,到我市几座大型企业参观和调
环境影响评价 放射液清查	研,落实项目研究所需要的采样事宜。 6月4日上午,潘伟平教授参加了市级"绿色学校"大通第三小学师生做的环保知
创环保镖范城市室内环境检测	识进座,和师生交流爱护环境和倡导绿色文明理念的感想。随后,潘敖授在理工大副
环境污染举报	教授程学丰的陪同下参观了环保局组织的纪念"6.5"世界环境日环保宣传一条街活
12369 环境信访 网上举报 网上俗词	动,并向市环保局环保宣数工作者介绍美国环境宣传方面的作法。
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环保法规标准 环保法律 环保法规	雅 蒂 环境健康知识讲座 🕹 😤
环保标准规范 环保技术政策	M. DE DE MR AN BY MI ISE
环境保护宣传	
《曲南环境》网络反	
六·五世界环境日	
环境保护基本常识	
生活中的环保知识	
100 加入收藏夹中	
合 设置成为首页	
1 网络最近更新	
同站分类导航	
2 欢迎联系我们	
山口 双型联系表 们	
** 发情链报网站 **	



Impacts on Public Health

In Huainan

- allergic asthma: up to 2% of the total population;
- chronic bronchitis: 2% of the total population;
- conjunctivitis: 20% of eye illness;
- coryza: 2% of the total population;
- large amounts of people with occupational disease.



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【字体:大中小】 【打印】 【关闭】



AMA254 Mercury Analyzer & TRUSPEC CHN Elemental Determinator





CEHP-Related Testimony by Dr. Pan to the U.S.-China Economic and Security Review Commission

The U.S.-China Economic and Security Review Commission conducted a public hearing on June 14 and 15, 2007 at the **Russell Senate Office Building on Capitol Hill on China's Energy Consumption and Opportunities for U.S.-China Cooperation** Address the Effects of China Energy Use. The hearing examined the trends and impact of China's energy consumption; strategies for addressing these effects; and current and possible future **U.S.-China cooperative programs on energy and the environment.** Drs. Chris Groves and Wei-Ping Pan both attended the hearing on June 15. Dr. Wei-Ping Pan testified on the clean coal work of WKU's China Environmental Health Project as part of Panel XI on **U.S.** China Governmental and Nongovernmental Cooperative Programs in Energy and the Environment before the commission.



Professional Outreach for Air Program

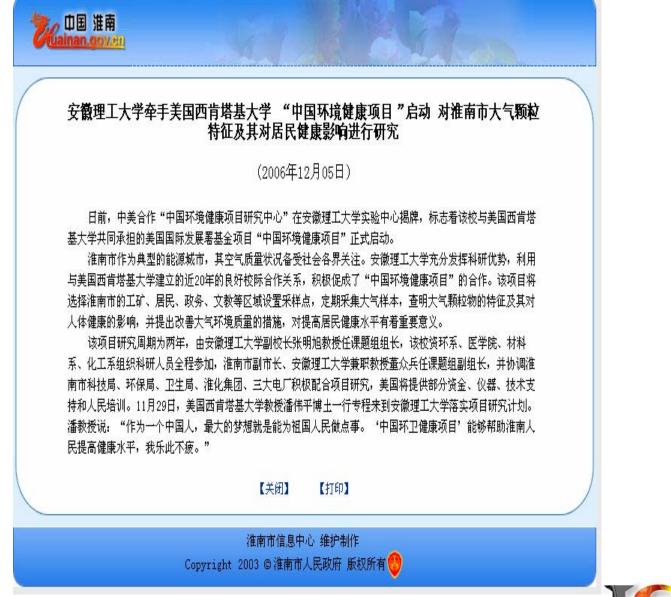
Professors Cheng (AUST) and Pan both attended the 11th Mainland-Taiwan Environmental Protection Academic Conference (MTEPC) which was held in Harbin City, June 2007.







