It is also easy to overlook the fact that the South is not exclusively agricultural, much less homogeneous. While the country of Rwanda in East Africa has about 90% of its population working in agriculture, only 25% of Costa Ricans in Latin America are employed in this sector. Growing urbanization attracts the young in search of work and improved living conditions. The predominantly young, poorly educated labour force is frequently ill-adapted to skilled employment. Low levels of education make them particularly vulnerable to the risk of accidents and occupational diseases — characteristics of which they barely comprehend.

In some parts of the world, unskilled, cheap labour is particularly affected by the need to migrate. Trans-border migration between South Africa and neighbouring countries is a good example. In such cases, the temptation may be very strong for the host country not to bother with the occupational health problems of its itinerant workers, who do not have the benefits of citizenship. When these workers are sent back home, handicapped by a work-related accident or illness, their condition often exacerbates the low productivity of their home country because they become a burden on their family, their community, and their country's health care system.

Mechanisms that protect the health of workers in industrialized countries frequently seem inoperative or ineffective in developing countries. There are several reasons for this. First, even where regulations exist and where the health care system is capable of delivering professional services, it is apparent that control measures cover only a small fraction of the workforce. A recent Egyptian study, for example, indicated that 92% of businesses in Alexandria had less than 50 employees and that few of them were known to the government. The main problems identified in this study were exposure to dust, noise, and excessive heat.

Another key reason is that very little research has been done to date on occupational health problems in the Third World. The shortage of trained professionals in this area and the frequently limited or nonexistent infrastructure for research are major problems. The will may be there but the resources are not. Funding, from either national or international sources, also commonly falls far short of what is required.

Research as a Tool

Certain initiatives, however, offer a glimmer of light at the end of the tunnel. One is the training and information program in occupational safety and medicine set up for African countries by the United Nations International Labour Office (ILO) with the support of the Finnish government (FINNIDA). This program, to be carried out over a 20-year period, will benefit from the support of the renowned Finnish Occupational Health Institute.

Some Third World countries are also starting to finance research into occupational health. This was reflected in a recent inventory of occupational safety and environmental health research, funded jointly by IDRC and the WHO. Among the study's findings was the fact that countries with rapidly growing economies such as Brazil, China, South Korea, India, and Thailand are the most active in this area. The study also established that 77% of the projects dealt with hazards related to chemical products and 26% with the physical dangers faced by workers. One encouraging figure was that about one-fifth of the projects dealt with agricultural hazards.

The same study also found that only 13% of the projects surveyed were financed by international donors. IDRC is one of the leaders, followed by the Swedish Agency for Research Cooperation with Developing Countries (SAREC) and several U.S. government agencies. The WHO and the Pan-American Health Organization (PAHO) also sponsor a number of worthwhile projects.
IDRC's enviable contribution to the support of this research reflects the existence since 1981 of a specific program of aid to research in occupational and environmental health. To date, IDRC has devoted an average of just over half a million dollars annually to occupational health and safety research in the Third World.

What Type of Research?

The primary focus of recent research has been on selected mining or industrial activities, mainly because national governments are keen to exploit their natural resources. Parallel to this trend, research on job-site accidents and respiratory diseases caused by dust inhalation such as silicosis, anthracosis and byssinosis continues to attract the attention of numerous Third World researchers.

Although these issues are important, there is still little information available on toxic substances and on processes that are dangerous to workers' health. At the same time, researchers cannot hope to manage health and safety in the workplaces of developing countries without first creating factual data bases (on the workforce, industry, accidents, chemical substances, and occupational diseases). The creation of effective information systems should be a priority for government authorities responsible for workers' welfare. Research will play an essential role, not only in contributing to knowledge but also in evaluating the systems and gauging their impact on workers' health.

In medium-sized and large businesses, researchers' efforts should concentrate on methods for evaluating safety in the workplace. Preference should be given to simple techniques for rapid inspection ("walk-through surveys"). Without requiring expensive procedures, they can yield essential information by providing summary descriptions of hazards and indicating the existence of serious risks to workers' health.

Once these problems have been identified, research can focus on evaluating the prevalence of occupational diseases. Without epidemiological data and the ability to demonstrate the harmful effects of occupational hazards, it is difficult to persuade authorities to improve working conditions. Frequently, as is well described in Dr Sekimpi's project in Uganda (see p.12), the greatest hazards are posed by aging, dilapidated machinery.

Sometimes, the risks that need to be considered and controlled are inherent in the job, as in the case of Dr Jiang Chao-Quiang's study of byssinosis prevalence in Shanghai's textile industry (see p.14). Very often, the products being handled throughout the workday are highly toxic, such as pesticides. In this context, Dr Mohamed M. Amr has shown the extreme dangers faced by Egyptian workers (see p. 15). To reduce the threat to health, employers must educate their employees and provide adequate protective...
equipment. From his findings, Dr Amr established an educational program for both workers and employers that has succeeded in awakening public and political opinion — the two key elements in the fight to reduce occupational hazards.

**Worker Participation**

One of the great advantages of the rapid inspection method mentioned in the foregoing is the possibility of leaving it in the hands of workers themselves. Participatory research techniques have resulted in innovations in a number of cases, as described in the two following articles. Participatory research allows workers to play an active role and identify the risks to which they are exposed on a daily basis. They can then decide how to force the necessary corrective action. Clearly, the existence of organized groups (unions or workers' associations) facilitates the establishment of participatory research projects. This is an avenue worth exploring much more seriously than has been done to date.

The IDRC-funded project of Professor Laurel in Mexico clearly shows the ability of workers to identify results of this type of study. The same project also showed the serious dangers that many current growing children. Researchers who, in the final analysis, must exert the pressure required to bring the problem under control.

The central problem is still a lack of information. The results of studies on working conditions should lead to campaigns for the training and education of artisanal and other workers. Research on agricultural workers exposed to pesticides clearly shows that lack of knowledge is at the root of most cases of toxic poisoning. This generalization could easily be extended to many other areas, such as the recycling of automobile batteries (lead poisoning), textiles (poisoning by dyes, some of which are carcinogenic), machinery (deafness due to excessive noise), postharvest agricultural activities (respiratory diseases caused by dust from coffee, cotton, etc.), to mention only a few.

Because researchers lack information on prevailing conditions in the industries of the Third World, it is often necessary in the South to repeat studies already carried out in industrialized countries. Worker participation in these studies appears to be an excellent way of speeding up the surveys and rapidly improving the conditions of Third-World workers. The technique of participatory research, albeit promising, nevertheless needs testing in a variety of professional contexts before it can be considered fully valid.

There is no doubt that occupational health and safety research must increasingly use methods drawn from anthropology and the social and economic sciences if it is to hope to improve the health of Third-World workers. Participatory research is only one example. Researchers (as well as donor agencies) must continue to work in an innovative and interdisciplinary fashion to improve the welfare of workers in the South.

**Surviving "Underground"**

How can this intervention work in the informal sector? Two main points should first be clarified. One, the problem is linked to the exploitation of the most vulnerable individuals, often women and children. Legislation to prevent child labour, although it often exists, is rarely applied due to the lack of human resources.

Second, the vast majority of informal businesses are unknown to the government and, therefore, are extremely difficult to regulate. In such a situation, the best solution seems to lie in raising community awareness of the serious dangers that many current practices in the informal sector pose for women of reproductive age and growing children. Researchers who deal with this problem need to develop a more accurate picture of working conditions in this sector to identify the hazards and their health-related consequences. They also need to propose and evaluate feasible alternative solutions to current work practices and determine the best means of sensitizing the community who, in the final analysis, must exert the pressure required to bring the problem under control.

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