

**Miller, Diane M. (CDC/NIOSH/EID)**

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**From:** Fingerhut, Marilyn (CDC/NIOSH/OD) (CTR)  
**Sent:** Wednesday, June 11, 2008 12:25 AM  
**To:** NIOSH Docket Office (CDC)  
**Cc:** Fingerhut, Marilyn (CDC/NIOSH/OD) (CTR); Lentz, Thomas J. (CDC/NIOSH/EID)  
**Subject:** Comments for NIOSH Control Banding Review Document  
**Importance:** High  
**Attachments:** Global Implementation Strategy Final May 04.doc; 05 control banding paper.doc

To the NIOSH Docket, Please receive thses comments sent to me for the NIOSH Docket for the Control Banding Document. Regards, Mariyn Fingerhut

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**From:** Vickers, Carolyn [mailto:vickersc@who.int]  
**Sent:** Mon 6/9/2008 4:21 AM  
**To:** Fingerhut, Marilyn (CDC/NIOSH/OD) (CTR); Lentz, Thomas J. (CDC/NIOSH/EID)  
**Subject:** RE: Your paragraphs are needed for NIOSH Control Banding Review Document

Hi Marilyn, TJ,

Re the NIOSH review - I looked at the question of whether the ITG strategy referred to is the most up to date. The version "agreed" by the ITG is attached and seems to be the same one in the NIOSH paper. Gerry and Igor did publish an "update" on the strategy (attached) but it is true to say that this was for presentation at a conference (in 2005) and was not agreed as such by the ITG. The ITG has recognized that the Strategy needs to be updated (most recent reference to this is the record of the April 2008 teleconference). The "membership" is not up to date, but I don't know if this is important, given that other aspects of the strategy are also in need of an update.

Thanks,

carolyn

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**From:** Fingerhut, Marilyn (CDC/NIOSH/OD) (CTR) [mailto:maf2@cdc.gov]

**Sent:** 08 June 2008 10:08

**To:** Fingerhut, Marilyn (CDC/NIOSH/OD) (CTR); Heussen, Henri; Grumbles, Tom (TG); Andrew.Garrod@hse.gsi.gov.uk; zalk1@llnl.gov; Vickers, Carolyn; alberto.camacho-henriquez@gtz.de; baichoo@ilo.org; Deborah.Nelson@Colorado.EDU; jonathan.krueger@unitar.org; Kortum, Evelyn G.; Paul.Evans@hse.gsi.gov.uk; Niemeier, Richard W. (CDC/NIOSH/EID); szucs@ilo.org; Lentz, Thomas J. (CDC/NIOSH/EID); Tempowski, Joanna; packroff@baua.bund.de; tomas.marques@unep.fr; Wilburn, Susan; j.zalk@comcast.net; Lentz, Thomas J. (CDC/NIOSH/EID); kalpanasrmc@vsnl.com; Rice, Faye L. (CDC/NIOSH/EID); Gillen, Matt (CDC/NIOSH/OD); skk@kosha.net; zjzhou@shmu.edu.cn; HO\_Sweet\_Far@mom.gov.sg; mjeebhay@cormack.uct.ac.za; Stavroula.Leka@nottingham.ac.uk

**Cc:** Fingerhut, Marilyn (CDC/NIOSH/OD) (CTR)

**Subject:** Your paragraphs are needed for NIOSH Control Banding Review Document

**Importance:** High

Dear Colleagues,

**NIOSH has posted a Control Banding Review Document that is open for public comment until 11 June.** I want to encourage you to send comments, particularly to send descriptions and citations for the recent Stoffenmanager, German, Korean, Singapore, Belgium, EU, Chinese India/GTZ chemical, nanotechnology, barrier banding, ergonomics, psychosocial, and sector specific control banding systems. This will enable NIOSH to have an up to the minute review document.

In order to make it easier for you, I have attached my comments, which identify some of you and your systems by name. **If you could provide a paragraph and citations for insertion into the document** either to me or directly to NIOSH, it will help to make the NIOSH document truly reflective of the global situation with control banding.

You will find links to the NIOSH document and information how to send comments electronically at: <http://www.cdc.gov/niosh/review/public/138/>

To quickly see what my comments and the NIOSH document contain about your various systems, I suggest you use the search option provided with the opened document.

I cannot remember who is the author of SOBANE for Belgium...Jacques...? If you know, please forward this email to him.

