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International occupational health

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Abstract

Working conditions for the majority of the world's workers do not meet the minimum standards and guidelines set by international agencies. Occupational health and safety laws cover only about 10 percent of the population in developing countries, omitting many major hazardous industries and occupations. With rare exception, most countries defer to the United Nations the responsibility for international occupational health. The UN's international agencies have had limited success in bringing occupational health to the industrializing countries. The International Labor Organization (ILO) conventions are intended to guide all countries in the promotion of workplace safety and in managing occupational health and safety programs. ILO conventions and recommendations on occupational safety and health are international agreements that have legal force only if they are ratified by ILO member states. The most important ILO Convention on Occupational Safety and Health has been ratified by only 37 of the 175 ILO member states. Only 23 countries have ratified the ILO Employment Injury Benefits Convention that lists occupational diseases for which compensation should be paid. The World Health Organization (WHO) is responsible for the technical aspects of occupational health and safety, the promotion of medical services and hygienic standards. Limited WHO and ILO funding severely impedes the development of international occupational health. The U.S. reliance on international agencies to promote health and safety in the industrializing countries is not nearly adequate. This is particularly true if occupational health continues to be regarded primarily as an academic exercise by the developed countries, and a budgetary triviality by the international agencies. Occupational health is not a goal achievable in isolation. It should be part of a major institutional development that touches and reforms every level of government in an industrializing country. Occupational health and safety should be brought to industrializing countries by a comprehensive consultative program sponsored by the United States and other countries that are willing to share the burden. Occupational health and safety program development is tied to the economic success of the industrializing country and its industries. Only after the development of a successful legal and economic system in an industrializing country is it possible to incorporate a successful program of occupational health and safety.

Key words: Occupational health – industrializing countries – working conditions – child labor – labor standards

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Introduction

Occupational health should have high priority on the international agenda. Although many countries have improved working conditions to high standards, working conditions for the majority of the world's workers do not meet the minimum standards and guidelines set by the International Labor Organization (ILO) and the World Health Organization (WHO) (Goldstein et al., 2001). Progress in bringing occupational health to the industrializing countries is painfully slow. In the poorest countries, there has been no progress at all. The number of poor has increased in absolute terms for the past decade in almost all regions of the world. Nearly half the people in the world live on less than $2 a day, and a fifth survive on $1 or less.

Many other health issues compete with occupational health for scarce funding. Sixteen million people die each year from easily preventable diseases, and occupational diseases are not included in that definition. HIV/AIDS is a more pressing public health issue, overburdening the health care systems of countries ill equipped to deal with such a calamity.

Poverty and disease are scourges in many countries, and industrialization is believed to be the way to overcome them. It is widely accepted that industrialization brings wealth to a country, raising the standard of living, which, in turn, improves public health. It is becoming increasingly clear that improvements in public health should, whenever possible, precede industrialization. A country's economic productivity appears to be linked to the health of its people (Bloom and Canning, 2000). A reduction in chronic diseases leads to improved health and sustained economic growth. It is in the interests of industrializing countries to promote public health and health in the workplace so that productivity and economic growth are enhanced.

Global industrial growth

Globalization, the fast-paced growth of trade and cross-border investment, is a selective phenomenon. Many countries benefit from globalization, and many do not. A recent study showed that 24 countries that are home to three billion people, including China, Argentina, Brazil, India, and the Philippines, have substantially benefited from global trade in the past 20 years. National incomes in their economies grew by an average of 5 percent a year during the 1990 s (compared with 2 percent in the developed countries), and their poverty rates declined. However, another two billion people live in countries that have become less rather than more integrated into the world community. In these countries – including Pakistan and much of Africa – trade has diminished in relation to national income, economic growth has been stagnant, and poverty has risen. National income in these countries fell by 1 percent a year during the 1990 s. Globalization is not, and never was, global. Much of the world, home to one-third of its people and including large tracts of Africa and many Muslim countries, has simply failed to participate (The Economist, 2002).

There are over 35 000 multinational corporations, with 147 000 foreign affiliates. The 500 largest corporations account for 70 percent of world trade. They can and should be a powerful force in the provision of occupational and environmental health. The dominant role of multinational corporations in global manufacturing and marketing of everything from chemicals and pesticides to semiconductor chips and clothing carries with it a major responsibility for the economic development of countries. All too often, in the industrializing countries, many multinational corporations emphasize in taking advantage of free-trade privileges, wages as low as 11 cents an hour, a near total absence of unions, and the disinterest or frank corruption of unstable or distracted governments. The experience of developed countries with the costs of occupational health is that a very substantial financial burden is being shifted to the industrializing countries through the process of globalization.

