

# Mechanization, vibration and the Indian workforce



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## Economy and mechanization

The overall growth index of industrial production in India during April–October 2005 was 8.4 percent (1). The driving forces behind this are the availability of technology and an opening of global markets. Despite the buoyancy in the economy, the Indian workforce remains in a stage of transition from non-mechanized to highly mechanized job requirements. The current mechanization is not accompanied by practices and legislations required for safe usage of machines. All possible effects on the health of workers need to be visualized for a programme to be sustainable. The current article aims to focus

on the impact of occupational vibration on health of workers in relation to mechanization.

## Health hazards of vibration in the Indian context

The human response to vibration depends on the part of the body that is exposed. There are two broad types of vibration to which workers are exposed:

1. Vibration transmitted to the whole body (whole-body vibration) through a supporting surface, for example, the feet of a standing person on a vibrating platform or the buttocks of a seated operator of a vehicle. Worldwide, disorders of the back, especially low back pain, have been causally linked to whole-body vibration (2). An increase in the number of highly mechanized industries therefore poses a threat to the health of workers.

The National Institute of Miners' Health, Nagpur, conducted vibration surveys in various mines of the coun-

try. It was found that in opencast mines, operators of heavy earth-moving machineries were at greater health risk from exposure to vibration. Regular work-related back ache is more common among tractor-driving farmers (40%) than non-tractor-driving farmers (18%), reported a study conducted on farmers in north India (3). In the agricultural sector, use of tractors and power tillers is increasing. Similarly, in the transportation industry, an estimated 1.2 million trucks (4) (9 tons capacity) are in use across the country, covering nearly 0.1 million kilometers. In most of the cases, these truck drivers are regularly exposed to whole-body vibration for more than eight hours a day in the course of their work.

2. Vibration applied to a part of the body is known as segmental vibration. When vibration is applied to the hand, it is termed hand-arm vibration. An example is jackhammer operators in mines. Hand-arm vibration is work-re-