CEHP Project Report From Huainan City Government Network





CEHP Project Report From Huainan City Daily News









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Presentations for 2008

Abstract for 12th Mainland-Taiwan Environmental Protection Academic Conference

1. 淮南三大燃煤电厂汞排放特征实验研究. 汪桂林,高良敏,程学丰,张明旭,潘伟平.

2.**淮南市大气颗粒物中汞的分布特征.** 晏海峰,高良敏,程学丰,张明旭,潘伟平.

3. **燃煤电厂煤中重金属迁移规律研究** 刘玉玲,高良敏,程学丰,张明旭,潘伟平.

4. 淮南市秋季大气PM10污染特征及其与气象因素关系的研究 程学丰,张明旭,孙瑛

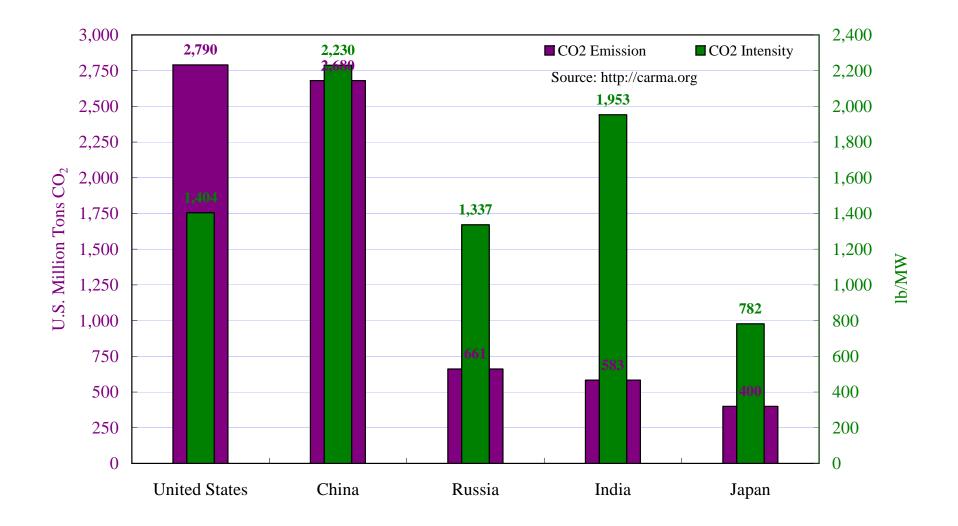


AUST Work Plan (2008-2009)

- 1. Monitoring coal-fired related emissions (mercury in the gas phase)
- 2. Developing a database for the information
- 3. Data analysis for decision-makers
- 4. Study of carbon dioxide sequestration from coal-fired combustion system in U.S. and China