Occupational injury and disease

The ILO estimates that the world's workforce suffers more than 250 million accidents every year, resulting in 330 000 fatalities. If one applies some conservative means of estimating data, there are as many as 1.1 million fatalities occurring annually in the world's occupational settings (Takala, 1999). The actual number of people dying at work each year could be well over two million, and more than a billion occupational injuries each year (Takala, 2002). Occupational accidents cause permanent disabilities and economic losses amounting to 4 percent of national income.

The WHO current estimates of occupational disease worldwide place the total at 217 million cases, with an unknown additional toll on national incomes (WHO, 1998). Occupational diseases are grossly underreported in all developing countries. In southern Africa, only about 2 percent of occupa-

tional disease is recognized and reported (Loewenson, 1998). The majority of occupational diseases is occurring almost exclusively in the developing countries. There is general agreement that if these countries continue their current rate of industrial growth the number of occupational injuries and disease cases will double by the year 2025 (Murray and Lopez, 1996).

The opportunities for improvements in occupational health presented by globalization are outweighed by the shift in the health costs to workers with high-risk jobs, and primarily affect migrant workers, women, children, and workers with temporary employment. While international standards obligate employers to pay for occupational injury and disease, inadequate prevention, detection, and compensation make a mockery of these standards (Dorman, 2000). Only 23 countries have ratified the ILO Employment Injury Benefits Convention (No. 121), adopted in 1964, which lists occupational diseases for which compensation should be paid (Takala, 2002).

Working conditions

Working conditions in much of Africa, Central and Eastern Europe, China, India, and Southeast Asia were abysmal in the early 1970 s. At that time, the WHO, the ILO, and other agencies became more aware of the occupational and environmental health problems as multinational corporations expanded their operations in the developing countries. Foreign multinationals accepted the reality of domestic hazardous industries, internal corruption, poor work practices, lack of regulation and enforcement of labor standards, and the local workers' inability to claim compensation for injuries and illnesses. Moreover, many multinational corporations often took advantage of these conditions.

The leading chemical companies now proclaim that it is corporate policy not to have international "double standards" in health, safety, and environmental protection in their worldwide operations. A careful comparative analysis of how the leading firms implement their global corporate policies has been recommended since the year after the disaster in Bhopal, India, and is now needed more than ever (UNCTC, 1985; Castleman, 1999). In this age of multinational investment and global supply chains, corporate social responsibility for health and safety has to be looked at on a global scale (CEC, 2001). Workers in all countries are entitled to the basic benefits of federal labor and health and safety laws, including workers' compensation. At present, only a small minority of workers in Africa, Latin America, and Asia receive protection from such social security schemes.

Most small-scale industries in industrializing countries lack appropriate occupational health regulations and protective or control measures. It is the common world experience that small-scale enterprises do not provide basic occupational health services and other primary medical care. Moreover, many small factories are located in the middle of or near residential areas. Small-scale industrial hazards threaten the health of workers' families and the adjacent community.

Much of the world's workforce is in the informal sector. The informal sector is an integral part of the Mexican economy and includes unofficial self-employed workers whose activities range from hawking goods on the street to independent contracting and small family-run businesses. Approximately 18 million people and their families work in the informal sector in Mexico (Carreón et al., 2002). Although the work is in many cases similar to that of formal-sector workers, what distinguishes the informal sector is the absence of workers' rights and social protection, including access to health insurance, pension benefits, and protection under the federal labor and health and safety laws.

The ILO reports that occupational health and safety laws cover only 10 percent of the population in developing countries, omitting many major hazardous industries and occupations. These omissions include agriculture, fishing, forestry, and construction, small-scale enterprises, and the informal sector. In India, women have only 26 percent of the available employment. Of 88 million women workers, only 4.5 million work in the organized sector. The Indian Ministry of Labor acknowledges that the informal sector comprises the bulk of the workforce (Joshi and Smith, 2002).

Children account for 11 percent of the workforce in some countries in Asia, 17 percent in Africa, and a fourth of the workforce in Latin America. Children are the most easily exploited of all workers. Most child labor occurs in developing countries, where poverty, traditions, and cultural differences thwart international efforts to stop it. Poor or nonexistent enforcement of laws that attempt to prevent child labor creates conditions that allow children in some cases to be held in near slavery, often sexually and physically abused. The ILO instituted in 1992 the International Program for the Elimination of Child Labor (IPEC). IPEC seeks preventive approaches directed towards eliminating the underlying social and economic situations that produce child labor

(Forastieri, 2000). It is now the ILO's largest technical cooperation program. Nonetheless, India and a number of other crucial countries have yet to ratify IPEC.

