Information society and transfer of technology
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Information and communication technology has changed the world radically

The world has changed in the past 25 years faster than ever in the history of mankind. One of the key factors behind the change has been the introduction of communication and information technologies, ICT. In spite of temporary setbacks, the long-term trend seems to indicate that this change process will continue at an accelerating rate.

The Information Society, and its technical foundation ICT, are no new concepts, but they became universally influential trend drivers at the beginning of the 1990s. The first wave brought the fast spread of personal computers, followed in the mid-1990s by the second wave, the world-wide distribution of mobile phones and the gradual transition to the third wave involving content development and distribution. The fourth wave which we are now experiencing, the social mobilization stage, is no longer dominantly technical, but very much societal and in its way, cultural.

Studies on the impact of the information society have provided much evidence of the far-reaching positive impacts on several sectors of the society, including work life. The indisputable benefits of the IS include the wider and faster dissemination of information, the improved effectiveness and versatility of communication in real time, the availability of better information in general about everything as a result of the more effective data processing, as well as advances in research, technical development, and education and learning. Other benefits have been improved production technologies, savings in energy, materials and environments as well as improvement of the whole service sector, ranging from government and other public services to the whole spectrum of private personal and community services and business services. Thanks to these advancements, we now know more than ever, we generate more new information and knowledge than before, we produce more goods and services than previously, and we distribute both information and material goods faster and wider than ever before. In addition, many goods and services have decreased in price, making them accessible to people with a lower income.

Work life in the information society also entails numerous positive impacts: new safer and healthier jobs are generated and many heavy and hazardous older jobs have disappeared. Improved, safer production methods and products, including safer and better working practices and work tools, have been developed. Protective technologies, both collective and personal, have been developed apace with other technological developments. Hazardous exposures can be controlled better, and in extreme cases distant control of hazardous processes can help to remove workers from risky environments. These improvements are likely to be one explanation for the constantly declining trends of occupational accidents and diseases in industrialized countries. For example, fatal accident rates in Europe, North America and Japan declined by more than 40% during the past 20 years and this change otherwise than elsewhere, is not due to registration gaps but represents a true improvement in safety.

Yet the developments brought by the IS have also had several negative impacts at work. These stem not necessarily always from the technology itself, but from its inappropriate implementation. The wide-scale implementation of ICT in work life has changed everything: technology itself, work organization, job contents, working practices, the competence and skills required, and management systems. The result has been instability and incontinuities in work life. The mobility of both work and workers has proceeded from local and national to global. Working hours have been modified dramatically, often without respect for the psychological and physiological requirements of human beings. The continuous increase in the demands for new competence and higher productivity, continuous changes in work organization, job insecurity, inappropriate working hours, as well as problems in reconciling work and family life are reported as burdens to some 30 to 70% of the workforce, depending on the country and economic sector. Many of those adverse effects do not hinge on the technology itself, but on our ignorance or negligence of proper way to use the new technologies.

A high percentage of the research reports dealing with the adverse health and social impacts of work in the IS has pointed to failures in management, training and participation during the planning and implementation of changes rather than technology hazards. One dramatic global example is the emergence of the world-wide work stress epidemic, a paradoxical phenomenon given that the early expectations presumed that ICT would reduce stress and workload. Recent examples have given evidence on higher vulnerability and wider – in the worst case, even global – crises caused by failures in ICT-based information, security or productions systems. Also the expansion of the current global financial crisis - with all its dramatic impacts on employment and workers’ life - was made possible by enabling fast global speculative operations with the help of ICT.
Four main challenges can be recognized in the transition to the new stage in the development of the information society.

First, the digital divide continues to prevail in spite of the effective spreading of new technologies. The Internet has a penetration rate of 11.4% in Africa, 23.8% in Asia, 58.3% in Europe, 60% in Oceania (incl. Australia and New Zealand), 78.3% in North America and 36.2% in Latin America and the Caribbean. These figures give a world average of 30%, which means that two-thirds of the world’s population do not enjoy the benefits of the Internet and the IS in general although many of the adverse effects of the IS are reflected in their lives, too. Thus the first challenge is to continue efforts to extend the IS for everyone within and between countries and continents.

The adverse impacts of the IS and ICT on occupational health in work life constitute the second challenge, and the world has done too little to manage these better. The available research provides good, clear and simple advice on how to avoid such problems. The proper application include careful planning of the implementation of changes, human-oriented strategies, respect for the psycho-physiological and social realities of human beings, ensuring workers’ training and education, and workers’ participation in the planning and implementation of changes in their work. There is a growing body of evidence showing that these strategies also provide the best returns on the investments made in ICT.

The third challenge is the vulnerability of work life in the IS. This challenge involves several issues derived from different sources, such as intentional attacks against organized systems, breaches of confidentiality and breakages of data security, and technical failures of either hardware or software. Insufficient competences of users critical to safety and inappropriate programming are integral elements of these issues. A highly topical issue is the systems-wide vulnerability in cases of natural disasters. Much needs to be done to address these issues and many of the new challenges that will appear, particularly in the social sphere of the IS that is now burgeoning.

The fourth universal challenge is well recognized by researchers studying the IS and ICT. Owing to many of the obstacles described above, we still use only a minor share of the real potential of the IS. The real benefits of the IS will not be obtained merely from the technology itself, but from the information and content which can be transmitted. Even effective transmission alone is not enough; we need to be able to understand the content and transform it into economic, productive, social or educational actions. This still needs massive educational programme. In other words, we need to learn to make intelligent use of the IS and ICT. A part of this intelligent use is to make the IS available to each and every person and at each workplace. When this objective is reached, we can start speaking of the Wise Society.

Emeritus Professor
Jorma Rantanen

Preventing the risks of occupational pesticide poisoning in Africa through innovative information networking

Hanna-Andrea Rother
SOUTH AFRICA

As concerns controlling occupational pesticide poisonings, eradicating their acute and chronic health effects, and reducing workers’ exposures, the expectation is that pesticide regulators (i.e., registrars and government officials from various ministries) undertake country-based risk management (1). In Africa, pesticide regulators and others often indicate that lack of capacity, both human and other resources, inhibits the ability to regulate and control the use of pesticides in order to mitigate poisonings and long-term health effects (2–3). In order to be effective in enforcing legislation, monitoring risks and ensuring the implementation of risk mitigation measures, regulators require various levels of capacity. Capacity building in this context refers to the provision of skills and resources in order for regulators to prevent pesticide risks to humans and the environment (Table 1) and to find suitable pest management solutions. Though not comprehensive, Table 1 gives an overview of how pesticide risk management requires extensive skills/capacity in many areas for pesticide regulators (with predominately backgrounds in chemistry, agriculture, ecology, etc.) and where capacity is lacking.