Best regards,  
Marilyn



## OCCUPATIONAL RISK MANAGEMENT TOOLBOX

### GLOBAL IMPLEMENTATION STRATEGY

Agreed by the IPCS International Technical Group on 28 May 2004

#### Introduction

This Global Implementation Strategy aims to build and implement an Occupational Risk Management Toolbox (Toolbox), containing toolkits to manage different workplace hazards. The first such toolkit, the International Chemical Control Toolkit (Chemical Toolkit), is based on an approach to risk assessment and management called "control banding". This approach groups workplace risks into "control bands" based on combinations of hazard and exposure information. It can also be applied to non-chemical workplace hazards. As this banding technique is semi-quantitative or qualitative depending on the application, it is particularly relevant for use in small and medium-sized enterprises, developing nations, and, in the case of chemicals, where no occupational exposure standard has been set. It may also be useful for environmental risk assessment and management, as health and environment controls are complementary, and often inseparable, at the workplace level.

#### Aim of the Global Implementation Strategy and Implementation Partners

Under the auspices of the International Programme on Chemical Safety (IPCS), an International Technical Group (ITG) has been established to facilitate the further development and implementation of the Toolbox. This Global Implementation Strategy provides key high-level approaches to achieve this aim. It is intended that workplans, focusing on particular applications, countries or regions, would be developed and implemented by relevant stakeholders. A particular focus of this Strategy is implementation of the Chemical Toolkit.

Partners in this international effort include: IPCS (International Labour Organization and World Health Organization); International Occupational Hygiene Association (IOHA); The Health and Safety Executive (HSE) in Great Britain; US National Institute for Occupational Safety and Health (NIOSH); and the German Gesellschaft

für Technische Zusammenarbeit (GTZ). As this Strategy is implemented, new partnerships will be encouraged. The ITG Terms of Reference and Membership List are provided in Annex 1, which will be updated as needed.

## **Stakeholders**

Stakeholders include implementers (including employers), researchers and workers/users of chemicals. Bodies that may be involved in the implementation of this Strategy include: intergovernmental and international non-governmental organizations (such as IOHA); government agencies; industry, including associations of chemical producers and suppliers; employer and employee associations; industrial hygienists; labour unions; labour inspectors; researchers; and training professionals.

## **The International Chemical Control Toolkit**

The Chemical Toolkit (adapted from the HSE's COSHH Essentials) is available on the internet through the ILO SafeWork Website. It is undergoing further development, which will include technical improvement and additions. This process will also include translation and piloting in selected countries. The hazard information employed by the Toolkit is either the European Union (EU) label Risk (R) phrases, or the hazard statements of the Globally Harmonized System for Classification and Labelling (GHS). The target for global implementation of the GHS is 2008, individual country implementation dates could vary. Hence implementation of the Chemical Toolkit will need to be phased, initially focusing on building the necessary skills, knowledge and mechanisms for implementation, development and testing of guidance sheets, translation into other languages, and application of more generic approaches, such as the GTZ Chemical Management Guide (which is based on a simplified control banding technique). Implementation of the full Chemical Toolkit will be dependent on that country's use of EU risk phrases and/or GHS hazard statements.

## **Key Elements of the Implementation Strategy**

Key elements are listed below, with lead bodies in parenthesis where relevant. At the workplan level, detailed actions taken must take into account the different needs of developing countries, economies in transition and developed countries. However harmonized approaches should be used where possible to avoid unnecessary duplication of effort.

### **1. Further develop the Chemical Toolkit, including:**

- Development of new control guidance sheets based on experience, to meet the needs of developing countries in particular (ILO with the input of others including GTZ; IOHA). This includes piloting, testing, evaluation and revision. The need for country-specific sheets will be explored. However, unnecessary differences in the technical materials should be avoided. Some guidance sheets should be trade and/or task specific.