International agencies

The WHO is responsible for the technical aspects of occupational health and safety, for example, the promotion of medical services, medical examinations, and hygienic standards. The WHO encourages national occupational health policies and strategies through World Health Assembly Resolutions. Recent efforts are the WHO Resolution "WHO Strategy for Occupational Health" (WHO, 1996), and the "WHO Global Strategy on Occupational Health and Safety" (Goldstein et al., 2001).

There are a number of occupational health and safety programs that have served as models for the developing countries. None of these models has been entirely useful, given the complex problems posed by circumstances in developing countries and the great differences found in their levels of industrialization. No model of occupational health and safety transferred to a developing country will work properly if the local conditions are not taken into account. Models of occupational health programs are described in the WHO publication, "Health Protection and Health Promotion in Small-scale Enterprises" (Rantanen, 1994).

The Scandinavian system of a powerful health and safety establishment sponsored by government and welcomed by industry and labor (Elgstrand, 2001) has not provided a transferable model for industrializing countries. The Communist model of large, central Institutes of Occupational Health and Safety with regulations seldom enforced and heavy governmental controls imposed on the scientific agencies that regulate industry (Watterson et al., 2001), although widely accepted by many developing countries, is of limited value to them.

The U.S. and the U.K. models are often emulated, but with little direct consultative assistance. As an example, occupational safety and health in Malaysia has been largely influenced by international models. The European Union criteria for the diagnosis of occupational diseases have been employed as the basis for criteria documents and notification of occupational diseases, poisoning, and accidents. Being a former colony of Britain, most of the early legislation in Malaysia was based on that of the United Kingdom. However in the later years, legislation from other countries such as the United States and Australia, has been used as a model. The Occupational Safety and Health Act 1994 of Malaysia used the Health and Safety at Work Act (HSWA) 1974 of the United Kingdom and the U.S. Occupational Safety and Health Act (OSHA) 1970 and the regulations and standards under them have provided a basis for local legislation. The principles advocated by the Roben's Commission in the United Kingdom have been the underlying philosophy in the development of Malaysian OSHA 1994. A system of acts, regulations, approved codes of practice, and guidance notes under OSHA 1994 are parallel to the provisions to the HSWA 1974 and Work Safe Australia (Rampal et al., 2002).

The ILO is an international coordinating body that plays an important role in promoting uniform policies for occupational health and safety in all countries. The ILO sets minimum standards in the field of occupational health and safety that have a strong ethical component (Takala, 1999). ILO conventions guide all countries in the promotion of workplace safety and in managing occupational health and safety programs, including No. 81 (labor inspection), No. 155 (occupational safety and health), No. 161 (occupational health services), No. 170 (chemical safety), and No. 174 (prevention of major industrial accidents). The ILO conventions and recommendations on occupational safety and health are international agreements that have legal force if they are ratified by the national parliament. More than half of the 184 conventions adopted so far by the ILO have links to health and safety issues.

These conventions should be key instruments of ILO policy. In reality, none of the ILO occupational safety and health conventions are included as part of the ILO's own core labor standards. When the ILO adopted its Declaration on Fundamental Principles and Rights at Work in 1998, eight conventions were rightly confirmed as core labor standards and became the subject of a major campaign. That prompted some of ILO's constituents to relegate other conventions to second-class status. Core (fundamental) conventions of the ILO cover only freedom of association, child labor, forced labor, and discrimination issues, see: http://www.ilo.org/public/english/standards/decl/ratification/index.htm. This paradoxical decision was made some 5 years ago, with little public discussion since that time. In practice, it means that occupational safety and health is always given second or third priority when regular budget resources and issues such as international technical cooperation are discussed (Takala, 2002).

Although ILO SafeWork has established about half of all ILO conventions and numerous codes of practices and guidelines, without implementation

these are meaningless exercises. Major industrializing countries have not emphasized occupational safety and health (OSH), perhaps due to possible World Trade Organization (WTO) sanctions if any of the OSH standards become classified as core conventions. The industrializing countries are also concerned that greater awareness of OSH shortcomings will result in unwanted publicity about their health and safety shortcomings. The most important ILO Convention on Occupational Safety and Health in general (Convention 155) has been ratified by only 37 of the 175 ILO member states. The Occupational Health Services (Convention 161) have been ratified by only 20 member states (Takala, 2002).

The lack of participation of its member States creates a reluctance on the part of the ILO to take on important occupational health issues. The ILO Asbestos Convention is a good example. Written 15 years ago, and not amended since that time despite major studies that show that all forms of asbestos cause asbestosis and cancer, the Asbestos Convention does not ban asbestos, only crocidolite and certain manufacturing processes. Under constant pressure from the international asbestos industry, the ILO Asbestos Convention, as weak and outdated as it is, has been ratified by only 25 of the ILO member States.

