LOOKING FOR ANSWERS:
RESEARCHING HAZARDOUS WORK OF CHILDREN

International Programme on the Elimination of Child Labour (IPEC)
Fundamental Principles and Rights at Work Branch
LOOKING FOR ANSWERS:
RESEARCHING HAZARDOUS
WORK OF CHILDREN

International
Programme on
the Elimination
of Child Labour
(IPEC)

Fundamental Principles and Rights at Work Branch
International Labour Organization
# Table of contents

**Acknowledgements** ............................................................................................................................................ **v**

**Preface** ................................................................................................................................................................ **vii**

**Introduction** ....................................................................................................................................................... **1**

  Background ......................................................................................................................................................... **2**

  Purpose and audience........................................................................................................................................... **4**

  General principles............................................................................................................................................... **5**

  Research vs. Action ........................................................................................................................................... **7**

  Organization of the document............................................................................................................................... **8**

**Part I. Using research to answer practical questions about hazardous child labour at local level** .......................................................................................................................................................... **11**

  **1.1** Research to identify which children are in hazardous work................................................................. **12**

    1.1.1 Definitions ............................................................................................................................................ **12**

    1.1.2 Locating children who are doing hazardous work ............................................................................... **13**

    1.1.3 Using chain referral techniques to find children ................................................................................ **16**

  **1.2** Research to assess hazards and risks ........................................................................................................ **16**

    1.2.1 Definitions ............................................................................................................................................ **17**

    1.2.2 Using checklists .................................................................................................................................... **17**

    1.2.3 Conducting a risk assessment ............................................................................................................. **18**

  **1.3** Research to assess and reduce negative health outcomes ............................................................................. **22**

    1.3.1 Reducing risks so children above minimum age may work safely .................................................... **22**

    1.3.2 Assessing health impacts ..................................................................................................................... **25**

    1.3.3 Researching hazardous work in the community: General observations ............................................. **26**

  **1.4** Research to assess psychosocial dimensions of health ............................................................................. **36**

    1.4.1 Definitions ............................................................................................................................................ **36**

    1.4.2 Considering positive aspects of work ................................................................................................ **38**

    1.4.3 Psychosocial tools ................................................................................................................................. **39**

**Part II. Research to respond to global and national questions** ........................................................................... **43**

  **2.1** Research to determine numbers of children in hazardous work and suffering disability as a result ................................................................................................................................................ **43**

    2.1.1 Methods of estimation ........................................................................................................................ **44**

    2.1.2 Gaps and challenges in large-scale research ......................................................................................... **50**

    2.1.3 Assisting countries in determining prohibited work .......................................................................... **51**

    2.1.4 Data needed for determining hazardous work .................................................................................. **52**

    2.1.5 Research priorities for hazardous lists ................................................................................................. **55**

**Part III. Research on cross-cutting issues** ............................................................................................................ **57**

  **3.1** Researching links between child labour and youth employment ............................................................ **57**

    3.1.1 Empowerment ......................................................................................................................................... **58**

  **3.2** Researching hazardous child labour in selected sectors ........................................................................... **60**

    3.2.1 Agriculture ........................................................................................................................................... **60**
Acknowledgements

This document is a distillation of the thoughts and recommendations of many people. They took time out of very busy professional lives, graciously and without compensation, to consider the topics contained here because they believed the issues were important. A distillation can never do justice to the richness of the thoughts originally expressed; nor is there sufficient space to capture them fully. Therefore, at best this is a mere reflection, and at worst, the text misses the intended point. Therefore, it must be emphasized that, while the names of those who contributed are listed below in appreciation, they cannot be held responsible for any misrepresentations of their inputs in the final result.

Thanks are due to the participants of the ILO Technical Consultation on Children and Youth in Hazardous Work in Turin whose input and recommendations constitute the major content of this document, along with colleagues whose work they cited. These are Omara Amuko (International Union of Food, Agricultural Hotel, Restaurant, Catering and Allied Workers Associations), Anne Andermann (McGill University, Canada), Saeed Awan (Centre for the Improvement of Working Conditions and Environment, Pakistan), Snezhi Bedalli (ILO-IPEC), Theresa Betancourt (Harvard University), Federico Blanco (ILO-SIMPOC), Mariela Buonomo (ILO-Youth Employment), Charita Castro (Washington University/USDOL), Claudio Colosio (University of Milan), Yacouba Diallo (ILO-SIMPOC), Peter Dorman (Evergreen State College), Van Duong (National Institute of Occupational and Environmental Health, Vietnam), Tim Driscoll (University of Sydney, Australia), Anaclaudia Fassa (Federal University of Pelotas, Brazil), Daniel Fekadu Wolde-Giorgis (Kings College London, UK), Valentina Forastieri (ILO-Safework), Diana Gagliardi (INAIL- National Institute on Injuries/Accidents at Work, Italy), Jenny Gamlin (University College London, UK), Lorenzo Guarcello (Understanding Children’s Work Project, Rome), Audrey Guichon (Anti-Slavery International), Aditya Jain (University of Nottingham, UK), Stavroula Leka (University of Nottingham, UK), Deborah Levison (University of Minnesota), Max Lum (National Institute of Occupational Safety and Health, USA), Ferhad Mehran (ILO-Statistics), Mary Miller (University of Washington), Virginia Morrow (University of Oxford, UK), Aline Ndayisaba (HealthNet, Burundi), Iman Nuwayhid (American University of Beirut), David Parker (University of Minnesota), Jim Platner (The Center for Construction Research and Training, USA), Amy Ritualo (USDOL), Furio Rosati (Understanding Children’s Work Project, Italy), Andrew Tagoe (General Agriculture Workers Union, Ghana), and Paola Termine (ILO-IPEC). The preparatory planning and organization, the in-conference facilitation, and the post-conference analysis and report drafting were carried out under the direction of Halshka Graczyk, Nadeche Adrianasolo, Martijn Hofman, and Rick Rinehart, Consultants. Their technical and organizational expertise was impressive and greatly appreciated. We especially thank the staff of the ILO International Training Center in Turin, Laura Biscaro and Giselle Mitton, for their support in making the Turin conference flow evenly.

The Safe Futures Workshop in Washington DC had more participants than we can list here, but the interagency planning committee must be recognized for making it such a success: Romina Bandura and Halshka Graczyk of the ILO (Washington DC office and Geneva respectively), Kimberly Parekh, Katheryn Chinnock and Kevin Willcutts of the International Labor Affairs Bureau of the US Department of Labor, Mary Miller from the Wages and Hours
Division of the US Department of Labor, Leslie Nickels of the US National Institute for Occupational Health, Ruth Etzel of the World Health Organization, Department of Public Health & Environment, and especially the organizer, Rick Rinehart, Consultant.

Inputs from the review committee for the ILO’s studies on child labour in brick kilns have been especially useful in this document: Curtis Breslin at the Institute of Work & Health of the University of Toronto, William S. Carter, Emeritus Santa Clara University, Ruth Etzel of the University of Wisconsin School of Public Health, Lorenzo Guarcello of the Understanding Child Work programme in Rome, Phil Landrigan at the Mt. Sinai School of Medicine, Hester Lipscomb of the Department of Community and Family Medicine at Duke University, and Carol Runyan, Director of the Pediatric Injury Prevention, Education and Research Program of the University of Colorado.

“applied and evaluative research is important to clarify local priorities and can lead to the development of local cost-effective solutions, as well as consolidating these into a statement about global concerns. Both are powerful tools for advocacy.”

The Turin Expert Working Group
2011
After youth finish compulsory schooling, most need to find work. But if they are under 18 and the work they find is likely to harm their “health, safety, or morals”, it is considered a ‘worst form of child labour’ (WFCL) even if they are above the nationally-set minimum age for employment (usually 14 or 15 years). The national list of hazardous child labour gives the legal framework but, within this, there are practical details and decisions which arise at the community level. For example, parents want to be informed about the risks in various types of work. Employers want to know which risks can be reduced to acceptable levels. Managers of child labour or youth employment projects speak of the need to have well-supported evidence when identifying alternatives for children in WFCL or assessing whether programme performance objectives are being met. It is obvious that OSH-awareness, sensitization and guidance on ‘what work is OK, what is not OK’ is becoming absolutely critical.

As a first step in what has been and will continue to be an on-going series of discussions, ILO/IPEC sought the advice of those who are specialists in the fields of child labour and/or occupational or child health as to how we can best incorporate a health perspective into our research and action programmes against child labour. Since hazardous forms and conditions constitute such a large proportion of child labour, we feel it is essential that health receive adequate attention in the work we do.

Hazardous child labour is something that no one condones and virtually nothing can justify. We feel that research will help to throw a spotlight on an aspect of health – that of adolescent workers – that has been largely ignored by the health community, and an aspect of child labour – that of psychological and physical health impacts – that has similarly received little attention by those working on child labour.

This summary of our preliminary consultations on the topic of ‘health impacts of child labour’ aims to draw attention to the research gaps and to encourage those with interest and expertise in this area – both agencies and individuals – to join with us in addressing these gaps.

Corinne Vargha
Chief,
Fundamental Principles and Rights at Work Branch
ILO
Introduction

Why waste time and money on researching the health impacts of work for children when we already know that it is bad and needs to be eliminated?

The fact is – and there is abundant evidence from the medical field -- that people are more likely to take action when they have direct evidence of the impact. Too often, parents of child workers are admonished about a long list of possible negative impacts of child labour, potential health problems among them. “Illegal, lost schooling, injuries, musculoskeletal disorders …” and a common reaction is for them to gloss over these threats as maybe occurring sometime in the future but not now, or maybe occurring to some people but not to us, or maybe occurring but not as serious as the need to put food on the table. For those who make the immediate decisions about whether a child works or not, personal information and local examples are unparalleled for their galvanizing power. Parents do want to know the risks and, more importantly, what could be within their means and capacity to protect their children from those risks.

On the other hand, for policy-makers, donors, and consumers on the national or international stage, it is numbers that count. In order to take action they need compelling and credible statistics that convince them the numbers of children involved are substantial and that the hurt the child workers suffer as a result of working in a given occupation or creating a particular product is not only substantial but costly. A strong case must be made in order to pry new policies on child labour out of sceptical legislatures, or to squeeze additional funds out of already constrained budgets.

So the issue that research on hazardous child labour addresses is how to lever change, not whether change should take place. All agree: school age children should not be working, they should be in school. But the challenge is how to get them there. Children above legal age for employment should not do hazardous work. But the challenge is where to draw the boundaries between what is safe for them to do and what is not.

Research can help answer these questions, especially what is called ‘action research’ which is research that is undertaken with a specific public, problem, and purpose in mind. In this case, the angle of approach is health. Until now, health has been given less attention in the research which is done in preparation for advocacy and action on child labour than, say, education or economics. Most agree that health is important, but the stumbling block seems to be that researchers from outside the health field are not quite sure how to study it. It is seen as too technical, too individualistic, and particularly in the case of psychological health, too culture-bound and subjective. It does not lend itself easily to a survey approach. Project managers, too, feel they lack the necessary competencies and are daunted by the statistical, epidemiological, and other research skills, not to mention medical knowledge, that they assume are required to design the study or use the information. Therefore, a natural inclination is to dismiss more study of the health implications of child labour on the basis that we know “enough” already.
This document sets out to demonstrate that the research that is needed to advise policy and programming decisions with regard to health is not a matter of rocket science. And that the gains that can be achieved by investigating health risks and health outcomes can be very helpful in reaching overall project goals, whether it is getting younger children into school or older children into safe work. It also shows that, in fact, to not attempt such investigations leaves the way open for much greater error and confusion.

**Background**

In 2011, the focus of World Day Against Child Labour was ‘hazardous work of children’. The spotlight was turned on examples of obviously dangerous work such as mining where children are desired because they can crawl through small holes far below ground in search of gems or veins of gold, on agriculture where children oblivious of the danger will work in fields still wet with pesticides, on workshops where children operate loud and unguarded machinery, and on domestic service where they work behind closed doors where no one can observe abuse. But in addition to these, there are many other occupations and conditions where children face real physical, emotional, or moral threats but where the risk is less evident.

In 2011, the ILO estimated there were 115 million children doing work either casually or full time that could jeopardize their health. But these estimates were very rough, based on designating whole occupations (e.g. mining) as hazardous, not on the actual tasks that children did or the conditions they worked in. More importantly, there were no estimates or data on the consequences of working in these occupations, i.e. the number of injuries, the severity of illnesses, the delays in physical, intellectual and psychological development, or the deaths which might have occurred as a result of doing this work.

For some years, there have been calls to address this knowledge gap about health, and particularly to know more about the link between children’s exposure to dangerous work and the health outcomes that result. Many of these calls came from media and academics who sought to present a more accurate and comprehensive picture of child labour. But there were also practical questions coming from parents, practitioners and policy-makers who wanted to know, for example, what economic activities are safe enough for children of different ages to do. To see what could be done to fill this knowledge gap and to answer some of the practical questions concerning hazardous child labour, the ILO embarked on a series of activities, supported in large part by a global research grant from the US Department of Labor.

“Technical Consultation on Children and Youth in Hazardous Work.” The first activity was a three-day meeting held at the ILO International Training Centre in Turin in January 2011, of 32 experts who were internationally recognized for their work on some aspect of the health-child labour link. They organized themselves, according to their areas of expertise, around five topics which had been previously determined as constituting major gaps or priorities:

1. Determining how to establish more concrete global and national estimates of the number of children in hazardous work and the number who suffer disability as a result.
2. Determining how to assess risks in the workplace and how to identify whether risk reduction measures could be taken to enable children above minimum age to work.

3. Determining how to use information on hazardous child labour to design policy and laws, notably the “hazardous child labour list” required of States that have ratified ILO Conventions Nos. 138 and 182.

4. Determining how to assess work-related psychological risk and damage among working children.

5. Understanding the causal and contextual factors which were maintaining such high levels of hazardous child labour, with special reference to mining, services, agriculture and manufacturing.

The discussions of each group were geared to analysing the issue and assessing the quality of the work that had been done previously on it, then producing a set of recommendations of what needed to be done, what was feasible to do, and what methods and approaches should be employed to address the issue. While this was the objective, none of the five topic areas was easy. They all posed challenges which had stymied research and/or action in the past; some these took the form of contradictory concepts, intransigent issues or the complex cultural environments in which child labour has been flourishing. Consequently the value of the discussions was as much in the caveats and cautions that were raised as in the outputs achieved. Nevertheless, each group produced a short report, and it is these which form the basis for this document.

“Creating safe futures: Good practices to protect children and youth from hazardous work.”

The next activity was a conference in Washington DC in June 2011 which brought together most of the private voluntary agencies that were currently active in implementing projects to combat child labour, plus leaders of employers’ and workers’ organizations, and representatives of innovative governmental programmes (e.g. Brazil, the U.S. and Pakistan). While the Turin meeting had drawn primarily on the knowledge of academicians and researchers, the Washington DC meeting sought to hear from those who were working on child labour at the grassroots. Building upon the ideas that were discussed in Turin, it further refined the principles and methods proposed there.

Follow-up work. Out of the Turin and Washington DC consultations, four areas emerged for immediate work:

- Development of a first global estimate of injuries due to child labour. An in-house work group at the ILO undertook the task of re-analysing the health-related data from 23 national child labour surveys, both to refine a new method of estimation as well as to obtain a figure for advocacy.¹

• Drafting guidelines for assessing workplace risks. This involved adapting the existing ILO (and other) guidelines for adults to take into account the unique vulnerabilities of young workers.²

• Development of an HCL list training package. Using the recommendations from the Turin work group on this topic, we designed a handbook for persons who would be helping national governments to draft their hazardous child labour list.³

• Design a psychosocial assessment tool. This two-year project involved an extensive review of all existing instruments relevant to occupational health or to children. From these, a new instrument was designed to assess psychosocial wellbeing of young workers that was meant to be short and simple enough to be used by non-professionals in settings where child labour occurs.⁴

“A Health Approach to Child Labour.” The above outputs were tested, then, in the form of a multi-country research project on one form of hazardous child labour: brick manufacturing. The fired brick industry was selected because it was one in which several million very poor children are employed and which has proven quite difficult to address. NGO leaders from seven countries⁵ who had been working on the problem met in Bangkok to share their experience on child labour in this industry and help design the project. Four countries -- Afghanistan, Bangladesh, Nepal and Pakistan -- were selected to undertake the research. Over an 18 month period, local research teams in each of these countries studied the ‘exposure-response’ relationship to identify how children’s physical, social and psychological health were being affected by their work. The research teams consisted of a trade union (Bangladesh), an NGO in collaboration with a medical school (Nepal), a governmental occupational health institute (Pakistan), and a local private research firm (Afghanistan).

The results of the four studies and the methods they had used were later critically reviewed by seven specialists, each of whom had been working on some aspect of hazardous child labour.

Purpose and audience

This document is a compilation of experience and learning generated in the context of the above-mentioned activities – the two conferences, the follow-up work, the test project in the brick kiln industry and its review -- as well as from specific comments and recommendations and any literature which the participants may have quoted. There are certainly many other sources which bear on this subject, but this document does not purport

⁵ Child labour in brick kiln work is widespread; participants at the meeting came from three different regions of the world: Middle East, Latin America, and Asia.
to be a literature survey or review. Attributions are made where possible, but as most of the points arose out of discussion and debate, they are in fact group products.

The goal is to encourage more study of the health aspects of child labour. Its immediate objective is to share the experience of knowledgeable people on:

1. what research on the health-child worker link might be necessary, helpful and appropriate (avoiding what is not necessary because the information is already known); and
2. what research methods are feasible for obtaining this information under the type of conditions that are commonly found in developing countries where there are important constraints on time and financial resources and comparatively few researchers specialized in either health or child work.

It must be stressed that the recommendations contained here are the result of a consensus reached at the time. None among those involved would promote these as hard and fast “rules” or the final word on the subject. Again, the goal has always been to stimulate discussion and inquiry, not to stifle it with confirmed views.

Those who might find this compilation useful to their work are primarily those who are involved in child labour (removal of underage children from the workplace and providing them with support and education), youth employment (promoting access to safe work for young people of legal working age) and occupational health (ensuring workers’ protection once they are in the workplace).

Others who might like to look into it are:

- staff of governmental or non-governmental agencies who plan, fund, or oversee research or action on labour issues
- health professionals (paediatricians, occupational health practitioners) who are called in to advise on child labour or youth employment programmes
- labour professionals (trade unionists, labour inspectors, OSH inspectors) who are partners in child labour or youth employment programmes
- community, governmental, industry, or professional organizations who may be in a position to design, fund, or conduct research on hazardous work of children.

General principles

There are some criteria or basic positions which have guided the selection of content for this document.

First is the concern to include all aspects of health. The vast majority of studies on child labour that touch on health do not include psychological health or social health. Yet these aspects are particularly important in the case of children. In fact, they may be even more important than physical health and safety given the complex processes underway through childhood and adolescence. Children are in a rapid period of intellectual development which
requires a certain level of mental stimulation and learning opportunities. Similarly, their psychological functioning and development can also be profoundly affected by adverse experiences and environment at this age. To concentrate merely on physical manifestations of health skews our understanding of the overall health and safety of an activity.

The second principle is that it is important not to make _a priori_ judgments about the harmfulness of the work or work context for children. One reason that child labour persists is because there are real and perceived benefits to children and families, as well as to employers. It is important to explore the nature and strength of these benefits from the perspective of each. The most important perspective, of course, is that of the children themselves. They are generally quite aware and articulate about their situation, and within a certain field of action, are making choices as they see fit. This is not to suggest that children are responsible for being in a situation of hazardous child labour, only that they have views that must be taken into account. And while aspects of the work may be judged objectively as harmful, the child’s own capacity for resilience and coping mechanisms may mean that s/he does not experience harm nor react to the work as harmful.

This is important not only from a strategic angle but also because there are often situations where the benefits may outweigh the harms. Taking action purely on the basis of an obvious and/or serious threat to physical health may, in fact, put the child in actual danger as when s/he is removed from a work environment without having a safe and supportive alternative in which to be placed.

The third principle involves recognition of the fact that, in the case of children, threat and impact can vary enormously with respect to gender and age. It is obvious, but bears remembering, that the risks to a pre-adolescent 10 year old boy are very different from those faced by a post-adolescent 16 year old girl. She might be pregnant for example and therefore particularly vulnerable to toxic substances and nutritional deficiencies. Similarly the resulting health impacts will also be different. Yet many reports continue to speak simply of “children’s health”.

Finally, it must be emphasized that what is special about children’s occupational health is that it is not static. Physically and psychologically, young people are still developing up to their mid-twenties. Yet many studies focus on children below 15, rather than 18 which is the cut-off age for childhood in international law. Just as in the past girls were invisible in the statistics, now it is the older child – aged between 14 and 18 – who is invisible. The fact that these adolescents might be married and have children of their own, or are of legal age to drink and vote, or are politically emancipated living on their own does not obviate the fact that they are, physically and psychologically, still children.

Therefore, the principles that are fundamental to the study of “children’s occupational health” are that it must (a) be multi-faceted, such that it includes all three aspects -- physical, mental, social -- propounded by WHO, (b) assess “well-being”, not merely seek evidence of disease or infirmity, and (c) be vigilant in recognizing variations due to age, gender, developmental stage, and culture.
Research vs. Action

Where limited funds make it necessary for research about a problem to compete with action to address the problem, the question will arise as to which should have priority. An exercise to demonstrate the trade-offs yielded these results from the perspective of three different actors: donors, governments, and project managers. The first column in each category lists the reasons which that actor might have against conducting research on hazardous child labour, while the second gives the reasons that might justify giving it priority:

**Should we conduct research first or intervene immediately?**

<table>
<thead>
<tr>
<th>Donor</th>
<th>Government</th>
<th>Implementer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cons</strong></td>
<td><strong>Pros</strong></td>
<td><strong>Cons</strong></td>
</tr>
<tr>
<td>When priorities compete, action is more important than research</td>
<td>Expands the evidence base on what works and doesn’t to guide funding decisions</td>
<td>Unnecessary in that C182 already gives enough guidance on the subject</td>
</tr>
<tr>
<td>See no convincing argument for doing more and more studies</td>
<td>Successful models can be used as the basis for scaling up</td>
<td>Could provide evidence against products from our country</td>
</tr>
<tr>
<td>Research is often a dead end; a follow up strategy is lacking</td>
<td>Helps us understand the public health basis of HCL</td>
<td>Research may hijack a set or personal political agenda</td>
</tr>
<tr>
<td>No point in doing more research without doing more impact or results analyses</td>
<td>Promotes a positive progressive donor image</td>
<td>Resources are limited; it is a luxury to carry out research now</td>
</tr>
<tr>
<td>Legislation on HCL already exists. Use that!</td>
<td>Has the potential for increased return on our investment</td>
<td>More important ways of improving child health</td>
</tr>
<tr>
<td>Child labour just isn’t on our grant agenda</td>
<td>Can be a stimulus to public-private partnerships (CSR)</td>
<td>We have no data on CL health, so don’t think there is a problem</td>
</tr>
<tr>
<td>We aren’t used to evaluating a research proposal – too technical</td>
<td>We fund baseline studies – this can be included.</td>
<td>We don’t need researchers to tell us what we already know</td>
</tr>
<tr>
<td>Research is too expensive in comparison with interventions</td>
<td>Facts generated by research are useful for us in setting funding priorities &amp; goals</td>
<td>Distracts attention from more urgent humanitarian needs</td>
</tr>
<tr>
<td>Research doesn’t fit into our 3 year funding cycle. It takes too long</td>
<td>We use research results in drafting RFPs</td>
<td>Too theoretical, done to promote the researcher’s image and list of publications</td>
</tr>
</tbody>
</table>
The barriers listed in this table should, under no circumstances, deter one from pursuing or conducting research. They are instead presented as an alert about potential obstacles and reminder for researchers to work in anticipation of, rather than in reaction to, challenges. Involving the community and having a community advisory group helps in identifying and circumventing many of these challenges early on.

In any case, presenting research as an alternative to action is, of course, not a necessary choice. Someone said that, in fact, “research can be used as an intervention as it defines a problem. Sometimes research is the only way that we can act.” Nevertheless, it is useful to consider the common arguments, pro and con, when considering what course to take.

Organization of the document

This document is not a step-by-step manual for conducting research. There are many of those already. Instead, it focuses on a few questions that are either unique to or particularly pertinent to the study of hazardous child labour. The document is organized around these. Part I deals with operational questions which are generally asked by those working at community level; Part II is concerned with the type of questions asked by national or district policy-makers. These, of course, are not separate and discrete universes as they build upon and interrelate with each other, but the two generally involve very different techniques. The national policy level tends to be quantitative, drawing on large data sets, while at the community level there may be a wide range and mixture of approaches. Part III considers some of the more general or theoretical issues that cross-cut both levels.

At the beginning of Part I and Part II, there is a list of specific questions that have been posed by researchers, practitioners and policy-makers. Some of these questions, but not all, are commented upon in the ensuing narrative. Those which are not addressed here may either already have been sufficiently addressed in the literature, or may simply have no answers at this point. The principle questions this document examines are:

Part I

• How do you discover children in hazardous work? How do you locate them?
• How do you know if they are at physical or psychological risk? Or whether the work is actually hazardous to them?

Part II

• How can research assist government in formulating the “hazardous child labour list” (the work that is prohibited to all persons under age 18)?
• How do you estimate the number of children in hazardous work and the number who suffer disability as a result?

See, for example, Regional Working Group on Child Labour: Handbooks for action-oriented research on the worst forms of child labour including trafficking in children, Bangkok, 2003.
Part III

- How does the life cycle approach apply to the study of hazardous child labour?
- What needs to be considered when researching hazardous work in specific industries?

