



# Growing Pains

## *Protecting Worker Health in Developing Nations*

*As U.S. consumers worry about toxins in food and toys shipped from China and other developing nations, industrial hygienists are concentrating on protecting the workers who produce those products.*

*It's an overwhelming task. China alone has a work force of 798 million. India has 450 million workers. These two giants are a mixture of rapid modernization and primitive conditions. Both face virtually every problem in the realm of industrial hygiene, with few industrial hygienists to monitor, let alone prevent, safety hazards.*

BY STEPHENIE OVERMAN



### Significant Differences Exist

But there are differences between the two countries. "India is more evolutionary. China has a much shorter history" of concern for worker safety, said Keith Tait, a former industrial hygienist with Pfizer Inc. "China is revolutionary. Within its authoritarian context it's starting to morph into a modern industrial state. [The Chinese] have synergy going for them...that surpasses anything in India or the West."

China passed a Law on the Prevention and Control of Occupational Diseases in 2002. India's legal concern for worker health and safety dates back half a century, said Tait, now director of Environment, Health and Safety at the State University of New York at Plattsburgh. India also has a history of labor unions, while China has only one trade union, controlled by the central government.

### China Is More Progressive

But China is being more aggressive than India in upgrading its occupational health and safety system, said Paul James, senior vice president of Quest Technologies Inc., Oconomowoc, Wis. Quest Technologies monitors occupational noise, vibration and heat stress in nearly 80 countries. "There's a lot of visibility on China, because it is such a huge exporter and so much manufacturing has moved there from other countries. They are doing more there to upgrade their capabilities."

Frank Renshaw, senior EHS leader for Rohm & Haas Company, based in Philadelphia, sees China as more progressive and able to mobilize and address issues more quickly than India. The biggest concerns he sees now in China are mining accidents (China reported more than 3,300 accidents that killed nearly 6,000 miners in 2005), exposure to chemicals and noise-induced hearing loss, particularly in manufacturing and construction. At a recent Sino-U.S. workshop he attended in Beijing, dangers in "those three areas came through loud and clear," Renshaw added.

### Use International or Individual Country Standards?

There is so much manufacturing and so much trade and it's happening so quickly," said AIHA President-elect Lindsay E. Booher, that the biggest challenge is just "understanding all that's going on." Booher, who is an international industrial hygiene manager for ExxonMobil, said a key question is: What occupational health and safety standards should apply—international standards or individual country standards? "In developing countries such as China, either there aren't any national regulations or they are not routinely applied."

According to Booher, AIHA believes "we ought to have a consistent level of health and assessment wherever we operate. We would like workers' health not to be variable," he said, but "how do you make that happen, especially if you don't have resources on the ground?"

China is "struggling with the demand for an adequate supply of the right kind of people. So few are trained in health and safety," Booher continued. "There's a difference between someone knowing a few technical concepts, and doing [the work]. We're trying to have people who are able to analyze situations. For that they need professional education that encourages them to think about a problem, to think about its technical basis and to figure out a solution. Not just to learn technology, but to think."

### The Training Gap Is a Problem

Brian Daly, technical director of Hygiene-Tech in Torrance, Calif., an industrial hygiene and occupational safety consulting firm, said industrial hygienists in China "are trained to some degree, but you would not consider them adequately trained compared with their counterparts in the United States. It's improving, but generally speaking they are far behind. There is a gap."

Lack of equipment and facilities adds to the problem. There are no accredited environmental health and safety laboratories in China, he said. "There are labs, but they may not offer services that meet our standards—or their standards. Even if they have the equipment, they may not know how to use it."

Some industries "may be a decade to several generations behind the West in development, attitude, equipment and EHS education. It is a challenge to bring some understanding and some expertise to China that will be used in a way recognized by [westerners]," Daly said. He added that there are cultural sensitivities to be addressed as well. "The Chinese don't want to be labeled incompetent" in the occupational and safety arena.

AIHA has taken steps to address the lack of training: last September the association partnered with China's occupational safety and health organizations to present the first Sino-U.S. Occupational Health Workshop in Beijing (see the December 2007 *Synergist*, pp. 32–34, for a recap of the workshop).

Further good news, said Tait, is that multinational companies from the United States, Europe and Japan are bringing in turnkey operations that have "much less pollution" and Chinese national companies are willing to look to them as models.

"Chinese nationals want to know about environmental health and safety. They are open to how it is done in a modern nation," he said. "They realize that 'cleaner' has more value added."

### Industrial Hygiene in India

India's regulation of occupational health and safety dates back to the Factories Act of 1948, which was "designed for cotton production, for jute mills," said Tait. "The act has long provided at least a basis for protecting workers. But within the context of society, it hasn't been the regulations so much as the workers themselves, as they climb the ladder," who push for safer conditions.