Harmonization of standards is a common theme of international agencies. The "ILO Tripartite Declaration of Principles Concerning Multinational Enterprises and Social Policy" requires common standards across all branches of multinational enterprises (ILO, 2000 a). The "Code of Practice on Safety, Health and Working Conditions in the Transfer of Technology to Developing Countries" requests technology-exporting states to inform importing states about hazardous chemicals or technologies (ILO, 1998). The ILO recently published "Guidelines on Occupational Safety and Health Management Systems".

Despite an obvious need for these standards globally, their ratification and implementation into national law have proceeded slowly (Taqi, 1996). While the Trade Ministers' meeting at the 1996 World Trade Organization conference endorsed internationally recognized fundamental labor standards (the prohibition of forced labor and child labor, freedom of association, the right to organize and bargain collectively, and the elimination of discrimination in employment), it emphasized that the ILO was the proper forum to deal with labor issues (Goldstein et al., 2001). The ILO may be the proper forum, but since ILO has no enforcement power, it alone is not adequate.

The international agencies have observed that, "Most countries do not have concise legislation on occupational health, and provisions are often scattered in several separate laws and regulations. Occupational health services are most effectively developed in those countries where a clear legislative package exists, and where there is a collective agreement between the principal social partners" (Rantanen, 1994). Guidance is needed from international organizations, particularly from the ILO, on how to transfer the principles of ILO conventions into effective legislation.

The WHO and the ILO are required to provide direct consultation to developing countries when such countries request aid with the development of health and safety programs. Direct consultations to countries may occur through WHO and ILO regional, country, and central offices. The WHO regional office for the Americas, the Pan American Health Association (PAHO), has had success assisting countries to develop national health action plans. The ILO and the WHO work together to assist countries in the ILO/WHO Global Program to Eliminate Silicosis and in the newly developing WHO/ILO Joint Effort on Occupational Health and Safety in Africa (Lehtinen, 2001). Some consultative services to developing countries also may occur through the WHO Network of 55 collaborating centers.

In reality, the WHO and the ILO have such limited budgets and staffs, they are unable to provide the required consultative services. Moreover, it is not clear that the WHO and the ILO could identify a model occupational health and safety program to recommend. Virtually all models of health and safety programs require trained and experienced personnel to institute them and to provide continuing leadership. The overwhelming reality in the industrializing countries is that they lack trained personnel at every level.

The particular usefulness of the WHO and the ILO lies in developing and disseminating recommended standards, as well as providing literature resources and safety information. Guidance can be obtained from hundreds of documents, many of which are available on-line. Detailed information about specific topics can be found from the CISDOC database that may be viewed at www.ilo.org/cis.

After the ILO conventions, the next level of guidelines is the ILO codes of practices and guidelines, which are not compulsory. The latest version is Guidelines on Occupational Safety and Health Management Systems that can be found at http://www.ilo.org/public/english/protection/safework/managmnt/guide.htm.

The ILO catalogue of publications is another source for these materials at http://www.ilo.org/public/english/protection/safework/publicat/iloshcat/index.htm. The ILO Encyclopaedia is a compendium of health and safety information and lists available information that includes institutional resources, periodicals, publications, and electronic resources (ILO, 2000 b).

Unfortunately, these few consultations and the heavy reliance on documents and other information have provided only limited help to industrializing countries. Moreover, there are hundreds of journal articles and textbook chapters that suggest methods to develop occupational health and safety programs in developing countries. The abundance of written material is often confusing and contradictory, and much of it redundant or out of date. Developing countries need more direct assistance to help them develop health and safety programs that will bring them into the family of countries that protect their workers. It is a significant lost opportunity that the developed countries and the international agencies do not fully provide this service.

Despite many obstacles, a number of industrializing countries have made remarkable progress toward occupational health and safety programs (LaDou, 2002). These countries can serve as examples that demonstrate to others how to achieve such programs.

Funding of international agencies

The provision of adequate financial support for United Nations agencies such as the WHO and the ILO is a problem as old as the endeavor. In the past two years, the UN operating budget has been slashed by $75 million, at a time when much of the world remains in dire need of assistance. The WHO and the ILO are poorly funded, and despite their best efforts, are able to direct only very small sums to occupational health and safety programs around the world. The courtly diplomacy of the WHO and the ILO often masks the meagerness of their accomplishments in international occupational health and safety.

The WHO Program for Occupational Health supports a staff of only four people. Regional WHO offices have few, if any, trained specialists in occupational health and safety. Many academic leaders have been asked to serve on the WHO Expert Advisory Panel on Occupational Health, only to come to the realization that the panel never met and had no actual mission or purpose. The charter of the WHO Collaborating Centers in Occupational Health is equally vague. It calls for WHO to designate national institutions to form an international network carrying out activities in support of WHO's mandate for international health (Fingerhut and Kortum-Margot, 2002). The WHO collaborating centers get to use the official WHO letterhead in matters related to work on behalf of the WHO. In trade, the WHO appears to be a major provider of support and guidance for occupational health activities around the world.