Each part includes recommendations, examples, and general observations on research of hazardous child labour pertinent to that level. The final section summarizes the gaps and remaining challenges.
**Part I. Using research to answer practical questions about hazardous child labour at local level**

<table>
<thead>
<tr>
<th>Specific questions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Issues related to methods used at local level:</strong></td>
</tr>
<tr>
<td>What ages and age groups should research focus on? What are standard legal and developmental age categories?</td>
</tr>
<tr>
<td>What are the ethical guidelines for use of comparison groups? How do you identify a good control group?</td>
</tr>
<tr>
<td>What recall periods are appropriate for children of different ages?</td>
</tr>
<tr>
<td>How do you respect confidentiality of a child? What special techniques are required?</td>
</tr>
<tr>
<td>In doing qualitative research, what are the appropriate methods? when to use what/when not?</td>
</tr>
<tr>
<td>What methods should be used for investigating acute and chronic illnesses of children?</td>
</tr>
<tr>
<td>Do standard methods for investigating work-related incidents (accidents) and injuries need to be adapted for children?</td>
</tr>
<tr>
<td>Are there recognized and accepted tools for investigating psycho-social health and illness?</td>
</tr>
<tr>
<td>Is it possible to investigate intellectual development/impairment? If so, what methods should be used?</td>
</tr>
<tr>
<td>What are the critical indices for assessing physical development/deformity/retardation?</td>
</tr>
<tr>
<td>Where toxic substances, chemicals, heavy metals may be present, what tests are feasible, necessary, ideal?</td>
</tr>
<tr>
<td>Which tests are required for assessing contamination in air/water/soil?</td>
</tr>
<tr>
<td>How do you explore positive aspects of work?</td>
</tr>
<tr>
<td>How to understand, measure, and stimulate children’s resilience to adverse circumstances?</td>
</tr>
<tr>
<td>Links to infectious disease, how are epidemics of malaria, HIV/AIDS, TB connected to work?</td>
</tr>
<tr>
<td><strong>Issues related to administration of local level research:</strong></td>
</tr>
<tr>
<td>How to finance research on children’s occupational safety and health (donors, collaboration)?</td>
</tr>
<tr>
<td>What special skills might be required of interviewers, health care providers, non-professionals, research assistants?</td>
</tr>
<tr>
<td>What works for engaging/working with the OSH and medical community (advantages, limitations)?</td>
</tr>
<tr>
<td>How to facilitate networking for research collaboration, or providing support for researchers?</td>
</tr>
<tr>
<td>For policy-related research, what are the key types, topics? How to conduct negotiations, establish links?</td>
</tr>
<tr>
<td><strong>Issues related to future needs/opportunities for local level research:</strong></td>
</tr>
<tr>
<td>What will help to engage stakeholders (for current and future research)?</td>
</tr>
<tr>
<td>What role can the private sector play in research and remediation of hazardous child labour?</td>
</tr>
<tr>
<td>How to engage/work with trade unions, worker associations, community-based activist organizations?</td>
</tr>
<tr>
<td>How to insert OSH into the curricula of schools, vocational training centres, apprenticeships?</td>
</tr>
<tr>
<td>Is there a role for universities in this area of work?</td>
</tr>
<tr>
<td>Are there new and innovative approaches to effect attitude/behaviour change?</td>
</tr>
<tr>
<td>What communication techniques are appropriate for children?</td>
</tr>
<tr>
<td>How to study parental, child decision-making with respect to engaging in hazardous work?</td>
</tr>
<tr>
<td>How do families set priorities among financial, legal, educational, and health concerns?</td>
</tr>
<tr>
<td>What factors govern employer hiring and work-allocation decisions?</td>
</tr>
<tr>
<td>How to get information needed for improving working conditions (encouraging compliance, intention, stimulus)?</td>
</tr>
<tr>
<td>What are the mechanisms for monitoring workplaces where there is hazardous work (barriers, tools, building capacity)?</td>
</tr>
<tr>
<td>How do you link to youth employment programmes to ensure 15-17 year olds are not placed in hazardous work?</td>
</tr>
</tbody>
</table>
1.1 Research to identify which children are in hazardous work

We are frequently surprised by the many different interpretations of the phrase ‘hazardous child labour’. It sounds simplistic, but the first task when discussing research on hazardous work with colleagues and local stakeholders is agreeing upon a consistent terminology for these key terms.

1.1.1 Definitions

“Hazardous”

Neither the ILO child labour Conventions nor the Convention on the Rights of the Child actually use the word, but rather describe the concept: “work that is likely to harm (or jeopardize) the health, safety or morals.” Neither does ILO say exactly what work is hazardous. This is left to governments to decide based upon the types of occupations in the country – a land-locked country would not want to include warnings about deep sea vessels for example. The closest it comes to guidance is contained in the non-binding Recommendation No. 190 which gives a fairly good resume of the types of work and conditions of work that could cause harm to children. (See Annex 1) It says that we should give special attention to ...

- younger children,
- girls,
- hidden work, and
- children with special vulnerabilities or needs,

as well as consideration to ...

1. work which exposes children to physical, psychological or sexual abuse;
2. work underground, under water, at dangerous heights or in confined spaces;
3. work with dangerous machinery, equipment and tools, or which involves the manual handling or transport of heavy loads;
4. work in an unhealthy environment which may, for example, expose children to hazardous substances, agents or processes, or to temperatures, noise levels, or vibrations damaging to their health; and
5. work under particularly difficult conditions such as work for long hours or during the night or work where the child is unreasonably confined to the premises of the employer.

“Child”

The question of “what is a child” and “what is hazardous” are interlinked; i.e. the one determines the other. According to the ILO child labour Conventions 138 and 182 and the UN Convention on the Rights of the Child, the only age which is firmly set is age 18 which is the upper limit of childhood, and the age above which a young person can engage in
hazardous work (at least according to international law). All other ages are conditional upon the nature and degree of risk involved in the work, the level of development of the society in question, whether the child is in a training programme and/or closely supervised, and the national laws on the subject. The researcher must decide: for the purposes of this study will the “child” be any working person under 18 years? Or will s/he be only those who are “child labour”, i.e. below the allowable minimum age for the type of work that s/he is doing? It seems obvious that the correct approach is the former, yet probably the vast majority of community-level research opts for the latter. They study only children age 15 and below.

In other words, preparing to study hazardous child labour as a topic requires being cautious and deliberate about what is meant by the word “child” in that title. While the 5-14 age group is common, it leaves out the not insignificant numbers of children who are working even below the age of 5 and the great many 16 and 17 year olds who are working full-time and fully at risk of occupational injuries.

“Labour”

It bears remembering that, in English, the terms “work”, “labour”, “economic activities” all have both colloquial meanings and technical meanings; inevitably they get mixed up. Using “child labour” colloquially to refer to any work a child does when ILO uses it formally to refer only to those activities which jeopardize a child’s wellbeing has led to endless debate and divisiveness. Remember too, Spanish and French use the same word for these terms -- there is no distinction -- so it doesn’t help to use “child work” for acceptable activities and “child labour” for unacceptable ones if the work is ever to be translated. Another approach is to resort to qualifying adjectives such as “abusive” or “exploitative” as a way to convey degrees of unacceptability. Our recommendation is to be consistent, either employ colloquial terminology that clearly conveys the meaning, e.g. “dangerous work of children” or use the ILO categories:

a. “light” work which is permissible under certain conditions starting at age 13 (12 for developing countries),

b. normal work which is generally allowed after completion of basic schooling at age 15 (14 for developing countries), and

c. hazardous work which children (i.e. persons under 18 years) should not be allowed to do at all (no lesser age for developing countries).

Note that household chores that are age-appropriate in nature and in the amount of time it takes to do them are a normal and expected part of a child’s life at any age. Helping with household chores does not extend to helping out in a family home-based business.

1.1.2 Locating children who are doing hazardous work

When we see an obviously dangerous situation, we know it. But what if we don’t see it … either because the child is hidden or the safety and health risks (or effects) are invisible?
One way of beginning to conceptualize the task of locating children is suggested by the following framework which categorizes child workers by how easy it is to encounter them:

<table>
<thead>
<tr>
<th>Concentrated</th>
<th>Visible</th>
<th>Invisible</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Workshop helpers</td>
<td>Factory workers</td>
</tr>
<tr>
<td></td>
<td>Street sellers</td>
<td>Cleaners</td>
</tr>
<tr>
<td></td>
<td>Tourist aides/souvenir sellers</td>
<td>Scavengers (at night or on the dump)</td>
</tr>
<tr>
<td></td>
<td>Restaurant workers</td>
<td>Offshore fishermen (platforms &amp; ships)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dispersed</th>
<th>Livestock herders</th>
<th>Domestic servants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Porters/grocery bag carriers</td>
<td>Miners</td>
</tr>
<tr>
<td></td>
<td>Agricultural helpers</td>
<td>Drug dealers and couriers</td>
</tr>
<tr>
<td></td>
<td>Water and wood gatherers</td>
<td>Militias</td>
</tr>
</tbody>
</table>

This is only a rough categorization, as it depends (for example) on whether the child who is working in the restaurant is up front serving tables or in the back washing dishes. Nonetheless, it serves immediately to show that the methods for simply locating the respondents will differ greatly depending on which economic sectors are involved.

This leads to the question of whether hazardous child labour research should be confined to a single occupation or whether it is area-based. A sectorial approach is simpler to handle – you know who you are looking for – but it has disadvantages in relation to hazardous work. This is because a child often either (a) undertakes additional productive activities at the same time, or (b) may move into and out of several occupations sequentially. It is common for a child to have a “main” occupation, but in the evening s/he does household chores, or on the day off helps with the farming. Sequential shifts are particularly common in seasonal occupations or during vacations. Each of these other activities is almost certain to have a different risk profile and both multiply the research questions and complicate the drawing of conclusions. A common research error is to label a child according to her/his main work (e.g. “children in tobacco farms”) which downplays the other activities s/he does.

For finding children, there are household surveys, enterprise/establishment surveys, and “etc.” When it is starting a field project, the International Programme on the Elimination of Child Labour (IPEC) commonly uses a household-based census to identify children at risk. This has the advantage of doubling as a project baseline study but takes time and resources and collects a lot of information which may be extraneous for this purpose.

**Example**

At the beginning, we went house-to-house and collected basic information about the children (their ages, their level of schooling, and any economic activities they were engaged in.

Ghana Cocoa project

Where child labour is concentrated, as in an urban area with many small workshops, and/or a sector-based study is being considered, an enterprise survey has many advantages. Immediately the researcher can see the ages, sex distribution, and specific tasks that the children do. The enterprises may actually be registered with local government or a trade bureau, especially if associated with an export-oriented sector, making it possible to draw a random sample. But there are other ways as well, for example, the following.
Using key informants

Where an area-based study is being considered, and there are a variety of occupations or informal, ephemeral, or agricultural production units, we have found that the most efficient way of identifying where children are doing hazardous work is through key informants. Who would make a good key informant for a hazardous child labour study?

Example

“We developed a questionnaire with the help of an occupational health physician and an engineer, and distributed it to all inspectors in Lebanon through the relevant departments at the Ministry of Labour, through OHS inspectors during their periodic visits to the governorates under their jurisdiction, and at a training workshop for new inspectors.” About half of the questionnaires were returned, a few of which were incomplete, most likely from administrators who conduct no field work. The questionnaire asked where and in which occupations they had seen girls working and in which boys were working, and in what size enterprises. It also asked if they had seen any engaged in illegal activities (begging, drug selling), or working against their will.

Iman Nuwayhid

Where the community is relatively contained or cohesive, we have found that one of the best sources of information on where children are working in hazardous conditions is mothers. In India, the Self Help Groups and community health workers (anganwadis) have been particularly good because they often include women from lower income strata. In Malawi, the Mothers’ Clubs were the most effective means of finding working children at risk in rural agricultural areas.

The ILO’s manual for conducting rapid assessments on child labour (ILO IPEC) adds the following to the list:

- Teachers.
- Trade union officials.
- Community development or social workers.
- NGOs who are working in the area.
- The families of current or former child labourers.

There are other means which are less common, less tried, or are usable in only a very narrow band of situations. These include:

- Admission records to health clinics, or in the case of very small ones, the observations of the staff.
- Children. Within a circumscribed area or social network they often know who is working and where.
- Police, particularly in the case of street children and those involved in illegal activities.
1.1.3 Using chain referral techniques to find children

These techniques have been developed to locate hidden groups or other populations where there are no lists or other obvious sources for finding them. They are advisable for the less visible and more dispersed categories of child labour, such as children in home- or family-based work, self-employed children, or children working in criminal occupations (e.g. selling or transporting drugs). Chain referral approaches are particularly valuable in the study of health outcomes. A child who has suffered a significant work-related injury or illness, or who has died as a result of work is a comparatively rare event so it requires either an extremely large sample or an approach that targets and has a high probability of identifying such cases.

What makes health-related research particularly challenging is that we are seeking or sampling for a rare event within a population which itself is often not easily accessible.

The best-known chain referral technique is “snowball sampling” which identifies a number of children representative of the study population and uses them to identify others. This second group in turn identifies others. With each round of identification, the network of contacts gets larger.

Researchers who wish to use this for non-probability sampling may employ “Respondent-driven sampling” (RDS) which adds a mathematical model to the snowball technique that weights the sample to compensate for the fact that the sample was collected in a non-random way. RDS is probably the only way in which mortality rates for employed children can be obtained in societies where there are no reliable systems for registering occupational deaths.

A new and comprehensive resource with details on how best to conduct chain referral and RDS studies is:


1.2 Research to assess hazards and risks

This chapter looks first at the techniques involved when examining the “exposure” side of the equation, i.e. the potentially harmful factors to which a working child may be exposed, and then at the “response” side, i.e. the potential health impacts that occur as a result of exposure to a workplace danger.

Although there are a number of ways, ranging from casual observation to a highly technical investigation, by which one can identify exposures, the standard approach used by occupational safety and health professionals is a “risk assessment.” We are of the opinion that this makes the most sense for studying hazardous child labour.

Perhaps one reason that it is not done more often is because it is assumed that it can only be conducted by someone with occupational health training. In the last few years, the European Agency for Safety and Health at Work (EU-OSHA), the ILO, and a number of other national and professional OSH agencies have been publishing user-friendly manuals, guides,
and videos to encourage and enable employers and workers to carry out their own risk assessments. Of course, if chemical exposures need to be analysed there will be technical procedures involved, but a general risk assessment can be done by anyone, youth workers included.

1.2.1 Definitions

Note that although the word “assessment” implies a study, the term “risk assessment” also usually includes action to reduce the risks identified.

1.2.2 Using checklists

The most common risk assessment tools are checklists. These can be either generic or specific to a particular occupational sector. “The use of a hazard observation checklist is useful to document the field observations and [in] report preparation. Employing a checklist results in more reliably consistent data collection from day to day and from one person to another in a large project.”

There are many checklists available but it is also possible to construct one’s own which enables the researcher to give particular attention to cultural factors, terminology and modes of speaking (e.g. when referring to sexual harassment), and specific characteristics of the way the work is carried out in the local setting (e.g. the tools being used). In general, they should include items in each of these standard categories:

---

7 Most of these are directed at employers because it is seen as their responsibility for maintaining a safe workplace. Nonetheless, there is increasingly a view that workers of all ages need to be sensitized so that they can take measures to keep themselves safe or to point out hazards that may have been overlooked by the employer.


10 ILO-IPEC: A stepwise approach to risk assessment... (2014), op. cit.
• **Safety hazards**, which can cause immediate accidents and injuries. Examples are hot surfaces, slippery floors, unguarded machines, broken ladders, and motor vehicles.

• **Chemical hazards** such as gases, vapours, liquids, or dust that can harm the body or, in some instances, cause reproductive health effects. Examples are cleaning products, pesticides, wood or stone dust, and heavy metals such as lead. Chemicals can enter the body by inhalation (from breathing), dermal absorption (through skin), and ingestion (by eating or drinking).

• **Biological hazards**, which are living things that can cause diseases such as flu, AIDS, hepatitis, Lyme Disease, and tuberculosis (TB). Examples include bacteria, viruses, or insects. In the workplace, children can be exposed to biological hazards through contact with used needles, sick people, animals, etc. The same routes of exposure for chemicals listed above (breathing, through skin, or by eating or drinking) are relevant for biological hazards.

• **Psychosocial hazards**, which include working in isolation, harassment and bullying in various forms, long hours of work, and other situations that cause stress.

• **Other hazards**, which are sometimes less obvious because they may not cause health problems right away. Examples are noisy machines, repetitive movements, awkward postures and other ergonomic problems, and excessive heat or cold.

See Annex 2 for a sample checklist.

### 1.2.3 Conducting a risk assessment

There are no fixed international rules about how risk assessments for young workers should be undertaken. However, there are two principles we think should always be borne in mind when approaching any type of risk assessment:

1. Structure the assessment to ensure that all work-related hazards and risks are identified – this includes activities that take place outside of working hours or outside the workplace, such as commuting to and from work.

2. When a risk is identified, start at the top of the hierarchy of controls (see below for description) to see whether the risk can be eliminated.

For the kind of small and medium-sized enterprises where most young people work, a straightforward five-step approach should work well.

**Step 1. Identifying tasks and those at risk**

Visit a typical place of work where young people from the study population are working. Explain what you are doing and why; then observe them at work. Although a risk assessment by an inspector would be relatively short, when doing research, the observation period needs to be sufficiently long (preferably several hours) in order that (a) the children become less conscious of the researcher and resume their normal rhythm of work, (b) in
order to capture variations in the work, and (c) to observe the relationships between the child and other workers and with the employer.

“We selected a boy and a girl in each age group we are studying and observed them from “dawn to dark” (when they started work until when they went home) in order to see the range of tasks they did, the length of the breaks they took, and so we could measure the rapidity with which they performed the various tasks. It would have been good to accompany them to their homes, especially the girls, to see if they had additional work there, but for cultural reasons we were unable to do so.”

Saagarika Dadu

Make a list of all the activities that young people are doing – this is very important -- and make a note of:

a. the sex and age of the child doing that task,
b. the equipment or tools or substances s/he is using,
c. the pace of the work, and
d. the general conditions (hot or cold, alone, etc.).

A lot of studies simply interview the child worker and ask what tasks s/he does, but we do not encourage this. There will be a tendency for the child to report only one task, forgetting seemingly inconsequential ones such as washing up equipment after work. Also, an interview gives no sense of the ambiance of the work environment and how the work is being conducted. At least some direct observations, we feel, are necessary.

An assessment should identify if there are different groups of young people in the workplace, such as those who are new and inexperienced, who come from different cultures, social classes or language groups, who have a disability, who are female in a largely male workforce or male in a largely female one, who differ in sexual orientation, or even who are of different ages. Each might be affected differently.

A detailed task list is the key element in health-related research. On the basis of the list it is possible for someone other than the researcher to identify potential hazards and potential health outcomes.

Step 2. Identifying hazards

For each of the tasks in which you have observed or heard of children doing in this line of work, identify sources of potential harm. (See Annex 3 for a chart format that is commonly used for this) The harm may be due to the work itself or the tools, equipment, and substances that the children are using or the manner in which the work is being done (e.g. hurried, repetitive, or for long hours). It may come from the child’s relationships with other workers and the employer, the state of the work environment (e.g. toilets, clutter in the workspace), or conditions in the larger environment (e.g. heat, noise, dust). Pay special attention to indications of stress, harassment or violence. Include non-routine activities, such as maintenance, running errands or cleaning. These can be even more dangerous than routine tasks.

We suggest asking respondents for any accident or “near miss” stories; they may relish recounting the experience! Also inquire about what would happen if unusual events such as
a storm, fire or other emergency were to occur, and how these might impact normal activities. For instance, a power outage may make it impossible to see the way out if a room has no windows.

**Step 3. Evaluating and prioritising risks**

While a hazard is something that could cause harm, a risk is the likelihood that harm will actually occur. After finding all possible dangers, the next step is to rank them in terms of the possibility that it might happen and the severity of the possible outcome. For each task that has been identified, ask “how likely is it that a young worker would get hurt or sick when doing this task?” then ask “how serious would be the resulting injury or illness?” and finally, “is it possible to reduce the risk enough that it is safe enough for the young worker to do?” For example, if a 16 year old girl is working as a life guard at a swimming pool, one hazard associated with that job is drowning. The result would be serious but the risk of that happening is low. The risk could be lowered even further if the girl is given refresher training, extra flotation equipment, and a water-activated warning device.

The hazard scoring tool\(^\text{11}\) in Figure 1 demonstrates this concept:

**Figure 1. Hazard scoring tool**

How likely is the hazard to occur?  \(\rightarrow\)  PROBABILITY

- **High:** incidents typically occur once every six months
- **Medium:** typically experienced once every five years
- **Low:** typically experienced once during the working lifetime (or less)

How serious would the hazard be if it occurred?  \(\rightarrow\)  SEVERITY

- **Minor:** self-treatable, temporary inconvenience (e.g., superficial injuries, minor cuts and bruises, eye irritation from dust, sense of illness or discomfort that goes away quickly)
- **Moderate:** requiring treatment, loss of >1 day of work time (e.g., deeper lacerations, burns, concussion, sprains, minor fractures, dermatitis, back or upper-limb disorders, ill-health)
- **Serious:** possible permanent disability or death (e.g., amputations, major fractures, poisonings, multiple injuries, severe burns, occupational cancer)

Using these two dimensions – probability and severity – it is possible to assign a value to each of the tasks a child is doing, and thereby to give a more nuanced judgment as to the hazardous of the work. See the following chart as a guide:

\(^{11}\) Carothers, R. *Assessing Hazards & Reducing Risks...* (2005), op. cit., p. 5.
Figure 2. Charting risks

<table>
<thead>
<tr>
<th>PROBABILITY</th>
<th>SEVERITY</th>
<th>SERIOUS</th>
<th>MODERATE</th>
<th>MINOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Medium</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Low</td>
<td>Medium</td>
<td>Negligible</td>
<td>Negligible</td>
<td>Negligible</td>
</tr>
</tbody>
</table>

**Step 3. Deciding on the possibility of risk reduction**

Can the likelihood of injury or illness occurring be reduced or prevented? The standard approach for deciding how to “manage” the risks (risks can never be entirely absent) follows a “hierarchy of control” with five steps that are undertaken in the following order:

1. **Eliminating the hazard.** For example, the risk of being burned is reduced when the employer takes away the old unmarked bottles of acid on the shelf and disposes of them properly.

2. **Substitution.** For example, risk of being poisoned by toxic pesticides is reduced when organic farming methods are substituted.

3. **Technology and equipment.** For example, the risk of straining bones and muscles can be reduced by using a wheelbarrow or hand cart to carry heavy loads.

4. **Training and management.** For example, risk of tripping can be reduced by removing stray items from the floor; the risk of a hand being caught in a machine can be reduced by training and supervision.

5. **Personal protective equipment (PPE).** For example, the risk of lung damage can be reduced by wearing a respirator when working in a dusty area or with glues.

However, the five step hierarchy of controls, while appropriate for adults, is not generally adequate for protecting children, particularly those who are inexperienced. The “mantra” for preventive action for children has ideally only two steps: a) remove the risk (measure #1 above) or b) remove the child.

In other words, the child must be separated from the dangerous substance, machine, or circumstance in such a way that s/he cannot come in contact with it – which is probably impossible in the case of fumes and noise. While all of the above “adult” steps are sensible and (theoretically) would be applicable to younger workers as well, much depends on how thoroughly or consistently they are carried out … and this cannot be guaranteed in situations where most children work. Especially #5, providing PPEs, while a favourite of projects because it is tangible, is not an acceptable way of reducing risks for young people. The reason is that young people take them off because they are often too big, too cumbersome, too expensive, and definitely “uncool”. Worse, one is left with a sense of satisfaction of
having done something and complacency that the problem is treated, which when the PPE is lost, worn out, torn, or unused, leaves the child even more vulnerable than before. 

1.3 Research to assess and reduce negative health outcomes

1.3.1 Reducing risks so children above minimum age may work safely

The answer, then, to the question of “is the work hazardous?” is determined by two things: the hazards that have been identified – their nature, severity and likelihood of occurring, and the possibility or degree to which the hazard can be reduced to an acceptable level starting at the top of the hierarchy of controls. Most of this is common sense.

Although this determination may suffice, a researcher would do well to continue a bit further to assess the probable effectiveness of any intervention technique. There are also research questions to be investigated in thinking ahead to what changes could feasibly be made or would be made if the will and resources are there. The following figure illustrates how this is often done.

---

12 One exception to the above rule is children who are enrolled in a training course or formal apprenticeship whose work is being directly overseen by a teacher or supervisor. This applies to children who are age 16 or over in the case of hazardous work and requires stringent controls (See ILO Convention No. 138, Article 3, paragraph 3).
Figure 3. Overview of the risk reduction process

STEP 1
ASSESS SCOPE FOR CHANGE
Is this work on the list of work prohibited for children under 18?
Is the employer resistant to providing special protection for young workers?
Are there any children in the workplace younger than 14 (or legal work age)?

<table>
<thead>
<tr>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove child from workplace</td>
<td></td>
</tr>
</tbody>
</table>

STEP 2
ASSESS FEASIBILITY OF CHANGE
Will the employer commit to selecting and addressing the risk(s) identified?
Are there options for control?
Are these options feasible given local conditions, knowledge and costs?

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove child from workplace</td>
<td></td>
</tr>
</tbody>
</table>

STEP 3
ASSESS THE LIKELIHOOD FOR CHANGE
Are there unions or worker representatives?
Will adult workers support the change in practices, environment, tools or tasks to protect younger workers?
Are parents aware of the risks and willing to be involved?

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consider other options</td>
<td>Monitor more closely from workplace</td>
</tr>
</tbody>
</table>

STEP 4
ASSESS THE CHANGES
Have steps been taken to make the necessary changes?
Have adverse health incidents diminished?

<table>
<thead>
<tr>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor more closely from workplace</td>
</tr>
</tbody>
</table>
1. Linking the youth to worker representatives and facilitating their joining a union or other workers’ organization; they should be allowed to be full members regardless of their age.

2. Having a written policy, publicly-displayed, on

3. young workers’ rights,

4. sexual, physical, or psychological harassment

5. Ensuring all young employees including apprentices, interns, seasonal and short-term workers have formal written contracts specifying wages, rights, and responsibilities

and these are all matters which will require some degree of research or investigation. For example, the research protocol may include indicators on the existence and nature of the work contracts that children have.