History of the COEHR/HRMP Information Networking and Capacity Building

In 1996 the Centre for Occupational and Environmental Health Research (COEHR) ran a series of pesticide policy reform workshops throughout South Africa’s nine provinces in an effort to provide information and support for developing policy that ensured the protection and risk reduction of all, especially workers, exposed to pesticides (4). Although numerous academics, researchers, industry representatives, government officials, extension officers, environmental health practitioners and others are addressing the issue of pesticides, a resounding comment was the need for an information network, as all were working in silos and had limited access to up-to-date information. As a result, in 1997 the COEHR established the South African Pesticide List server run through the list server platform (i.e., mailman) of the University of Cape Town.

Originally this list server catered to a South African audience. As interest grew and the list server became known more widely, the network acquired members from elsewhere in Africa and other developing countries. Today, the 220 members represent both developing and industrialized countries. This list server is moderated and serviced by an administrator with funding from the Swedish Chemical Agency (Kemi). The list predominately keeps members abreast of current health and environment research, biocides, alternatives, training and conferences, funding, the latest United Nations (UN) guidance documents, current global pesticide legislation, and the relevant UN Conventions and approaches.

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The network members also use the list to ask questions.

In 2006, as part of the Work and Health in Southern Africa (WHASA) project, the COEHR established the registrar’s e-list server in response to regulators’ request for a formalized mechanism of networking with other regulators and resource persons (Figure 1) (5). The registrar’s list has grown from 30 to 160 members. This closed forum is meant to provide regulators with support in many of the areas highlighted in Table 1, as well as to give regulators an opportunity to ask questions of each other and support persons.

The Health Risk Management Programme (HRMP) of the COEHR established the pesticide regulators’ Discussion Forum in 2009 for regular online real-time discussions of issues relevant to and problematic for regulators (6). It was proving costly for regulators to hold physical meetings; a particular issue was the cost of translation. Each session of these bi-monthly discussions has a different presenter and chair who present topics chosen by members. This Discussion Forum provides translation of discussions, blogs

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<th>Table 1. Examples of Capacity Building Requirements for Pesticide Regulators</th>
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<td><strong>Definition of Capacity</strong></td>
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<tr>
<td>Effective pesticide legislation/registration</td>
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<td>Effective enforcement of legislation</td>
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<td>Human skills</td>
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<td>Assessment and implementation of alternatives</td>
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<td>Risk reduction management</td>
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<td>Public health pesticides management</td>
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<tr>
<td>Training, awareness-raising and risk communication</td>
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Participants in the inaugural University of Cape Town Postgraduate Diploma in Pesticide Risk Management from eight African countries, Fiji and St. Lucia, with Programme Convenor, Dr. Andrea Rother (front, second left) and the University’s Deputy Vice-Chancellor, Prof. Thandabantu Nhlapo (front, third left).
and newsletters in French, English and Portuguese. Thus regulators can write in their own language and messages are translated in either direction. In order to promote participation, a newsletter in three languages was established. In addition, there is a blog where members unable to attend discussions can post messages, and e-mail updates of the online discussion are sent as it is taking place.

Low-cost Networking
Consistent and on-going contact with stakeholders is necessary for capacity building through networking to be effective. Using Vu-la, the educational platform of the University of Cape Town, for networking has meant only limited costs for what has transpired to be an effective and fruitful networking forum. Although face-to-face meetings are beneficial and necessary for networking and problem-solving, such meetings are expensive and tend to be held infrequently, not more than once a year. Regulators work with few staff and in isolation from other regulators. Consistent contact and discussion promotes enhancement of their skill in a way that does not result from one-off training sessions and meetings.

Skills Building
More recently, the Health Risk Management Programme (HRMP) in the COEHR, in collaboration with the United Nations Food and Agricultural Organization (FAO), has undertaken to strengthen the skills of pesticide regulators and risk managers in managing and reducing pesticide risks through a new Post Graduate Programme in Pesticide Risk Management at the University of Cape Town. This holistic course encompasses all aspects of pesticide risk management and risk reduction. It is grounded in International Code of Conduct on the Distribution and Use of Pesticides (7) and in a life-cycle approach. The first students, representing eight African countries, Fiji and Saint Lucia, started on this programme in March 2011. Linking initiatives is vital for building skills, and thus students are required to participate in the discussion forum, to comment on United Nations documents and to fill in relevant questionnaires. This programme therefore makes the building of skills circular rather than linear.

Participants in the inaugural University of Cape Town Postgraduate Diploma in Pesticide Risk Management from eight African countries, Fiji and St. Lucia, with Programme Convenor, Dr. Andrea Roth-er (front, second left) and the University’s Deputy Vice-Chancellor, Prof. Thandabantu Nhlapo (front, third left).

Lessons Learned
This networking forum approach is applicable to other target populations in order to build the problem-solving capacity in occupational health. Some of the key lessons learned, which other initiatives should take into account for effective networking, are:

• the need for a committed driver and moderator
• good support staff for daily messaging and technical support
• sustainable financial support – initially this will be external in some cases and will ultimately result in membership support
• holding an initial meeting to present the networking technology to the group, to explain how it functions and to establish the ‘buy-in’ of stakeholders and potential members
• regular evaluation of the process and taking account of suggestions and comments in activities. This generates the flexibility to adapt and upgrade the networking process to meet the members’ needs and challenges

Engage key stakeholders in the field by inviting them to be a part of the network
Double up on activities for effectiveness (e.g., have students and discussion forum members comment on or review draft UN guidance documents).

Figure 1. Location of the Registrars’ Network Members (5)
Conclusion

To build pesticide regulators’ capacity to act effectively in preventing occupational pesticide poisonings and detrimental exposures, there must be continuous and relevant support as well as the means for regulators to network together. The current information networking initiatives by the COEHR and the HRMP promote sustainable and cost-effective capacity building options for those working in the field of pesticide risk management and risk reduction.

