

Proposal to institutional review board for research on human subjects.

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Environmental Performance in the Cement Industry (full title: “the energy and materials intensity of investment in the cement industry”

The study involves a questionnaire survey of 125 cement manufacturing firms in China, Malaysia and Thailand. The survey will be administered by local collaborators in each of these countries. The local collaborators are as follows: China (Jiangsu National Academy of Sciences and the Jiangsu Environmental Protection Agency), Malaysia (University of Malaya and Malaysian Cement Industry Association), Thailand (Chulalongkorn University and Thai Federation of Cement Manufacturers). The survey (which is attached) involves collection of economic and environmental information from cement firms. The goal of the research is to assess the impact of economic integration and environmental regulation on the environmental performance of cement firms in the three countries.

1. The survey will be completed by the general manager of the cement firm.
2. Participation in the survey is voluntary. Each firm will be initially contacted by mail by our collaborators with an invitation to participate. Firms agreeing to participate will be visited by our collaborators and the survey will be administered at that time. The survey and consent form will be translated into local languages by our collaborators.
3. The questionnaire is attached (attachment A). The survey requests standard information on economic and environmental performance. The survey requests information that is routinely maintained by cement firms as part of their operations management. Participation in the survey does not place the firm at any risk. Similar data are already reported to government agencies. The data are regarded by firms as sensitive business information and will be treated as confidential information (see below).
4. Each survey will be assigned a code number. In a separate file, kept at a locked secure location, the code number will be cross-listed against the identity of the participating firm. Data will be recorded by code number only and will be treated as confidential information. Data will be reported for aggregate groups of firms only. No data will be released for individual firms.
5. Consent form attached (attachement B).
6. Not applicable.
7. The research does not involve any significant risk for participating firms.

Attachment A. Survey Questionnaire.

Survey questionnaire for cement firms.

Assigned ID number:

Operations

1. What was the total output of this plant last year, measured in tons of clinker?
2. How many people work at the plant?
3. In what year did your cement kiln become operational?
4. Is your plant state-owned or private?

Openness

5. Is the factory a joint venture with a foreign firm?
6. What is the percentage of foreign ownership?
7. What percentage of your output is sold to international customers?
8. Is your plant ISO 14000 certified (or undergoing certification)?

Technology and Environment

9. Which of the following best describes your kiln process technology (select from: mechanical shaft kiln, wet rotary kiln, short wet rotary kiln, short dry rotary kiln, short dry rotary kiln with multi-stage pre-heaters)?
10. Do you have electrostatic precipitators installed at your kiln?
11. Do you have bag filters installed at your kiln?
12. Do you have a system for waste heat capture at the kiln?
13. What is the total energy used in your cement kiln, measured in kilo-calories per kilogram of clinker produced?
14. How much limestone (metric tons) do you use to produce a ton of clinker?
15. What is the average level of particulate emissions at your kiln, measured as total suspended particulates per ton of clinker?

Environmental Regulation

16. How many times did environmental regulators visit your plant last year?
17. Over the past years, did regulators actually measure your air emissions to see if you are in compliance with emissions standards?
18. If your plant were found to be in persistent violation of air emissions standards, what is the most likely response of regulators? (select one from: do nothing; work out a plan and give us time to solve the problem; issue a warning; impose a fine; close the production line until the problem is corrected).
19. If your plant were to create persistent air pollution problems in the local area, what is the most likely response of the community: (do nothing; complain to local politicians; protest at the plant; cause significant problems for our reputation; force the factory to reduce production until the problem is solved)?

Attachment B: Letter for Consent (China version- to be translated).

Dear Sir:

In collaboration with the Jiangsu National Academy of Sciences, we are conducting a survey of cement manufacturing firms in China, Malaysia and Thailand. The purpose of this survey is to assess the impact of foreign direct investment and of environmental regulation on the environmental performance of cement manufacturing firms in these countries. Firms participating in the study will receive a summary report of the aggregated data and the analysis we conduct. The survey is part of a research project funded by the U.S. National Science Foundation.

Participation in the study is voluntary. The survey will take approximately 30 minutes to complete and will be administered during a visit to your firm by a member of the project staff. All data will be treated as confidential. Firms participating in the study will be identified by code number only. No data will be released for individual firms. Data will only be released for aggregate groups of firms.

If you agree to participate in the study, please read and sign the statement below:

“By signing this statement I consent to participate in the research study “Environmental Performance in the Cement Industry” being conducted by Dr. David P. Angel, Professor of Clark University, USA, in collaboration with the Jiangsu Academy of Sciences. I understand that participation in the study is voluntary and that I may decline to answer any question. The procedures for protecting the confidentiality of the information provided have been explained to me.”

Signed Date:.....