**India example**

"I organized a Focus Group Discussion with the children and youth working in the brass workshop. They brainstormed a list of all the hazards they could think of associated with their work. Then I asked them to tell me the 3 worst and we drew a picture of them. Then we wrote the story of a child who had been injured. Finally we made a little 4 page booklet containing the list of hazards, the story and the pictures. I photocopied it for all the brass workshops around there. Afterward I used it to discuss with the owner how these dangers might be reduced."

Rajnarayan R Tiwari

It is a truism that workers and their representatives need to be involved in the process so that they can be informed about the measures implemented, about how they will be implemented, and who will be responsible for implementing them. Nevertheless, this is not usually seen as part of a research activity. We have observed that even when contractors or local research teams are instructed -- even given written instructions -- to ask the workers’ or employer’s assistance in interpreting the results of the research, or to give feedback to the workers about the results of the research, this is not done. It is not a part of research "culture". Yet it can be argued that this is, in fact, a critical part of research-for-action and, as the diagram above shows, that assessment -- whether of the scope, feasibility, likelihood, or nature of change needed -- is a research task requiring research skills.

Risks that have scored high in terms of probability/frequency and high severity should be addressed first, if possible. When considering how to mitigate hazards, it is important to start as high as possible on the risk scale. However, it is also important to look for solutions that are as SIMPLE and INEXPENSIVE as possible. Solutions that involve radical restructuring of the production process may be very successful in reducing risks, but are less likely to be put in place quickly, or adopted at all.

A final step that should be considered part of this process involves returning at regular intervals to ensure that action is being taken. One reason that monitoring is important is because it helps to reinforce the message that young people’s health and safety must be protected. Monitoring visits are not just for criticizing but for educating. They provide an opportunity for employers and employees – especially the young workers – to learn about
risk reduction and the problems which might ensue if their health and rights are not respected.

Educational approach

The standard approach above assumes an outside actor is directing and monitoring changes. Another model is one where the family is the driver. In that there is evidence that the majority of child workers are working with the knowledge of or with their families, if the family is sensitized to occupational risks and of children’s vulnerabilities, they are in a position to assess risks and assign work responsibilities to their children in a more consistent fashion. This model has been demonstrated by the National Children’s Center for Rural and Agricultural Health and Safety in the US which issues an elaborate set of factsheets and protocols for agricultural families to use in assessing the suitability of each farm-related task for the age and maturity of their children. (B. Lee).

1.3.2 Assessing health impacts

Part of the reason that child labour reports use conditional language about health impacts (e.g. mining “could” lead to respiratory disorders) is because there are relatively few health conditions where there is a clear, direct and unequivocal cause-effect relationship. Studying the “response” part of the exposure-response equation has been troubled by a number of issues, such as the lack of adequate control groups, use of non-standard or non-validated methodologies, etc.

Methods which are generally used to document work-related health incidents are: a) self-reported symptoms in the course of an interview, b) service records from health care facilities (hospitals and clinics), poison control centres, and worker injury registries, and c) clinical examination. There has been wide variation in the way symptoms are elicited and, as noted earlier, the accuracy of the response depends greatly on the age of the child, the appropriateness of the question for that age group, and the recall period. Some of the most effective approaches use diagrams to help the child locate where on the human body the “hurt” occurred, props (e.g. glasses of water filled to varying levels or colour-coding) to suggest degrees of seriousness as in a Likert scale, or photos to show different kinds of morbidity (cut, bruise, break, sore throat, measles, etc.). For documenting long term impact, studies have used adult height (Dantas RA), non-genetic illnesses, and body mass index. (Francavilla).

The results have been mixed, however. Only one of many examples, a study in Egypt was unable to find a significant difference for any health-related outcome in spite of using a

---

13 One estimate is that 70% of working children are engaged in family-based work (O'Donnell O, van Doorslaer E, Rosati F).
14 Francavilla and Lyon (2003) used household survey data from six countries: Brazil, Guatemala, Guinea, Kazakhstan, Peru, and Gambia to see if there was a relationship between children’s household chores and two measures of health status, body mass index and the incidence of illness in the week prior to the survey. No clear relationships were found. In fact, those children who spent more time on chores (<4 hours) appeared to have better health than children who did less. However, the explanation was thought to lie in the measures -- reported illness and Body Mass Index -- which “fail to account for the dynamic nature of the relationship between chores involvement and health”.

Looking for answers: Research on hazardous work of children
paired subject and control group, and several means of measurement: clinical evaluation, self-report and school records. (Graitcer) On the other hand, there are examples such as a Brazilian study of musculoskeletal disorders among 3,269 children that show significant association between child labour and a specific health condition (in this case back pain or muscular pain) (Fassa). Studies that have analysed large data sets, such as censuses and surveys from Brazil, have been able to control for more variables. For example: a study of a Brazilian sample of 4840 adults drawn from the 1996/1997 Pesquisa de Padrões de Vida in two regions, controlled sequentially for early entry into the labour force, education and health plus certain household indicators. (Kassouf) As with others, the results show a correlation between child labour and health, but it cannot claim causality as there is no control for a range of unobservable factors. Another study used the 1998 Pesquisa Nacional Por Amostra de Domicilios (PNAD) to look for a relationship between adult health and child labour. It was able to show a striking relationship, but when education was treated as an exogenous variable, the difference disappeared indicating that child labour was not affecting health directly but via education. (C. Lee).

This brief discussion of studies of health impacts associated with child labour is included here only for the purpose of showing that a general fishing expedition, undertaken in the hope of turning up correlations, might well end up with a conclusion that there is no connection between health and even the most egregious labour. On the other hand, the more precisely the study is targeted to the risks associated with the industry under study, and the more carefully the variables are controlled, the more likely it is to yield helpful information.

1.3.3 Researching hazardous work in the community: General observations

The term “community-level research” is colloquially used now to refer to research that is translated into action or intervention at the local level. This type of research is not meant to replace academic research (which can also be community-based and action-oriented) but to guide interventions that are intended to have a direct effect on children at risk of hazardous child labour (HCL), and which are sometimes undertaken by community-based organizations and other stakeholders. This research is frequently, but not necessarily, qualitative. In either case, research at the community level is a powerful tool that can help groups interested in the wellbeing of working children to:

- identify the industries where young people are working and assess the nature and seriousness of workplace hazards in these industries,
- identify the options and priorities for intervention, and
- monitor the impact and sustainability of intervention programs.

Those who are conducting community research do it “for” someone. Some of the stakeholders who instigate or benefit from community level research include the local political leaders, local teachers and school supervisors, health workers, the young workers themselves and their parents. In any case, the interest in a community-level research project should come from the local level so that the problems are understood in the context of the local environment. It is good when we get input from the community about research. It is even better when the idea for the research comes from the community.
Core questions in health-related action research

As resources are always limited, community-based intervention programs (e.g., advocacy, school or training, control measures) need to measure their level of acceptance, impact, and sustainability. Research helps organizations use their limited resources in the best way, making sure they are achieving what they are aiming to accomplish. Fundamental questions that local research will most likely want to address are:

- What is the magnitude of the problem – how many children are caught in hazardous work? This will determine if, in the minds of policy-makers and donors, the problem is serious enough to warrant action. Quantitative methods are required.

- In which occupational sectors are they most prevalent? Where are these located (rural? urban?). This will determine if an area-based or sector-based study would be most appropriate. Also, if an export sector is involved it may engender interest by trade and consumer groups.

- Are most of the children under or over minimum age for employment? If the children are under the minimum age, the interested parties will be the school system and possibly the law enforcement bodies. If they are of legal age, the labour inspectors and safety and health inspectors may be the key parties, as well as the employers and their associations.

- Do people in the community perceive there are hazards in these industries? Do they all agree that working children are at special risk? Has there been any discussion of this? Does a forum exist to discuss it? This helps to determine if the main task is advocacy (attitude change) and therefore qualitative research that will yield case examples and testimonials will be important, or if it is a matter of effecting changes in the law, in which case quantitative research yielding details on the nature of the work will be important.

- How amenable are the employers to making changes? This would argue for a KAP (knowledge, attitude, practice) component in the research to determine readiness, as well as economic indicators to assess financial barriers to change.

Research team

The team that researches hazardous child labour at community level needs to be multidisciplinary and have some special qualities. Understanding the links between children’s health and the work environment is challenging because it is a topic that requires several otherwise unrelated disciplines to work together: labour, health, social welfare, and child psychology. An ideal core team would have someone from each of these areas, e.g. a labour inspector, a health worker (not necessarily a physician), a social worker, a psychologist. But probably most important is long experience, immersion and contacts in the local area.

In addition to the core team, it is helpful to be able to call, when needed, sector specialists (e.g. an agriculture extension worker), the relevant union and employers’ association, a local official, community group leaders, and a young working person. In most situations where
The qualities that individual members bring to the team are just as crucial as its multidisciplinary nature. Characteristics that are especially important when working at the local level are that the researchers need to be team players; they must have the patience to work with communities and also they need to have the humility to accept community representatives and workers as allies and important contributors to the research project. Other qualities include affiliation with an organization that is known and respected in the area, the ability to problem-solve or “think outside the box” when faced with an unexpected situation, and a personal concern or compassion for the issue at hand. All, especially the child respondents, will appreciate interviewers with a sense of humour!

**Access**

Gaining access, and consequently the confidence of the group most concerned (working children, employers, parents) is key to the success of the research project. This is especially critical in communities which may have had negative experiences with research(ers) or are experiencing “research fatigue” because of repeated research conducted on them. Access for a study of hazardous child labour is often a bit easier than for other child labour research in that stakeholders can empathize with the need to protect children from danger, instead of being subject to condemnation for infraction of labour laws.

**Moral issues in working with children**

First is the issue of informed consent. In most research studies, if children under the age of 18 are to be included in a research programme, the parent or guardian of the child must provide informed consent on behalf of the child. A number of us have observed, however, that often neither parents nor the children involved fully understand what is meant by “informed consent” and even if they do, do not feel they have the right to refuse ... or alternatively, refuse because the formality of the gesture implies some sort of compulsion that is not clear to them. In hazardous child labour research, simply determining who needs to give consent (and there may be several parties ranging from community leaders to the
potential research subjects themselves) is a process that should not be short-changed. We cannot envision any circumstances where every interview with a child should not begin with her/him being fully informed about the research and agreeing to participate.

Drawing blood and other invasive tests may be particularly subject to special cultural prohibitions. These need to be discussed fully ahead of time with leaders and parents, and ultimately may need to be dropped in order to preserve the community’s confidence in other aspects of the research.

*Follow up procedures in case of crisis*

A protocol or steps must be outlined ahead of time that will need to be followed if the researcher encounters or identifies a health problem while conducting the study. This obligation is magnified many fold in the case of a child. Prior to the study taking place, the researchers should identify a health service provider, the means by which a patient would be transported, and who would pay for treatment should a case be discovered. This is particularly delicate when matters of psychological trauma are identified, or simply when emotions arise during the course of the interview. Local custom may help dictate what types of support might be most appropriate for the child: further conversation, a parent or friend brought in, something to eat or drink, some professional assistance, among others.

*Cultural sensitivity and particularities*

Language, religion, and the social and political context can present formidable barriers to conducting research if not approached deliberately and with respect. Especially research concerning children can generate concern. While “protection of human subjects” protocols are good, they are not nearly sufficient. Especially among people for whom tradition counts more than paper, extra measures must be taken to explain, negotiate, and agree upon the course of action to be taken. Furthermore, “bearing in mind that different cultures approach concepts of personhood, life, death, social affiliation and the like very differently, it is important to bear in mind that the conceptual basis of certain tools … may not be transferable to particular cultural contexts. For example, in many cultures the wellbeing of an individual cannot in practice be separated from the wellbeing of the group to which that individual belongs….In such cases, it may not be appropriate to ask questions about the wellbeing of children but instead to address the state of the family or group to which they belong.” (Miranda Armstrong)

---

**Example**

One source of potential bias is due to inaccurate or idiosyncratic translation, but as these researchers recounted: “We had translated the instrument from English to Urdu and back-translated it to detect errors, but in the field we found we could not read from the form because the working children had never been to school and so rarely spoke in that language. The children usually preferred that the interview was carried out in the local vernacular (Panjabi), or in the language of the area where they had migrated from (Pashtoo), or some other variant which required the interviewers to translate or interpret on the spot.”

Mohammad Ali Vaqas
**Time**

Research takes time and communities are always eager to see results as soon as possible. One way to sustain their interest in the project is by involving members of the community in different phases of the project.

Example

“We arranged with the District Labour Officer to come with us when we had formal meetings with the elders. We also asked the staff from the local health care centre to join us when we did some of the physical measurements. The interviews were designed so as to encourage mothers or other family members to be present and to assist in recalling health events and other details; this made them feel like they were part of the team as well as helping to assuage any concerns they might have had about their children’s participation.”

**Limited prep**

Too often, research projects are not guided by earlier research or existing information about the problem or the area. While this preparation is admittedly time-consuming, it virtually always saves time in the long run and may help to avoid costly duplications and errors.

Example

“I did the usual literature search through PubMed etc., but found almost no scholarly articles or research studies on this issue. Therefore, I assumed that either this type of hazardous child labour didn’t exist or it was just not a matter of much concern. But because I spoke Farsi when I was a child, I decided to check out some of the vernacular newspapers. Right away I found find quite a number of accounts which served us as case examples and which helped us in selecting where to sample. Based on this experience, I asked some friends to search in other language newspapers and in the end we had quite a bit of documentation.”

Ayaz Achkazai

**Mobility**

As noted above, but bears repeating, working children are a very mobile workforce with a high turnover. They may change employers or occupations in response to opportunity or abuse, be working in several occupations at the same time (e.g. domestic service and agriculture and car repair), or change localities and areas of economic pursuit according to the season or due to environmental factors (a local drought or conflict for example). Research on hazardous child labour, therefore, must not ask “what is your occupation”, but rather probe for all types of work – whether for pay or not -- that a child does at different times during the year and at different times during the week and the day. This is an example of where children’s work differs from that of adults’, and consequently the research methodology must be adjusted accordingly.

Example

The first question we asked was a filter question: “are you working?” and, based upon the answer, divided the respondents into “working” and “non-working” children. The latter often said, “no, I am going to school.” But we later found that they had interpreted the word “work” to mean paid or fulltime work and that, in fact, most were engaged in some sort of economic activity after school (e.g. helping to feed the cows) and on weekends and school vacations.
Payment

Another administrative issue concerns remuneration of research subjects. This is one area where hazardous child labour research differs from many other kinds of study. Working children cannot be expected to take time out for an interview or clinical test without compensation for the loss of income. However, money is not necessarily the best option. In our research we have invariably found that a lunch or snack, a year’s supply of vitamins (e.g. where iron deficiencies are endemic), or a small gift (e.g. pencils and paper, a T-shirt) was acceptable to the children. What is attractive about the latter, it seems, is the “specialness” of the gift, rather than its intrinsic worth. It is something that they could not have obtained for themselves; it is from “outside”.

Age groups for study

While a great many children younger than 10 are working, both the length and nature of their work experience and their ability to understand and respond accurately to interview questions is likely to be very different from that of older children. For example, their work tends to be less regular, of shorter duration, involving simpler tasks. It is more difficult for them to place and describe health events accurately, and psychological questions would need to be formulated differently to be geared to their level of understanding and language. This does not mean that young children should not be studied; only that different methods will be required.

Example

“The original aim was to work with children aged between approximately 5 and 16. However, it soon became apparent that younger children (those under age 10 or so) were not responding well to the exercises. There were several different problems. Sometimes the younger children were unable to understand what the task entailed. Sometimes they were able to provide very little information that could be used or were simply too shy to engage in an activity. Often, they preferred to play….we were forced to abandon working with this age group.”

Rajnarayan R Tiwari

Example

Children’s attention wanders and, during the course of the interview, the quality of the answers decreases. What we found to be helpful is to modify the formal interview schedule so that it retains the interest of children, for example:

- Using drawings on flashcards or photographs of various working/living conditions and of different types of injuries and sicknesses to illustrate the questions being asked.
- Asking the child to draw or tell a story.
- Doing physical activities to demonstrate degree of robustness (e.g. arm wrestling).

Saeed Awan

In Lebanon and Korea, we used a battery of neurobehavioral tests to explore effects of toxic substances on working children. These included the Behavioural Assessment and Research System (BARS), continuous Performance Test, Match-to-Sample Test, Reversal Learning Test, Selective Attention Test, Serial Digit Learning Test, Digit Span Tapping Test Symbol Digit Test, Simple Reaction Time, Profile of Mood Scale (POMS), Grooved Pegboard, plus a questionnaire and physical examination.

**Example**

*In Lebanon and Korea, we used a battery of neurobehavioral tests to explore effects of toxic substances on working children. These included the Behavioural Assessment and Research System (BARS), continuous Performance Test, Match-to-Sample Test, Reversal Learning Test, Selective Attention Test, Serial Digit Learning Test, Digit Span Tapping Test Symbol Digit Test, Simple Reaction Time, Profile of Mood Scale (POMS), Grooved Pegboard, plus a questionnaire and physical examination.*

Meyer-Baron M

**Expectations**

When it comes to health research, it is virtually impossible not to raise expectations. Potential respondents will wish for, even if they have been repeatedly urged not to expect, some result that will make their lives better. Every FGD and interview can start with the statement “your answers are confidential” and “this is being used only to improve our understanding or to get your views on the problem” but the respondents will either not hear the statement or hear it hopefully.

**Example**

*The parents were upset, saying they had taken time out of their work to participate in previous research projects and had seen nothing come of it.*

Saagarika Dadu

Some approaches for dealing with this issue that have either been done or suggested are:

a. having a government official accompany the research team when it returns to the community to present the study results so that the participants have a sense that their concerns are heard;

b. organizing a visit by health professionals to the community after the research is completed to provide services or to present a medical kit; and

c. building into the research budget a cost item for vitamins (e.g. iron/folic acid supplements for girls and women) or other health-related products that the research has determined are needed or appropriate.

**Social and environmental health**

Social factors are being increasingly recognized as major determinants of health. “What is really important for people to be healthy? It involves both how we live and how we work.” Just as we are asking that doctors be routinely asking about a child’s occupation and work activities when someone comes in for treatment, researchers should be routinely asking about details of a child’s living environment. Some critical aspects of environmental and social health which child occupational health research should always include are:

- Source and amount of drinking water.
- Toilet and washing facilities.
- Types of food the child eats.
• Number, ages and relationships among the people with whom the child is living (household head and number of younger siblings may be especially important indicators).
• Relationships with the surrounding community.
• Time and opportunities for play with other children.
• Migrant status. (Gerry Eijkemans, MD)

**Community-oriented research approaches**

Regardless of the research design or objective, “Community-Based Participatory Action Research” (CBPAR) is an approach to consider. The CBPAR requires that the community is involved early in the process, is an equal partner, and gender and equity issues are respected. However, it is important to realize that reaching the community takes time. It is neither straightforward nor guaranteed, and the approach can differ substantially according to the community, the region, or the occupational sector. CBPAR helps ensure community ownership of the research project. If special care is taken to integrate the community during each phase of the research, it invariably bears fruit later on, for example, when interpreting the results. Integration means not just telling people about the work or giving them the data, but making sure they are also able to understand it. It is also worthwhile to remember that few communities are monolithic; they are composed of multiple groups and interests, so creative methods may be necessary to ensure the participation of these disparate groups.

**Example**

“We were working in an area of Dhaka where there are many small workshops; children there did a wide variety of dangerous tasks and were exposed to many hazardous chemicals. Most of them couldn’t read, so flyers or billboards were useless. Because there was an on-going campaign against child labour, and they were afraid of legal action, owners and employers avoided any kind of research. What we did was to set up some little places where young workers could come in when they had a minute for a bite to eat or something to drink. We set up a tripod with a flipchart of pictures about workplace hazards and how you could protect yourself from them. They got the message. It was a “back door” way of raising awareness without raising hackles! We kept changing the topics in order to keep them coming in. Later on we acquired some cartoons about occupational health on video and brought a laptop to the centres. That worked really well.”

Ronald Berghujs

**Using gatekeepers and champions**

Using influential people in the community as an entry point is a recognized way of working with the community but one must always be mindful of the power dynamics and the fact that some gatekeepers may, overtly or not, be more inclined to “lock the gates” than to facilitate entry. A useful tool for identifying the best contacts in the community is a social network analysis. It can be used to show the research team from where people get their health information, and to whom they go for advice. Discovering the key social nodes in a community is critical for the conduct of any subsequent project as well as for the dissemination of its findings and recommendations.

Gatekeepers differ from key informants in that the latter are not necessarily the more educated or powerful, but rather those with eyes and ears on the problem.
would be a simple shopkeeper who sees the children in the street and observes incidents of injury or abuse.

Champions have been called the “jewels of a project”. Personally concerned and committed to the issue, they are in the best position to advocate for the research and, if respected by their community, can also guide the research team and facilitate its activities.

---

**Example**

“Overall, the interviewers said that they did not have any problems with data collection because they always went to kilns through some reference. They said that the owners and in turn the workers cooperated more if they went through a reference.”

Rohail Ahmad

---

**Research tools**

Start first with proven methods and commonly-used, preferably standardized, research tools. It is usually easier to adapt or adjust rather than starting from scratch. Tools useful for community assessment of hazardous child labour are:

- **Risk maps.** These can be used with persons of all ages but are especially good for children and groups. They involve drawing a picture of the local environment, e.g. the workplace, on a large piece of paper and specifically those machines, persons, places, substances within it that might be problematic for a child. Those which are of particular concern can be prioritized with colours. It is important, for children, to include risk maps that include the home environment and the travel area between home and work.

- **WISE.** “Work Improvement in Small Enterprises” (WISE) is a training program developed by the ILO to assist small and medium-sized enterprises in improving working conditions using simple, effective and low-cost techniques using local ingenuity and local expertise. The training emphasizes the link between good working conditions and productivity and the importance of employer-employee cooperation to achieving positive change. It builds on local practice, spotlighting good ones to emulate, links improvement of working conditions with productivity, and encourages learning-by-doing and peer teaching.\(^\text{16}\)

- **Control banding.** This is a procedure for categorizing hazards. It “is a qualitative or semi-quantitative risk assessment and management approach to promoting occupational health and safety. It is intended to minimize worker exposures to workplace risks and to help small businesses by providing an easy-to-understand, practical approach to controlling hazardous exposures at work ... the greater the potential for harm, the greater the degree of control needed to manage the situation and make the risk “acceptable.””\(^\text{17}\)

- **Body mapping (Symptom Inventory).** Using an outline of the body, children can be asked to point to places where they have been hurt in the last month/year, or

---


\(^{17}\) For more information about Control banding, see: [www.cdc.gov/niosh/topics/ctrlbanding/](http://www.cdc.gov/niosh/topics/ctrlbanding/).
where they feel sickness, e.g. headache. This can be done either individually or as a group, although the latter is usually best when it is not gender-mixed.

**Follow up (longitudinal) studies**

Research at community-level needs not to be limited to quick and short-term studies. In fact, if community organizations are conducting the research they are well placed to consider long-term studies in which working children are followed up over time. This would enable them to observe cumulative impacts and assess sustainability of interventions.

**Comparison (control) groups**

Academic researchers are almost always required to compare their group of interest with a control/comparison group where exposure or intervention is absent. If community organizations are conducting the research, they may be reluctant to use control groups for fear of excluding part of the community or because they lack resources. However, there are options:

- establishing a baseline level to which they can compare later research results;
- where interventions are introduced one community at a time, communities can act as each other’s comparison groups without depriving them of the intervention;
- public lottery, in cases where resources are limited and not all eligible working children or workplaces can be included, those to be included could be selected through an open lottery where chance is the only determinant of selection; those not selected serve as the comparison group; and
- pre-post can be used where working children or workplaces serve as their own control--compared before and after the intervention.

**Improving methods**

We know what the methodological problems are in measuring child labour and health, as these have been documented in review articles. (ILO-IPEC) There are also masses of analysis of secondary data available, to such an extent that any more would almost be counterproductive since they are not supported by primary research. Some of the options to consider for strengthening the tools are:

- Create a community research guide that can be used by field researchers to develop appropriate methodologies focused on community integration. This guide may contain fundamental, as well as specific information, towards research project development and implementation. (Group 2, Turin).
- Conduct research to clarify the relationships between work-related exposures and how they may be exacerbated by co-existing community health problems (e.g. silicosis is complicated by tuberculosis) and/or impact child development (e.g. lead toxicity is worsened by iron deficiency anaemia). (David Parker).
In summary, knowledge gained from community-level research cannot be seen as an end in itself, but rather as one piece within a wider strategy of eliminating hazardous child labour. Strengthening the knowledge platform must go hand-in-hand with finding how best to use the knowledge. Transforming research into practice requires a dialogue between the knowledge-producers and knowledge-users and the strategic use of scheduled events to undertake this dialogue.

1.4 Research to assess psychosocial dimensions of health

This section focuses on an area that is particularly weak in terms of research attention: that of the effects of work at an early age on a person’s psychological functioning and development. It looks at the techniques involved when examining both the “exposure” (risk) and the “response” (impact) side of the equation.

Overall, robust data on the psychosocial effects of child labour remains scarce. (Gunn, S et al) Much of the literature that does exist on the subject is descriptive or anecdotal. Consequently, intervention programmes have given little attention to assessing or addressing psychosocial effects of hazardous work other than in the case of commercial sexual exploitation and child soldiers which, while admittedly extremely serious nonetheless account for a very small proportion of child labour cases. Undoubtedly this lack of research has had an effect on policy as those occupations and conditions of work wherein physical risks are minimal but psychosocial risks are substantial – child domestic labour is a case in point – are seldom considered either in laws or in practice (e.g. labour inspection). Furthermore, because assessment of psychosocial morbidity or developmental impact is almost always done (a) individually and (b) by a professional trained in psychology, it has been virtually impossible to quantify and to demonstrate the problem on a population-wide basis.