For more information or a brochure about the Post Graduate Diploma in Pesticide Risk Management offered by the University of Cape Town, contact cynthia.lewis@uct.ac.za

Acknowledgments:

The Swedish Development Cooperation Agency, upon the arrangement of the Swedish Chemicals Agency, KemI, has provided financial assistance for the development of the course. The University of Cape Town also contributed. The United Nations Food and Agricultural Organization continues to be a source of generous support for the development of the course. The Swedish Development Cooperation Agency, upon the arrangement of the COEHR, has provided financial assistance for pesticide risk communication materials. The United Nations Food and Agricultural Organization continues to be a source of generous support for the course. The University of Cape Town also contributed.

References


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Table 2. Innovative Capacity Building Initiatives of the COEHR1 and the HRMP2

<table>
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<th>Initiative</th>
<th>Technology Medium and Process</th>
<th>Examples of Target of Capacity Building</th>
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<tr>
<td>Pesticide e-list server</td>
<td>E-mail/mailman; 3–6 e-mails daily; open moderated group</td>
<td>Current health and environmental research findings; regulatory status of specific pesticides in different countries; international conventions, alternatives, platform for asking questions</td>
</tr>
<tr>
<td>Registrar’s e-list server</td>
<td>E-mail/mailman; 3–6 e-mails daily; closed moderated group</td>
<td>Similar to the above but meant specifically for pesticide regulators only</td>
</tr>
<tr>
<td>Registrar’s Discussion Forum</td>
<td>Internet teaching platform, Vula; bi-monthly live seminars and discussions via a chat room, with a new presenter and chair each time; newsletters in three languages; blogs; e-mail updates of live chats; sms notifications; closed moderated group</td>
<td>Topic-based, topic determined by regulators at the end of each year; focused on developing solutions collectively; topical and current issues</td>
</tr>
<tr>
<td>Post Graduate Programme in Pesticide Risk Management</td>
<td>Mixed mode, 2-year part-time course involving distance learning through Vula and contact time; four core modules and two electives</td>
<td>Comprehensively covers all aspects highlighted in Table 1, and more; grounded in the International Code of Conduct on the Distribution and Use of Pesticides (7), as well as a life-cycle approach</td>
</tr>
<tr>
<td>Pesticide Risk Communication Materials</td>
<td>Policy briefs, pamphlets, laminated cards, brochures, stickers</td>
<td>These materials have been licensed with a Creative Common license so that others can adapt and use the materials for training or awareness-raising</td>
</tr>
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1 Centre for Occupational and Environmental Health Research
2 Health Risk Management Programme

Figure 2. Vula Discussion Forum Home Page

To join the Pesticides e-list server, go to: https://listinfo.pesticides-l@lists.uct.ac.za

To join the Pesticide Risk Communication Materials, go to: http://www.cet.uct.ac.za/publications/pestriskcomm.php

For information or a brochure about the Post Graduate Diploma in Pesticide Risk Management offered by the University of Cape Town, contact cynthia.lewis@uct.ac.za
The AIHA-NCS Developing World Outreach Initiative – A Case Study in Technology Transfer Activities

Richard Hirsh
AIHA

Background

What is the best way to share international expertise when you are tucked into a small corner of the world? That was the question I faced for many years, until advances in technology transfer made the answer much easier. In 2006, the Northern California Section (NCS) of the American Industrial Hygiene Association (AIHA) (1) embarked on a new project to harness the efforts of local members that perform work internationally. The project was called the Developing World Outreach Initiative (DWOI). The intent was to focus and leverage local occupational health and safety resources in northern California and attempt to address, in small but tangible ways, the lack of occupational health and safety capacity in the developing world, primarily in Africa and Asia. Toward our initial intent, the DWOI has harnessed the growing information society to utilize a variety of innovative methods to initiate technology transfer to Non-Governmental Organizations (NGOs) and universities in the developing world. This article will describe the efforts employed to date.

Technical Library Reference Materials

One of the first activities of the DWOI, and what became our primary focus, was to build an inventory of occupational safety and health technical reference materials that are shipped to NGOs and universities in Africa and Asia. AIHA local section members have donated thousands of books to date which are catalogued via an electronic inventory maintained and updated on an excel spreadsheet. Technology transfer is essential for this effort as the spreadsheet is then periodically sent to a variety of potential recipients throughout Africa via an African OH&S list-serve. Potential recipients then review the available references and select and submit their “wish lists” via email. The DWOI then reviews and fulfills their orders on a first-come, first-serve basis and organizes the physical shipment of select-

Photo by Niranjana Patel

Funding for the shipments has been raised via local section member contributions made during bi-monthly dinner meetings and funding grants provided through the International Affairs Committee (IAC) of AIHA (2). David Zalk, a past-president of the International Occupational Hygiene Association, founding advisor to the DWOI, and AIHA-NCS local section member, generously donated several copies of his new book entitled: “Control Banding: A Simplified, Qualitative Strategy for the Assessment of Occupational Risks and Selection of Solutions” (3). David offered his book to any local section member who donated $20 USD or more to the DWOI. Recently, Barbara Cohrsen, a past local section president, and editor of the Patty's Industrial Hygiene 6th Edition 4-volume reference text set (4), offered to raffle a set of these reference materials at an upcoming dinner meeting to help fund future book shipments.

To date, over 20 shipments have been sent to recipients in Botswana, Kenya, Indonesia, Nigeria, Sudan, Singapore, South Africa, Tanzania, Thailand, Uganda, and Zambia. Some of the recent targeted recipients include the Southern African Institute for Occupational Hygiene – which represents 14 countries in Africa (500 registered members), the Department of Health, Safety and Environment at the Gateway Industrial and Petrogas Institute in Nigeria, the Ventilation Manager of the Konkola Copper Mines in Zambia, the Youth Press and Development Organization (YPDO) in Zambia, the Centre for Science and Technology Innovations, A UNESCO Associated Centre in Kenya, and a University Professor of Toxicology in Nigeria.

The Ventilation Manager from the largest mining operation in Zambia, Konkola Copper Mines expressed his thanks in a recent email: “Many thanks to you / your organization / and team for these books, some have already been snapped up by people studying and writing exams. Obviously if you conduct a similar exercise, or have more books available in the fields of occupational hygiene / health and ventilation, we would welcome them with open arms – unfortunately there is an extreme shortage of such material here in Zambia.”