- As guidance sheets begin to be developed by implementers (e.g. country-specific sheets), a mechanism for peer review, including peer review criteria will be developed and the guidance sheets shared through an international Clearing House (see below) (ILO, WHO).
  - Development of sheets for workplace processes that generate chemical exposures (ILO, IOHA).
  - Addition of the skin route of exposure (the Chemical Toolkit currently focuses on inhalation exposure) (ILO with the input of HSE).
  - Translation in local languages (WHO Collaborating Centres (WHO CC); ILO; others).
2. Enhance links between the GHS, the Chemical Toolkit and other workplace tools.
    - Include GHS phrases in the IPCS International Chemical Safety Cards (WHO-PCS, ILO).
  3. Build and promote the Occupational Risk Management Toolbox, through:
    - Development of toolkits for workplace hazards other than chemicals (lead group ILO, WHO, IOHA, NIOSH, linking to an expanded network of other international and national bodies).
    - Integration of other toolkits in WHO Collaborating Centres' Workplan (WHO CC Task Force on Preventive Technology).
    - Adaptation of existing participatory processes that have effectively engaged local communities (e.g. WISE, WIND programme) (ILO).
  4. Explore new partnerships for implementation, including:
    - International bodies involved in implementation of the GHS, for example to tap into GHS implementation and training workshops (ILO).
    - The International Association of Labour Inspectors (IALI) (ILO to lead).
    - Identify potential donors and granting bodies.
    - Use country to country partnerships ("twinning"), for example between a developed and developing country.
  5. Foster the development of workplans in support of this Strategy, focusing on specific applications, industry/occupation situations, countries or regions and maintain links with national and other working groups established to implement workplans. Workplans will aim to influence local decision-makers and effect local implementation. Information on workplans will be included in the Clearing House (see below).
  6. Identify ways to influence national decision-makers, including through:
    - WHO CC network activities (WHO-OEH).
    - ILO-CIS Network.
    - ILO and WHO offices.
    - The European Union.
    - Agenda of inter-governmental meetings, e.g. on EU-US Cooperation.

- Promotion at international and national Occupational Safety and Health/Industrial Hygiene Conferences.
  - Holding annual or bi-annual international Control Banding workshops (1<sup>st</sup> workshop held November 2002, 2<sup>nd</sup> workshop held March 2004).
  - Explore combined approach for 3<sup>rd</sup> workshop in September 2005 through linking IOHA 6<sup>th</sup> International Scientific Conference (South Africa) and XVIIth World Congress on Safety and Health (Orlando). IOHA meeting will be back to back with WHO CC meeting. Train the trainers workshop for Africa also planned.
  - WHO CC Network meeting (Milan, June 2006) back to back with ICOH meeting provides an option for control banding planning meeting and training.
7. Develop and publish a research agenda (lead: University of Oklahoma, working with other leading agencies, for the ITG), including sector-specific research (construction, agriculture, mining). This would include the areas listed below and would be updated regularly based on technical progress. A current research agenda will be maintained on the website (refer below), and at Annex 2. Research agenda will need to include: application of the control banding technique to different hazards, e.g. chemical, biological, physical, ergonomic exposures, etc.; different industry situations, e.g. SMEs, large industries, multi-nationals; developing countries; and developed countries.
8. Collect and communicate research and information, including:
- Maintenance of the website, hosted by ILO, with links to other relevant websites (lead: ILO).
  - Augment the website with a Clearing House including a web-based directory of research and validation studies (researchers list their ongoing studies and references for completed work).
  - Include other activities in the Clearing House, such as workplans developed by countries, etc..
  - Include a repository of guidance sheets in the Clearing House. Centres could be identified (regional, language-based) to maintain these (e.g. NIOSH), linked to the ILO web-site.
  - Publish regular update/topical articles in newsletters by email/net. Use existing vehicles and meetings to distribute (IOHA, NIOSH, Global Occupational Health Network Newsletter, etc).
9. Develop and maintain a capacity building and training plan, focussing on developing countries (WHO-OEH). This will be needed for piloting work, then during the full-scale implementation. It would include:
- Explore use of the GTZ Chemical Management Guide to build capacities and prepare countries for implementation of the Chemical Toolkit.
  - Cultivate regional train-the-trainer core groups.
  - Conduct train-the-trainer workshops in conjunction with other international/regional events.
  - Provide generic training materials that can be translated for local use.

10. Maintain an International Technical Group to oversee the Global Implementation Strategy (quarterly telephone conferences, with face-to-face meetings occurring back-to-back with other events where possible) (WHO-PCS).