Is it possible to take a “public health” approach to identifying and addressing psychosocial issues? Are there methods and tools for research and intervention that can be used with large population groups? Is there a method or set of methods that could be used by non-professionals to identify psychosocial impacts of hazardous child work and in the conditions often found in developing countries? Following are some suggestions of steps to take:

1.4.1 Definitions

Currently there is no definition of “psycho-social wellbeing of children” that is widely accepted,18 nor is there one that relates to the specific issues facing working children. The options are to take a standardized adult definition and adapt it for children and adapt it again for the work environment, or to develop a new one.19 In establishing a definition of children’s psychosocial wellbeing for your research, consider these elements:

---

18 Several organizations have, however, put forward various definitions. For example, the UN Inter-Agency Standing Committee (IASC) has put forth guidelines for mental health and psycho-social support in humanitarian emergencies.
19 Despite labouring hard on this definition, the Turin group did not reach consensus; instead participants suggested that the points outlined here be treated as elements to include when adapting an existing, standardized definition for working children.
1. Interactions between the child’s work (including the work environment, job content, working conditions) and her/his
   \begin{itemize}
   \item home environment,
   \item social environment, and
   \item evolving capacities, needs, expectations, custom, and culture
   \end{itemize}

2. mediated through the child’s perceptions and previous experiences,

3. having an influence on the child’s current health, on-going development, interpersonal, family and community relationships, education, job satisfaction, sense of well-being.” (Turin Group 4).

**Psycho-social indicators**

Up to the present, frameworks for assessing child labour (e.g. project baseline studies) have not included psychosocial hazards and impacts, nor have they included such protective factors as resilience. Development of a standardized universal measurement tool would go a long way toward raising the profile of psychosocial issues and achieving tested indicators of wellbeing. With a view to encouraging their inclusion in future research, below are listed some of the psycho-social hazards and impacts that children and youth may face in the workplace as suggested by theory and recent research. The psycho-social indicators of hazards include:

- Job content, e.g. lack of variety, fragmented or meaningless work.
- Workload and pace of work, e.g. work overload or too little work.
- Work schedule, e.g. shift work, working at night, inflexible work schedules.
- Control, e.g. inability to influence workload or the timing of work.
- Environment and equipment, e.g. equipment unsafe, inadequate or unavailable.
- Interpersonal relationships at work, e.g. social or physical isolation, bullying, violence or harassment.
- Precarious working conditions, e.g. poor pay, job insecurity.
- Life-work interface, e.g. conflicting demands of work and home.
- Bio-psychological factors that affect development and neurological functioning. (Kristoffel Leiten).

The indicators of psycho-social impacts of work that should be taken into consideration are:
• Cognitive abilities and cultural competencies, e.g. intelligence, communication skills, technical skills.
• Personal security, social integration and social competence, e.g. secure attachments, positive adult/peer relations, social confidence, sense of belonging.
• Personal identity and valuation, e.g. self-concept, self-esteem, feeling valued and respected.
• Sense of personal agency, e.g. self-efficacy, feelings of helplessness, internal locus of control, positive outlook.
• Emotional and somatic expressions of well-being, e.g. stress levels; sleeping and eating patterns, general health, disrupted concentration, anxiety and depression.

(Stavroula Leka)

1.4.2 Considering positive aspects of work

Some researchers have made a strong case for work potentially having positive effects on a child’s psychological development and there is abundant parental conviction, personal testimony and anecdotal evidence in support of this view. In examining this question, we must be attentive to the ‘healthy worker effect’ in that a child may be selected for work because s/he is more physically and psychologically robust. This in turn may have positive iterative effects: because s/he is working, s/he is appreciated by the family, receives more attention and praise, is better nourished, better clothed, may have more opportunities for social contact on the worksite -- possibly even play during breaks, and may have spending money with which to buy goods that make her/him feel even more admired.

Example

The children were cheerful, running around, sometimes throwing mud at each other and seemed to be enjoying themselves.

Saagarika Dadu

A working child, who has been able to provide school fees for a sibling or to help keep the family afloat financially, knows s/he is valued in a way that children who receive verbal assurances of appreciation probably never can be. To the extent that the child’s contribution forms a significant part of the family income, the level of stress in the family -- and perhaps even expressions of stress in the form of violence -- may be lower than what it would have been otherwise.

All of these aspects are positive, but they cannot be construed as evidence of child labour having an overall positive psychological effect. One needs to take into consideration what variables are being studied when trying to demonstrate positive effects. More of concern is that papers which recount the positive effects tend to be looking at the immediate health impacts rather than long-term ones, and they may be making a theoretical case rather than reporting on actual evidence-based study.

However, it is correct to raise concern that studies of children’s occupational health may have inadvertently contained a built-in bias, i.e. they were looking for negative impacts and
therefore finding them. Suffice it to say that future work should be diligent in maintaining objectivity and balance in this regard.

**Resilience**

In being attentive to potential psychosocial health benefits of work, one should consider both internal and external factors. That is, there may be factors in the home or work environment or the social context that are external to the child which are protective or beneficial. But there may also be characteristics of the child her/himself which contribute to her/his strength and endurance. It is clear that some children seem to survive and even thrive in the face of arduous conditions. What is operating here?

While resilience is not a quality to be fostered as a palliative for child labour, it is a quality which we need to understand more about. This could be one of the most important areas for future research: to understand children’s “resilience” to adverse circumstances.

**1.4.3 Psychosocial tools**

If research on children’s occupational health at community level were to include examination of psychosocial indicators, it could be done either with a standalone instrument which would make it possible to go into more depth on relevant indicators, or they could be included within a larger study and thus take advantage of collateral data on education, family composition, etc. that is being collected. (At national level, a short set of indicators should be included in large-scale surveys, such as those carried out by the World Bank (LSMS), UNICEF (MICS), and ILO (LFS, SIMPOC) for guiding policy).

Two reviews have been recently published that critically analyse existing instruments as to their relevance for assessing working children’s psychological wellbeing. One review assesses those originating from child psychology (Hofman); the other (Stavroula Leka) examines those *inter alia* from adult occupational health. One instrument bears mentioning in that it has been translated into a number of languages and validated for use in several countries; this is the Strength and Difficulties Questionnaire (SDQ) developed by Robert Goodman of King’s College University, Institute of Psychiatry. The SDQ is a 25 item behavioural screening tool that can be used for children 3-16 years old. While the SDQ is not intended for diagnosis, it does contain an impact supplement and a follow-up section for use after an intervention. Note that the SDQ is a tool that measures both positive characteristics (child’s pro-social behaviour) and negative ones, and therefore should be able examine the full range of factors associated with a child’s mental wellbeing which s/he might have developed as a consequence of work.

**Pilot-testing and validation of psycho-social tools**

Rapid assessments could potentially be used for pilot testing in the field and would provide an opportunity to validate new or adapted instruments. Following is a checklist to use when pilot-testing to see whether a psychosocial tool is appropriate:

---

20 The English and many other language translations are freely available in downloadable paper format. However the copyright owner needs to be contacted for courtesy before the research and for projects involving new language or dialect translations. Please see [sdqinfo.org](http://sdqinfo.org) for more information.
• Are the items relevant to the age-group of the children being studied? One tool will not suffice for child workers of all age groups. The language and concepts and techniques used (questionnaire, pictures) would be very different for a young child than for an adolescent.

• Are the items culturally appropriate? There are existing tools on work-related psychological stress but most of these were designed in and for a developed country, particularly the U.S. or Europe. Some factors, such as decision-making latitude can be highly cultural.

• Is it comprehensive with respect to work-related variables? And comprehensive with respect to child-related variables? (The work- and child-related variables were noted above.)

• Does it test for attention/concentration and qualities of executive functioning which may need to be supported and nurtured? (Breslin).

• Does it address decision latitude (locus of control) in a culturally sensitive way? (A child addressing an adult, especially an employer, may not be appropriate in many cultures).

• Does it explore psychological demands on the child by the work or the work situation?

• Does it measure social support for the working child both at work and in the family and/or community?

• Is it focusing on pathology or on general psychological/intellectual functioning? The majority of psychological instruments pertaining to children are seeking to single out those who are suffering from a psychological disability or morbidity with a view to providing them with treatment. This is rather different from determining how the psychological functioning of a working child differs from that of a non-working child. However, identifying clinically significant mental health problems can be compelling for policy-makers, but since these are relatively rare conditions, it is only possible when there is a large sample of child workers and controls.

Preparation for psychosocial inquiry

Those who have undertaken psychosocial field studies strongly recommend a substantial training programme for the interviewers and those who will be managing the study in the field. Depending on the experience of the research staff, this can be a short module on the particularities of psycho-social data collection or a more comprehensive unit involving role-playing, some psychological theory, or other background information that not only shows how to administer the questions, but explains the intent behind each question. This will help the interviewer to appreciate the importance of the questions and, if necessary, help the child to understand what is being asked. As interviewing children is significantly different from interviewing adults, the interviewers must practice how to interact with child respondents, putting them at ease, avoiding a patronizing tone, being creative in handling children’s shorter attention span, and so forth. While this sensitivity is necessary for all parts of the study, it is especially important for the psychosocial component. This is likely to be
more challenging for both the interviewer and the respondent, in part because this type of questioning may be entirely new to both parties. The questions are not as obvious or customary as those elsewhere in the study, such as ‘how old are you.’ This component may seem more tedious as a number of indicators may be required to explore each psychological domain. It may also feel intrusive in cultures which are not accustomed to expressing feelings.

It is especially important that the interviewers know to watch for indications that the questions are making the child uncomfortable or that elicit strong feelings, and to have a clear plan as to what action to take should that situation arise. Just as a plan must be worked out ahead of time as to how to deal with manifestations of physical illness, a follow-up plan is needed in cases where psychological distress is identified.
Part II. Research to respond to global and national questions

Key questions

- How many children are in hazardous work and how many suffer disability as a result?
- How to establish the “hazardous child labour list” – the types and conditions of work to be prohibited to older children

Specific questions to be addressed at global & national level:

- How to establish global/regional estimates of the number of children and youth engaged in hazardous work?
- How to calculate the “Global Burden of Disease” due to child/youth occupational injuries and illnesses?
- How to determine the short/long term financial cost to society of child/youth occupational injuries?
- Can large data sets that contain safety and health-relevant information be analysed for data on young workers’ health?
- Are improved indicators/coverage of child/youth OSH issues needed for large-scale surveys?
- What data sources (e.g. poison control centres) can be used to identify child/youth occupational health impacts?
- Are there emerging areas of risk which need to be included?
- Are DALYs appropriate for inclusion in child labour research?
- How to establish health-related performance indicators for projects?
- Can OSH research generate data for policy and international obligations e.g. Hazardous Child Labour (HCL) lists?
- What OSH research data can be used for advocacy? Are there guidelines, caveats, effective approaches?
- Is it possible to set national and industry guidelines for children working in agriculture (commercial and subsistence)?
- Are there guidelines for national policies regarding hours and times of work for service industries?
- Can OSH data help extend policy coverage to the urban informal sector (repair shops, factories, construction, crafts)?
- How to set policy guidelines for protection of youth working in domestic service?
- How to set industry guidelines for eliminating hazardous work of child in international supply chains?
- How to design surveillance mechanisms for hard-to-reach industries (mining, forestry, fishing platforms)?
- Which emerging issues (cell phones, rare metals, shrimp seeds, entertainment) require OSH research?
- Do ILO Conventions on child labour adequately cover physical and psychological health? Should they be updated?
- Are there standard, basic, and well-accepted definitions for ‘child labour’, ‘OSH’, ‘hazardous child labour’?
- Are there grey areas, legal cautions to be considered when applying OSH research and setting guidelines?

2.1 Research to determine numbers of children in hazardous work and suffering disability as a result

Until now, there has been no global estimate of how many children have died, how many whose bodies or intellectual capacity have been damaged, or how many suffer stunted social relationships later on in life because of the work they did as children. Instead, photos and narrative descriptions are the primary means by which we currently illustrate the health impacts of work. But since statistics are the best means of communicating urgency to the public, it is becoming critical that we seek a more solid and reliable platform of knowledge. Where such data exist, as in industrial countries, or where national estimations have been made, they have proven to be of great value in targeting resources and in advocacy.
Statistics would also be useful for informing legal and programmatic decisions regarding child labour in little known grey areas such as family farming and child domestic labour.

Without quantitative data to anchor priorities, concern and funding tends to swing with the winds of popularity. For example, there is no question but that the “unconditional” worst forms of child labour\(^\text{21}\), including children who are trafficked or subjected to forced labour, are horrifying, but without figures, the public consciousness assumes they constitute a far larger proportion of child labour than their actual numbers would likely warrant. In fact, hazardous child labour probably outnumbers these by at least 9 to 1.

### 2.1.1 Methods of estimation

The following section first describes two methods — registries and ILO data — which have been used over the last decade to estimate hazardous child labour, either as a whole category or in terms of specific sectors. It then outlines several approaches which hold some promise for addressing the gaps in quantitative measurement of hazardous child labour. These include projections based on ILO national surveys, use of the WHO Global Burden of Disease approach, and methods for adapting or making better use of existing sources.

**Registries**

For industrial countries, the most common basis for estimation has long been the data derived from registries. Registries include those at poison control centres, hospitals, and primary health care units as well as civil registries of deaths, births, and labour inspections. More and more countries are now establishing registries and collecting increasingly reliable data on occupational injuries and illnesses. Outcome estimates based on data from these registries are possible to the extent that they are compiled and include information on age, sex, occupation and cause of morbidity or mortality.

To be more systematic, a regional and/or national data collection strategy should map the registries, assess what occupational exposure or outcome data they already include and identify the gaps. A common gap is the information relevant for young workers. Yet, slight changes could yield huge datasets. For example, simply instituting a practice of asking for and recording the occupation of all persons who have been injured or made ill — regardless of age — would constitute a source of new data. Another would be to ensure that data are compiled, not just for adults, but for children as well and that they are reported to a central unit. Finally, those which collect only a specific type of information, for instance on fatal injuries, might capture data on additional health indicators. Registries may need to make special effort to include illegal workers, agriculture seasonal workers, and apprentices and to record not only the main occupation but additional types of work as well. (Termine, P.).

\(^{21}\) ILO Convention No. 182, Article 3 indicates that (a) = slavery, (b) = prostitution, (c) = illicit activities, (d) = hazardous work are considered to be the worst forms of child labour, with (a), (b), and (c) sometimes referred to colloquially as the “unconditional” worst forms of child labour.
The Brazilian Ministry of Health, in concert with civil society and international organizations, was able to create and implement a national health policy that made it compulsory for healthcare workers to report all workplace accidents, injuries and occupationally-related illnesses... of children as well as adults. To ensure that the policy was implemented effectively, the government established guidelines for recognizing and caring for work-related health conditions of young people as well as an innovative on-line training system for all health care workers. Over 38,000 workers were trained within three years. The importance of this system is that not only does it identify working children, but it provides accurate statistics on the numbers of children with occupational injuries and illnesses and enables the assessment of causal links between hazardous work and health outcomes that can, in turn, help the public to understand why it is important to protect children from hazardous work.

Organizing the health system to identify and report occupational health cases really helps to identify child labourers because virtually everyone goes to a health clinic if they get sick or hurt [health care is free in Brazil]. Because it does not rely on workplace inspections, the health system gives a truer picture of the cost of child labour, both to the family and the country. There is a secondary benefit as well in that by becoming sensitized to child labour, the health sector expands its understanding of the social determinants of health, especially of children. Information on health impacts has been one of the main ways of convincing families on why children shouldn’t work in hazardous sectors. “You can’t force anyone but with information about health effects, we can convince them certain activities aren’t good for them.”

Suyanna Linhares Barker

---

**Example**

The Brazilian Ministry of Health, in concert with civil society and international organizations, was able to create and implement a national health policy that made it compulsory for healthcare workers to report all workplace accidents, injuries and occupationally-related illnesses... of children as well as adults. To ensure that the policy was implemented effectively, the government established guidelines for recognizing and caring for work-related health conditions of young people as well as an innovative on-line training system for all health care workers. Over 38,000 workers were trained within three years. The importance of this system is that not only does it identify working children, but it provides accurate statistics on the numbers of children with occupational injuries and illnesses and enables the assessment of causal links between hazardous work and health outcomes that can, in turn, help the public to understand why it is important to protect children from hazardous work.

Organizing the health system to identify and report occupational health cases really helps to identify child labourers because virtually everyone goes to a health clinic if they get sick or hurt [health care is free in Brazil]. Because it does not rely on workplace inspections, the health system gives a truer picture of the cost of child labour, both to the family and the country. There is a secondary benefit as well in that by becoming sensitized to child labour, the health sector expands its understanding of the social determinants of health, especially of children. Information on health impacts has been one of the main ways of convincing families on why children shouldn’t work in hazardous sectors. “You can’t force anyone but with information about health effects, we can convince them certain activities aren’t good for them.”

Suyanna Linhares Barker

---

**ILO estimates of hazardous child labour**

The global estimates of child labour being produced by the ILO since 2002 gave some idea of the scope of hazardous work and were thus crucial in drawing attention to it. In 2004, the International Conference of Labour Statisticians (ICLS) which sets standards for national labour surveys, provided further impetus to efforts at quantification of hazardous work by agreeing to examine this issue, resulting in its 2008 resolution on statistical indicators for calculating estimates of hazardous child labour. Based on these instructions, global estimates were constructed based upon an *a priori* designation of certain occupations as hazardous, plus an *a priori* designation of more than 43 hours per week of work as a proxy for adverse working conditions. These estimates considered the entire occupation and all work in that industry to be uniformly hazardous. (Gormly) In other words, they were limited in that these were estimates of risk, not of actual harm.

At present, the global child labour data that is collected (primarily through the ILO SIMPOC surveys) is neither detailed nor specialized enough to identify hazardous work and impacts on their own. (Gormly) While they remain useful for looking at the context of hazardous work and household decision-making and circumstances that lead to hazardous work, they can give little clarity on the actual impacts. There is scope for improvement, however, through the following approaches:

**ILO global estimate of injuries**

In 2011, ILO-IPEC undertook a study to explore the feasibility of using its national child labour surveys, 22 of which there are now several dozen, to develop a more refined calculation based on the actual harm caused by hazardous child labour. Although an estimate of harm would logically be comprised of (a) work-related mortality, (b) work-related injury, (c) work-related illness, and (d) work-related psychological or developmental

---

22 These are commonly referred to as “SIMPOC” surveys (acronym for IPEC’s Statistical Information and Monitoring Programme on Child Labour). They are generally country-wide household surveys.
impairment, the data available from the SIMPOC surveys were found to be adequate (at this point) for estimates of work-related injury only. Consequently, the global calculation was limited to this variable. The approach being used is the following:

a. Identification of those child labour surveys which contain health data  
b. A feasibility assessment to validate the quality of the survey data  
c. Harmonization of the national datasets to a common structure and definitions, and the treatment of missing values in the national data sets  
d. Creation of dummy variables (which are used to sort data into mutually exclusive categories of 1=present/0=absent and thus can serve as numeric stand-ins for qualitative variables such as gender or type of work).  
e. Creation of indicators on injuries and employment of children  
f. Selection of variables for disaggregating the results  
g. Preparation of standard tables with the estimates (e.g. rates and relative risks of work-related injuries by sex and age).  
h. Extrapolation of the national results to the global child population accounting for the missing countries\(^{23}\) and  
i. Evaluation of the global estimates for internal consistency and comparison with other related national and international sources.

This method of global estimation of injuries by sex and age (although not by occupation) has produced interesting results when tested with a database of 23 countries, although it was weakened by the fact that certain indicators used different reference periods (for example for the period of employment and the period in which injuries occurred), as well as by missing categories or data in the national datasets. (de Cock, M. and Mehran, F.)

**WHO Global Burden of Disease studies (GBD)**

The GBD studies which have been undertaken by the World Health Organization and funded by The World Bank since 1991 have contributed greatly to our understanding of the toll taken by specific health problems. They were developed in recognition of the fact that “reliable estimates of the burden of death and disability are essential for shaping national and global health priorities”. In that the process involved in calculating a GBD for a specific condition takes into account the relatively poor quality of the information available in developing countries, it seems possible that it may be applicable to computing the toll taken by hazardous child labour. (Bhalla K.)

The Global Burden of Disease (GBD) approach generally requires the calculation of attributable fractions. This in turn requires information on the prevalence of exposure and the relative risk arising from that exposure. Based on currently available data, approximate global rates for injury of child labourers could be determined by this method, but not for occupational diseases. For injury, one would be calculating injuries directly from the *number*

---

\(^{23}\) Where data from one of the countries being used for the estimation, e.g. an injury category, are missing, values are imputed from a reference country in the same region.
(rather than the proportion) of persons exposed (i.e. employed), applying the absolute rates of injury by industry sector or occupation group to this number. The GBD requires information on prevalence of exposure for each of 21 world regions and for each of the GBD age groups. For purposes of a child labour estimate, the relevant ones are ages 5-9, 10-14 and 15-19.24 We can look at each of these data requirements in greater detail:

- **Prevalence of exposure (employment):** This can be calculated from the total number of children (available from the ILO’s SIMPOC and Labour Force Surveys, and UNICEF’s Multi-Indicator Cluster surveys), and the number of children in child labour (as well as some children in employment but not in child labour).

- **Number of children injured:** Some countries have been collecting survey information on work-related injuries in children. As there is considerable variation among countries as to what information they collect and what measures, time periods, etc. they use, whether or not it could be used would depend on coverage and validity.

- **Information by industry or occupation:** Industry (sector)-based information is available for many occupations. It may be available, however, only at the one- or two-digit level (see glossary of terms).

- **Relative risk.** The outcomes of interest in the occupational parts of the GBD are:
  - Injury,
  - various cancers,
  - back pain,
  - asthma,
  - chronic obstructive airways disease,
  - asbestos, silicosis, coal workers pneumoconiosis,
  - noise-induced hearing loss, and
  - HIV related to sex work.

Not all of these would be relevant for children due to the long latency period involved. Therefore, probably injury and possibly asthma and HIV related to sex work are most relevant, with back pain and obstructive lung disease a possibility in occupations where these are prevalent. A critical issue is whether it is possible to find studies of relative risk for children for asthma, relevant HIV prevalence/incidence data related to child sex workers, and estimates of the absolute risk of occupational injury (stratified by occupation group or industry group) in child workers. Another issue relates to the extent to which these relative or absolute risks would vary between regions. There will definitely be variation between developed and developing countries, but it is acceptable to extrapolate between similar regions when one region is missing some data. (Tim Driscoll).

---

24 As exposure information is based on people 15 years and above, there is a potential issue of double counting for the children aged 15-17.
Extrapolation studies

While the previous two methods attempt to do what they can with the national data that is currently available from the countries where most child labour occurs, this effort can only go so far. Another approach which offers some possibilities is to, first, take child and adult hazardous work data from developed countries and extrapolate to children in developing countries for incidence (e.g. of injury) based on industry and occupation data, and then for health outcomes (based on the previous calculation), and finally for socioeconomic impacts of health outcomes and/or DALY’s (see Glossary of terms). If a small number of carefully positioned special studies were undertaken to validate the extrapolated statistics, this would improve the reliability of the extrapolations by benchmarking developed-to-developing country relationships for at least a few variables of general interest.

Other extrapolations (in addition to the developed-to-developing country extrapolation) could be done to take advantage of other data sources. For example:

- Adult to child (there is a great deal more data on adult occupational injuries/illnesses than for children).
- Adult to adolescent.
- Adolescent to young child.

An example of how this might be approached would be agriculture. Rates of agricultural injuries for children in the U.S. are relatively well-known as there are a variety of registries and reporting systems. An agricultural study in a specific developing country can be conducted, and then the risks compared to see if it is feasible to perform an extrapolation. This could be done relatively quickly, and can present a better idea of how valid extrapolations would be. Extrapolation is a very powerful tool, although if it is incorrectly calibrated or incorrectly undertaken, statistics may end up portraying an inaccurate picture of the hazardous work.25 (Peter Dorman).

Exposure data

It should be possible to capture hazardous child labour statistics via exposure data rather than only outcome data. Currently, some decent exposure data exists from certain countries. Where exposure data exists for a certain condition, then appropriate models for outcomes can be developed for that condition, or at least there can be a better conceptualization of the problem. For example, information contained in agricultural censuses can provide information on various exposures in this sector. This exposure data can be expanded to assess pesticide exposure as well as estimates of the ages of the workers employed. A step further would be to assess the levels and types of pesticides imported or utilized in a particular agricultural sub-sector (farming, fisheries, forestry, etc.). It is important to be creative in finding methods for generating global exposure and outcome figures. Private companies may also keep records of sales, deliveries, and such indicators as pesticide applications which would provide evidence of agricultural exposures. If there is

25 For more information on how to extrapolate, see: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.89.5491&rep=rep1&type=pdf.
good information on the exposure-risk relationships (e.g. silica and silicosis), and exposure data are known, good estimates of outcomes should be possible.

**Improving existing data sources**

*Adding indicators.* A number of international and national agencies systematically collect data on children. However, several important countries (e.g. Brazil and Mexico) which routinely gather information on children’s employment have only generated detailed data on hazardous work when ILO-SIMPOC provides additional funding. This indicates that, with a little extra resources and effort, it would be quite possible to promote, encourage and monitor regular reporting of hazardous work statistics on national level.

Adding even a few indicators on occupational injuries and disease to large-scale routine surveys would go a long ways toward determining global mortality and morbidity statistics. SIMPOC surveys, for example, have incredible potential to capture the dimensions that have been ignored in the past such as the psycho-social wellbeing of children and youth in the workplace. (Federico Blanco).

*Refining indicators.* Those large-scale surveys which do contain health-related indicators would benefit from having them reviewed by professionals in the health field. The ILO SIMPOC surveys on child labour follow the categories of hazardous child labour laid out in ILO Recommendation No. 190 which are very good but could be refined to elicit even better data. Also in that the SIMPOC instrument, for example, was not designed to collect information on health outcomes, another strategy for improving the data would be to design a detailed set of indicators and/or subcomponents for specific sectors which would complement the core instrument. Alternatively, additional indicators may be added to the core instrument from some of the sector-specific international Conventions.

*Drawing on other surveys.* “School to Work Transition Surveys”, national child labour surveys, and periodic health surveys not infrequently include the same or similar indicators. The data that result from common indicators among these surveys, when undertaken in the same country, can be useful in crosschecking reliability and when undertaken in different countries can yield a more comprehensive picture of child labour and health globally.