Safe Work, the ILO Program on Safety, Health at Work, and the Environment, has been leading the ILO's efforts to promote occupational health. The two-year ILO Safe Work budget was recently cut from $8 to $7 million. According to its Director, "The result is a virtual disappearance of interest in occupational safety and health" (Takala, 2002). For example, the Enforcement (Labor inspection) Unit of SafeWork has been reduced to one single person.

As a matter of apparent national policy, many U.S. government agencies provide annual funding for UN programs for occupational health and safety. The National Institute of Environmental Health Sciences (NIEHS) is an important supporter of the WHO International Agency for Research on Cancer (IARC). The National Institute for Occupational Safety and Health (NIOSH) provides financial support for the WHO Program for Occupational Health. The Occupational Safety and Health Administration (OSHA) and many other U.S. agencies do the same. The intricate web of funding for international agencies provided by the U.S. government is a statement that the United Nations is better suited to conduct international activities than is the United States. This assumption may be quite wrong, and the policy may be a serious abdication of responsibility by the world's largest economy. Neither the level of U.S. support nor the achievements of the United Nations international agencies are anywhere near acceptable.

High-priority needs in industrializing countries

Government support

Over the next 20 years, the population of the developed countries will fall slightly, while the developing world will acquire 2 billion more people, many of them in countries that are currently political and economic failures. In such a world, occupational health is not likely to make much progress, and harmonization of work standards will remain an

elusive goal. This is particularly true if occupational health continues to be regarded as an academic exercise by the developed countries, and a budgetary triviality by the international agencies.

The governments of poorer countries do not adequately recognize the economic and developmental value of public health. Unfortunately, virtually all of the research and training programs in industrializing countries are demonstration-projects designed to convince international agencies that major funding should follow. Many hundreds of demonstration-projects give us convincing data to support the value of reducing the burdens of chronic disease and work disability in industrializing countries, yet they do not mobilize government support. The international agencies should play a lead role in this effort by conducting and supporting studies and by presenting the findings in a convincing fashion to their member states. In the absence of meaningful government support, industry assumes a predominant role and advances its own agenda.

To be successful, the international agencies will need to rise above the level of their current activities, sadly under-funded and mired in hopeless attempts to placate industry while compromising on their mission to protect the public health and the health and safety of workers (Castleman and Lemen, 1998). Nowhere is the problem more obvious than in the evaluation of carcinogenicity of chemicals at a WHO organization, the International Agency for Research on Cancer (IARC) in Lyon. Dr. Lorenzo Tomatis, former Director of the IARC, asserts that the IARC has begun a new trend towards downgrading carcinogen classifications of chemicals for which there were positive results in experimental bioassays (Tomatis, 2002). Other scientists at IARC point out the influence of industry in the decisions to downgrade chemicals (Huff, 2002).

Enforcement of standards

An industrializing country needs legal structure and the political backing to develop necessary national polices and regulations for occupational health. Countries need to ensure that policies, regulations, and occupational health standards are enforced widely and effectively. Industry is often an opponent of such efforts, but for any success to be lasting, industry must participate in the process. The experience of South Africa reflects that of most industrializing countries. A leader in occupational health in that country recently stated, "Implementation of occupational health and safety practices in South Africa is impeded not only by lack of funds, expertise, and technologic sophistication, but also by worker apathy and employer ignorance, such that there is no pressure on government even to enforce existing regulations" (Joubert, 2002).

All industrializing countries face the difficulty of working with governments that do not fully support their occupational health programs. In the Philippines, the Bureau of Working Condition (BWC) performs primarily policy and program development and administers and enforces laws relating to working conditions in all places of employment. The BWC is beset with problems in enforcing the occupational health and safety standards. There are very few labor inspectors to cover the large number of work settings. Only a very small fraction of business establishments report annual statistics on occupational injuries and illnesses. The BWC does not have adequate enforcement powers. Because it cannot penalize offending companies, the BWC inspectors are limited to an "advisory" capacity and can only implement written reminders and warnings for not complying (Torres et al., 2002). In effect, this makes compliance voluntary rather than mandatory.

In Poland, factory inspections by the government should be conducted at the expense of employers at least once every two years. Polish regulatory and control agencies have very limited funding and staff to conduct workplace surveillance. A company is likely to be inspected only once each 20 years, a much longer period than the average lifetime of most Polish companies (Dawydzik, et al, 2002).