In addition to the book shipments, the DWOI has been sponsoring individuals with financial backing to attend the following occupational health and safety training events:

Resources Website
The DWOI maintains a webpage (http://www.aiha-ncs.org/displaycommon.cfm?an=1&subarticlenbr=20) to post meeting minutes, contact information of its committee representatives, links to a variety of occupational health and safety organizations operating in the developing world, and technical materials donated by local section members.

The website has also served to host as a repository for submitted technical questions from NGOs which can then be directed for answers to subject matter experts within the local section. The DWOI now has a web link on the AIHA IAC Sharepoint website to help connect international contacts to DWOI services.

In conjunction with the Maquiladora Health and Safety Support Network (7), The DWOI is sponsoring individuals from various Asian NGOs to participate in occupational safety and health trainings. These sponsorships provide trainee registrations as well as funding for entire training programmes. The DWOI has identified several reputable occupational health and safety training courses being offered throughout Asia and negotiated discounts for DWOI sponsored attendees from NGOs. Several of these 2–5 day courses have been held in China, India, and Indonesia to date, but the DWOI is also interested in identifying other technical courses in Africa which could also be sponsored.

In the past year, the DWOI has sponsored individuals with financial backing to attend the following occupational health and safety training events:
In January 2011, Jagdish Patel, Director of the People’s Training and Research Centre (PTRC) in India, completed a two-day DWOI-sponsored training which took place in Ankleshwar, on the west coast of India. This training was attended by 25 participants from the area, representing trade unions, safety graduate programmes, and seven different factories. Mr. Patel has been instrumental in bringing to light the working conditions of agate workers. In February of last year, the National Labour Committee published a report entitled Heart of Darkness, describing working conditions in the gemstone industry. The report can be found at: http://www.globallabourrights.org/admin/reports/files/Hearts_of_darkness.pdf. (8)

In February 2011, Richard Hirsh, the DWOI founder and chairperson, participated in a five-day industrial hygiene training event in Hyderabad, India organized by Nayati International. The class title: W501 “International Module: Measurement of Hazardous Substances Including Risk Assessment” is one of the OHLearning.com (9) modules which is now available to download for free. The class was attended by 22 students from all over India. Since it began in 2010, OHLearning.com has provided a unique and powerful delivery method for occupational health and safety technology transfer. The website has now registered well over 100,000 page views. In that time, courses have been run, or are planned, in countries such as Australia, Brazil, Canada, Chile, China, India, Indonesia, Kazakhstan, Norway, Singapore, South Africa, Spain, Thailand, Trinidad, the United Kingdom, the USA, and Vietnam. The training modules are now available in several languages including Spanish, Portuguese, Mandarin, Norwegian, and French.

AIHA International Affiliate Memberships

Another method employed by the DWOI to promote access to occupational health and safety information and facilitate technology transfer is through sponsorship of International Affiliate Memberships in AIHA for NGOs. Individuals who reside in, and are citizens of a country defined by the World Bank as a low-income, lower-middle-income, or upper-middle-income economy, and who are practising occupational and environmental health and safety are eligible to join AIHA under the International Affiliate Membership status. This allows individuals in the developing world to access all the resources at www.aiha.org afforded to the AIHA membership. The DWOI has sponsored at least two individual AIHA international affiliate memberships each year since 2006 and three memberships in 2011.

Linking Business Travel

At times, AIHA-NCS local section members travel to developing countries on business or vacation. The DWOI has promoted a service to link these individuals with occupational health and safety NGOs in the visited country to offer technical support, training, or lectures during their visits. Although some previous attempts in Argentina and Macau did not materialize, the DWOI has been successful in linking local section members to NGOs in Indonesia. In fact, one DWOI member is moving to Indonesia and has been in communication with local NGO contacts to coordinate support services that she can offer during her upcoming relocation.

In October 2010, DWOI members David Hornung and Garrett Brown travelled to Bandung, Indonesia to participate in the annual conference of the Asian Network for the Rights of Occupational Accident Victims (ANROAV) (http://www.anroav.org/) (10). This annual meeting is a chance for numerous grassroots occupational health and safety organizations to gather and discuss their work, recent campaigns, and challenges. The DWOI will aim to connect with ANROAV participants in need of AIHA-NCS’s member expertise. The DWOI has established formal partnerships with ANROAV and the Asian Monitor Resource Center (AMRC) http://www.amrc.org.hk/ (11).

Connecting Students with Developing World Projects

More recently, DWOI member Nina Townsend, a graduate student at the University of California’s Berkeley’s School of Public Health Environmental Sciences Program, returned from a trip to the Dominican Republic, where she surveyed garment workers. The DWOI was able to link Nina with the Center for Occupational and Environmental Health, which provides NIOSH grants to students conducting projects in the developing world. After Nina’s research project in the Dominican Republic, she presented her findings during an AIHA-NCS dinner meeting to acquaint local section members with the working conditions she encountered in the garment industry, as well as made recommendations for corrective actions.

International Themed Dinner Meetings

In order to update local section members on occupational health and safety issues in the developing world, the DWOI has hosted an annual dinner meeting since 2007 with an international theme. The dinner meeting has coincided with the annual students’ night to encourage students to become involved in developing world OH&S issues. The dinner meetings have included presentations by a variety of guest speakers including Brian Daly, Past Chair of the AIHA International Affairs Committee (IAC) and member of the 2005–2007 International Task Force; Pam Tau Lee, UC Berkeley’s COEH, Labor Occupational Health Program; Garrett Brown, Director of the Maquiladora Health & Safety Support Network (http://mhssn.igc.org/); Perry Gottesfeld, Director of Occupational Knowledge (OK) International (http://www.okinternational.org/) (12) on occupational health projects in India; Heather Barr, University of California at San Francisco, on a mining project in Mexico; David Hornung, on the ANROAV conference in Indonesia; Dr. Mark Nicas, on the future of industrial hygiene educational programmes; and Nina Townsend on the working conditions faced by garment workers in the Dominican Republic.