*Better targeting.* In terms of making better use of data that are already collected, the level of detail required for the data depends on the purpose for which the data are to be used. For example, the estimates can be used to:

- Support the development/revision of the hazardous work list.
- Raise the profile of the hazardous child labour problem.
- Guide action by identifying localities for intensified work.

The broader the coverage, the less detail that is needed. For example, at global level it might be reasonable just to know whether injuries were fatal or non-fatal, whereas at local level it might be important to know fine detail such as the body location of the injury and the circumstances in which the injury occurred. Injuries are easy to define and (in theory) measure. For most purposes, what users generally need to know is the type of injuries and
their severity. On the other hand, diseases are commonly hard to measure, and psychological development/disorders even more difficult as both are difficult to relate directly to occupational exposures. They are also difficult to interpret without a comparison group, and it can be problematic to find an appropriate comparison group in certain research situations ... hence the importance of defining the user group and their requirements.

2.1.2 Gaps and challenges in large-scale research

From a conceptual point of view, the ILO Conventions have not established definitive guidelines as to how hazardous work should be identified. (Gormly) This was a political and practical exigency to encompass the diversity among countries, but is a headache for statisticians attempting a global estimate. Different countries identify different occupations and industries as hazardous. Moreover, these decisions are not based on scientific assessment of the hazardousness of the activity, but on the perception or observations as to how the activity is carried out in their own context. Nonetheless, statisticians can derive common characteristics from the data sets of those countries which collect data on child injuries and disease and thus construct an independent variable of “hazard”. They can consider the correlation between observable job features, such as hours, occupation and exposures, and various child characteristics such as age, sex, and household composition, and the incidence of injury and illness. (Gormly) The core question, then, being addressed is: are working children worse off than non-working children in terms of health and general well-being? In considering this, other challenges must be taken into account:

Selection bias between those who are working and those who are not, and in the type of work they are doing is a continuing problem in child labour research, compounded in the case of health-related inquiries. It is crucial to control for the ‘healthy worker effect’ (a family selecting its most robust children to work), as well the inverse (family providing more food and care to children they select for schooling) (Blagbrough) and to take into account whether or not the child respondents have a choice in working or not.

Severity can be difficult to define. For example, days off work (or school) is the usual criteria used with adults, but some studies which have compared young workers in developed countries with those in developing countries have found that the amount of time lost due to injury is longer in the former than in the latter, the reason being perhaps that those in developing countries are poorer and feel compelled to return to work sooner. The question of severity must also consider whether future consequences should be included, as these are particularly important in children.

Disease can be hard to measure in the case of large-scale surveys because it may require professional diagnosis and even invasive techniques (e.g. blood analysis), but more importantly because it is difficult to relate to occupational exposures because of the latency period between the triggering event or condition and the manifestation of the disease. It is hard to measure without a comparison group and an appropriate comparison group is difficult find. Nevertheless, given that most exposures can be measured at least moderately accurately and diseases hard to measure, it might be appropriate to just measure exposure. However, the lack of information about the exposure-effect relationships means that there is definitely a place to study outcomes.
Conditions such as musculoskeletal disorders, asthma and dermatitis can be expected to occur in children and to be measurable through relatively simple approaches. So these could be studied in child workers. Other conditions might need to involve looking at adults and then seeing if children have the same rates and type of exposures.

Deaths surveys only cover non-fatal conditions. Death is an uncommon outcome and so it would be hard to investigate via surveys. Some information is coming available now from the U.S., Australia and New Zealand. It might be possible to consider the use of community surveys that included questions about deaths and verbal autopsies, but the number of hazardous child labour deaths might not be big enough for this to be a viable approach.

However the difficulties, it is possible to make better use of available data and make available data better while at the same time, working to develop new methods of capturing child labour morbidity and mortality. It is important to continue to develop methods to effectively estimate hazardous child labour.

2.1.3 Assisting countries in determining prohibited work

When countries ratify Convention No. 182 and Convention No. 138, they commit themselves to determining work that is to be prohibited to persons under 18 years of age in what is commonly referred to as a “hazardous work list” or “hazardous child labour list”. This list is extremely important because, once enacted into law, it forms the basis for a wide range of activities – advocacy, services, policies and enforcement – that can protect children and youth from hazardous work and provide a clear rule on what children below 18 years of age cannot do. Many countries are now in the process of establishing or updating their list which Convention No. 182 (Art. 4) requires them to do in consultation with workers’ and employers’ organizations. Once the private sector, civil society, trade unions and others (usually referred to as the ‘Hazardous Work List Tripartite Committee’) are convened by government and ask themselves the questions: “What kinds of work should be off-limits for persons under 18 years?” “Where, in our country, do we find these types of work?” then, individuals often go on to ask the next logical question: “What should be done about this situation?” In other words, this official activity very often stimulates the parties involved to take action against child labour.

However, once discussions commence, the Tripartite Committees find that this task is not so easy. They are faced with a number of dilemmas. For example, if you produce a short list of obvious dangers, all working children are not protected; but if you produce a long list or a list that is too general, you restrict youth employment, and the list may become inapplicable and unwieldy. In developing countries, the Tripartite Committees often find it difficult to find the data they need to make decisions or to find persons with the relevant occupational safety and health (OSH) expertise. Therefore, many rely on common sense, on lists generated by other countries, on local physicians’ advice, or try to carry out medical exams of working children to find out what, if anything, they suffer from.
Here are some of the debates and arguments which were put forward during the community consultations in Saida, Beirut, and Tripoli:

- [we think] labour inspectors have no authority over home-based and small enterprises with fewer than 10 workers, nor in agriculture. They don't have time to cover even the big ones properly.
- Maybe we should make exceptions for children whose families are poor. But exceptions might increase school dropout.
- Perhaps there should be some standards to protect working children. But that might legalize child labour.
- Maybe it is better to implement gradually, step-by-step, to minimize the gap between the ideal and the do-able, or to specify the ideal and then be realistic in implementation towards that goal. Or maybe it is best to insist on strict rules and strict implementation.
- The law isn’t always clear as regards refugee children – who has jurisdiction?

### 2.1.4 Data needed for determining hazardous work

What is the information needed by Hazardous Work List Tripartite Committees in making decisions about the work and working conditions to be prohibited for children and adolescents? What research methods are appropriate for making these determinations? The following offers some suggestions:

**Tripartite “plus”**

Establish a consultation process of multiple stakeholders that goes beyond the traditional tripartite constituents and that takes into account the local context. This will help to anticipate potential unintended consequences, such as establishing an ineffective list. Some of the stakeholders to include are:

- Representatives of children and youth, including youth advocates.
- Occupational safety and health specialists, physical and mental health professionals.
- Representatives from relevant sector ministries.

While it may be useful to look at existing legislation or other countries’ hazardous lists, there is none that should be considered a “gold standard” to emulate or copy since economic sectors, conditions and production techniques vary from country to country. A participatory process, which normally involves several meetings over a period of some weeks or even months, is the best recipe for ensuring a list which is easily adopted and of which the country concerned can take ownership. We recommend creating a glossary to assist lawyers, OSH experts, and trainers with terms frequently used in developing the list. This would help to reduce confusion and ambiguity during the drafting process.

A key step is to review local data on children’s health. Where data are unavailable for children, adult data may be able to provide some indication of the types of health problems that are encountered in the area. An important source for this type of information are health departments, local health practitioners, and universities. The latter may have grey literature on the topic and because researchers are familiar with this type of literature, they can be of great help to the committees in making sense of technical language.
Other information and processes that can help the committee decide what items to put on the list are:

- Search for reports of adult injury and occupational disease for industries where children might also be found.
- Where there are surveys of child health or child labour that include occupational safety and health data, see if it is possible to calculate incidence rate and relative risk of injury and rank industries or localities by these to get a sense of the priority areas.
- Review local public standards, such as municipal or local noise ordinances. Note that children will always require lower levels of exposure than adults.
- Develop a ‘strength of evidence’ table that includes risk estimates, recommendations, and the research basis for occupational hazards.
- Have local health professionals lay out some parameters for load handling, preferably by percentage of body weight, given their knowledge of the typical frame and build of local girls and boys at various ages. These cannot be considered standards, but people need some sort of guidance as to what can be considered “too heavy” by sex and age and body characteristics.
- Similarly, consider what guidance to give with regard to endurance, i.e. How long is “long” when it comes to hours of work, or length of a journey, or the distance to carry a weight of varying degrees.
- Identify any jobs where respiratory protection is required, or other specialized protective equipment such as steel-toed boots, heavy gloves, face masks, eye protection. These jobs should be considered off-limits for children of any age.
- It is helpful to keep a record of references for where data and recommendations are coming from.

**Hazard mapping**

Undertaking a “job hazard analysis” of a few industries where children are known to work can provide the committee with a sense of the nature and complexity of children’s vulnerability. In preparation for the list process, researchers can design a simple form or template that can be used to synthesize and organize information about occupations or activities in which children engage, e.g. collecting wood or drinking water. Many hazards are cross-cutting, i.e. they apply to multiple occupations. These forms must include psycho-social risks, such as job stress, isolation, emotional abuse, verbal abuse, sexual harassment, and so on.
Example

“We defined two categories of hazardous child labour: a) occupations or tasks that are unquestionable with regards to their physical, social, or moral effect on the working child – these should be totally prohibited regardless of circumstances or reasons for the child’s employment; b) occupations, tasks, or locations that most likely may require an effort that exceeds the child’s physical and psychological capacities, or may expose the child to work hazards that endangers life or body, or delays psychological or mental development.”

Criteria

A rating scale can be used by researchers to explore and quantify the danger which can thereby help them to clarify their choices, with 1 = low, 2 = medium, 3 = high. Alternatively, when the rating scale is being used with children, colours can be used, with green = low, yellow = medium, red = high. Once totalled, the ratings give an indication of the cumulative risk.

- **Seriousness.** What is the likely impact of the risks on children’s health and development? Is the impact short term or only evident after a long period of time?
- **Magnitude.** How many children are being affected in this industry or situation? What proportion of the work force is under minimum working age (14 or 15)? Under 18 years?
- **Visibility.** Are the child workers accessible? Do they work behind closed doors? Are they deliberately hidden?
- **Concentration.** Are there many child workers in one place or are they spread out, dispersed? Do they congregate at one place at any time, e.g. having lunch together in a park, attending a religious service?
- **Exposure.** Are children exposed to the hazards for long periods? Does the hazard occur in large quantities or in concentrated amounts? Is the hazard constant, or regular, or episodic, or only occasional? Is the hazard visible or invisible? Is the risk perceptible or not? Is the hazard known by the workers?
- **Intensity.** What is the pace of the activity? What is the level of effort required? What is the intensity of the sound, smell, light, etc.?
- **Duration.** How long does the activity last at any one time?
- **Likelihood.** How likely is it that a child will encounter a specific hazard?
- **Correctibility.** How feasible is it to reduce the level of risk or to remove the hazard altogether?

Living list

A **living list** will help to ensure that new sectors and hazards that may arise in the future are captured and integrated into the national lists. Article 4 of Convention No 182 stipulates the need for periodic examination and revision of the hazardous work list. Anticipating that new information will be acquired in time, it is important to see the list as a flexible instrument that will require changes from time to time. A living list can also be an **actionable** list that
sets current priorities based on the prevalence of children working in the most hazardous sectors at the present point in time.

<table>
<thead>
<tr>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>“It should be realized that such a list is never complete or final. Therefore unlisted tasks or occupations are not necessarily safe and acceptable.”</em></td>
</tr>
</tbody>
</table>

**“Precautionary principle”**

This principle was established to guide decision-making in the public health field where the necessary data are often either inadequate or unavailable. It is designed to avoid waiting for studies to be completed on the theory that “absence of information should not preclude action”. Essentially, what the precautionary judgment does is incorporate what one doesn’t know about a potential risk into what is already known.

<table>
<thead>
<tr>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>“Every situation poses a risk of some degree, so to identify the line between “acceptable” and unacceptable work for people under 18, one approach is to use adult standards to demarcate areas of “zero tolerance” (what is hazardous for adults is doubly hazardous for children). “As there are no scientific studies that can guide decisions on permissible exposure limits for working children, the maximum allowable limit of exposure to any hazard should be set at a fraction of what is accepted for adults at work (e.g. 40%) or equivalent to general environmental standards. The dilemma one is faced with, then, is why demand more stringent standards that would protect children if the less stringent ones for adults are not adhered to or enforced in the small workshops where children work.”</em></td>
</tr>
</tbody>
</table>

Iman Nuwayhid

See Annex 4 for more extensive information on hazardous child labour determination.

**2.1.5 Research priorities for hazardous lists**

1. We need a global assessment of countries with hazardous lists, and following that, a more proactive strategy for the promotion of adequate lists.

2. Methodologies for assessing the quality of hazardous lists are needed. There should be characteristics that every list of hazardous work should fulfil. On the basis of these characteristics, a potential tool to assess the quality of hazardous child labour lists could be developed.
Part III. Research on cross-cutting issues

Cross-cutting issues

- Links between youth employment and hazardous child labour.
- Causal and contextual factors maintaining hazardous child labour, with special reference to mining, construction, agriculture and workshops.

3.1 Researching links between child labour and youth employment

Initially, the topic of this component was examining the circumstances that “push” children into hazardous child labour (e.g., poor school options, cultural traditions, sick parents) as well as the factors that “pull” children into hazardous child labour (e.g., promise of a better future, extra money, status among peers). The research concern is: how to determine which causal/contributing factors to these push and pull effects can be influenced by targeted interventions.

However, the subject of causes is both very wide and addressed fairly well in the literature. Therefore the discussion here focuses on a specific domain directly related to the push and pull factors of hazardous work of youth: the nexus between hazardous child labour and youth employment. This is pertinent to children who are under 18, yet above the minimum working age of 14 or 15.

What are the connections between hazardous work of children in different industries and sectors? Do they vary by region? Can targeted interventions positively impact both the problems of hazardous work of youth and youth underemployment?

Positive and negative factors co-exist

Too often, studies concentrate on the risks, not the positive aspects of the work environment. It is particularly important in the case of youth to look at what it is about the work that attracts them and maintains them in what might otherwise seem an unfulfilling or even dangerous work environment. Remember that, whereas legal definitions and the ILO Conventions have set age thresholds for entry into certain activities, in this respect it is better to use a developmental framework, looking at the developmental stage or readiness of the young person for hazardous work. (This is not an accepted option for those under minimum working age.)

Example

An 18 year old may have the legal right to work, but not yet have the maturity to make safe judgments, or the physical endurance to withstand extreme temperatures.

26 For a full discussion of this subject, see ILO: Forging linkages between child Labour and youth employment programmes across Asia and the Pacific: Handbook for ILO field staff, Bangkok, 2008.
3.1.1 Empowerment

One reason that enterprises employ young child labour instead of youth over minimum age is that the former are more malleable and acquiescent. They can be told to do repetitive work for hours on end; they will not object to inhumane treatment; they can be criticized or even beaten without fear of repercussion. In this way, child labour hampers youth employment.

Even where youth are employed in a workplace where there are no underage child workers, the youth have little bargaining power. As a general rule, the younger the worker, the less influence s/he has on the conditions and nature of the work. In most societies youth are expected to be deferential to persons who are older or in authority. “Speaking out” can be, at a minimum, cause for being fired.

Youth tend to be invisible to service agencies (schools and other educational facilities, health care centres, feeding centres) as the agencies, for years, have been pressured to prioritize infants and young children. Statistical reporting agencies collect employment data on adults and health data on young children but often ignore those in the transitional age between 14 and 17. Research could help improve the situation of young workers by looking into some of the following questions as they offer potential for empowering young workers:

- Would birth registration, especially for children who migrate for work, improve youth employability and restriction of child workers.
- What measures would promote access to education, health services, and social protection for the older child.
- What kinds of special protection are needed for youth who are religious or ethnic minorities.
- What is the effect of early marriage on employment, of cultural gender roles.
- Is the health profile different for company towns where entire communities, including youth, are employed by one employer (e.g. mining communities).

Methods

The best way of investigating the connection between child labour and youth employment/unemployment is probably longitudinal studies which follow children from early childhood (e.g. 8 years of age) through early adulthood. Such studies could look at a range of variables in the areas of work, health, and education. Several potential cohort studies already exist, for example data from the Young Lives Study (UK)\(^{27}\) and the International Youth Development Study (US and Australia).\(^{28}\) There is also a large dataset for the birth cohort from 1982 to 2006 that has yet to be analysed but may show significant linkages between child labour and youth employment (Pelotas, Brazil). Someone needs to analyse these data! (Ana Claudia Fassa).

---

\(^{27}\) For more information, see: [http://www.younglives.org.uk/](http://www.younglives.org.uk/).

3.1.2 Integration of OSH into education

At what age should you start to teach occupational health and safety? Normally, formal OSH training is not considered until a young person enters full-time employment and even then is rare in seasonal and service work. In defending this practice, some express a *laissez faire* view that young people can usually get what they need to know from older workers on the job, or they worry that teaching children about work-related issues will convey to them that child labour can be condoned to some degree.

However, the fact is that the peak age at which children in poor countries drop out of school is 10-11 years. Therefore to reach them via the school system you have to introduce the idea of prevention, risk assessment, and risk management before the age of 12 years. Even if they don't use it right away (they could do homework to find out the workplace risks for their parents or older siblings), there is an emerging view that this type of teaching should start even earlier (children from age 6 or 7 years). They call for a graduated curriculum that starts with sensitizing children to risks in the community, and then over time becomes more and more specific to workplace risks.

If OSH sensitization is to have the desired impact on public attitudes and behaviour, this training has to be mainstreamed as part of the general educational curriculum for all children. Therefore, while occupational health and safety needs to be integrated into vocational training programs where the capacity exists, it is even more important that children are gradually exposed to the principles and concepts of occupational health and safety starting in primary school. At present, many youth at the age of entry into the workforce have not been educated on the fundamentals of occupational safety and health, and yet a number of studies show that a high proportion of occupational injuries to young workers take place in the first months of employment when young people are still unfamiliar with the equipment and the tasks. To avoid this in future, integration of OSH into existing school curricula, even from 6 years of age, can contribute to formation of a general culture of health and safety. Several examples of such occupational safety training programs have already been developed\(^{29}\) which could be adapted regionally and nationally and evaluated for efficacy.

---

**Example**

*In rural areas, FAO has been supporting the idea of a Junior Farmer Life Skills course which aims for the children’s training to be complete by age 12. In this way, you still capture children who are working illegally at very young ages, children working part-time for families, etc.*

---

**Example**

*We have found that we can have a double effect by incorporating safety and health concepts and vocational terminology into English as a Second Language (ESL) programmes, especially for Spanish-speaking farm worker children. Not only does this enable cultural adaptation of OSH programs for youth, but the students also prefer it since they can actually use the knowledge while also learning the language.*

Robin Dewey

---

\(^{29}\) For example, “Youth @ Work: Talking Safety” of NIOSH.
Youth employment programmes

Youth employment programs are often the key to ensuring decent work for youth, but the emphasis in these programmes tends to be more on skill-building and managing the search for work than on learning about the risks and hazards associated with various industries. Youth who are under 18 and are placed in apprenticeships or employment that is hazardous are in violation of child labour laws and constitute a “worst form of child labour”. Research findings about occupational risks must be disseminated to prospective workers via youth employment programmes so as to raise awareness of the risks associated with different places of employment.

Example

To reduce occupational health risks for children, the WHO-European region urged ministries of health to act jointly with the ministries of labour, ministries of education, and the national bodies responsible for child protection, in consultation with employers and trade unions and academics to “undertake an analysis of the situation in the country [which involves] assessing the magnitude of the problem and its health and safety outcomes... establishing a database on country statistics regarding hazardous child labour and a clearing house with available tools, interventions and good practices...[and] developing a research programme on short and long-term effects of occupational health risks for children.”

Kim, Rokho

Child labour vs. youth employment

In many developing countries, youth unemployment is a major concern, in part because there is a large demographic bulge in the late adolescent cohorts; if they remain unproductive with no further opportunities for education, they become a restive population. Yet, in an effort to secure some sort of hazardous work list, tripartite committees have been overzealous at times and placed whole occupations on the list for prohibition to any person under 18 years of age. Similarly, to avoid charges of using child labour, a few large multinational companies which source products in developing countries have developed industry guidelines that prohibit hiring any person under age 21. In this respect, the fight against child labour has had negative effects on youth employment opportunities. Research can do a great deal to help both tripartite committees and the private sector in setting more nuanced and youth-friendly guidelines.

3.2 Researching hazardous child labour in selected sectors

What are the circumstances that push a child into hazardous sectors ... as opposed to benign work or school? Which contributing factors can be influenced? Why has hazardous child labour been increasing among older children? The following section considers these questions from the standpoint of four different occupations in which there are many child workers.

3.2.1 Agriculture

Hazardous child labour in agriculture, including both subsistence and commercial farming, forestry and tree crops, offshore and inland fisheries, horticulture, the raising of insects (e.g. bees, silk worms), animal husbandry and herding, and farming of sea products, have been the last industries to be adequately assessed and regulated with regard to hazardous child
labour. While pesticides are well-marked and the dangers clearly communicated in industrial countries, this is not always the case in developing countries where agricultural chemicals and powered machinery are innovations. In the developed countries as well, there has been little research directed to new threats that accompany industrial-scale agricultural enterprises, such as grain augers in silos, manure pits, and mammoth combines which are causing not only injuries but loss of life among young and inexperienced workers. What are the effects on young bodies of long hours of exposure to the concentrated mix of foods and pharmaceuticals in fish farm waters? Of the fumes in feedlots and poultry factories? Of nicotine in tobacco fields (Green Tobacco Sickness)?

In addition, assessment of agricultural risks must contend with nostalgia and mythology about the family farm which not only shuts off debate but also research funding on these topics. In this respect, therefore, research on hazardous work in agriculture must be targeted more strategically and applied with greater attention to unpacking the political and social context than is perhaps the case with other occupations.

There are a number of psycho-social issues that need study in agriculture. Precisely because work on the farm is widely perceived as a positive, natural part of childhood, factors such as job stress, exposure to isolation, violence and verbal abuse have received little attention. Is the high number of agricultural injuries among the young due to the alleged adolescent lack of judgment and risk-taking behaviour, or is it because they are poorly trained and their work is episodic? What is the effect on educational performance of night-time work during harvest season? Is self-esteem enhanced by having responsibility for expensive animals and farm equipment as is generally perceived or does it engender an enduring sense of fear and insecurity? And on the operational side, when faced with agricultural communities whose members are conservative, poorly educated, with little exposure to outside ideas, where are the entry points to foster behaviour and attitude change toward greater youth protection and safety?

We are researching the effectiveness of using local health workers to (a) assess local health hazards, and (b) to deliver child labour occupational health and safety messages in three countries: Brazil, Niger, and Pakistan. Preliminary results show that such workers are particularly effective with the agricultural community because they are already known, provide a practical service, and have credibility with regard to health issues.

When trying to incorporate youth-related guidelines on agriculture in the hazardous child labour lists and other legislation, there are two considerations to bear in mind. First, there may be certain factors that should be regulated for agriculture as a whole, such as exposure to chemicals and powered machinery, and second, there are factors which are specific to the agricultural subsectors found in the country or locality in question. It is important to include both. In addition, it is worthwhile remembering that children suffer environmental exposure to hazards (e.g. pesticides) just by living near or passing by treated fields.

The fact that 60% of children working worldwide can be found in agriculture and, in addition, that agriculture is one of the three most dangerous sectors, determining the incidence rates
and relative risk measures for agriculture would be extremely useful for the study of hazardous child labour as a whole.

In summary, some of the research that is needed in the agricultural sector includes:

- Analysing community perception of risks.
- Ensuring that routine agricultural injury surveys and poison registries include persons below 18.
- Conducting risk assessments of agricultural sub-sectors where information is still almost non-existent such as traditional livestock herding, export oriented-aquaculture, domestic and illegal forestry, and various types of offshore, shoreline, and onshore fishing and its associated enterprises.
- Researching feasible and practical methods for delivering health information to rural populations.
- Exploring adolescent concerns and attitudes to various types of agricultural work.
- Determining the effectiveness of using children in collecting information on hazards and promoting peer-to-peer education on agricultural health and safety.
- Collecting data on community pesticide exposure and educating the community on pesticide hazards during this process.
- Carrying out research about the impact of labour saving technologies on child labour (does planting or harvesting machinery increase or decrease use of children?).

There is particular need for longitudinal studies in the agriculture sector that assess child workers’ exposure to specific agricultural hazards and their long term developmental and social health impacts. Studies that have been done to date focus more on the incidental environmental exposure of children in the 0 to 5 age group rather than the more direct exposures which working children experience.

Once research is completed, it is important to deliver on the research promise and share the findings with the agricultural communities concerned. Also important is to share case studies and success stories with regional or national authorities who may have limited direct knowledge of local conditions.

Some valuable resources, approaches and tools that could be used to address child labour in agriculture include:

- Health and Safety Risk Assessments at the workplace.\(^{30}\)
- Body mapping.
- Junior Farmer Field and Life School curricula.\(^{31}\)

---

\(^{30}\) See Annex 2.

\(^{31}\) For more information, see: [www.fao.org/bestpractices/content/11/11_04_en.htm](http://www.fao.org/bestpractices/content/11/11_04_en.htm).
• ILO WIND methodology (Working in Neighbourhood Development)\(^{32}\) – this would be an especially effective tool if adapted and specifically targeted to young workers engaged in the agricultural sector.

### 3.2.2 Mining and scavenging

These represent occupations of last resort. While they continue to attract children because they require minimal entry skills, it is during times of economic downturn and in situations where environmental disaster or conflict have disrupted normal economic production – an all too common situation at present – that child labour in this type of work burgeons. These are sectors where migration and social inequality play a role; children whose language, ethnicity, nationality, political status or social caste does not enable them to find work in safer, mainline occupations can only look to these. Not infrequently, these are the first occupations to which children who have been in even worse conditions – sexual slavery, bondage, or militias – will turn to find work. These are also sectors in which all aspects are dangerous, either because of the context or the inherent nature of the work. Yet, to children, the dangers are offset to some degree by the fun of “finding something” and the lure that it might be valuable enough to enable them to escape the desperate or dead end situation in which they find themselves.