Training of OHS personnel

There are very few trained occupational health and safety professionals in the industrializing countries. Their absence creates a major obstacle to implementation of regulations and policies and to the provision of occupational health services. Because of the shortage of formally trained occupational physicians, workers suffering from occupational diseases often remain unrecognized in Taiwan. Thus, the rate of compensation for occupational diseases is one-tenth that of the developed countries, and a large majority occupational injury cases do not receive rehabilitation or appropriate care to return to work (Wang et al., 2002). Industrial (occupational) hygienists are quite rare in industrializing countries, yet crucial to progress in occupational health. Regulatory standards cannot be implemented and enforced if there are no personnel trained in industrial hygiene. The few international training programs that exist today do not begin to provide the number and quality of graduates required by the global industrial expansion (Kromhout, 2002).

Many developed countries provide clinical and research training, but the total number of graduates of these advanced programs is far smaller than what is needed. If they go back to their home countries, graduates who work mainly in research may not be able to return to settings that support research and teaching at levels that they have come to know. Bringing young scientists and public health administrators to the developed countries for academic training, only to have them return to countries unable to utilize their new skills, is not a productive endeavor. As a result, many choose to stay in the developed countries where they received their training.

Sending academics to industrializing countries to conduct epidemiologic studies does not lead to measurable improvements in health and safety. There should be many more training programs developed in the industrializing countries. A few collaborative efforts are now taking place, but on a scale that is far from adequate (Manno, 2001; Wesseling et al., 2001). There should be many more opportunities for short-course training in clinical occupational medicine. Although an estimated two hundred physicians and scientists from industrializing countries travel to major teaching centers each year, the number of trainees in occupational health should be in the thousands.

Some developed countries sponsor collaborative activities in occupational health. Sweden has a long history of international exchange of knowledge and experience, often together with international agencies such as the WHO and the ILO. In recent years, Sweden has been active in bilateral cooperation with many industrializing countries, and has played a role in the recovery of occupational health and safety infrastructure in Eastern Europe (Elgstrand, 2001). Finland provides development collaboration in East African countries and in the Asian-Pacific Region, and research and training opportunities in Finland's government and academic centers of occupational health (Rantanen and Lehtinen, 2001). The journals sponsored by the Finnish Institute of Occupational Health, the African and the Asian Newsletters on Occupational Health and Safety, are of particular value to industrializing countries (homepage: http://www.occuphealth.fi/eng/info/anl/).

The European Union provides grant support for economic transformation of Central and Eastern European countries, including occupational health and safety projects. In 2000, the EU expanded its development policy to include cooperation with African, Caribbean, and Pacific countries (Leichnitz, 2001). The United States sponsors an international effort in occupational health through the Fogarty International Center, and by other governmental agencies and academic institutions. There are many other national and regional efforts, but in sum, they are far from adequate to meet the challenge. These efforts, important as they are, propagate the demonstration-project concept that has failed to provide the help the developing countries so desperately need.

Support of union membership

A labor movement is struggling to be born across the developing countries, though it is still much too weak to threaten the powerful interests that control global industry. Despite the relative weakness of organized labor, it does have a voice that is heard in some industrializing countries. In Zimbabwe, the Southern African Development Community has a regional trade union federation and some of the member country federations are quite strong. The improved mining occupational health and safety legislation in South Africa is a direct result of a strong National Union of Mineworkers. However, global "labor rights" are far too threatening to the present industrial growth strategies of most developing countries to stand much chance of acceptance. Developing countries are not alone in their slowness to include labor rights in trade regimes such as the WTO. Many countries do this, not because they want to increase first-world investments attracted by cheap labor, but rather because they do not want to encourage the emergence of strong unions as a political force (Ashford, 1999).

Only adequate purchasing power – through a living wage – will ultimately lead to increased demands for occupational health and safety by the workers themselves. Imposing rules for minimal wage and working conditions may be the only way to rescue workers in the poorest economies from the their hopeless condition. Many countries demonstrate that the involvement of workers is a major factor in improvements in occupational health and safety (Johansson and Partanen, 2002). The workers must be organized, because if they are not, they cannot get their views heard. International trade union agencies and the ILO in particular should have leadership roles here. There is also a clear link between unionization rates and ratification of ILO conventions on health and safety. Countries where unionization rates are high are those that have ratified the greatest number of conventions. These countries also rank highest in terms of occupational injury and illness prevention and of health and safety performance in general (Takala, 2002).

A new direction

Occupational health is often perceived as an isolated goal to be achieved through the efforts of academics training other academics. We must now admit that this approach is meeting only very limited success. Occupational health is not a goal achievable in isolation. It is part of a major institutional development that touches and reforms every level of government in an industrializing country. Occupational heath and safety program development is tied to the economic success of the industrializing country and its industries. Only after the development of a successful legal and economic system in an industrializing country is it possible to incorporate a successful program of occupational health and safety. There are few examples in history of successful occupational health and safety programs that preceded the development of a stable economy.