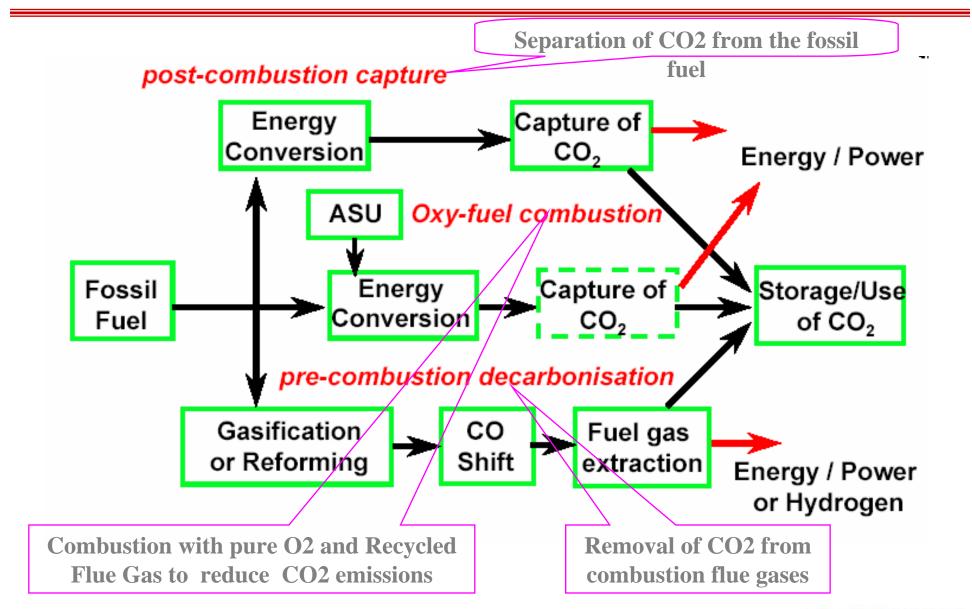


CO2 emitted by five highest countries at present_2007



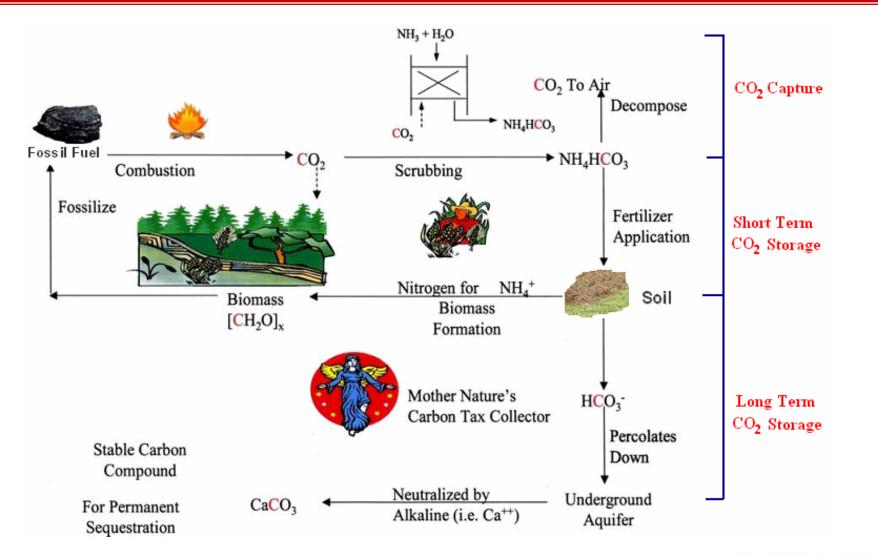


How to capture CO2



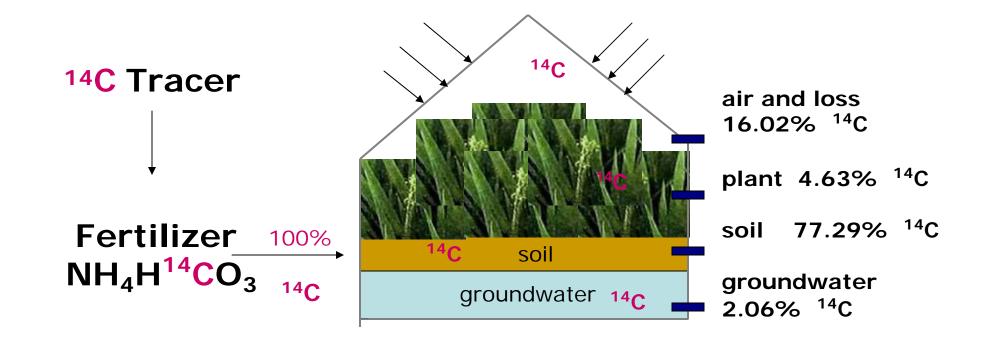


Natural Carbon Cycle





Development of a Method for Measuring Carbon Balance in the Chemical Sequestration of Carbon Dioxide



Permanent Sequestration:

 $Mg^{2+} + HCO_3^{-} \rightarrow MgCO_3 + H^+$

 $Ca^{2+} + HCO_{3}^{-} \rightarrow CaCO_{3} + H^{+}$