Discussion

The burgeoning information society has been a tremendous asset in assisting a few volunteers from one corner of the world to address the needs of workers and professionals globally. The AIHA-NCS Developing World Outreach Initiative’s efforts to promote occupa-
ional health and safety in the developing world can make tangible and positive impacts and provide a model for other local AIHA sections, national organizations, and other like-minded groups. Technology transfer can be accomplished using a variety of methods. Among these are technical reference and equipment shipments, sponsoring attendees at occupational health training events, participation in training courses and conferences, sponsoring AIHA international affiliate memberships, and using the web to link resources and recipients. We would like to both encourage other organizations to do the same and seek more opportunities in Africa where we can offer our help.

References
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Strengthening occupational health and safety in low income countries through training: The Zimbabwe experience

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Introduction

The Department of Community Medicine at the College of Health Sciences of the University of Zimbabwe (UZ) has been training people working in occupational health and safety (OH&S) in industry since 2002 (unpublished Diploma in Occupational Health and Safety (DOSH) Evaluation Report, 2010). The impact of these trained occupational health personnel on the improvement of OH&S in Zimbabwe’s industry has not been documented. One objective of the DOSH evaluation was to assess the contribution to improving OH&S in the Zimbabwean industry.

Carrying out a survey

A population survey was conducted of all DOSH alumni from 2002 to 2008 and the companies that hosted the students during and after training. Structured interviews and a checklist were used with the DOSH alumni and industry representatives to elicit information on the cur-
rent work status of the alumni and industry’s perception of the contribution of the alumni, and to determine whether recommendations arising from alumni’s research projects had been implemented. The findings were disseminated to the DOSH Advisory Board and the Academic Board of the Department of Community Medicine.

Results

The Department of Community Medicine had trained a total of 38 persons in Occupational and Environmental Health and Safety (OEH) at Diploma level. About 79% (30) of them agreed to participate in the evaluation but because of challenges with communication technology, only 20 (59%) actually participated. Of the DOSH alumni who participated in the evaluation, 75% indicated that their current jobs were related to environmental and occupational health (OEH) and 71% had been promoted soon after completing the DOH&S training. Ninety per cent (90%) of the DOSH graduates confirmed that they had gained significant knowledge and had a better understanding of OEH issues compared to before the training. A significant number of DOSH graduates (38%) indicated that they had faced challenges with training sponsorship.

Most (40%) company executives had received some form of OEH education and information from the National Social Security Authority (NSSA), consultants and in-house training (64%). The major recommendations presented by the company executives were to shorten the theory component and to introduce shorter modules that would minimize the time spent away from work. The company executives also recommended that the University of Zimbabwe should introduce a Bachelor’s Degree in Environmental and Occupational Health training, indicating that there were some limitations in the current training.

The alumni reported that the supervision of students by the University of Zimbabwe faculty was one of the major challenges affecting their DOSH training. This issue stemmed from the inadequate human resources for environmental and occupational health at the University of Zimbabwe.

The major limitation affecting evaluation of the DOSH programme was the difficulty in locating alumni, either because they had changed their contact details or had migrated to other countries in search of better-paying jobs.

Discussion, Conclusion and Recommendations

The DOSH training by the University of Zimbabwe has had a positive qualitative impact, as most of the graduates are employed at senior administrative levels within the Zimbabwean industry. Evidence from the DOSH evaluation indicates the lack of a system to record the contact data of present and former students, for the purpose of follow-up in future. The absence of a mechanism for collecting feedback from former students and industry hampers the upgrading of the DOSH programme to either a Bachelor’s degree programme or a postgraduate Master’s degree programme, which industry executives are rightfully requesting.

We concluded that the current Diploma in Occupational, Environmental Health and Safety (DOH&S) programme has strengthened the practice of occupational health and safety in Zimbabwe. It is our conclusion that the absence of an electronic database with participants’ contact information has hindered the accurate evaluation of the impact of the DOSH training programme. A more advanced OEH degree programme is long overdue for a diverse Zimbabwean economy.

We recommend that the Department of Community Medicine:
1. Develop a database with the contact information of present and former DOSH students, in order to enable easy networking of the DOH&S graduates.
2. Review the relevancy of the current Diploma course with the aim of upgrading it to an academic degree.
3. Restructure the Diploma programme so that trainees spend more time at on-site assignments.

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AFRICA: Information networking

The Industrial Hygiene List for Africa was created on June 25, 2005 within the YahooGroups to facilitate communication among environmental health and safety (EHS) professionals with interest in Africa. Currently the mailing list has 825 subscribers from all across Africa and abroad, and continues to look for new subscribers, content and moderators.

To embrace the evolution of the social media - last year we created Industrial Hygiene List for Africa (on LinkedIn) as a subgroup of GlobalOccHyg List now with 100 subscribers.

Please join as we continue to build a safer and better Global Village within the occupational and environmental health and safety community.

Andrew Cutz

Andrew Cutz, CIH | Moderator, Industrial Hygiene List for Africa |
http://tech.groups.yahoo.com/group/Industrial_Hygiene_List_for_Africa/ (on Yahoo Groups) |
http://rss.groups.yahoo.com/group/Industrial_Hygiene_List_for_Africa/rss (RSS Feed) |
http://tinyurl.com/IH-List-for-AFRICA (on LinkedIn) NEW!
Distance Education in Occupational Safety and Health at the ILO International Training Centre

Robin Poppe
Lisa Marie Kreibich
Félix Martín Daza

Introduction

The ILO International Training Centre (ITC-ILO) is the training arm of the International Labour Organization (ILO). Located in Turin, it runs training, learning and capacity development services for governments, employers’ organizations, workers’ organizations and other national and international partners in support of decent work and sustainable development.

Generally, ITC-ILO training includes the promotion of ILO principles, the sharing and analysis of experience and best practices, and visits to study high-performing systems and enterprises. In recent years the ITC-ILO has annually organized around 450 activities for more than 13,000 participants from over 150 countries.

Distance Education and Learning Technology Applications (DELTA)

Training and learning activities can take place in Turin, in the participants’ home country or via the internet. In recent years, in order to increase sustainability and impact, the ITLG-ILO has promoted approaches that combine distance and face-to-face components. This approach allows a combination of initial information and knowledge accessed through internet-based tools, face-to-face training during which knowledge-sharing among practitioners is emphasized and distance learning techniques used to exchange resources, encourage idea-sharing through forums, and to facilitate or support the application of new competencies.
Distance learning tools used for OSH training activities

The ITC-ILO organizes training activities that enhance the aims of the ILO regarding OSH, namely to create worldwide awareness of the dimensions and consequences of work-related accidents, injuries and diseases; to secure basic protection for all workers through international labour standards; as well as to enhance the capacity of Member States and industry to design and implement policies that provide prevention and protection.