There is a tremendous need for research in these occupations, in part to better understand what tasks children are actually doing, the dynamics that drive children into them, as well as examples of how they extricate themselves from what is all too often a generational phenomenon. Study of occupational health impacts have the potential to influence change in a way that other measures (e.g. laws and regulations) have not, although this depends a great deal on how the information is disseminated and to whom. Mining can command good media attention if the research results are well-presented.

**Example**

There is significant concern now about mercury. Although the toxic neurological effects have been known for many decades, the use of mercury to amalgamate gold in mining operations has proliferated in recent years. Similarly lead contamination of the air, water, and soil at mining sites has caused many deaths in Nigeria. The deaths are not only of child miners but also arise from living in proximity to the mining sites and being exposed to these hazards. For example, recent studies have provided evidence of very high mercury body burdens of children living in proximity or within mining camps but not engaging in child labour. A new set of studies by Human Rights Watch of child labour in mining sites in Mali and Tanzania holds promise of forcing governmental action in a way that was not possible without such research.

**Link between environmental and occupational exposures**

This is a cross-cutting issue in many hazardous work situations. It begs such questions as:

1. How can we extend enforcement of OSH standards, laws, and guidelines in this situation?
2. How can we protect a child who is not actively working but subject to similar exposures through their parents or siblings?
3. And, importantly: is it our role as researchers to consider these issues?

Although it is important to understand the different types of hazard that exist in the formal vs. the informal workplace (e.g. artisanal mining), this information is difficult to acquire due to measurement difficulties (e.g. sampling of soil and air as to presence of heavy metals in the soil and air-borne particulates). However, measurement difficulties should not stop the quest for attaining more accurate and extensive knowledge about informal sector industries because of the high numbers of children and youth employed in these industries.

**Methodological issues**

Research in the mining industry is plagued by sampling and other data collection issues. Where the numbers of artisanal mining or quarrying enterprises are unknown, it is better to get an upper and lower bound for estimates. Further, stratification is very important when dealing with work that occurs in remote, dispersed locations such as mining. Essentially, the key is to stratify when necessary and to always accurately record the stratification process during field research so that it can inform later analysis. In such industries, oversampling is necessary, especially if there is great variation between sites.

Unfortunately, child labour intervention programmes have a tendency to assume that OSH does not have a role to play in these occupations because they are obviously dangerous. Consequently they do not carry out hazard mapping. Yet this exercise is beneficial to understanding the nature of the hazards in the sector for communicating with those involved (parents and owners) and essential for detailing particular practices in the mining, scavenging and similar industries in hazardous work lists.

**Example**

| While the case can be made that all aspects of mining are hazardous and therefore the industry should be banned for young people in its entirety, there are particular hazards in underground or underwater mining that it may be well to specify in law, thereby giving them special weight for information or enforcement. This is particularly the true for work that is carried out away from the mining site and that is not arduous -- the case in point being the separation of gold using mercury -- where the dangers are not visible. |

Intervention programmes and policies run the risk of being unrealistic with regard to these occupations. In lumping these with other forms of child labour and treating them with similar solutions, agencies forget that they are dealing with push-pull factors whose nature and intensity are critically different and much more profound. Sensitive and open-minded researchers may be able to uncover avenues of action that others cannot see.

### 3.2.3 Child domestic labour

**Methods**

Few studies have attempted to estimate the number of child servants, part of the reason being the challenges of finding them and of defining them (do they include only those working under contract? Or also young relatives working for board and room while they go to school?) Of those studies that have done so, there seems to be considerable variation in the methodologies used, and until recently, there has been no success in generating a standardized method of calculating these numbers. Yet a global estimate of child domestic workers (CDL) would be very beneficial because it is an occupation in which a high
proportion of the workforce is girls, and the numbers may even rival those in agriculture given how common is the practice in certain parts of the world.

Although surveys may be able to locate and estimate CDL, this is not a good way to explore their conditions of work. More success has been achieved with using rapid assessment techniques. These are capable of elucidating the broad range of tasks and work environments that exist in this field.

Identifying and interviewing child domestic workers requires getting access to private spaces (or contacting the children when they enter a public space such as a park or playground) and, even harder, getting permission to talk to the child in private. CDL research requires community level engagement. When researchers work through and with the community they have found it easier to see the different aspects of this occupation from a local and cultural perspective as it is invariably quite complex.

<table>
<thead>
<tr>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>A survey was conducted on CDWs in Latin America with the aim of assessing the relationship between the child and the head of the household. In this case, the census attempted to determine how many children in a specific household were not identified as sons or daughters, but &quot;other.&quot; This usually meant that the children are living with the families as workers, and were not treated as children of the parents in the household. We found that one needs to know how the head of the household identifies the child. (Getting to the head of the household itself can be difficult.) What is important to remember is that one cannot treat the household heads as adversaries because then trust is lost from the beginning. Programmes to aid and combat child domestic labour must be able to work with heads of the households in the future.</td>
</tr>
</tbody>
</table>

Jenny Gamlin

In addition, because the workers are isolated from public view, they are extremely vulnerable to employer mistreatment. The isolation, stress, and abuse that CDWs face fairly frequently can have a severe impact on their proper psychological development and sense of self-worth. Inquiries into the nature, extent, and impacts of this mistreatment must be undertaken in a sensitive way and with consideration for immediate health care or legal intervention if the situation warrants.

There may be funding for psychosocial studies, but they are likely to be found in the area of “child development” rather than child labour. Three key terms to include in funding proposals for studying psychosocial effects among CDL are: “risk”, “vulnerability” and “resilience”. As yet, this occupation has not been extensively studied. New collaborations with institutions, NGOs, governments, and funding agencies will need to be created in order to develop a comprehensive strategy for measuring psycho-social health and wellbeing of CDWs.

A psychosocial domain that requires further research is the fact that, as in agriculture, people make little, if any, distinction between the public and private arena for child domestics. Essentially where children live, where they work, where they eat, and where they sleep is all the same space for the child who works as a servant.

---

33 Anti-Slavery International has done some important work in this area, however. See: www.antislavery.org/english/what_we_do/programme_and_advocacy_work/child_domestic_work.aspx.
Similarly, there is sometimes little distinction between child domestic work and sexual abuse. Once s/he is a victim of sexual abuse, a child servant slips all too easily into prostitution – a situation documented in certain parts of Africa, especially Ghana. There are various reasons. The children generally lack alternatives as they may be rejected by both the employer and their own families, are already accustomed to and complacent about abuse, or see the brothels as a way of making more money.

**Knowledge gaps**

More research has been done to estimate the numbers of child domestics and on their working and living environment in general than on the specific hazards they are subject to. More studies need to investigate specific occupational hazards, such as ergonomics and chemical exposures. Another knowledge gap concerns the relationship between child domestic service and migration.

We need qualitative work to document the extent of abuse in less easily observed aspects of hazardous work. The advantage of doing research with adolescents is that they would be better informants than younger children and could provide good testimonies and useful material for planning interventions. (Jennie Gamlin).

3.2.4 Manufacturing and construction

Estimating the numbers of children working in the small-scale industrial sector is difficult because the establishments where the children work may be ephemeral (particularly so in construction), located in out-of-the-way or inaccessible places, or deliberately hidden. Increasingly, components are being produced in private homes which are not registered and consequently quite challenging to track. Yet at this point the construction and manufacturing sectors offer one of the best opportunities to improve labour standards. More and more companies are responding to consumer pressure to ensure there is no hazardous child labour in the supply chains which feed international markets, or in the construction of buildings which will be used by international entities. Area-based household surveys that inquire about the work of all family members may offer the best approach for identifying the extent and some of the characteristics of child labour in these sectors. This sector is also the one most likely to move toward formalization in the form of worker organizing and occupational inspection. Research on occupational hazards in small, family-based industries has produced some promising examples of simple workplace improvements to reduce hazards.

---

34 There were recent allegations that offices of international agencies in Afghanistan were being built with bricks made in factories that use child labour.
Reducing occupational risks in manufacturing and construction is also challenging because, in addition to long work hours, use of highly toxic substances (e.g. glues), and exposure to unguarded equipment, there are social issues such as bonded labour and migration to contend with. Again, the new global phenomenon of outsourcing in the manufacturing industry, which sometimes relegates “dirty jobs” to the informal sector, is particularly of concern because the home environment may lack OSH control measures.

Example

We used Lady Health Visitors (LHVs) to undertake a short prospective study in rural Pakistan. They routinely visited brick factories – places which are often closed to outsiders – and in this study, provided one member of the community with a first aid box and notebook with instructions to write down for all health incidents, the date, age, nature of the injury or illness, and the activity which appeared to have caused the injury or illness. This notebook was then reviewed and the data tabulated by the LHVs on their monthly visits. This gave us a rough frequency ratio that enabled us to calculate the sample size for a much more extensive research project on child worker health later on.

Saeed Awan

Industry in HCL lists

The industrial sector encompasses so many trades and auxiliary roles that it is essential to assess the hazards associated with each before making a judgment as to whether an industry should be placed on the list. Importantly, a blanket ban should not be imposed on manufacturing, nor on a specific industry within manufacturing just because it may contain or involve hazardous tasks. Some tasks within manufacturing industries and construction may be suitable for youth above the minimum working age and may provide decent work alternatives.

To increase innovations in OSH in manufacturing, one idea that has been suggested is to fund universities in developing nations to host design contests for tools or methods that reduce occupational hazards or to target young engineers and encourage them to design

---

manufacturing improvements that will reduce hazardous child work in their own region. In addition, adapting proven programmes such as WIND and WISE to the small scale manufacturing or construction sector may be beneficial in reducing occupational hazards for youth above the minimum working age. Finally, integrating ideals of corporate social responsibility into informal production will be essential in securing less hazardous industries over the long-run.

Example
In Brazil, adolescents are not only working in construction, but in the more hazardous small scale building industry where they can earn large salaries with very little schooling. For this reason, it is very difficult to remove them from this occupation. Studies show that youth who begin work as children will remain in this sector as adults. Therefore, proper OSH training for these youth is a must.

Example
In India, it is very common for entire families to live on construction sites, and over 50% of the construction workforce is female. Thus the link between construction sites and gender issues must be considered as well as other cultural and social factors. Even where the problems are similar, the solutions may not be appropriate for different areas.

Another approach that has been suggested is to study the “low-productivity jobs” such as cleaning or fetching things for others in which children are likely to be employed in manufacturing and construction industries, with a view to including these in the hazardous work lists as a means of deterrence. Low productivity jobs are often overlooked in occupational risk assessments. While they may not seem obviously hazardous, children who are performing these menial tasks are still at risk because of hazards in the general environment of the sites (e.g. being hit by moving equipment or falling building materials, breathing dust some of which may contain silica or other harmful substances, falls or fires in a cluttered factory, particularly in construction, exposure to adult behaviours and language.

Research can also assist in crafting or evaluating remedial or preventive measures. Instead of quickly writing off the whole construction industry, for example, as too dangerous for young persons to be involved, a careful analysis of the worksite, the work and subsidiary services may suggest some activities in which the risks can be sufficiently controlled for youth to work. For example, construction and its related crafts of woodworking, masonry, plumbing, and so on are an important source of employment in most societies. Research for the purpose of developing safe construction apprenticeship guidelines would be welcomed as formal apprenticeship and youth employment programmes are a good pathway to decent work.

Example
The Bangladesh garment industry was giving the only chance for upward mobility to a huge number of Muslim girls from humble beginnings, therefore we were reluctant to call for their immediate removal. What would they do otherwise? A household survey, conducted in the areas where the girls were lodging rather than in the factories, was able to provide valuable information on the context and nature of their work. This led to a two-track system whereby the girls were allowed to continue in low risk tasks in the factories for a half day but given time off and stipends to attend school the other half.
3.2.5 Services

Children employed in the service sector face risks due to their contact with strangers which may increase their exposure to physical violence, sexual exploitation, and verbal abuse, among many others specific to the type of service being rendered. In addition, those who are working outdoors face a plethora of health hazards that are not easily mitigated. The risks associated with street-based services include:

- Exposure to cars, traffic accidents
- Extreme temperatures
- Excessive noise
- Pollution
- Carrying heavy loads
- Burns
- Work at night/early morning (i.e. entertainment, markets)
- Exploitation from organized networks (i.e. begging)
- Chemical exposures (i.e. lead)
- Exposure to drugs and alcohol
- Lack of access to sanitary facilities or rest areas
- Malnutrition and musculoskeletal disorders (porters)
- Physical abuse
- Violence and homicide
- Electrocution

The informal service sector is especially problematic as it is fluid and not covered by regulations or enforcement. Policy is much more difficult to develop in the service sector than in other industries that may have more clearly defined work tasks and workplace.

The priorities for research in the services sector include those sub-industries for which there has been little systematic quantitative research, such as children who are working in the streets. Much of the existing research is descriptive and in many cases it is difficult to find a comparison group for research on such service industries. Specific initiatives that could be developed in the short term include:

- Determining from the existing data what proportion of the hazardous work is associated with services.
- Determining what types of hazards are most common for children in specific types of service.
- Comparing the list from the previous bullet with the hazardous list guidelines.
Long term initiatives include:

- Assessing the link between the service sector and youth employment.
- Encouraging the development of corporate social responsibility programmes in the services sector, especially tourism.
- Understanding the most effective interventions for removing children from street work.
- Developing a list of which occupations and conditions are satisfactory for children above the minimum working age in the services sector in order to promote safe youth employment.

Violence

Very little data currently exists on the various aspects of violence in the service sector (e.g., power relationships, employer/employee relationships, employee/customer relationships, external factors that increase risk of violence such as exposure to strangers). A tool is needed for educating employers on working with youth/adolescents in the services industries. Furthermore, more research should be conducted to examine the combination of work and schooling; for example, to determine how work time is currently allocated, and whether it is can be spread over the school year rather than concentrated just at the holiday periods.
Summary and conclusions

Research is providing new information on the health impacts of adverse working conditions, including neurological, immunological, behavioural and psychosocial effects. Major gaps still remain, however, particularly in the information that is needed for making decisions and designing preventive strategies. This section reviews some of these gaps, in both developing and developed countries.

Official research priorities

Some of the agencies which have been most active in research on hazardous child labour are the European Agency on Occupational Safety and Health (EU OSHA), the World Health Organization (WHO) and its regional affiliates, and the National Institute of Occupational Safety and Health (NIOSH) in the US and its sister institutes in Canada and other countries. Here, for comparison, is a summary of what they see as the research priorities in this area:

**WHO – European Region**

- Information on the real magnitude of the problem of hazardous child labour.
- Long term effects of hazardous child labour.
- Psychosocial and behavioural effects.
- Healthy worker effect for children.
- Synergistic or combined effects of exposures to several risks. (Kim).

**EU-OSHA**

- A profile of risks to young workers and the extent they are exposed to workplace risks (carcinogens, reprotoxicants, noise and vibration, physical strain, psychosocial risks), and the differential responses to these risks by gender and age, but also socio-economic and migrant status.
- Data to more effectively target awareness-raising, training and prevention to those at highest risk. (European Agency for Safety and Health at Work).

**NIOSH (abridged and paraphrased)**

- Improved surveillance for work related injuries and illnesses. Substantial gaps exist in surveillance systems’ coverage of children and adolescents, especially in agriculture. Standardized nomenclature and a required minimum data set to be collected would improve understanding of the work children do, the hazards they are exposed to, the severity of disease and injury, and the economic and social consequences. To know the true impact of injuries and illnesses, childhood work exposures must be quantified.
• Research to identify risk factors for work injuries and illnesses. Numerous factors unique to children adolescents may be responsible for their apparent increased risk for injury and illness. To direct intervention efforts, we need to assess and quantify these risk factors.

• Research to assess the age-appropriateness of work tasks. Guidance on developmental and age-appropriate work tasks is needed. Since it may serve as the basis for regulations, it needs to rest on scientific data, theory, and principles.

• Intervention research. A broad range of intervention research is needed to address child labour hazards (engineering, administrative, and behavioural). Interventions also need rigorous evaluation to identify the most efficient strategies and identify any adverse consequences.

• Cost/Benefit analyses of models for the healthful employment. The association between prevention and reduced costs needs to be documented, and model approaches or best practices produced that show impact on costs and productivity.

• Research to promote school-based OSH education for adolescents. Initiatives are needed to heighten awareness about the occupational risks facing adolescents and to enable youth to receive OSH training during their formative years as well as in vocational training.

Unmet challenges in research on children’s occupational health

Here summarized are some of the factors that have weakened research on child labour and health in the past, and which will need to be taken into consideration in designing future research:

1. Studies, statistical surveys, and reporting mechanisms which concern children too often confine themselves to the age group 0–14, and those which concern adults assume a starting age of 18 (or 21). Thus both leave out the older child who is in the age group 14(15) – 17.

2. Reporting mechanisms frequently use a contractual relationship to define employment when in the case of children, there are a variety of informal work relationships such as volunteer jobs, working for a family business, self-employment (e.g. street children), informal apprenticeships which may involve neither a contract nor payment.

3. Studies often do not adequately explore the multiple tasks that children have, each of which may have a unique set of risks, e.g. several jobs at the same time, work that is sequential, seasonal, or regularly done on different days; work that is sporadic, part-time, or temporary; work that is not culturally considered as work.

4. Studies have not been using a uniform or universal measure of “long”, “heavy” and other characteristics of the work. Many use their own standard; others refer to the “threshold limit values” (TLVs) for adults. But the latter can only indicate
that a hazard exists because what is dangerous for adults is obviously dangerous for children, but they cannot be used to indicate extent of hazard, i.e. what would be allowable limits for children.\textsuperscript{36}

5. More studies need to look at chemical risks in a child’s work environment; too many still undertake simple physical exams rather than analysing the potentially more dangerous chemical risks, perceiving perhaps that they are beyond their financial or technical capacity:

- Through preparatory study, researchers should have had an idea beforehand of the toxic substances that might exist in the study site due to the nature of the site or of the work, e.g. lead and mercury in mining, silica in stone crushing, benzene and organic solvents in manufacturing.
- Arrangements need to have been made before the study for expert analysis of the composition of any potentially hazardous substance (air, soil, liquid).
- The exposure of child workers to this substance needs to be carefully documented, i.e. the amount of time exposed, the means of exposure – not forgetting that exposure may be indirect and inadvertent.
- Recent studies need to be consulted to identify the parameters such as concentration, exposure time, potential synergies, that need to be taken into consideration. Especially important is knowing how health impacts will evidence themselves and the minimal levels at which impact may be perceived in the case of children.

Research is needed on child toxicology, especially on heavy metals, organic solvents, and new and commonly exported pesticides, as well as the link between cancer and child work (see: “Overall Evaluations of Carcinogenicity to Humans” last updated in April 2000). (Leslie Nickels).

6. Similarly for the ergonomic risks, it is no longer sufficient to describe them in general terms, i.e. to say that the work requires children (undefined) to carry heavy loads. Observations must be documented by age group and sex for the following characteristics in order to determine degree of risk:

- Actual loads transported in terms of weight and distance (ideally, also how the load is lifted and carried).
- Frequency.
- Posture (squatting, kneeling, bent).
- Inclination (reaching, leaning).
- Rotation.
- Use of vibrating tools, pressure tools (size and forms).

\textsuperscript{36} There are a number of international references, such as the Repertory of ILO Practical Recommendations, that can provide helpful information on specific risk factors (e.g. noise, heat, and vibrations, isolated fibres, wool glass).
• Fast pace.
• Repetitive movements.
• Physical effort.
• Uncomfortable or forced postures.
• Monotony and non-motility.
• Work rhythm.

7. Regarding psychological, mental and social risk factors for working children, researchers need to use more precise operational definitions if they are to improve the rigour of cross-cultural research in this area; to do this will require additional research in most cases, for example:

• **Workload.** Undoubtedly a contributing factor to child workers’ stress, but use of this non-specific, subjective term which contains both psychological (e.g. mental burden or responsibility) and physical elements (e.g. number and timing of working hours of the child’s work) does not advance our understanding.

• **Rest.** While it is important to detail all aspects of the work tasks and conditions, the other side of the coin – the amount of time spent in rest, leisure, games and sports – is critical for unpacking possible protective factors or resilience.

• **Isolation.** Isolation is a key concern in child domestic work, but does it mean lack of contact with peers? With family? With members of the household?

• **Long.** How long is “too long” as regards the workday or separation from families? Long working hours is one of the main determinants of hazardous child labour, currently defined at 43 hours per week, but when the International Conference of Statisticians established this benchmark it recognized that more empirical research is required to substantiate or adjust this value.

• **Abuse.** Research requires much more precise terminology as to what precisely we mean by “abuse”. Is it sexual abuse, harassment, bullying? Much of the terminology around sexual exploitation of children is euphemistic.

• **Supervision.** We need to define and quantify what we mean by “unclear instructions on tasks and inadequate training.” This is important given the level of injuries that occur to young workers which may be due to inadequate supervision and training.

• **Violence.** Is it always clear whether the reference is to physical or verbal violence?

• **Socially unacceptable work.** Does this refer to work that is illegal, immoral or simply improper in this culture?
More work is needed on the definition of mental health impacts and social problems as a consequence of child labour.

8. For the risk factors related to safety, organisation and division of work, it is necessary to elaborate and clarify the following:

- **Sun exposure.** As virtually all agricultural work takes place in the open, what are the tolerable levels of sun exposure, of heat exposure? Is a hat considered adequate protection for a child?
- **Tool and machinery protection.** Although a child should not operate powered equipment, how much distance needs to be maintained between adolescents working on other tasks and the machinery?
- **Work at heights.** There is a great difference between slopes, trees, roofs and ladders in terms of the likelihood of falling.
- **Cutting tools.** Machetes are a common tool in developing country agriculture – is all work that uses machetes to be considered hazardous, or the fact that children in these countries learn how to use them correctly at an early age sufficient to enable them to continue?
- **Welfare facilities.** Which of these are the minimum standards where a young person is employed: a toilet, separate toilets for females, hand washing basin, clean drinking water, a protected eating area? Are there others?
- **Animal risks.** Is it important to restrict concern to those which can bite or trample, or does it include all domestic and wild animals, and injuries as well as risk for zoonosis transmission?

9. Conceptual work, resulting perhaps in policy statements, needs to be undertaken on topics which have remained vague and undefined for some time, often because they are controversial:

- **Light work.** The nature, definition, and permissibility of family-based work, and so-called “light” work would benefit from quantitative indicators.
- **Resilience.** The whole area of protective factors seems relegated to the province of “if it isn’t bad, it is probably good”. While there is research attention directed toward the factors that may be contributing to resilience, resilience as a concept needs an operational definition.
- **Norms.** Could international norms and the laws and practical guidance that stems from these norms possibly be better geared to the best interests of the child? While it is debated in the academic literature, there seems to be no resolution as to whether it is feasible as well as desirable to base norms, for example:
  - on developmental stage vs. on age
  - on individual assessment vs. on universal rules
- **Differentiation between younger and older children.** We know that younger children are particularly vulnerable physiologically and
psychologically because of their size and stage of development, but do adolescents have comparable, unique, and similarly significant vulnerabilities? In many, if not most, developing countries and in farm families in industrial countries, adolescents as a specific cultural group do not really exist. By the time they are 15 they are already considered adults and many have children of their own.

10. With regards to intervention research, rigorous evaluation of existing social labelling programmes, such as the “child labour free” labelling of Rugmark, may help to see how they can be improved. For instance, it is not clear whether social labelling is more or less effective with regard to larger supply chains, or small-scale manufacturing industries, or if its sole utility is in export-oriented production.

Data analysis

In each section of this document we have described some of the challenges that have impeded initiating or conducting research on children’s occupational safety and health, but there are also some areas for improvement in analysis of the data once we have it.

We have noted in previous sections that there are a) few validated instruments or agreed-upon methodologies, and b) difficulties in establishing good control groups. At this point, in many situations where child labour research is conducted, these are inevitable. Therefore, the first consideration is to be clear in the presentation of the data about the methods used, problems encountered, and the constraints of the research situation.

Specifically, more detail about the purposive sampling used would help the reader understand where there might be potential biases in terms of which children and youth were selected for inclusion in the study. It is also important to note, of those selected, how many chose not to participate. (Carol Runyan).

It is also important to describe the interview context, as this could help readers interpret the data. Were the respondents interviewed alone or in the presence of others? Persons whose presence might well affect the child’s answers – either negatively (making the child hesitant to answer or to give a true answer) or positively (providing additional information) are the employer, adult workers, or a parent. It is especially critical to document the interview context in the case of the psychosocial questions and bears a full description, e.g. Was the child comfortable? Were all the questions asked? Where did the interview occur? (Daniel Fekadu).

Some of the most critical variables to include in the analysis are:

- Gender. Patterns in the work, such as types of jobs and hours worked, and patterns of morbidity are often apparent when differentiated by gender.
- Migration status.

In the case of psychosocial data, rather than item by item analysis, the data should be summarized into scales or factor scores.
Dissemination of research

In undertaking such studies, it would advisable to link with and/or define the relations between and the roles of:

- International Ergonomic Association (IEA), International Commission on Occupational Health (ICOH), International Occupational Health Association (IOHA).
- ILO, particularly needed for the validation of the methodology for evaluating psycho-social risks (e.g. the “SOLVE” programme).

Financing future work

Research funding is a central issue because it is generally viewed as insufficient or directed toward other targets. But is this necessarily so?

Our impression is that child labour, hazardous work, and occupational health issues generally do not rank high on the priority list of most funding agencies. To a considerable extent this is the result of the lack of discourse and limited knowledge about the extent of hazardous work of children and youth and its resulting health effects. Knowledge is not generated because there is no funding, and funding is limited because there is no knowledge -- a classic chicken-and-egg situation.

“We need to rethink how the issue [of child labour and health] is marketed and sold to potential funders…Our proposals reached the final stages and were considered A grade but appear to have been rejected at the end in favour of more attractive and popular research issues.”

Although researchers may feel that it has been very difficult to get health and child labour funding and that the challenge is to make it more attractive to funders, donors feel that they are not getting proposals! Some are interested in hazardous child labour, but the proposal has to come from the organization that wants to conduct the research. If researchers do not put it in front of donors, it will not get the attention or the funding. But if donors do not advertise or ask for research proposals, then how are researchers to know there is money available?