The country has a very bureaucratic system, James said. "They have some semblance of occupational health and safety rule but they have not in the past seemed to punish violators," he stated, adding that he sees more being done now.

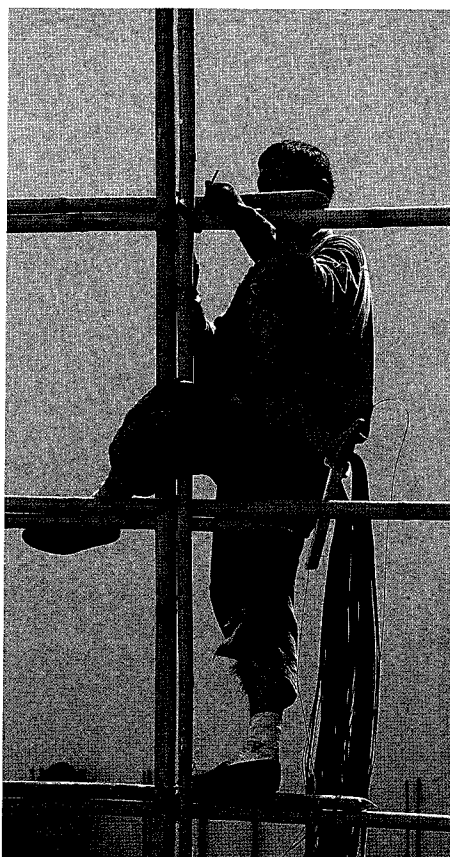
If government regulations were better met, "things would be much better, particularly for medium and small scale businesses," according to University of Cincinnati Professor Carol Rice, director of the university's Midwest Consortium for Hazardous Waste Worker Training. But safety inspectors are few in number in India. Rice added, "We did some work two years ago and found out that if inspectors leave the city where they are employed, they have to pay their own lodging and transportation. They have to spend their own income."

The smallest facilities are the most neglected, unless a nongovernment agency gets involved. While Indian regulations require a safety certificate if a facility employs more than a certain number of people, "it's a fairly short-term training program," to receive certification, Rice noted. Sometimes, industrial hygiene is handled by the human resources or environmental departments. "The crossover to industrial hygiene hasn't arrived."

Tait sees the recent growth of industry in India leading to "a cleaner, safer workplace" for some. However, "the bulk of people are still doing menial labor, working in fields with animals. You see people—a lot of people—living this way. At construction sites you see women carrying rocks in baskets. Women do the dirtiest, hardest work."

### Modern and Primitive

The country is such a contrast between the modern and the primitive that "I don't know how to get my arms around the state of occupational health and safety in India. There is so much human suffering that it almost overwhelms you," said Renshaw. With the size of the country and the diversity of its industries, "I suspect every occupational illness we know of also exists in India—and some we don't know of."



"Yet India is developing at a rapid rate," Renshaw continued. As in China, he sees multinational corporations leading the way toward modern industrial hygiene. Rohm & Haas recently opened a second factory in India, he said, that is ISO certified and where "we have some of the most stringent limits on air and water pollution and hazardous waste."

In contrast, Renshaw said, there are many small, unregulated factories where lead is used in coatings and paints and workers are exposed to airborne dust. Silicosis, "an old disease, a significant disease," remains a major health risk.

### Infrastructure Is Not There


Maharshi Mehta, AIHA ambassador to India and president of International Safety Systems Inc., finds that "industrial hygienists from multinational companies have been tremendous. GE has a strong program. So does Proctor & Gamble and Pfizer. My experience shows that all the major corporations are putting in industrial hygiene at the same level" as in their home countries. And local companies feel "if GE is doing it, that's a reason we should be doing it."

But with manufacturing growing so quickly, "industrial hygienists have not been able to develop resources at the same speed. It's similar to the United States in the 1950s and 1960s," Mehta said. Again, as in China, the infrastructure is not there. Equipment is not available or it is too costly.

### Not Enough Industrial Hygienists

There is also a drastic shortage of industrial hygienists in India, as well as in other developing countries, according to Mehta and other IH experts. Mehta estimated the number of industrial hygienists in the United States to be about 8,000, while "in India it's maybe a 100. The balance is not there."

"Professionals in this country are so overworked. The situation is much better than it was 10 or 15 years ago, but there's a long way to go," he said. "When you are looking at the training professionals and the infrastructures, the United States and Europe are better off and the risk is less. In India and China there is so much less and the risk is high."

A decade ago, Mehta went back to India, where he started the country's first masters degree program in industrial hygiene and safety at Sardar Patel University in Gujarat. He now sees more and more educational programs slowly developing and collaborations being formed with associations in India such as the National Safety Council. 



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