

## **ABSTRACT**

The Chinese government is raising air quality as a priority but has weak capacities to evaluate tradeoffs between pollution control and the higher priority of sustained economic growth. This is reflected in ambitious emission and energy efficiency targets in the 11th Five Year Plan (FYP) that will be hard to achieve under anticipated economic growth. The government has issued notifications of policies to meet the targets, including phasing out of small power plants and mandated sulfur dioxide control technologies. At the same time, the global community knows that a post-Kyoto regime on greenhouse gas emissions—also generated by fossil fuels—requires significant participation by China. It has poor understanding, however, of China's domestic tradeoffs to limit its emissions.

Effective mitigation of these rising emissions requires major advances in capacities to evaluate the impacts of control options. Estimating the *benefits* of emission control policies requires tools to understand air quality, including complex chemistry and meteorology. It requires tools to link pollution levels to exposures and impacts on public health. Estimating the *costs* of pollution control concerns not only the direct costs of abatement, but also the indirect costs of lower economic growth and unemployment. This requires an understanding of the interaction between the many sectors of the economy.

Nearly all analyses of China to date concern only parts of this puzzle; none has integrated advanced modeling and data covering the range of related disciplines. The Harvard China Project is poised to accomplish this integration, after a decade building interdisciplinary research capacities and ties across Harvard and Chinese institutions.

This proposal seeks to undertake a long-term collaborative study with Tsinghua University aimed at building fundamental scholarly capacities in assessment of China's emission control policies. It will broaden consideration of policy options from the government's announced command-and-control approaches under the 11<sup>th</sup> FYP to comparative evaluation of market-based alternatives, such as "green" taxes. This assessment would be done in a framework that integrates a suite of complex research tools: emission inventories; atmospheric modeling and measurements; economic modeling; and epidemiology and risk assessment. Results of the study could help illustrate not only how to reconcile domestic environmental and economic priorities in China, but also how they could be aligned with global interests in greenhouse gas control.