Industrializing countries need assistance from the U.S. government and its industries to develop stable economies. Most industrializing countries need assistance in the development of effective banking and financial regulations, working tax systems, protection of property rights, and judiciaries. Many industrializing countries cannot enforce the law, clean up graft, or inspire confidence in investors. A country must have a strong legal system supported by an uncorrupted government, be willing to accept open markets, adopt full rights for women, children, and workers, and provide social insurance such as workers' compensation before an occupational health and safety program can be successfully achieved. Academic occupational health and safety professionals can produce none of these things, yet all of them are necessary before a program of occupational health and safety can be successfully instituted in an industrializing country.

Legal and political consultative teams must first assist the industrializing country in the development of a legal system that fosters respect for the rule of law, and that makes regulation and enforcement of occupational health and safety laws an acceptable part of government activity. Later, administrators from various government programs that administer occupational health and safety programs should work with occupational health and safety professionals in a similar consultative capacity.

Occupational health and occupational safety must be advanced together as equally important social goals. They should be brought to industrializing countries by a comprehensive consultative program sponsored by the United States and other countries that are willing to share the burden. Relying on international agencies to deal with health and safety in the industrializing countries is not nearly adequate. The few million dollars now spent on international occupational health each year need to be increased by orders of magnitude. When the necessary infrastructure has been successfully introduced into an industrializing country, multinational corporations could be required to bring with them the health and safety practices of their home countries. In theory, this should not be difficult since many leading corporations already claim that they are doing so. This would foster the adoption of increasingly strict occupational health and safety standards, and some real movement towards the harmonization of standards so long sought by international agencies. Many other social benefits will follow fair employment practices, workers' compensation benefits, and industry support of community environmental health initiatives.

While many industrializing countries are ready for such an innovation, many more are not. We can begin with those countries that will serve as models for their neighbors. The desired outcome of industrial expansion and prosperity through trade is peaceful coexistence. Occupational health must be seen as a small dividend in this much larger equation.

References

Ashford, N. A.: The Economic and Social Context of Special Populations. Occupational Medicine: State of the Art Reviews. 14, 485–493 (1999).

Bloom, D. E., Canning, D.: The health and wealth of nations. Science. 287, 1207–1209 (2000).

Carreón, T., Santos-Burgoa, C., Baron, S.: Occupational health in Mexico. Occupational Medicine: State of the Art Reviews. 17, 437–453 (2002).

Castleman, B. I., Lemen, R. A.: The Manipulation of international scientific organizations. Int J Occup Envir Health. 4, 53–55 (1998).

Castleman, B. I.: Global corporate policies and international "double standards" in occupational and environmental health. Int J Occup Environ Health. 5, 61–64 (1999).

CEC: Green Paper/ Promoting a European Framework for Corporate Social Responsibility. Commission of the European Communities, Brussels, July 18, 2001. See EU webpage on corporate social responsibility (Website http://www.europa.eu.int/com/employment social/soc-dial/csr/csr index.htm).

Christiani, D. C., Tan, X., Wang, X.: Occupational health in China. Occupational Medicine: State of the Art Reviews. 17, 355–370 (2002).

Dawydzik, L., Rydzynski, K., Jakubowski, M.: Occupational health in Poland. Occupational Medicine: State of the Art Reviews. 17, 479–490 (2002).

Dorman, P.: The economics of safety, health, and well-being at work. Paper presented to the International Labour Organization, Geneva, May 2000. (Website http://www.ilo.org/public/english/protection/safework/papers/index.htm).

Elgstrand, K.: Swedish initiatives in international development in occupational health. Int J Occup Environ Health. 7, 127–129 (2001).

Fingerhut, M. A., Kortum-Margot, E.: Network of WHO Collaborating Centres in Occupational Health. "Afr Newslett on Occup Health and Safety. 12, 32–34 (2002).

Forastieri, V.: Challenges in combating child labour from an occupational health perspective. Afr Newslett on Occup Health and Safety. 10, 32–35 (2000).

Goldstein, G., Helmer, R., Fingerhut, M.: The WHO global strategy on occupational health and safety. African Newsletter on Occupational Health and Safety. 11, 56–60 (2001).

Huff, J.: IARC Monographs, Industry Influence, and Upgrading, Downgrading, and Under-Grading Chemicals. A Personal Point of View. Int J Occup Environ Health. 8, 249–252 (2002).

ILO: Code of practice, health and working conditions in the transfer of technology to developing countries. ILO, Geneva 1998.