**Further Information**

Further information can be obtained from the following website:  
<http://www.ilo.org/public/english/protection/safework/>

## **IPCS International Technical Group (ITG) Terms of Reference and Membership**

### **Terms of Reference**

1. The functions of the ITG are:
  - 1.1 To facilitate the further development and implementation of an Occupational Risk Management Toolbox, in particular the International Chemical Control Toolkit.
  - 1.2 To maintain a Global Implementation Strategy, including identifying lead bodies for key actions.
  - 1.3 To provide guidance to the relevant lead body/bodies concerning the collection and dissemination of information on activities.
  - 1.4 To coordinate other activities undertaken in support of the Global Implementation Strategy, in particular, those of its members.
  - 1.5 To measure and communicate progress against the Strategy.
2. The ITG makes its recommendations and decisions by consensus of those members present at a meeting.
3. The roles of Chair and Rapporteur alternate between the IPCS partners, i.e. ILO and WHO.
4. The ITG normally meets quarterly by teleconference. The ITG may agree to hold face-to-face meetings from time to time, and in this circumstance, participants make their own arrangements for bearing the cost of attendance.

### **Membership**

The members of the ITG are experts from the following organizations:

American Industrial Hygiene Association (AIHA)  
GTZ Convention Project on Chemical Safety, Germany  
International Labour Organization (ILO)  
International Occupational Hygiene Association (IOHA)  
Health and Safety Executive (HSE), Great Britain  
National Institute for Occupational Safety and Health (NIOSH), United States  
World Health Organization (Occupational and Environmental Health (OEH)  
and Programme for the Promotion of Chemical Safety (PCS))



## **International Research Agenda**

An international research agenda will be developed and published (see Strategy Element 7). Proposals that have come forward to date are listed below.

### **1. Chemical Toolkit Applications in Developing Countries**

- Investigate applications within large enterprises .
- Develop tools for SMEs.
- Effectiveness of predicting exposures.
- Validation of controlling exposures.
- Field test of current product.
- Translation of concepts and common phrases.

### **2. Other Applications in Developing Countries**

- Focus on large scale industries, select appropriate industries and hazards.
- Develop other toolkits for the Occupational Risk Management Toolbox.
- Adapt existing approaches (WIND Program), build on successes.
- Develop an ergonomics toolkit based on existing models.

### **3. Chemical Control Toolkit Applications in Developed Countries**

- Further validation studies.
- Validate controlling exposures in selected small business trades.
- Field industrial hygiene input on expanding, ranking hazards, prioritizing controls.
- Focus on small business trades and define success.

### **4. Other Applications in Developed Countries**

- Develop Ergonomics Toolkit based on existing national models.
- Expand industrial hygiene aspects to include physical and biological exposures.
- Investigate Occupational Risk Management Toolbox concept for SMEs.

### **5. Research to Fill Gaps in the Chemical Toolkit**

- Investigate applications to the skin route of exposure.
- Integration of skin and inhalation routes of exposure.
- Integration of useful elements from comparable tools, e.g. the German Column Model.

## **OCCUPATIONAL RISK MANAGEMENT TOOLBOXGLOBAL IMPLEMENTATION STRATEGY**

**Based on implementation strategy agreed by ITG in 2004; Updated by G.  
Eijkemans July 05.**

**Dr. Gerry Eijkemans, WHO Geneva  
Dr. Igor Fedotov, ILO Geneva**

This Global Implementation Strategy aims to build and implement an Occupational Risk Management Toolbox (Toolbox), containing toolkits to manage different workplace hazards. The first such toolkit, the International Chemical Control Toolkit (Chemical Toolkit), is based on an approach to risk assessment and management called "control banding". This approach groups workplace risks into "control bands" based on combinations of hazard and exposure information. It can also be applied to non-chemical workplace hazards. As this banding technique is semi-quantitative or qualitative depending on the application, it is particularly relevant for use in small and medium-sized enterprises, developing countries, and, in the case of chemicals, where no occupational exposure standard has been set. It may also be useful for environmental risk assessment and management, as health and environment controls are complementary, and often inseparable, at the workplace level.

### **Aim of the Global Implementation Strategy and Implementation Partners**

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Partners in this international effort include: IPCS (International Labour Organization and World Health Organization); the SafeWork Programme of ILO and the Occupational Health Programme of WHO, United Nations Institute for Training and Research (UNITAR), International Occupational Hygiene Association (IOHA); United Kingdom Health and Safety Executive (HSE); US National Institute for Occupational Safety and Health (NIOSH); and the German Gesellschaft für Technische Zusammenarbeit (GTZ). As this Strategy is implemented, new partnerships will be encouraged.