Nevertheless, there are a number of ways in which ‘money is left on the table’. All proposals dealing with child labour intervention projects, for example, could be including an element on hazardous work. All proposals dealing with child labour research – surveys, baselines, estimates -- could similarly incorporate a health-related component. What is crucial is to have a framework in mind so that we do not just end up with an accumulation of disparate pieces, but rather have built up a coherent and credible body of knowledge. Within this framework, knowledge gaps are systematically selected and filled taking advantage of whatever opportunities present themselves.
There is always an earmark that needs to go for certain elements or certain types of projects. Donors say: write the proposals on hazardous child labour and we can find a way to fit it into earmarked funds. Donors support actionable research. For example, although the US Department of Labor is very interested in research, it is probably not going to fund lofty theoretical work. Research projects need to be specific and straightforward to get funded. Many funding agencies seek a combination of highly motivated and innovative, though also practical and feasible research initiatives. The key lies in presenting a case that demonstrates the importance of investigating a specific sector, hazard, or age group, and developing an effective plan of research action that is likely to achieve its objectives. Research relating to the hazardous work of children and youth that would be ripe for inclusion in research proposals are:

- **The connection between child labour and youth employment.** We need to prepare children while in school and young worker while in vocational training.

- **The connection between child labour and occupational health and safety.** We need to start integrating the health and safety component into child labour grant proposals. It is not just about OSH and it is not just about child exploitation. It is about the unique factors that link the two concepts together. A thorough and concrete investigation of the psycho-social effects of hazardous work of youth, with due concern for choosing those domains which are feasible for funding agencies.

- The developmental vulnerability of child labourers and the impact of hazards on the potential productivity of future generations.

Fogarty and Oak Foundations are good funders to start with. However, it is not always about finding the perfect funding-donor match. Especially in these times we must be creative with funding sources.

To entice greater funding for occupational health and safety of children, some next steps could be:

- Draw up a concept paper on child labour and health which seats the issue within key funding priorities, such as the MDGs. It should bring together a series of statements about child labour and health which are good selling points, and argue for a more integrated approach to child labour that links it to the development process. The document that offers a focused look on the way forward for research on child labour and health, describing the priorities for research and the means of obtaining this data.

- Create a group of researchers prepared to work together on an international research proposal on child labour and health. A three or four site study might be attractive to the EU and international agencies if it focuses on, for example, pesticide exposure, psychological well-being.
Use of this document

The proliferation of documents makes it difficult for researchers and practitioners to keep up to date on key ones. What is really important for field researchers to have before starting research? It cannot be a huge pile; it has to be just a few key documents that are easy to understand and useful. Alternatively, there could be a repository of core documents for practitioners who do not live in the child labour world but have need for things such as the basic child labour Conventions, child-appropriate research methods, and good practices. This should be less than 10 documents in total and should be publicized as quick information for research on child labour. It needs to be user friendly. People need a navigation tool to help them find the information they need.

Distribution

Resources are developed for users but users often never know they exist! What is the best way disseminating to the people who are on the ground, in developing countries, or outside academic institutions? Is internet accessible everywhere yet? Is the download time for documents too long? If so, there is still need for paper copies. Agency field offices can act as centres of distribution and, in the case of the international agencies, they work with workers and employers and government on a regular basis. They also have the advantage that they can convene national groups, for example a national advisory board on children or national project steering committee.

A second approach is to employ new technologies. The internet, social media and electronic libraries have been used for distributing information on construction safety. That same format can be used easily for child labour. Training of trainers is a third approach. It would be quite useful with this document. (Jim Platner).
In one year, an estimated 106.4 million children in the world suffer a work-related injury. (De Cock) Some of these injuries are minor; others are sufficiently severe to require medical care or to result in days of lost work and/or school.

This information is only the tip of the iceberg. There is so much more we do not know about whether these children are young, or untrained and inexperienced, or engaged in particularly hazardous occupations, or are primarily in Africa or Asia, or .... Existing data can be mined further, but there is a critical need for more research: quantitative research to examine the scope and parameters of this toll, and qualitative research to begin to explain the conditions which give rise to it.

This handbook is intended to stir us — the child labour and health communities -- to further research, analysis, conceptualization, and questioning. It cannot be more than a brief introduction to what is a vastly complicated subject. Yet, as we can see, in spite of the challenges this area of work presents, there are ways forward if only there are enough interest and innovative minds ready to take it on.

Example

It can be done. A direct result of the work outlined under the Background of this document is this major policy breakthrough\(^37\) by the World Health Organization announced below:

World Health Assembly Resolution

SIXTY-FOURTH WORLD HEALTH ASSEMBLY A64/62

24 May 2011

(7) to develop and implement a multisectoral policy and plan of action, where necessary, that contain realistic targets for child injury prevention and include promotion of standards and codes on the prevention of child labour, as well as on legal adolescent employment, product safety, school and play spaces, transportation, construction regulations and laws, and that either stand alone, or are incorporated within the national child health policy or plan;

\(^{37}\) Child and adolescent labour had not been recognized as a health policy issue prior to this.
Bibliography


Betancourt, O. et al. (2002). *Criteria for the Definition of Hazardous Child Labour (HCL)*, conference proceedings. Quito, ILO.


Annexes

Annex 1. Text from child labour Conventions

Below are relevant excerpts from the two primary international Conventions dealing specifically with child labour, and the non-binding Recommendations which accompany them.

**Convention No. 182 on the worst forms of child labour, 1999**

**ARTICLE 1**
Each Member which ratifies this Convention shall take immediate and effective measures to secure the prohibition and elimination of the worst forms of child labour as a matter of urgency.

**ARTICLE 2**
For the purposes of this Convention, the term *child* shall apply to all persons under the age of 18.

**ARTICLE 3**
For the purposes of this Convention, the term **the worst forms of child labour** comprises:
(a) all forms of slavery or practices similar to slavery, such as the sale and trafficking of children, debt bondage and serfdom and forced or compulsory labour, including forced or compulsory recruitment of children for use in armed conflict;
(b) the use, procuring or offering of a child for prostitution, for the production of pornography or for pornographic performances;
(c) the use, procuring or offering of a child for illicit activities, in particular for the production and trafficking of drugs as defined in the relevant international treaties;
(d) work which, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety or morals of children.

**ARTICLE 4**
1. The types of work referred to under Article 3(d) shall be determined by national laws or regulations or by the competent authority, after consultation with the organizations of employers and workers concerned, taking into consideration relevant international standards, in particular Paragraphs 3 and 4 of the Worst Forms of Child Labour Recommendation, 1999.
2. The competent authority, after consultation with the organizations of employers and workers concerned, shall identify where the types of work so determined exist.
3. The list of the types of work determined under paragraph 1 of this Article shall be periodically examined and revised as necessary, in consultation with the organizations of employers and workers concerned.

**ARTICLE 5**
Each Member shall, after consultation with employers’ and workers’ organizations, establish or designate appropriate mechanisms to monitor the implementation of the provisions giving effect to this Convention.

**ARTICLE 6**
1. Each Member shall design and implement programmes of action to eliminate as a priority the worst forms of child labour.
2. Such programmes of action shall be designed and implemented in consultation with relevant government institutions and employers’ and workers’ organizations, taking into consideration the views of other concerned groups as appropriate.

**ARTICLE 7**
1. Each Member shall take all necessary measures to ensure the effective implementation and enforcement of the provisions giving effect to this Convention including the provision and application of penal sanctions or, as appropriate, other sanctions.
2. Each Member shall, taking into account the importance of education in eliminating child labour, take effective and time-bound measures to:

(a) prevent the engagement of children in the worst forms of child labour;
(b) provide the necessary and appropriate direct assistance for the removal of children from the worst forms of child labour and for their rehabilitation and social integration;
(c) ensure access to free basic education, and, wherever possible and appropriate, vocational training, for all children removed from the worst forms of child labour;
(d) identify and reach out to children at special risk; and
(e) take account of the special situation of girls.

3. Each Member shall designate the competent authority responsible for the implementation of the provisions giving effect to this Convention.

ARTICLE 8

Members shall take appropriate steps to assist one another in giving effect to the provisions of this Convention through enhanced international cooperation and/or assistance including support for social and economic development, poverty eradication programmes and universal education.

Recommendation No. 190 on the worst forms of child labour, 1999

1. The provisions of this Recommendation supplement those of the Worst Forms of Child Labour Convention, 1999 (hereafter referred to as “the Convention”), and should be applied in conjunction with them.

I. PROGRAMMES OF ACTION

2. The programmes of action referred to in Article 6 of the Convention should be designed and implemented as a matter of urgency, in consultation with relevant government institutions and employers’ and workers’ organizations, taking into consideration the views of the children directly affected by the worst forms of child labour, their families and, as appropriate, other concerned groups committed to the aims of the Convention and this Recommendation. Such programmes should aim at, inter alia:

(a) identifying and denouncing the worst forms of child labour;
(b) preventing the engagement of children in or removing them from the worst forms of child labour, protecting them from reprisals and providing for their rehabilitation and social integration through measures which address their educational, physical and psychological needs;
(c) giving special attention to:
   (i) younger children;
   (ii) the girl child;
   (iii) the problem of hidden work situations, in which girls are at special risk;
   (iv) other groups of children with special vulnerabilities or needs;
(d) identifying, reaching out to and working with communities where children are at special risk;
(e) informing, sensitizing and mobilizing public opinion and concerned groups, including children and their families.

II. HAZARDOUS WORK

3. In determining the types of work referred to under Article 3(d) of the Convention, and in identifying where they exist, consideration should be given, inter alia, to:

(a) work which exposes children to physical, psychological or sexual abuse;
(b) work underground, under water, at dangerous heights or in confined spaces;
(c) work with dangerous machinery, equipment and tools, or which involves the manual handling or transport of heavy loads;

(d) work in an unhealthy environment which may, for example, expose children to hazardous substances, agents or processes, or to temperatures, noise levels, or vibrations damaging to their health;

(e) work under particularly difficult conditions such as work for long hours or during the night or work where the child is unreasonably confined to the premises of the employer.

4. For the types of work referred to under Article 3(d) of the Convention and Paragraph 3 above, national laws or regulations or the competent authority could, after consultation with the workers’ and employers’ organizations concerned, authorize employment or work as from the age of 16 on condition that the health, safety and morals of the children concerned are fully protected, and that the children have received adequate specific instruction or vocational training in the relevant branch of activity.

III. IMPLEMENTATION

5.

(1) Detailed information and statistical data on the nature and extent of child labour should be compiled and kept up to date to serve as a basis for determining priorities for national action for the abolition of child labour, in particular for the prohibition and elimination of its worst forms as a matter of urgency.

(2) As far as possible, such information and statistical data should include data disaggregated by sex, age group, occupation, branch of economic activity, status in employment, school attendance and geographical location. The importance of an effective system of birth registration, including the issuing of birth certificates, should be taken into account.

(3) Relevant data concerning violations of national provisions for the prohibition and elimination of the worst forms of child labour should be compiled and kept up to date.

6. The compilation and processing of the information and data referred to in Paragraph 5 above should be carried out with due regard for the right to privacy.

7. The information compiled under Paragraph 5 above should be communicated to the International Labour Office on a regular basis.

8. Members should establish or designate appropriate national mechanisms to monitor the implementation of national provisions for the prohibition and elimination of the worst forms of child labour, after consultation with employers’ and workers’ organizations.

9. Members should ensure that the competent authorities which have responsibilities for implementing national provisions for the prohibition and elimination of the worst forms of child labour cooperate with each other and coordinate their activities.

10. National laws or regulations or the competent authority should determine the persons to be held responsible in the event of non-compliance with national provisions for the prohibition and elimination of the worst forms of child labour.

11. Members should, in so far as it is compatible with national law, cooperate with international efforts aimed at the prohibition and elimination of the worst forms of child labour as a matter of urgency by:

   (a) gathering and exchanging information concerning criminal offences, including those involving international networks;

   (b) detecting and prosecuting those involved in the sale and trafficking of children, or in the use, procuring or offering of children for illicit activities, for prostitution, for the production of pornography or for pornographic performances;

   (c) registering perpetrators of such offences.

12. Members should provide that the following worst forms of child labour are criminal offences:

   (a) all forms of slavery or practices similar to slavery, such as the sale and trafficking of children, debt bondage and serfdom and forced or compulsory labour, including forced or compulsory recruitment of children for use in armed conflict;

   (b) the use, procuring or offering of a child for prostitution, for the production of pornography or for pornographic performances; and
(c) the use, procuring or offering of a child for illicit activities, in particular for the production and trafficking of drugs as defined in the relevant international treaties, or for activities which involve the unlawful carrying or use of firearms or other weapons.

13. Members should ensure that penalties including, where appropriate, criminal penalties are applied for violations of the national provisions for the prohibition and elimination of any type of work referred to in Article 3(d) of the Convention.

14. Members should also provide as a matter of urgency for other criminal, civil or administrative remedies, where appropriate, to ensure the effective enforcement of national provisions for the prohibition and elimination of the worst forms of child labour, such as special supervision of enterprises which have used the worst forms of child labour, and, in cases of persistent violation, consideration of temporary or permanent revoking of permits to operate.

15. Other measures aimed at the prohibition and elimination of the worst forms of child labour might include the following:

(a) informing, sensitizing and mobilizing the general public, including national and local political leaders, parliamentarians and the judiciary;

(b) involving and training employers' and workers' organizations and civic organizations;

(c) providing appropriate training for the government officials concerned, especially inspectors and law enforcement officials, and for other relevant professionals;

(d) providing for the prosecution in their own country of the Member's nationals who commit offences under its national provisions for the prohibition and immediate elimination of the worst forms of child labour even when these offences are committed in another country;

(e) simplifying legal and administrative procedures and ensuring that they are appropriate and prompt;

(f) encouraging the development of policies by undertakings to promote the aims of the Convention;

(g) monitoring and giving publicity to best practices on the elimination of child labour;

(h) giving publicity to legal or other provisions on child labour in the different languages or dialects;

(i) establishing special complaints procedures and making provisions to protect from discrimination and reprisals those who legitimately expose violations of the provisions of the Convention, as well as establishing helplines or points of contact and ombudspersons;

(j) adopting appropriate measures to improve the educational infrastructure and the training of teachers to meet the needs of boys and girls;

(k) as far as possible, taking into account in national programmes of action:

(i) the need for job creation and vocational training for the parents and adults in the families of children working in the conditions covered by the Convention; and

(ii) the need for sensitizing parents to the problem of children working in such conditions.

16. Enhanced international cooperation and/or assistance among Members for the prohibition and effective elimination of the worst forms of child labour should complement national efforts and may, as appropriate, be developed and implemented in consultation with employers' and workers' organizations. Such international cooperation and/or assistance should include:

(a) mobilizing resources for national or international programmes;

(b) mutual legal assistance;

(c) technical assistance including the exchange of information;

(d) support for social and economic development, poverty eradication programmes and universal education.
Convention No. 138 on the minimum age for admission to employment, 1973

**ARTICLE 1**

Each Member for which this Convention is in force undertakes to pursue a national policy designed to ensure the effective abolition of child labour and to raise progressively the minimum age for admission to employment or work to a level consistent with the fullest physical and mental development of young persons.

**ARTICLE 2**

1. Each Member which ratifies this Convention shall specify, in a declaration appended to its ratification, a minimum age for admission to employment or work within its territory and on means of transport registered in its territory; subject to Articles 4 to 8 of this Convention, no one under that age shall be admitted to employment or work in any occupation.

2. Each Member which has ratified this Convention may subsequently notify the Director-General of the International Labour Office, by further declarations, that it specifies a minimum age higher than that previously specified.

3. The minimum age specified in pursuance of paragraph 1 of this Article shall not be less than the age of completion of compulsory schooling and, in any case, shall not be less than 15 years.

4. Notwithstanding the provisions of paragraph 3 of this Article, a Member whose economy and educational facilities are insufficiently developed may, after consultation with the organisations of employers and workers concerned, where such exist, initially specify a minimum age of 14 years.

5. Each Member which has specified a minimum age of 14 years in pursuance of the provisions of the preceding paragraph shall include in its reports on the application of this Convention submitted under article 22 of the Constitution of the International Labour Organisation a statement--
   (a) that its reason for doing so subsists; or
   (b) that it renounces its right to avail itself of the provisions in question as from a stated date.

**ARTICLE 3**

1. The minimum age for admission to any type of employment or work which by its nature or the circumstances in which it is carried out is likely to jeopardise the health, safety or morals of young persons shall not be less than 18 years.

2. The types of employment or work to which paragraph 1 of this Article applies shall be determined by national laws or regulations or by the competent authority, after consultation with the organisations of employers and workers concerned, where such exist.

3. Notwithstanding the provisions of paragraph 1 of this Article, national laws or regulations or the competent authority may, after consultation with the organisations of employers and workers concerned, where such exist, authorise employment or work as from the age of 16 years on condition that the health, safety and morals of the young persons concerned are fully protected and that the young persons have received adequate specific instruction or vocational training in the relevant branch of activity.

**ARTICLE 4**

1. In so far as necessary, the competent authority, after consultation with the organisations of employers and workers concerned, where such exist, may exclude from the application of this Convention limited categories of employment or work in respect of which special and substantial problems of application arise.

2. Each Member which ratifies this Convention shall list in its first report on the application of the Convention submitted under article 22 of the Constitution of the International Labour Organisation any categories which may have been excluded in pursuance of paragraph 1 of this Article, giving the reasons for such exclusion, and shall state in subsequent reports the position of its law and practice in respect of the categories excluded and the extent to which effect has been given or is proposed to be given to the Convention in respect of such categories.

3. Employment or work covered by Article 3 of this Convention shall not be excluded from the application of the Convention in pursuance of this Article.
**ARTICLE 5**

1. A Member whose economy and administrative facilities are insufficiently developed may, after consultation with the organisations of employers and workers concerned, where such exist, initially limit the scope of application of this Convention.

2. Each Member which avails itself of the provisions of paragraph 1 of this Article shall specify, in a declaration appended to its ratification, the branches of economic activity or types of undertakings to which it will apply the provisions of the Convention.

3. The provisions of the Convention shall be applicable as a minimum to the following: mining and quarrying; manufacturing; construction; electricity, gas and water; sanitary services; transport, storage and communication; and plantations and other agricultural undertakings mainly producing for commercial purposes, but excluding family and small-scale holdings producing for local consumption and not regularly employing hired workers.

4. Any Member which has limited the scope of application of this Convention in pursuance of this Article--
   (a) shall indicate in its reports under Article 22 of the Constitution of the International Labour Organisation the general position as regards the employment or work of young persons and children in the branches of activity which are excluded from the scope of application of this Convention and any progress which may have been made towards wider application of the provisions of the Convention;
   (b) may at any time formally extend the scope of application by a declaration addressed to the Director-General of the International Labour Office.

**ARTICLE 6**

This Convention does not apply to work done by children and young persons in schools for general, vocational or technical education or in other training institutions, or to work done by persons at least 14 years of age in undertakings, where such work is carried out in accordance with conditions prescribed by the competent authority, after consultation with the organisations of employers and workers concerned, where such exist, and is an integral part of--
   (a) a course of education or training for which a school or training institution is primarily responsible;
   (b) a programme of training mainly or entirely in an undertaking, which programme has been approved by the competent authority; or
   (c) a programme of guidance or orientation designed to facilitate the choice of an occupation or of a line of training.

**ARTICLE 7**

1. National laws or regulations may permit the employment or work of persons 13 to 15 years of age on light work which is-
   (a) not likely to be harmful to their health or development; and
   (b) not such as to prejudice their attendance at school, their participation in vocational orientation or training programmes approved by the competent authority or their capacity to benefit from the instruction received.

2. National laws or regulations may also permit the employment or work of persons who are at least 15 years of age but have not yet completed their compulsory schooling on work which meets the requirements set forth in sub-paragraphs (a) and (b) of paragraph 1 of this Article.

3. The competent authority shall determine the activities in which employment or work may be permitted under paragraphs 1 and 2 of this Article and shall prescribe the number of hours during which and the conditions in which such employment or work may be undertaken.

4. Notwithstanding the provisions of paragraphs 1 and 2 of this Article, a Member which has availed itself of the provisions of paragraph 4 of Article 2 may, for as long as it continues to do so, substitute the ages 12 and 14 for the ages 13 and 15 in paragraph 1 and the age 14 for the age 15 in paragraph 2 of this Article.

**ARTICLE 8**

1. After consultation with the organisations of employers and workers concerned, where such exist, the competent authority may, by permits granted in individual cases, allow exceptions to the prohibition of employment or work provided for in Article 2 of this Convention, for such purposes as participation in artistic performances.
ARTICLE 9

1. All necessary measures, including the provision of appropriate penalties, shall be taken by the competent authority to ensure the effective enforcement of the provisions of this Convention.

2. National laws or regulations or the competent authority shall define the persons responsible for compliance with the provisions giving effect to the Convention.

3. National laws or regulations or the competent authority shall prescribe the registers or other documents which shall be kept and made available by the employer; such registers or documents shall contain the names and ages or dates of birth, duly certified wherever possible, of persons whom he employs or who work for him and who are less than 18 years of age.

Recommendation No. 146 on the minimum age for admission to employment, 1973

I. NATIONAL POLICY

1. To ensure the success of the national policy provided for in Article 1 of the Minimum Age Convention, 1973, high priority should be given to planning for and meeting the needs of children and youth in national development policies and programmes and to the progressive extension of the inter-related measures necessary to provide the best possible conditions of physical and mental growth for children and young persons.

2. In this connection special attention should be given to such areas of planning and policy as the following:

   (a) firm national commitment to full employment, in accordance with the Employment Policy Convention and Recommendation, 1964, and the taking of measures designed to promote employment-oriented development in rural and urban areas;

   (b) the progressive extension of other economic and social measures to alleviate poverty wherever it exists and to ensure family living standards and income which are such as to make it unnecessary to have recourse to the economic activity of children;

   (c) the development and progressive extension, without any discrimination, of social security and family welfare measures aimed at ensuring child maintenance, including children’s allowances;

   (d) the development and progressive extension of adequate facilities for education and vocational orientation and training appropriate in form and content to the needs of the children and young persons concerned;

   (e) the development and progressive extension of appropriate facilities for the protection and welfare of children and young persons, including employed young persons, and for the promotion of their development.

3. Particular account should as necessary be taken of the needs of children and young persons who do not have families or do not live with their own families and of migrant children and young persons who live and travel with their families. Measures taken to that end should include the provision of fellowships and vocational training.

4. Full-time attendance at school or participation in approved vocational orientation or training programmes should be required and effectively ensured up to an age at least equal to that specified for admission to employment in accordance with Article 2 of the Minimum Age Convention, 1973.

5. (1) Consideration should be given to measures such as preparatory training, not involving hazards, for types of employment or work in respect of which the minimum age prescribed in accordance with Article 3 of the Minimum Age Convention, 1973, is higher than the age of completion of compulsory full-time schooling.

       (2) Analogous measures should be envisaged where the professional exigencies of a particular occupation include a minimum age for admission which is higher than the age of completion of compulsory full-time schooling.

II. MINIMUM AGE

6. The minimum age should be fixed at the same level for all sectors of economic activity.

7. (1) Members should take as their objective the progressive raising to 16 years of the minimum age for admission to employment or work specified in pursuance of Article 2 of the Minimum Age Convention, 1973.
Where the minimum age for employment or work covered by Article 2 of the Minimum Age Convention, 1973, is still below 15 years, urgent steps should be taken to raise it to that level.

Where it is not immediately feasible to fix a minimum age for all employment in agriculture and in related activities in rural areas, a minimum age should be fixed at least for employment on plantations and in the other agricultural undertakings referred to in Article 5, paragraph 3, of the Minimum Age Convention, 1973.

III. HAZARDOUS EMPLOYMENT OR WORK

Where the minimum age for admission to types of employment or work which are likely to jeopardise the health, safety or morals of young persons is still below 18 years, immediate steps should be taken to raise it to that level.

(1) In determining the types of employment or work to which Article 3 of the Minimum Age Convention, 1973, applies, full account should be taken of relevant international labour standards, such as those concerning dangerous substances, agents or processes (including ionising radiations), the lifting of heavy weights and underground work.

(2) The list of the types of employment or work in question should be re-examined periodically and revised as necessary, particularly in the light of advancing scientific and technological knowledge.

Where, by reference to Article 5 of the Minimum Age Convention, 1973, a minimum age is not immediately fixed for certain branches of economic activity or types of undertakings, appropriate minimum age provisions should be made applicable therein to types of employment or work presenting hazards for young persons.

IV. CONDITIONS OF EMPLOYMENT

Measures should be taken to ensure that the conditions in which children and young persons under the age of 18 years are employed or work reach and are maintained at a satisfactory standard. These conditions should be supervised closely.

Measures should likewise be taken to safeguard and supervise the conditions in which children and young persons undergo vocational orientation and training within undertakings, training institutions and schools for vocational or technical education and to formulate standards for their protection and development.

In connection with the application of the preceding Paragraph, as well as in giving effect to Article 7, paragraph 3, of the Minimum Age Convention, 1973, special attention should be given to--

(a) the provision of fair remuneration and its protection, bearing in mind the principle of equal pay for equal work;

(b) the strict limitation of the hours spent at work in a day and in a week, and the prohibition of overtime, so as to allow enough time for education and training (including the time needed for homework related thereto), for rest during the day and for leisure activities;

(c) the granting, without possibility of exception save in genuine emergency, of a minimum consecutive period of 12 hours' night rest, and of customary weekly rest days;

(d) the granting of an annual holiday with pay of at least four weeks and, in any case, not shorter than that granted to adults;

(e) coverage by social security schemes, including employment injury, medical care and sickness benefit schemes, whatever the conditions of employment or work may be;

(f) the maintenance of satisfactory standards of safety and health and appropriate instruction and supervision.

Subparagraph (1) of this Paragraph applies to young seafarers in so far as they are not covered in respect of the matters dealt with therein by international labour Conventions or Recommendations specifically concerned with maritime employment.