The OSH training courses for institutional representatives mainly focus on formulating national OSH policy and strategies, strengthening national government departments, and developing employers’ and workers organizations’ OSH capacity.

Some OSH training activities are blended, using face-to-face training as well as distance learning. Specific training materials and distance-learning platforms and tools provided by the DELTA team have been developed for OSH training. Some examples of these courses are:

1. Postgraduate Course on Occupational Health and Safety in the Workplace

In partnership with the University of Turin, in 2011 the ITC-ILO offers the 6th edition of the postgraduate course on Occupational Safety and Health in the Workplace. An international approach has been applied to the contents, the methodology and the composition of the training team. As OSH professionals need a multidisciplinary background to successfully operate in the broad field of OSH, the programme incorporates training sessions on all the topics and disciplines relevant to OSH, as well as on the development of organizational, managerial and interpersonal skills. The course has two phases, an online distance learning period and face-to-face residential training on ITC-ILO’s campus in Turin.(3)

During the 15 weeks of the online phase, participants have access to a ‘learning and information platform’ which they use for study and to interact with their personal tutors and fellow students, taking full advantage of the information provided. An introduction to the fundamentals and basic concepts of OSH enables participants with different levels and fields of knowledge to reach an adequate, homogeneous level for the residential phase. The platform contains a course section for individual use, an assistance section which provides customized support, a collective section in which participants are able to take part in technical discussions, share experiences and collaborate with fellow learners, and a library section which allows participants to deepen their knowledge of OSH issues through useful documents and links.

The residential phase of eight weeks includes classroom lectures, study visits to selected enterprises, working groups and learning assessment exercises. Lectures include presentations, exercises and other interactive learning activities to strike a balance between theory and practice and to stimulate discussions.

2. Courses on occupational safety and health of the Programme for Employers’ Activities

The Programme for Employers’ Activities (ACT/EMP) is a specialized unit of the ITC-ILO. It trains employers’ organizations to become strong partners in economic and social development and to provide better services to their members.

ACT/EMP offers OSH training under a project financed by the Ministry of Labour and Immigration of Spain for the employers’ organizations of Latin America. The programme consists of four phases: two one-week sub-regional face-to-face workshops in Latin America, a three-month distance learning phase, and a two-week regional workshop in Turin.

Throughout the course, and in particular during the distance learning phase, the Learning Employers Network (LEMPNET) interactive online platform is available to the participants.(4) It allows them to access the training modules and course material, deepen their knowledge of OSH issues through documents and links in the library section, share questions and answers on specific topics, exchange documents, photos and information, and interact and network with colleagues and tutors.

This platform supports knowledge-sharing and learning amongst Employers’ Organizations around the world. It hosts a series of tailor-made services, such as information on ACT/EMP; relevant developments for the employers’ community; a list of partners in a specific region for further help; online training needs analysis; publication of Employers’ Organizations’ news, opinion polls and a CV...
database; and a dedicated space for course participants.

3. Courses on occupational safety and health of the Bureau for Workers’ Activities

The ACTRAV-Turin Labour Education Program is the training arm of the Bureau for Workers’ Activities of the ILO. ACTRAV Turin responds to the training needs of workers’ organizations around the world by delivering advanced training courses, developing training materials, organizing educational projects and providing advisory services. The structure and contents of the Program’s activities are aimed at responding to the economic, social, and political challenges unions face as they represent their members in a rapidly changing world of work.

In order to raise the awareness of the ILO’s principles and standards concerning workers’ safety and health among unions, and to strengthen their capacity to promote and defend these standards, ACTRAV Turin offers a course on OSH for representatives of regional and federal workers’ organizations from Latin America.

The course is conducted through two distance learning phases and one classroom activity. The current course, a distance learning activity from October to December 2010 and from March to May 2011 will end in September 2011 with a face-to-face activity.

SoliComm is the platform for distance education used to carry out distance learning activities. Many thousands of unionists from all over the world have been using the platform since 2004 for participating in distance education and networking activities in English, Spanish, Portuguese and French. It allows participants of the course to revise the training materials in the library section, to exchange opinions on topics proposed by the tutor and to complete two individual projects for which the tutor provides specific guidelines.

However, SoliComm is not only aimed at distance education. It is also what ACTRAV defines as a Community Information and Participation System (CIPS). This means that SoliComm is a set of computer communication tools that can be used by labour organizations for building networks, organizing educational activities, and conducting campaigns. It has components for an e-mail service, a mailing list, computer conferencing designed especially for group work, a computer space for labour organizations from developing and emerging market countries to maintain websites, an e-library to share online resources (papers, reports, data, etc) within their organizations or with any other organizations in the world, and a search engine focusing exclusively on labour websites. (5)

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Strengthening occupational safety and health inspection systems: The African Regional Labour Administration Centre (ARLAC)

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ZIMBABWE

Introduction

In April 2010 the African Regional Labour Administrative Centre (ARLAC) in Harare, Zimbabwe organized a capacity-building workshop, entitled “Occupational Safety and Health (OSH) and HIV and AIDS at the workplace”, directed towards the needs of officials from government, employer and worker organizations. It is important to note that the HIV and AIDS pandemic continues to have a devastating impact on health, social development and economic development in the member countries. Thus, over the years ARLAC has conducted relevant training and research activities to address the issue by imparting knowledge about HIV and AIDS transmission and prevention and about safe work. Participants for this workshop were drawn on a tripartite basis from the member countries of Egypt, Ethiopia, Kenya, Liberia, Nigeria, Sudan, Uganda and Zimbabwe. The forum therefore created a basis for the future networking of labour inspectors in charge of OSH among the member countries.

Workshop aims

The workshop, held in Harare, Zimbabwe, had the following aims:

- To discuss the basis for action, identify roles and responsibilities, and set out key policies and actions needed for sound management of occupational safety and health in relation to HIV and AIDS in the workplace.
- To reengineer and improve the responses of OSH to HIV and AIDS at the workplace.

Workshop objectives

The main workshop objective was:

- To strengthen the capacity for the implementation and development of OSH management practice in view of emerging issues, such as sustainable enterprise development and HIV/AIDS, among others.