### **Stakeholders**

Stakeholders include implementers (including employers), researchers and workers/users of chemicals. Bodies that may be involved in the implementation of this Strategy include: intergovernmental and international non-governmental organizations (such as IOHA); government agencies; industry, including associations

of chemical producers and suppliers; employer and employee associations; industrial hygienists; labour unions; labour inspectors; researchers; and training professionals.

### **The International Chemical Control Toolkit**

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### **Key Elements and progress on the Implementation Strategy**

Key elements are listed below. At the workplan level, detailed actions taken must take into account the different needs of developing countries, economies in transition and developed countries. However harmonized approaches should be used where possible to avoid unnecessary duplication of effort.

#### **1. Further develop the Chemical Toolkit, including:**

- Development of new control guidance sheets based on country experience, to meet the needs of developing countries in particular. This includes piloting, testing, evaluation and revision. The need for country-specific sheets will be explored; however unnecessary differences in the technical materials should be avoided. Some guidance sheets should be trade and/or task specific. Important progress has been made on silica essentials. HSE is in the process of finalizing the silica essentials, and countries like Chile and South Africa have expressed their interest in training and potential use of the silica essentials.
- As guidance sheets begin to be developed by implementers (e.g. country-specific sheets), a mechanism for peer review, including peer review criteria will be developed and the guidance sheets shared through an international Clearing House (see below).
- Development of sheets for workplace processes that generate chemical exposures.
- Addition of the skin route of exposure (the Chemical Toolkit currently focuses on inhalation exposure).

- A CD version of the International Toolkit will be produced by HSE and ILO in 2005
  - Translation in other languages. The current webversion of the International Toolkit is being translated into Portuguese in Brasil, and as soon as the CD version is available will be translated by PAHO/NIOSH into Spanish. As soon as the silica essentials will be available they will be translated into Spanish by the MOH in Chile. WHO will support the development of the CDs.
2. Enhance links between the GHS, the Chemical Toolkit and other workplace tools.
    - Include GHS phrases in the IPCS International Chemical Safety Cards (WHO-PCS, ILO).
  3. Gradually build and promote the Occupational Risk Management Toolbox, through:
    - Development of toolkits for workplace hazards other than chemicals, linking to an expanded network of other international and national bodies.
    - Integration of other toolkits in WHO Collaborating Centres' Workplan. This will be discussed in the planning meeting of the WHO CCs in Johannesburg (September 05, Johannesburg, back to back to IOHA meeting) and formalized in the WHO Collaborating Centers Network Meeting in June 06 in Milan (back to back to ICOH meeting).
    - Adaptation of existing participatory processes that have effectively engaged local communities (e.g. ILO's WISE and WIND programmes).
    - The development of a Psychosocial Risk Management Toolkit (PRIMAT) is in process by University of Nottingham (WHO CC) and WHO.
  4. Explore new partnerships for implementation, including:
    - International bodies involved in implementation of the GHS, for example to tap into GHS implementation and training workshops.
    - The International Association of Labour Inspectors (IALI). Control Banding was presented by WHO in the meeting of IALI and ILO in Mauritius in 2004.
    - Identify potential donors and granting bodies.
    - Use country to country partnerships ("twinning"), for example between a developed and developing country.
  5. Foster the development of workplans in support of this Strategy, focusing on specific applications, industry/occupation situations, countries or regions and maintain links with national and other working groups established to implement workplans. Workplans will aim to influence local decision-makers and effect local implementation. Information on workplans will be included in the Clearing House (see below).
  6. Identify ways to influence national decision-makers, including through:
    - WHO CC network activities.
    - ILO-CIS Network.

