

Foreign Labor Developments



ILO examines impact of technology on worker safety and health

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Industrial robots, computer-controlled machine tools, video display terminals—these and other space-age technologies can help reduce workplace injuries and illnesses if safety, health, and work organization factors are built in during design and development. But when accident and illness prevention techniques for new technologies are adopted only after worker injuries or illnesses begin, the result can be serious new workplace hazards.

These are the fundamental conclusions of a special meeting of safety and health experts held by the International Labor Organization (ILO) in Geneva, Switzerland, March 25–29, 1985.

The ILO has become increasingly concerned about the impact of new technology on worker safety and health. It convened this meeting of 15 government, worker, and employer experts from the United States, Eastern and Western Europe, Canada, and Australia to take a broad look at the safety and health impact of new technology in industrialized countries, focusing on such areas as robotics, biotechnology, office equipment, and chemicals.

The ILO experts agreed that new technology can reduce some safety and health hazards by relieving workers of arduous or dangerous physical tasks or removing them from exposure to dust and toxic substances. Examples include automated materials handling equipment and the growing use of robot welders and painters in the automobile industry.

The experts suggested that involving and consulting workers at the earliest possible stage in the introduction of new technology will help promote these benefits. They also emphasized the importance of training and retraining to make employers and workers more aware of the safety and health potential of new technology.

But the ILO experts were equally concerned about potential new hazards. With technology being developed, introduced, and transferred at an accelerating pace, governments,

workers, and employers are faced with a variety of new serious safety and health hazards about which, all too often, little is known.

The experts expressed special concern about safeguarding against hazards which, while not immediately apparent, are inherent in some new technologies. One example is the unpredictable action patterns of robot arms. Studies in Europe, Japan, and the United States have identified a number of real and potential robot hazards—which, in a few cases, have caused fatal accidents—involved primarily in programming and repair activities.¹

Some experts were concerned that computer reliability can also be a serious problem in cases where computers control or monitor work processes. They noted that the nuclear and aerospace industries frequently use redundancy techniques (for example, secondary computers) to provide an adequate margin of safety, but these techniques require resources and skills not usually found in many parts of manufacturing.

The ILO experts agreed that occupational stress has become an increasingly serious health issue. New technology can either increase or decrease work-related stress depending on how it is used—and that may mean changing the organization of work to reduce the stress, fatigue, and monotony often associated with some types of new technology.

Occupational stress is not a new issue in the United States. The Congressional Office of Technology Assessment, in a 1984 report on office hazards, called stress “one of the most pervasive health problems in the United States.” Work-related emotional disorders are recognized in 19 States and accounted for more than 15 percent of total workers’ compensation costs in California in 1980, according to data cited by the Office of Technology Assessment.²

The ILO experts acknowledged that it is not easy to separate occupational and other sources of stress. They concluded, however, that some new technologies can create stress if insufficient attention is paid to work organization issues. Examples include monotony and isolation in automated machinery control rooms, faster paced production lines, electronic monitoring of work performance, possible fragmentation and reduced skill requirements of jobs, reduced opportunities for worker responsibility and discretion, and poor ergonomic design in offices using computers and other video display terminals (VDT) and equipment.

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Health hazards, particularly exposure to toxic chemicals, were a major concern of the experts. Some were convinced that it is very difficult for national safety and health authorities to keep pace with the rapid development and introduction of new chemicals into the workplace. In the United States, for example, some 60,000 chemicals are reportedly in commercial use, only a handful of which are subject to Federal or State regulation.³

The ILO experts said more should be done to exchange information between employers and workers—and, in some cases, communities—about the potential hazards involved in industrial chemicals. Similar concerns in the United States have led more than 20 States to enact “right-to-know” laws requiring employers to inform workers and community officials about toxic substances being produced or used commercially.⁴

American employers, responding to the Union Carbide methyl isocyanate leak in Bhopal, India, recently announced a voluntary program to provide hazard information on workplace chemicals. Earlier this year, the Chemical Manufacturers Association announced plans to expand the chemical industry’s involvement in community response planning and emergency networks and to give the public access to information on hazardous chemicals.⁵

The ILO experts agreed that “it might be necessary to rely also on a general legal duty of care” because of the difficulty of developing standards fast enough to keep pace with the introduction of new workplace chemicals.

The notion of a general legal duty to prevent worker exposure to chemical hazards has been a controversial issue in the United States for some years. The Occupational Safety and Health Act of 1970 contains such a “general duty clause”: Section 5(a) (1) requires each employer to “furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.”⁶

Because the development of new Federal standards on chemical hazards has become extremely complex and time consuming, some groups (particularly American unions) have strongly urged the Occupational Safety and Health Administration (OSHA) to use the “general duty clause” more aggressively to cite recognized health hazards not covered by specific OSHA standards.

OSHA significantly expanded use of the general duty clause during the 1970’s, reaching a peak of 3,816 citations in fiscal year 1979. Since then, however, its use has been scaled back, largely because of serious legal and administrative questions about its use.⁷ In fiscal year 1984, OSHA

issued 413 such citations. Current OSHA policy permits general duty clause citations when there is no applicable standard, the hazard presents a probability of death or serious harm to employees, and abatement is considered feasible.

Finally, the experts called for further examination of long-term, low-level exposure to non-ionising radiation. Workers using computers and other video display terminals complain of a variety of problems associated with VDT use. These include stress and such physical problems as eye strain and musculoskeletal ailments. In some cases, workers have also complained about suspected VDT health hazards, citing higher than normal incidences of eye cataracts and reproductive problems for pregnant women.

A number of VDT studies in the United States and other industrialized countries have confirmed that stress and physical hazards can arise from poor ergonomic design of offices using VDT equipment. In most cases, these can be corrected through proper lighting, reduction of glare, flexible working tables and chairs, adequate rest periods, and other physical or work organization modifications.

So far, however, government and industry studies have not found evidence of health effects related to exposure to VDT non-ionizing radiation. The National Institute for Occupational Safety and Health is continuing to investigate the issue.⁸

The meeting of experts concluded by urging the ILO to focus future discussions on the safety and health implications of new technology within particular sectors. The meeting also called for fuller use of the International Occupational Safety and Health Hazard Alert System—an international system developed with a U.S. Department of Labor grant designed to facilitate the rapid exchange of technical information on known or suspected safety and health hazards—as well as other information exchange programs. □

————FOOTNOTES————

¹International Labor Office, *Implications of new technologies for work organization and occupational safety and health in industrialized countries*, October 1984, p. 10.

²Robert Arndt and Larry Chapman, *Potential Office Hazards and Controls*, September 1984, p. 29. A paper prepared for the Office of Technology Assessment, U.S. Congress.

³*The Washington Post*, Jan. 3, 1985.

⁴*Newsweek*, Dec. 17, 1984.

⁵“CMA Launches Campaign on Accidents,” *Chemical Marketing Reporter*, Apr. 1, 1985, p. 3.

⁶Public Law No. 91-596, 84 Stat. 1590, effective April 28, 1971.

⁷Donald L. Morgan and Mark N. Duvall, “OSHA’s General Duty Clause: An Analysis of Its Use and Abuse,” *Industrial Relations Law Journal*, Vol. 5:283, pp. 300-02.

⁸Arndt and Chapman, p. 97.