Workshop outcomes

After successfully completing the workshop, it was expected that participants would be able to:

- Ensure a coordinated approach among social partners to promote and support the highest possible standards in the world of work, especially in terms of occupational hazards and HIV and AIDS.
- Promote a preventive culture, particularly with regard to occupational hazards and HIV and AIDS.
- Promote policy research and public discussions on emerging issues of concern to the world of work, particularly in the ARLAC constituents.

National Day for Safety and Health celebrations

The workshop coincided with event marking the National Day for Safety and Health in Zimbabwe on 28 April 2010. The ARLAC workshop participants were invited by the National Social Security Association (NSSA) to take part in the celebrations, starting with a procession from Town Hall along the Julius Nyerere Street in Harare. The Theme was Creating an Effective and Sustainable Preventive Occupational Safety and Health Culture to Secure the Future. After marching on the streets of Harare, celebrants converged and the following took place: the national anthem of Zimbabwe was sung, a play was performed, there were speeches from the ILO, workers’ union representatives, the Employers Confederation of Zimbabwe (EMCOZ), and the Minister of Labour and Social Services, and finally a note.
of thanks from the Director of NSSA. Uganda was given the opportunity to make a speech on behalf of the ARLAC participants from the different member states.

**Conclusion**

At the end of the workshop, the participants acknowledged the following:

- That HIV and AIDS is a medical condition and member states should adopt a multisectoral approach in dealing with it.
- There is a need to domesticate all relevant international Conventions, including those pertinent to OSH.
- There is a need to strengthen monitoring and evaluation mechanisms.
- There is need to support the adoption of the ILO standard on HIV and AIDS in the workplace.

The participants recognized the following challenges:

- There is inadequate participation of both OSH personnel and HIV and AIDS personnel at high-level conferences on HIV and AIDS.
- HIV and AIDS have a negative impact at the workplace.
- There is a need for mainstreaming of OSH and HIV and AIDS at the workplace.
- People living with HIV are stigmatized.
- There is limited access to care and support.
- There are inadequate resources for OSH and HIV and AIDS programmes.
- A coordinated approach to OSH and HIV and AIDS programmes is lacking.

Therefore, the following recommendations, in the form of an action plan, were adopted:

- Inclusion of OSH and HIV and AIDS personnel at relevant high level conferences.
- The mainstreaming of OSH and HIV and AIDS at the workplace.
- Establishment of a regional database personnel trained in OSH and HIV and AIDS.
- The conducting of research on OSH and HIV and AIDS
- The development of a monitoring and evaluation framework on the work done by member states.

**Mental stress assessment at the workplace in a hotel in Libreville, Gabon**

P. Comlan  
A. Mouanga  
J. Roy  
J. Djeki  
GABON

**Introduction**

Mental stress in the workplace is the result of an imbalance between the demands of the psychological or mental workload, the decision latitude left to the employees and the social support received (1). Stressed workers are more likely to be unhealthy, poorly motivated, less productive and less respectful of the safety rules. They impact on performance, and market competition is heavy in all sectors, including hotels (2). High stress levels are related to working conditions in hotels, but empirical evidence is scarce in the literature (3). In Gabon, stress and mental suffering is not documented among hotel industry professionals. We therefore conducted an evaluation of stress among employees in a hotel in Libreville, Gabon.

**How the study was done**

During August 2010, in order to evaluate stress and mental suffering of occupational origin systematically, two interviewers carried out three anonymous questionnaires for all employees who visited the infirmary for their annual medical fitness. The questionnaires were administered and completed in the waiting room before the visit. Informed consent was
obtained from all of the study participants. So that employees could identify the stressors found at the workplace, we used a checklist of professional stressors. We chose the Cungi test, which measures the effect of stress on a person, because it is not oriented to the cause. Cungi's stress scale involves a questionnaire of 11 items rated from 1 to 6. (3). The test is quick and easy to use. The arbitrary values were: <25: no stress; between 25 and 30: an average stress level; between 30 and 35: a high stress level; and a value of 35 or over: an excessive stress level.

We coupled the Cungi test with the HAD scale (Hospital Anxiety and Depression Scale) in order to measure the level of mental suffering. The HAD questionnaire consists of 14 items measuring the level of anxiety and depression in two separate subscales of 7 items each. Each item has 4 response categories from 0 to 3 (3). Scale scores range from 0 (no symptoms) to 21 (maximum distress) for both depression and anxiety: a score of 19 or over indicates a major depressive episode; a score of 13 to 19 indicates adjustment disorder and minor depression; a score of under 13 indicates there is no stress disorder. “Good stress”, or positive stress, is considered by some managers to be a way of managing people without generating mental suffering, but the existence of a high level together with a high HAD score means that the employee's mental health is endangered.

Results

During the study period, 200 employees were invited to visit the consultation room. The response rate to the questionnaire was 87%. Men accounted for 61.5% of respondents. The average age of the study group was 35 ± 8 years. The five professional stressors most often cited were tensions at work (37.9%), work overload (34.5%), lack of support (32.8%), lack of progress (31.6%) and the monotony of tasks (29.9%). The distribution of stressors most frequently cited at the workplace is presented in Table 1.

Table 2 showed that more than half of employees reported mental suffering classified as follows: adjustment disorders and minor depression, 40.8%; anxiety syndrome, 40.2%; depression, 25.3%; and major depressive episode anxiety, 16.1%. The index of mental distress increased significantly with stress.

Discussion

The small size of the study group and the fact that the investigation was conducted at a single hotel in Libreville were the limitations of this study. The results cannot be extrapolated to all hotel professionals in Gabon. Still, a high proportion of employees agreed to participate in the study. The response rate was 87%, which enabled us to describe job stress and mental suffering in this enterprise.

Management of occupational mental stress is a complex phenomenon. Stress is more prevalent in the service sector, e.g. in hotels, than in other sectors. It originates from the interface between workers and customers (3).

Occupational mental stress exists in the hotel industry in Gabon. It creates mental suffering among the population studied. Anxiety and depression indices revealed that a large number of these hotel employees experienced mental suffering, and there is a high proportion of mental suffering among them.

Our study was able to identify a number of associated stressors contributing directly to the existence of and increase in stress at work: tensions; overwork; lack of support; lack of career evolution; and the monotony of the tasks.