- ILO and WHO offices.
  - The European Union.
  - Agenda of inter-governmental meetings, e.g. on EU-US Cooperation.
  - Promotion at international and national Occupational Safety and Health/Industrial Hygiene Conferences. The silica toolkit was discussed in the ICORD meeting in Beijing in April 2005.
  - Holding annual or bi-annual international Control Banding workshops (1<sup>st</sup> workshop held November 2002, 2<sup>nd</sup> workshop held March 2004).
  - The 3<sup>rd</sup> workshop in September 2005 is currently being held in the IOHA 6<sup>th</sup> International Scientific Conference (South Africa). Additionally, training on silicosis and control banding is carried out in and around the IOHA Conference.
  - Train the trainers workshop for Africa also planned.
  - WHO CC Network meeting (Milan, June 2006) back to back with ICOH meeting provides an option for control banding planning meeting and training.
  - Control Banding was introduced by WHO and discussed in meetings in China and Arab States on "Basic Occupational Health Services" , and is considered as an important component for the implementation of BOHS.
7. Develop and publish a research agenda (lead: University of Oklahoma, working with other leading agencies, for the ITG), including sector-specific research (construction, agriculture, mining). This would include the areas listed below and would be updated regularly based on technical progress. A current research agenda will be maintained on the website (refer below), and at Annex 2. Research agenda will need to include: application of the control banding technique to different hazards, e.g. chemical, biological, physical, ergonomic exposures, etc.; different industry situations, e.g. SMEs, large industries, multi-nationals; developing countries; and developed countries.
8. Collect and communicate research and information, including:
- Maintenance of the website, hosted by ILO, with links to other relevant websites.
  - Augment the website with a Clearing House including a web-based directory of research and validation studies (researchers list their ongoing studies and references for completed work).
  - Include other activities in the Clearing House, such as workplans developed by countries, etc..
  - Include a repository of guidance sheets in the Clearing House. Centres could be identified (regional, language-based) to maintain these (e.g. NIOSH), linked to the ILO and WHO web-site.
  - WHO has hired a consultant (Berenice Goelzer) to start the development of a database on solutions that can be the backbone for the implementation of the international toolkit. A structure has been developed
  - Publish regular update/topical articles in newsletters by email/net. Use existing vehicles and meetings to distribute (IOHA, NIOSH, Global Occupational Health Network Newsletter, etc).

9. Develop and maintain a capacity building and training plan, focussing on developing countries (WHO-OEH). This will be needed for piloting work, then during the full-scale implementation. It would include:
  - Explore use of the GTZ Chemical Management Guide to build capacities and prepare countries for implementation of the Chemical Toolkit.
  - Cultivate regional train-the-trainer core groups.
  - Conduct train-the-trainer workshops in conjunction with other international/regional events.
  - Provide generic training materials that can be translated for local use.
  - WHO has started pilot projects in Brasil and India. Key persons from South Africa and Benin have been trained on the use of the toolkit, and efforts will continue to implement the work in those countries.
  - The Ministry of Health in Chile (WHO CC), with the support of NIOSH and PAHO, has started work on use of the silica essentials, and is constructing a National Plan on the Elimination of Silicosis. PAHO and WHO, in coordination with ILO and NIOSH are supporting the development of a Regional Plan of Action on the elimination of Silicosis, including the use of the silica toolkit.
  - The Ministry of Manpower in Singapore (WHO CC) is assessing the use of the international Toolkit.
  
10. Maintain an International Technical Group to oversee the Global Implementation Strategy (quarterly telephone conferences, with face-to-face meetings occurring back-to-back with other events where possible) (WHO-PCS).

### **Further Information**

Further information can be obtained from the following website:  
<http://www.ilo.org/public/english/protection/safework/> and in the GOHNET issue:  
[http://www.who.int/occupational\\_health/publications/newsletter/gohnet7e.pdf](http://www.who.int/occupational_health/publications/newsletter/gohnet7e.pdf)

## **International Research Agenda**

An international research agenda will be developed and published (see Strategy Element 7). Proposals that have come forward to date are listed below.

### **1. Chemical Toolkit Applications in Developing Countries**

- Investigate applications within large enterprises .
- Develop tools for SMEs.
- Effectiveness of predicting exposures.
- Validation of controlling exposures.
- Field test of current product.
- Translation of concepts and common phrases.

### **2. Other Applications in Developing Countries**

- Focus on large scale industries, select appropriate industries and hazards.
- Develop other toolkits for the Occupational Risk Management Toolbox.
- Adapt existing approaches (WIND Program), build on successes.
- Develop an ergonomics toolkit based on existing models.

### **3. Chemical Control Toolkit Applications in Developed Countries**

- Further validation studies.
- Validate controlling exposures in selected small business trades.
- Field industrial hygiene input on expanding, ranking hazards, prioritizing controls.
- Focus on small business trades and define success.

### **4. Other Applications in Developed Countries**

- Develop Ergonomics Toolkit based on existing national models.
- Expand industrial hygiene aspects to include physical and biological exposures.
- Investigate Occupational Risk Management Toolbox concept for SMEs.

### **5. Research to Fill Gaps in the Chemical Toolkit**

- Investigate applications to the skin route of exposure.
- Integration of skin and inhalation routes of exposure.
- Integration of useful elements from comparable tools, e.g. the German Column Model.