ILO a: Tripartite Declaration of Principles Concerning Multinational Enterprises and Social Policy. Geneva, International Labour Organisation. 2000 (adopted by the Governing Body of the International Labour Office at its 204th Session (Geneva, November, 1977) and amended at its 279th Session. ILO, Geneva, November, 2000.

ILO b: Encyclopaedia on Occupational Health and Safety. Fourth Edition. ILO, Geneva 2000.

Johannson, M., Partanen, T.: Role of trade unions in workplace health promotion. Int J Health Services. 32, 179–193 (2002).

Joshi, T. K., Smith, K.: Occupational health in India. Occupational Medicine: State of the Art Reviews. 17, 371–389 (2002).

Joubert, D. M.: Occupational health challenges and success in developing countries: a South African perspective. Int J Occup Environ Health. 8, 119–124 (2002).

Kromhout, H.: An international perspective on occupational health and hygiene. Int J Occup Environ Health. 8, 111–112 (2002).

LaDou, J.: Occupational health in the industrializing countries. Occupational Medicine: State of the Art Reviews. 17, 349–354 (2002).

Lehtinen, S.: Fifth Network Meeting of the WHO Collaborating Centres in Occupational Health. African Newsletter on Occupational Health and Safety. 11, 77 (2001).

Leichnitz, K.: External relations of the European Union are a global commitment. African Newsletter on Occupational Health and Safety. 11, 64–65, (2001).

Loewenson, R.: Assessment of the health impact of occupational risk in Africa: current situation and methodological issues. Epidemiology. 10, 632–639 (1998).

Manno, M.: Globalization of a postgraduate curriculum. OSH & Development. 3, 34–40 (2001).

Murray, C. J. L., Lopez, A. D.: The Global Burden of Disease, Volume I, p. 990. World Health Organization, World Bank, Harvard School of Public Health, Cambridge, Massachusetts 1996.

Rampal, K. G., Ching, A. T., Bahrin, J. S.: Occupational health in Malaysia. Occupational Medicine: State of the Art Reviews. 17, 409–425 (2002).

Rantanen J. Health protection and health promotion in small-scale enterprises. In: Health Protection and Health Promotion in Small-scale Enterprises. Proceedings of the Joint WHO/ILO Task Group, November 1–3, 1993. (Jorma Rantanen, Suvi Lehtinen, Mikhail Mikheev, eds.), pp. 29–101. World Health Organization, Finnish Institute of Occupational Health. WHO Office of Publications, Geneva 1994.

Rantanen, J., Lehtinen, S.: Finnish occupational health and safety collaboration in developing countries. OSH & Development. 3, 6–9 (2001).

Takala, J.: International agency efforts to protect workers and the environment. Int J Occup Environ Health. 5, 30–37 (1999).

Takala, J.: Life and health are fundamental rights for workers (Interview). Labour Education. 1, 1–7 (2002). Available at (Website http://www.ilo.org/public/english/dialogue/actrav/publ/126/index.htm. The Publication is on the ILO Workers' Activities website while the full interview is on the ICFTU site: http://www.icftu.org/displaydocument.asp?Index=991215216&Language=EN).

Taqi, A.: Globalization of economic regulations: implications for occupational safety and health. Address to: XIV World Congress on Occupational Safety and Health, Madrid, Spain, 23 April 1996.

The Economist: Globalisation: is it at risk? Special Report. The Economist. Vol. 362, No. 8258, February 2–8, 2002.

Tomatis, L.: The IARC monographs program: changing attitudes towards public health. Int J Occup Environ Health. 8, 144–152 (2002).

Torres, E. B., Greaves, I. A., Gapas, J. L., Ong, T. T.: Occupational health in the Philippines. Occupational Medicine: State of the Art Reviews. 17, 455–468 (2002).

UNCTC: Environmental Aspects of the Activities of Transnational Corporations: A Survey. United Nations Centre on Transnational Corporations. United Nations, New York 1985.

Wang, Y. D., Cheng, T. J., Guo, Y. L. L.: Occupational health in Taiwan. Occupational Medicine: State of the Art Reviews. 17, 427–435 (2002).

Watterson, A., Silberschmidt, M., Robson, M.: Occupational health in Central and Eastern Europe in the

1990 s: One step forward and two steps backward? Int J Occup Environ Health. 7, 233–245 (2001).
Wesseling, C., London, L., Ngowi, V., Lopes, L, Herrero, R., Varghese, C.: The future of epidemiology in developing countries. OSH & Development. 3, 10–12 (2001).
WHO: WHO Global Strategy for Occupational Health. World Health Assembly Resolution 49.12, WHO, Geneva, May 25, 1996.
WHO: Life in the 21st Century: A Vision for All. The World Health Report 1998, p. 48. World Health Organization, Geneva 1998.