Scientific data show a strong link between mental health status and business productivity (4, 5, 6, 7). Thus, hotel management should pay attention to employees' mental status if they wish to improve the profitability of their businesses. According to Mikkelsen and Einarsen, ambiguous situations cause anxiety and frustration and generate anger, irritability and resentment. These negative outcomes stem from stunted personal development or situations that violate moral imperatives and personal dignity (8).

A Spanish study led by ISUS revealed that stress levels in hotels and restaurants are higher than the national average, and that tensions and conflicts at the workplace cannot be solved in the social dialogue (9). According to Smith and Carroll, many leaders behave in an individualistic way and do not support workers’ associations. Instead, they consider their employers to be social leaders (10). Vogt in Austria noted that 60% of employees complain about the urgency of their tasks and 56% complained about an overload of work. Physical load caused significant physical fatigue among respondents (11). In Australia, Lee and Krause observed that overwork, lack of recognition, inadequate feedback and lack of communication were sources of stress for more than half of respondents (12). Bunk et al. identified various effects of exposure to stress: emotional, mental, psychosomatic, behavioural and physical effects (13).

In the hotel industry, aspects of job structure should be reviewed in order to improve some components of stress. Overwork should be reduced, communication should be facilitated to allow the early identification of problems, continuing emphasis should be placed on skilled, trained assistance for new employees. The lack of recognition for their specialist skills and inadequate participation in management may require a reorientation of approach at both individual and professional levels. A follow-up study is needed in order to address these issues.

Conclusion

Job stress is a real problem for workers and employers in the hotel industry. As the work environment is changing, the nature of stress issues changes. It is important to identify and constantly monitor stress problems. The productivity of the work force is a key factor as far as the success of a hotel is concerned. Productivity in turn depends on employee's psychological well-being. In a highly dynamic and competitive world, the hotel worker is exposed to many categories of stressors that can affect all realms of life. Stress in the hotel industry leads to psychological disorders and the emergence of anxiety-depressive syndromes that can cause extended sickness leave. It would be necessary to consider standard preventive measures for stress at work in the framework

Photo by Pearl Comlan

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of an integrated approach to occupational health management.

References

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<table>
<thead>
<tr>
<th>Stressors</th>
<th>Administration (N = 27)</th>
<th>Front office (N = 23)</th>
<th>Housekeeping (N = 30)</th>
<th>Laundry (N = 12)</th>
<th>Maintenance (N = 10)</th>
<th>Food and beverage (N = 72)</th>
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<tr>
<td>Tension</td>
<td>29.6</td>
<td>69.6</td>
<td>43.3</td>
<td>33.3</td>
<td>0.00</td>
<td>34.7</td>
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<td>Overwork</td>
<td>14.8</td>
<td>60.9</td>
<td>26.7</td>
<td>16.7</td>
<td>50.0</td>
<td>37.5</td>
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<tr>
<td>Lack of support</td>
<td>33.3</td>
<td>65.2</td>
<td>26.7</td>
<td>25.0</td>
<td>30.0</td>
<td>26.4</td>
</tr>
<tr>
<td>No change</td>
<td>33.3</td>
<td>34.8</td>
<td>33.3</td>
<td>25.0</td>
<td>20.0</td>
<td>31.9</td>
</tr>
<tr>
<td>Monotonous task</td>
<td>33.3</td>
<td>34.8</td>
<td>16.7</td>
<td>8.3</td>
<td>10.0</td>
<td>38.9</td>
</tr>
<tr>
<td>Urgent tasks</td>
<td>22.2</td>
<td>30.4</td>
<td>26.7</td>
<td>25.0</td>
<td>30.0</td>
<td>23.6</td>
</tr>
<tr>
<td>Physical load</td>
<td>14.8</td>
<td>30.4</td>
<td>20.0</td>
<td>50.0</td>
<td>10.0</td>
<td>33.3</td>
</tr>
</tbody>
</table>

Table 1. Distribution of stressors most frequently cited at the workplace.

<table>
<thead>
<tr>
<th>Cungi</th>
<th>%</th>
<th>HAD≤13</th>
<th>13≤HAD&lt;19</th>
<th>HAD≥19</th>
<th>A&lt;9</th>
<th>A≥9</th>
<th>D&lt;9</th>
<th>D≥9</th>
</tr>
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<tbody>
<tr>
<td>Cungi≤25</td>
<td>103 (59.2%)</td>
<td>55 (73.3%)</td>
<td>38 (36.9%)</td>
<td>10 (9.7%)</td>
<td>70 (68.0%)</td>
<td>33 (32.0%)</td>
<td>83 (80.6%)</td>
<td>20 (19.4%)</td>
</tr>
<tr>
<td>25≤Cungi≤29</td>
<td>31 (17.8%)</td>
<td>12 (16.0%)</td>
<td>13 (41.9%)</td>
<td>6 (19.4%)</td>
<td>19 (61.3%)</td>
<td>12 (38.7%)</td>
<td>20 (64.5%)</td>
<td>11 (35.5%)</td>
</tr>
<tr>
<td>30≤Cungi≤34</td>
<td>19 (10.9%)</td>
<td>5 (6.7%)</td>
<td>9 (47.4%)</td>
<td>5 (26.3%)</td>
<td>7 (36.8%)</td>
<td>12 (63.2%)</td>
<td>13 (68.4%)</td>
<td>6 (31.6%)</td>
</tr>
<tr>
<td>Cungi≥35</td>
<td>21 (12.1%)</td>
<td>3 (4.0%)</td>
<td>11 (52.4%)</td>
<td>7 (33.3%)</td>
<td>8 (38.1%)</td>
<td>13 (61.9%)</td>
<td>14 (66.7%)</td>
<td>7 (33.3%)</td>
</tr>
<tr>
<td>Total</td>
<td>174 (100.0%)</td>
<td>75 (43.1%)</td>
<td>71 (40.8%)</td>
<td>28 (16.1%)</td>
<td>104 (59.8%)</td>
<td>70 (40.2%)</td>
<td>130 (74.7%)</td>
<td>44 (25.3%)</td>
</tr>
</tbody>
</table>

Table 2. Distribution of employees by stress (Cungi test) and mental suffering (Hospital Anxiety and Depression Scale). N=174.
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