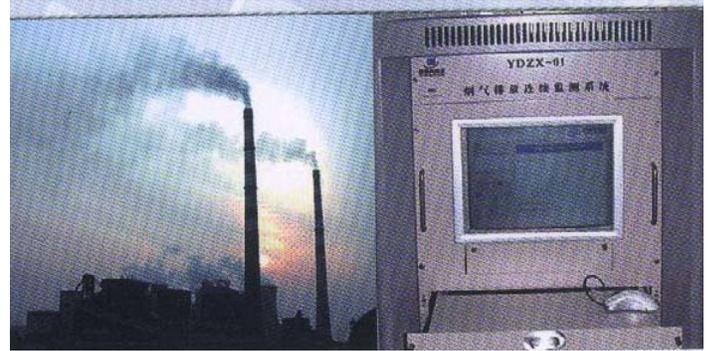


Case Study

Involving Communities in Environmental Protection Starts with Relationship Building and Education: How the China Environmental Health Project is Engaging Stakeholders for Air Quality Monitoring in Huainan, China.

Challenge

China is the biggest producer and consumer of coal in the world. More than 70% of the total energy in China is produced from coal combustion. This trend is expected to continue for the next 50 or more years. The city of Huainan in Anhui Province, the so-called “Coal-Powered Three Gorges,” has a coal reserve of 44.4 billion tons, which is 32% of the reserve in eastern China and 19% of the national total. Anhui is an important Chinese energy base relying on coal, electric power, and chemical industries for its development. The total quantity of Huainan coal consumption in 2004 was 12 million tons, making up 90% of the city’s energy consumption. The production of industrial liquid, solid, and gas wastes from coal use makes up about 98% of the city’s industrial pollution emissions. In 2004, the city’s total air emissions were 97 billion m³, which included 92,300 tons of sulfur dioxide (SO₂) and



Huainan Automatic Environmental Monitoring System for smoke source monitoring.

36,000 tons of smoke-dust. The annual average concentration value per day of SO₂ was 0.024 mg/m³; while nitrogen oxide (majority NO₂) and PM₁₀ were 0.026 mg/m³ and 0.111 mg/m³, respectively. These three pollutants have lowered Huainan’s air quality to China’s Grade II (moderately deteriorated) level. Huainan’s ambient air quality continues to deteriorate with increased coal consumption as the city undergoes urbanization and industrial development at an unprecedented scale. These downward air quality trends are causing serious public health problems for the city’s residents, such as asthma (impacting up to 2% of the total population—most likely a higher percentage among the more vulnerable communities); chronic bronchitis (2% of the population); conjunctivitis (20% of eye illness); coryza (2% of the population). Large numbers of people also suffer from occupational diseases related exposure to toxic air.

Initiative

USAID is supporting the **China Environmental Health Project** (CEHP) through cooperation between Western Kentucky University (WKU) and Anhui University of Science and Technology (AUST) to improve air quality monitoring and control in Huainan. This includes: (1) building up Huainan’s monitoring system for SO_x, NO_x, PM₁₀ and other air toxins resulting from coal-fired power and chemical plants; (2) training Chinese researchers in the latest environmental protection technologies; and (3) assisting AUST medical school researchers in studies of coal emissions impacts on the health of various communities. WKU will provide state-of-the-art technologies to train Chinese researchers and students about sampling and analysis of various pollutants (e.g., SO_x, NO_x, PM₁₀, Hg, and Se), and will assist AUST in monitoring three power plants in Huainan using U.S. EPA methods to ensure quality of the sampling data. The partners also will test the air in some of Huainan’s industrial and mining areas, business districts, and residential areas. In addition, WKU training will enable AUST researchers to: (1) investigate the sources, distribution and polluting level of PM₁₀ and PM_{2.5} in Huainan’s atmosphere as well as the behavior of the pollutant polycyclic aromatic hydrocarbon (PAH) in PM₁₀ and PM_{2.5}; (2) study how coal-smoke-induced particles affect human health; (3) analyze the effectiveness of various air pollution control devices; and (4) study the effect of coal pre-washing on dust emissions. Additionally, the China Environment Forum at the Woodrow Wilson Center will be helping WKU and AUST set up a workshop that will bring researchers from other Chinese cities to Huainan to discuss their experiences in carrying out environmental health studies.

Objectives

The China Environmental Health Project aims to obtain accurate data on coal-fired pollution emissions in Huainan, as well as generate awareness among policymakers on the health dangers of coal. A strong regulatory environment and reliable monitoring are the cornerstones of a system that can force polluters to reduce emissions. For example, better monitoring capacity can permit the adoption of some market and information disclosure type regulations such as: voluntary reporting, emissions trading, and tax-related incentives. Additionally, the CEHP research findings could help catalyze city policymakers to adopt measure to reduce public health problems caused by coal combustion.