V. ENFORCEMENT

Measures to ensure the effective application of the Minimum Age Convention, 1973, and of this Recommendation should include--

(a) the strengthening as necessary of labour inspection and related services, for instance by the special training of inspectors to detect abuses in the employment or work of children and young persons and to correct such abuses; and

(b) the strengthening of services for the improvement and inspection of training in undertakings.
(2) Emphasis should be placed on the role which can be played by inspectors in supplying information and advice on effective means of complying with relevant provisions as well as in securing their enforcement.

(3) Labour inspection and inspection of training in undertakings should be closely co-ordinated to provide the greatest economic efficiency and, generally, the labour administration services should work in close co-operation with the services responsible for the education, training, welfare and guidance of children and young persons.

15. Special attention should be paid--

(a) to the enforcement of provisions concerning employment in hazardous types of employment or work; and

(b) in so far as education or training is compulsory, to the prevention of the employment or work of children and young persons during the hours when instruction is available.

16. The following measures should be taken to facilitate the verification of ages:

(a) the public authorities should maintain an effective system of birth registration, which should include the issue of birth certificates;

(b) employers should be required to keep and to make available to the competent authority registers or other documents indicating the names and ages or dates of birth, duly certified wherever possible, not only of children and young persons employed by them but also of those receiving vocational orientation or training in their undertakings;

(c) children and young persons working in the streets, in outside stalls, in public places, in itinerant occupations or in other circumstances which make the checking of employers’ records impracticable should be issued licences or other documents indicating their eligibility for such work.
## Annex 2. Sample checklist

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>!38</th>
<th>Action notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General principles</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There are some workers under the legal age in the workshop</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All of the young workers have completed compulsory or basic schooling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A young worker is showing signs of deprivation (not enough sleep, food, clothing)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A young worker is showing signs of intimidation or fear</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervisors and co-workers have been informed what is safe for young workers to do</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All young workers have been trained on what to do during an accident or emergency</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>An occupational safety and health plan has been developed for this workshop</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Working time</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A young worker sometimes works at night or goes home in the dark</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A young worker is working more than 43 hours per week</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Harassment, Violence, and Stress</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A written policy against harassment and violence has been developed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The anti-harassment policy is posted in the workshop where all can see it</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A “buddy” is assigned to watch out for each new young worker and to answer questions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No young worker is allowed to work in an isolated area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Materials storage and handling</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All young workers have been trained on correct lifting techniques</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervisors check periodically to make sure they are lifting correctly</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some young workers do jobs that require lifting or carrying heavy loads</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Work-stations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some young workers squat or kneel for long periods of time</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chairs and workbenches are the right size for young workers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Young workers have been taught and use the “elbow rule”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Machine and tool safety</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Young workers may only use machines/tools that have low potential for causing injuries</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If working around powered equipment, young workers are closely supervised</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hazardous substances</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some young workers use or work around hazardous substances</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemicals, including containers into which chemicals have been poured, are labelled</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical safety data sheets are kept on file for each chemical mixture in the workshop</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Young workers have a place to wash and change clothes at the workplace</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Young workers wash their hands with soap before eating or drinking</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Young workers wash themselves and change clothes before going home</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lighting and noise</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skylights and windows are cleaned regularly</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ceilings and walls are painted white or in light colours and kept clean</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workstations are adequately lighted</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is no glare in the young worker’s field of vision</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noisy equipment has a warning sign; young workers are trained on noise protection</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noise levels are low enough that young workers do not need to shout to communicate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

38 “!” signifies priority. Urgent action needed.
<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>!?</th>
<th>Action notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Welfare facilities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is always cool, safe drinking water for young workers to drink</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toilets are regularly cleaned, close to the work area, and have soap for washing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There are separate toilets for girls and women</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is a clean and comfortable place for the workers to rest and eat</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Premises</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metal walls and roofs are backed with insulation to protect workers from heat or cold</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roof and wall openings, windows or open doorways provide natural ventilation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>During working hours, doors are unlocked so workers can escape easily in case of fire</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The workshop is not used as sleeping quarters after working hours</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Annex 3. Judging likelihood and severity

1. **Likelihood** Consider each health impact in terms of how likely it is that a child would encounter it and be injured or made sick as a result. Use the following scale:

   (1) Improbable----------------------Will occur only in exceptional circumstances
   
   (2) Remote --------------------------Unlikely to occur
   
   (3) Occasional-----------------------Might occur at some time
   
   (4) Probable ------------------------Will probably occur in most circumstances
   
   (5) Frequent------------------------Is expected to occur in most circumstances

2. **Seriousness** Give each task a rating for what the consequences of this activity might be for the health of the child, using the following scale:

   (1) Negligible  Self-treatment or simple First Aid; no loss of work or school time
   
   (2) Marginal  Medical treatment required; one day or less loss of work or school time
   
   (3) Medium  hospitalization; loss of work or school for a considerable period
   
   (4) Critical  Extensive injuries; long term or permanent loss of capability
   
   (5) Catastrophic  Death
Annex 4. Criteria for the definition of hazardous child labour (HCL)39

This paper offers: a) a set of criteria for consideration when determining HCL, b) a list of occupations proposed to be classified for “zero exposure” (completely unacceptable for young workers), c) a general list of hazardous child labour, and d) a list of factors that increase children’s vulnerability.

These criteria were developed to assist countries in determining the hazardous forms of child labour present in their country. Eradicating child labour is a complex and long process that requires progressive and sustained action and, in the first instance, emphasis should be placed on the elimination of worst forms of child labour, and after that continue to move children away from any form of child labour.

In developing these criteria, three possible systems of classification for organizing the information on hazardous child labour were considered: a) economic activities, b) risk factors, or c) health effects, each of which has pros and cons for the definition of HCL or its application worldwide. There is not one “correct” way of going about this. While all three of these approaches have merit, the latter two present some advantages. Regardless of the approach adopted, however, the other dimensions should be included as well.

- **By economic activities.** Organizing the data by economic sectors or activities is the approach usually taken by countries in formulating legislation. It identifies HCL by the occupational sector in which it occurs. Children are exposed to hazards in real economic activities, and this approach underlines and emphasizes this fact.40 The major drawback of this approach is that it is necessary to frequently repeat the data as the same hazards re-appear in different sectors. This makes the compilation longer than is necessary.

- **By health outcomes.** Organizing the data according to how work impacts on child health and safety underscores the rationale for action on HCL. This approach can mobilize support from authorities and public opinion, particularly to eradicate forms of child labour where the most extreme health effects occur. The drawback, however, is that it is more complicated to use for non-health professionals, e.g. the ‘competent authority’ which is tasked with determining HCL in a country.

- **By risk factors.** Organizing the data according to different hazard groups, i.e. putting together in one category those activities which pose similar risks, avoids the problem of duplication of information while maintaining an emphasis on the nature of the risk. This approach corresponds well to the thinking of Safety and

---

39 Prepared by Oscar Betancourt, Gerry Eijkemans, Juan Carlos Hiba and Walter Varillas. This document is the outcome of the Workshop on the Definition of Criteria for Hazardous Child Labour, which took place in Quito, 7-9 of August 2002, with specialists on occupational health and safety and child labour, and organised by the Health-Environment and Development Foundation (FUNSAD) of Quito, Ecuador with the support of ILO-IPEC (Geneva) and the ILO Area Office (Lima).

40 For the economic activities approach, the Uniform classification of economic activities can be used. However, it does not cover all needs when identifying the different hazardous processes, working conditions, and risk factors in economic activities, e.g. it does not accommodate companies’ differences in size, technology and diversity of production processes.
Health specialists. The disadvantage is that hazards or risk factors seldom occur in isolation (e.g. noise, dust, and stress) and can combine in different ways in different occupations. Secondly, these combinations can compound the negative effects or create synergistic effects on health in unexpected ways.

The criteria for hazardous work include:

- **Severity of the health outcome**, as a consequence of the exposure to risk factors and defined work forms.
- **Vulnerability** of the child, determined by children’s anatomic and functional immaturity, family circumstances and socio-economic conditions.
- **Probability of damage**, related to the exposure to the hazard and the likelihood to produce risks leading to health outcomes.
- **Magnitude** of the problem, in terms of the number of exposed children and health outcomes.

Based on these criteria, and with input from knowledgeable and experienced people such as occupational safety and health (OSH) specialists, it is possible to define the economic activities, tasks, activities and workplaces that may be more or less hazardous. Two levels of hazardous child labour are proposed: the “zero exposure” situations and activities, and general hazardous child labour. These are distinguished as follows:

- **Zero exposure**. The severity of the health outcome, the vulnerability of the child, the probability of damage and the magnitude of the problem mark the risk factors in this category as completely “off limits”. Children should not be allowed to work under any circumstance in those processes or with those products.
- **General HCL**. There are tasks and situations that are likely to be hazardous to the health or development of the child but the severity, vulnerability, probability, or magnitude is substantially less.

Under all circumstances one must keep in mind the relationships between risk factors, dangerous processes, their impact on child health and other aspects of life, and aim for an integrated approach. A child is never only a child labourer. She or he is also part of a community, a family and an environment. Particularly in the case of children involved in HCL the conditions of the social and economic environment are usually not favourable. The distinction between “zero exposure” and “general hazardous child labour” are explained more fully below.

**Forms of Hazardous Child Work Recommended for “Zero Exposure”**

The “zero exposure” group includes activities, tasks, agents, processes and conditions, which from a health and safety point of view, have been identified as extremely hazardous. The health impact can be extremely severe resulting in immediate or delayed death. If the health impact is severe for adults, this will certainly be the case for children, taking into account the vulnerability of children. In this case, the severity of the risk is sufficient reason to prohibit this work, independent of individual circumstances or working conditions.
Another element to be considered is that effects of the activities or agents on the zero exposure lists cannot be mediated. They are “inherently” dangerous.

In Table 1, the first column presents the types of work and risk factors proposed for zero exposure. This means that under no circumstances children under 18 years should be exposed to these. Table 2 presents the health impact of these risk factors and activities. Additional information from new studies, and country specific standards can be used to supplement the table.

The particular anatomic functionality of children requires different standards and exposure limits, according to age. In terms of biological vulnerability, the following facts should be considered:

- Tissues and organs mature at different rates, therefore there is not just one age at which a child is vulnerable in general; it depends on the hazards, the stage of physical and psychological maturity of the child.
- The brain of the child at birth is not fully developed. While the full number of neurons is reached around two years of age, the myelinisation of the brain is not completed until adolescence; exposure to certain toxins in the workplace can hinder the process of maturation.
- The gastro-intestinal, endocrine and reproductive systems and renal function are immature at birth and mature during childhood and adolescence, thus the elimination of hazardous agents is less efficient. Exposure to toxic substances in the workplace can hinder the process of maturation.
- The enzyme system is immature in childhood, leading to less effective detoxification of hazardous substances.
- A child’s kidney is immature in some aspects as compared with an adult, leading to less effective elimination of toxic agents.
- Most of the cells in the organs and tissues in children are smaller than in adults. Since they have a larger surface area; absorption of toxics through the skin is higher than in adults.
- Children have a higher metabolic rate and oxygen consumption and therefore greater intake of air per unit of body weight; consequently, absorption of toxics through respiration is higher than in adults.
- Children have greater energy consumption than adults. With increased energy requirements for growth come an increased susceptibility to toxins.
- Sweat glands are not fully developed, and the thermo-regulatory system is not fully developed during childhood leading to increased sensitivity to heat and cold.
- Children have deeper and more frequent breathing, leading to more respiratory absorption of toxics.
- The volume of air passing through the lungs of the resting infant is twice that of the resting adult (per unit of body weight) over the same time period. The same
applies to alveolar capillary absorption. This will slowly change during childhood and adolescence. This also can lead to more respiratory absorption of toxics.

- Young children have greater energy and fluid requirements per unit of body weight than adults. The reason is that they lose more water per kilogram of body weight through the lungs, due to the greater passage of air through them, through the skin (larger surface area) and through the kidneys (inability to concentrate urine). They are more likely to dehydrate.

- The area of a child’s skin is 2.5 times greater than that of an adult (per unit body weight). Skin structure is only fully developed after puberty. This can lead to increased skin absorption.

- Children have thinner skin, again leading to an increased absorption through the skin.

- Metals are retained in the brain more readily in childhood than in adulthood and absorption is greater (lead and methyl mercury).  

- Children are psychologically immature, are prone to risk-taking behaviours, are not experienced at work and so are unable to make informed judgements.

- Children want to perform well; so they are willing to go the extra mile without realizing the impact of hazards.

- Children learn wrong health and safety behaviour from adults, are not trained on hazards or safety, and often there is inadequate supervision. In terms of organization and rights, they are powerless.

Forms of Hazardous Child Work described as “General HCL”

The main difference between the zero exposure lists and HCL in general is a matter of degree--the health effects are less severe than in the former. Another difference from zero exposure is that for “general HCL” the risk might be controllable. This is not the case for the zero tolerance list. Thus it is relevant for children above the legal working age (children below minimum working age should not be working). Work that puts children at risk should be considered as “Generally Hazardous” when it...

- Disturbs musculoskeletal development and the normal development of weight-height according to age.

- Disturbs maturity, neurological, metabolic and immunological development.

- Disturbs sexual and reproductive development.

- Provokes trauma, injuries and/or chronic irreversible deformities of the musculoskeletal apparatus.

- Provokes irreversible alterations in other organs and physiological systems of children.

- Provokes cancer or other mutagenic and teratogenic problems.

---

• Provokes acute intoxication of any kind.
• Places child under risk of imminent death.
• Generates problems in psychosocial development, such as:
  o Sexual abuse with risks of infection with HIV/AIDS and suffer emotional, moral and social consequences.
  o Violence, verbal abuse, harassment, intimidation, social denigration.

Other Considerations

The elimination of HCL is difficult and complex, requiring long-term action and commitment. Meanwhile, the world of work is quickly changing, and it is necessary to constantly update our knowledge on HCL through investigation and revising existing information. The following should be considered:

1. Although it has been stated many times that threshold exposure limits for children should not be established, existing exposure limits for adults can serve as temporary, approximate reference points from which to define the hazardous nature of a type of work. We should remember, however, that these limits have been set for adults and for a working day of 8 hours. Where an exposure limit exists, this by itself indicates the presence of a hazardous product or process.

2. In the absence of other sources of information, the lowest reference values for adults give an idea or indication of what is certainly a dangerous level for a child.

3. For physical and ergonomic risk factors and the organisation and division of work, adult norms are not even worthwhile as an indicator of what children must not do. As noted above, children are more vulnerable (for example, to noise, physical loads, heat, lifting and transport of weights, repetitive movements, shift work)

4. If national laws and practices regarding children are more stringent than international standards, the former should be used.

Table 1. Factors which contribute to “Zero Tolerance”

- Asbestos
- Silica
- Isocyanides
- Benzene, toluene, xylene, styrene
- Other carcinogens from group 1 and 2ª of IARC’s list
- Mercury
- Organo-chloride
- Phosphorus
- Underground work
- Work under water
- Night work (between 22h00 and 6h00)
- Work at heights
- Work with materials at high temperature (fuse metal, glass)
- Extra hours, double shifts
- Ionising radiation
- Machinery and power tools as used in metal-mechanic, paper, timber industries, such as circular saws, guillotine,
- Hazardous processes
- Dust and smoke from animal, plant or mineral origin.
- Gas and vapour
- Physical, organic or inorganic chemical and biological agents that act as primary irritators or allergenic
- Dust and other physical, chemical or biological agents affecting the eyes
- Toxic dust, smoke, liquid, gas, vapour of organic/inorganic chemical origin, via respiratory, digestive tract, or skin.
- Chemical products able to induce a neurological disorder or change in the nervous system
- Potentially infectious biological agents
- Biomechanical and ergonomic factors
- Industrial carcinogens of physical, organic/inorganic chemical origin, or by radiation of different sites
- Risk factors that can create stress at work
- Ergonomic factors, processes, weights or hazardous tasks causing physical overload, mental burden or accidents
- Psychosocial risks that can provoke accidents, physical or mental harm
machines for blending and mixing
• Work with explosives (fabrication, storing handling)
• Work with fire, explosives, weapons
• Contact with systems, circuits and conductors of electricity
• Processes or factors that can burn
• Risk factors derived from processes, tasks, and hazardous loads that can cause traumatic accidents

Table 2. Health impacts and occupational sectors associated with zero tolerance

<table>
<thead>
<tr>
<th>Hazardous agents, substances, working conditions, processes</th>
<th>Health impacts</th>
<th>Economic sectors, tasks, and workplaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asbestos</td>
<td>Bronchial cancer and pleural asbestosis</td>
<td>Mines, Asbestos-cement industry, Construction work, Auto repair garages mechanics brakes, clutch</td>
</tr>
<tr>
<td>Silica</td>
<td>Silicosis, Silica-tuberculosis</td>
<td>Mines, Quarries, Ceramic Industry, Refractory products industry, Fusing, Pottery, polishers with grit, cement, Work on refractory products with silica</td>
</tr>
<tr>
<td>Isocyanides</td>
<td>Lung disorders, specially asthma, upper respiratory tract inflammation</td>
<td>Polyurethane industry, Plastic production, Synthetic rubber, paints, smelts, varnish and glue, anticorrosive and isolation cable covers</td>
</tr>
<tr>
<td>Benzene, toluene, xylene, styrene</td>
<td>Encephalopathy, Peripheral neuropathy, Narcotic effects, Dermatitis</td>
<td>Graphic Industry, Electronic industry, Histopathology laboratories, Dry cleaning, Cleaning and lubrication of metallic pieces, Work with Paint, Galvanoplasty</td>
</tr>
<tr>
<td>Other carcinogens from group 1 and 2ª of IARC’s list</td>
<td>Chronic and acute intoxication Blood disorders Weakened immunity Central nervous system disorders Neuritis Hepatic and kidney disorders Haematological disorders Depressive syndrome</td>
<td>Plants using alkaline-chlorides, Artisan gold mines (amalgamation), Work with Electronics, Dental clinics, Polymer production, Paper and cellulose industry, Organo-Chlorides used in agriculture, gardening Agriculture or sanitary fumigation</td>
</tr>
<tr>
<td>Mercury</td>
<td>Neurotoxicity, Lung inflammation, Nephrotoxicity, Dermatitis</td>
<td>Artisan gold mines (amalgamation), Work with Electronics, Dental clinics, Polymer production, Paper and cellulose industry</td>
</tr>
<tr>
<td>Organo-Chloride</td>
<td>Neurotoxicity, Toxic Psychosis, Memory and concentration disorders</td>
<td>Agriculture work using organo-phosphates, Floriculture, Gardening, work in greenhouses where organo-phosphorus compounds are used</td>
</tr>
<tr>
<td>Organo-Phosphates</td>
<td>Acute and chronic Intoxication, Blood disorders Weakened immunity Central nervous system disorders Neuritis Hepatic and kidney disorders Haematological disorders Depressive syndrome</td>
<td>Agriculture work using organo-phosphates, Floriculture, Gardening, work in greenhouses where organo-phosphorus compounds are used</td>
</tr>
<tr>
<td>Underground work</td>
<td>Injuries/death from landslide, entrapment intoxication/death due to toxic gases</td>
<td>Mines, Work in sewage systems</td>
</tr>
<tr>
<td>Work under water</td>
<td>Hyperbaric (barotrauma otic, lung tissues), Neurological syndrome due to high pressure Hypobaric (decompression disease, lung distension, gastric-intestinal problems), Hypoxia and its consequences</td>
<td>Diving &amp; collection underwater fauna (corals, oysters sponges), Installation/retrieval traps and nets compressed air, Dive inspection, Ship repair</td>
</tr>
<tr>
<td>Hazardous agents, substances, working conditions, processes</td>
<td>Health impacts</td>
<td>Economic sectors, tasks, and workplaces</td>
</tr>
<tr>
<td>------------------------------------------------------------</td>
<td>----------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Night work (between 22h00 and 6h00 according to ILO encyclopaedia or can vary by strict national dispositions)</td>
<td>Fatigue, Sleep disturbance Digestive disorder Loss of Appetite Behavioural changes Family and social life disturbance</td>
<td>Any productive sector involving night work</td>
</tr>
<tr>
<td>Work in confined places (closed and narrow spaces, deficient ventilation, work with toxic gases e.g. hydrogen of sulphur, CO2, and organic solvents)</td>
<td>Suffocation Acute intoxication Neurotoxicity Death</td>
<td>Mines Painting cabins, tunnels, Storing tanks (fuel) Cleaning central nets, air tubes or air conditioning systems Sewage system</td>
</tr>
<tr>
<td>Work at height without protection</td>
<td>Severe injuries Death</td>
<td>Ceiling repair work Exterior window cleaning Construction</td>
</tr>
<tr>
<td>Work with substances at high temperature (fuse metal, glass)</td>
<td>Severe burns Conjunctivitis due to infrared radiation</td>
<td>Iron and steel industry Fusing Glass factories</td>
</tr>
<tr>
<td>Extra hours, double turn or shift</td>
<td>Fatigue Higher probability of traumatic accidents Family and social life alterations</td>
<td>Any of the productive sectors that include these hazardous processes</td>
</tr>
<tr>
<td>Ionising radiation</td>
<td>DNA alterations (mutagenesis) and other chromosomes alterations, especially lymphocytes, Tissue atrophy and functional disturbance. Multiple disorders like ulcer, organ (renal, liver) failure, gland function diminished, arteriosclerosis, cancer, impaired growth of bones and cartilage in children</td>
<td>Mines, Construction, Airport inspection, Hospitals, Laboratories, Bulb factory</td>
</tr>
<tr>
<td>Machinery and tools without protection as used in the metal-mechanic, paper, timber industries, and circular saw, guillotine, machines for blending and mixing</td>
<td>Amputations and other injuries with different levels of severity, Infections Death</td>
<td>Paper industries, Metal mechanic Press Sawmills Mills Mineral processing plants (mines) Abattoirs and meat processing plants Butcher shops</td>
</tr>
<tr>
<td>Explosives (elaboration, storing and handling)</td>
<td>Death Amputations and other injuries Burns Hypoplastic Anaemia Toxic hepatitis Pneumonitis by nitrous gas</td>
<td>Explosives factory Explosives storage Pyrotechnics work Mines Construction of civil buildings</td>
</tr>
<tr>
<td>Work with firearms</td>
<td>Death Bullet injury</td>
<td>Security companies Repairing of arms</td>
</tr>
<tr>
<td>Contact with systems, circuits and conductors of electricity without protection</td>
<td>Electroshock Electric burns Ventricular fibrillation Death</td>
<td>Any economic sector that involves these hazards</td>
</tr>
</tbody>
</table>
Annex 5. Glossary of terms

Disability-adjusted life year (DALY) is a measure of overall disease burden, expressed as the number of years lost due to ill-health, disability or early death. It is used as a way of calculating and comparing the costs to society of various health conditions so that policy choices can be made.

Healthy Worker Effect (HWE). Persons who are working are often selected to work (say, from among other children in the family) because they are stronger and more able to work. And, the persons who are working are often fed better than other members of the family in order so that they can continue to work. In research, this is a source of bias. The HWE can mean that those workers who are participating in the study may not be representative of all workers, and the comparisons with a control group may be inaccurate due to these confounding factors.

Informal economy. “The informal sector may be broadly characterized as consisting of units engaged in the production of goods or services with the primary objective of generating employment and incomes to the persons concerned. These units typically operate at a low level of organization, with little or no division between labour and capital as factors of production and on a small scale. Labour relations – where they exist – are based mostly on casual employment, kinship or personal and social relations rather than contractual arrangements with formal guarantees.” (Resolution of the 15th International Conference of Labour Statisticians)

Job. A job is defined as a set of tasks and duties which are (or can assigned to be) carried out by one person. Most occupational classifications classify, i.e. group together in occupations and more aggregate groups, jobs by similarity of the type of work done

Occupational classification. This is a tool for organising all jobs in an establishment, an industry or a country into a clearly defined set of groups. The international classification, established by the ILO, consists of Major groups (one-digit codes), Minor groups (two-digit codes), Unit groups (three-digit codes) and Occupational categories (five-digit codes). For full details, see ILO: International Standard Classification of Occupations, revised edition, 1968 (Geneva, 1969). Examples of the one digit codes (of which there are nine): professional and technical, administrative, clerical, sales, service, agricultural, production workers, transport, labourers. It normally consists of two components:

a. a descriptive component, which may be just a set of titles of occupations and occupational groups, but which usually consists of descriptions of the tasks and duties as well as other aspects of the jobs which belong to each of the defined groups. These descriptions can be said to constitute a dictionary of occupations;

---

42 In ISCO-88 occupations are grouped together and further aggregated mainly on the basis of the similarity of skills required to fulfil the tasks and duties of the jobs. Two dimensions of the skill concept are used in the definition of ISCO-88 groups: Skill level, which is a function of the range and complexity of the tasks involved, where the complexity of tasks has priority over the range; and skill specialization, which reflects type of knowledge applied, tools and equipment used, materials worked on, or with, and the nature of the goods and services produced. (Scott, M. and Hoffmann E.)
b. the classification system itself, which gives the guidelines on how jobs are to be classified into the most detailed groups of occupations and how these detailed groups are to be further aggregated to broader groups. (Scott, M. and Hoffmann E.)

**Occupational injury:** any personal injury, disease or death resulting from an occupational accident; an occupational injury is therefore distinct from an occupational disease, which is a disease contracted as a result of an exposure over a period of time to risk factors arising from work activity; (ISCO – International Standard of Classifications of Occupations).

**Occupational disease.** A disease contracted as a result of an exposure over a period of time to risk factors arising from a work activity.

**Work-related injury.** This can be a (a) superficial injury, (b) fracture, (c) dislocation, sprain or stain, (d) burn, corrosion, scald or frostbite, (e) other corporal lesion that resulted from a work-related accident and led to a mild or severe impact on the child’s health or life. Impact is said to be severe if the injury led to hospitalization or forced the child to stop working or going to school for more than one day. The impact is medium if the child had some medical treatment or was forced to stop school or work for one day. An injury which had no impact on the child’s health or life in the sense described above is not counted as a work-related injury, i.e., when the child did not have any medical treatment or hospitalization and had no work stoppage or absence from school for at least a day.