



International
Labour
Office
Geneva

Children in hazardous work

What we know
What we need to do

Children in hazardous work

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What we know

What we need to do

International Programme on the Elimination of Child Labour
(IPEC)

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International Programme on the Elimination of Child Labour (IPEC)

Children in hazardous work: What we know, what we need to do

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With this report, the ILO draws attention to the large numbers of children still in hazardous work and acknowledges the efforts of the many organizations and individuals who are seeking viable, sustainable solutions to this problem.

Although work on this issue is not new, collaborative activities have been increasing over the last three years. In 2009, ILO and WHO established the Joint Technical Committee on Young Workers and Child Labour to promote enquiry into the health impacts of work on young people. An information-sharing network, Safe Work for Youth, which now has over 100 members, was created to share tools and good practices and to serve as a forum for discussion on how the occupational health challenges of young people can best be addressed. Several interagency meetings have been convened to examine the state of knowledge on hazardous work of children and good practices in dealing with it. These have helped to further strengthen ties among those active on the issue and to develop a common platform of understanding.

This report, *Children in hazardous work: What we know, what we need to do*, is a tangible product of this group concern and group effort. Although IPEC bears ultimate responsibility for its content, it grows out of this common platform.

This report was prepared by Susan Gunn, ILO, in conjunction with Richard Rinehart and Christopher Wanjek. Additional text was provided by Nadèche Andrianasolo (consultant), Saeed Awan (CIWCE-Pakistan), Laura Brewer (ILO-SKILLS), Mariela Buonomo (ILO-Youth Employment Programme), Sule Caglar (ILO-Turkey), Philippe Gousenbourger (ITUC-Brussels), Yoshi Kawakami (ILO SafeWork), Sanjiv Kumar (Government of India), Sue Longley (IUF), Andrews Tagoe (GAWU) and Yuka Ujita (ILO SafeWork), in addition to numerous IPEC colleagues in headquarters and the field.

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EXECUTIVE SUMMARY



Child welder © David Parker

Executive summary

Children in hazardous work are in many respects the silent majority within child labour. Although they appear in photos, when it comes to action they are often eclipsed by forms of child labour that have captured the public eye, such as child soldiers or trafficked children, or they are subsumed within general child labour efforts. Still too few policies or programmes are geared to the special needs of children who do hazardous work.

There are solid reasons for giving this issue urgent attention: (1) the scale of the problem – estimates place the current total of children in hazardous work at 115 million; (2) the recent rise in hazardous work among older children – an increase of 20 per cent within 4 years; and (3) the growing evidence that adolescents suffer high rates of injury at work, in comparison with adult workers.

There are also sound reasons to believe that it is in the area of hazardous work that major progress can be made in eliminating child labour. This report shows that there has been some real success in removing younger children from hazardous work, as well as in reducing the number of girls caught in this worst form of child labour. This suggests that efforts are paying off.

Hazardous work of children has been highlighted in recent ILO policy directives, such as the Global Plan of Action on Child Labour which set 2016 as the target date for elimination of the worst forms of child labour. The Hague Global Conference on Child Labour in 2010 also called for more focus on hazardous work.

Against this background the ILO has been reviewing what is known about the problem and examining “good practices” in dealing with it. This report offers a summary of this knowledge and practice and proposes how we might move forward.

The report is divided into three parts. The first provides a general overview of the issue. It discusses hazardous work of children in terms of how it is defined (Chapter 1), how many children are affected (Chapter 2), and why, from a health and a legal standpoint (Chapters 3 and 4, respectively), children require special protection.

The second part considers the research evidence regarding the problem and positive initiatives in addressing it. The research summary (Chapter 5) looks at the scientific data with respect to seven sectors: crop agriculture, fishing, domestic service, manufacturing, mining and quarrying, construction, and street and service industries. These were selected not because they are necessarily the “worst”, but in order to demonstrate the importance of knowing and understanding the risks inherent in an industry, the importance of conducting a “risk assessment” as to how the risks manifest themselves in a particular situation or locality, and the importance of using this information to identify which activities are age appropriate and which are not.

In this part the report warns that children’s lives are being lost or shortened by being exposed to hazardous work. Many people simply do not realize how vulnerable children are to toxic chemicals, to extreme temperatures, to repetitive mind-numbing tasks, to isolation or to denigration, threats and violence.

Also within this part, Chapter 6 presents a sampling of concrete activities that have potential for addressing hazardous work of children on a wider scale. They are offered for consideration as potential models because each embodies an approach that has been used successfully in a variety of countries. They approach the problem of hazardous work of children from different angles and under the leadership of different parties: the government, trade unions, employers and the community.

The third and final part gathers the threads from the previous parts together into a conceptual framework that aims to show what a coordinated, comprehensive effort to stop hazardous work of children should look like. Instead of seeing child labour as a problem specific to a rather narrow age group, it urges that we take a life-cycle approach. This involves a stronger focus on ensuring that education and training policies prepare children for work life so as to achieve an effective school-to-work transition. It also requires that when adolescents move into the labour force there are adequate safeguards for their safety and health.

The report stresses that addressing hazardous work by children is not only a technical issue. Major and sustainable progress requires public policies that address the root causes of child labour: tackling poverty, ensuring children have access to education and providing a social protection floor which protects the vulnerable.

Although the number of children in hazardous work is large, some of the most dangerous types of child work are concentrated in specific localities, specific occupations, specific tasks and specific age groups. Focusing energies on these pockets could go a long way towards generating the momentum needed to make progress. However, the report also warns that the scale of the problem could increase in many countries due to demographic changes, as youthful population bulges move into adolescence.

Overall, the report makes the case for children in hazardous work being made a priority for action over the next 5 years. It calls for specific action on three fronts:

- ▶ Making a renewed effort to ensure that all children are in school, at least until the minimum age of employment;
- ▶ Strengthening workplace safety and health for all workers, but with specific safeguards for youth between the minimum age of employment and the age of 18;
- ▶ Providing the crucial legal foundation for action against hazardous child work, with the support of workers and employers.

FACTS

The problem is serious:

- ▶ Hazardous work is one of the *worst forms of child labour*.
- ▶ *More than half* (53 per cent) of the 215 million child labourers worldwide do hazardous work.
- ▶ Hazardous work *is increasing* among older children, aged 15–17. Within four years (2004–08), it jumped 20 per cent – from 52 million to 62 million. Boys outnumber girls by two to one in this age group.
- ▶ Children have *higher* rates of injury and death at work than adults, as shown by data from industrialized countries.

But there is a strong basis for hope:

- ▶ Progress is being made. For younger children (aged 5–14) in hazardous work, rates came down 31 per cent between 2004 and 2008; for girls they are down by 24 per cent.
- ▶ There are 173 countries that have committed themselves to tackling hazardous work of children “as a matter of urgency” by ratifying the ILO’s Worst Forms of Child Labour Convention, 1999 (No. 182).



Child miner © David Parker

A gold strike, of sorts

There's a certain gold-mining operation in West Africa where, the local people say, the danger runs high but the pay is not bad. True, the work is hard and dangerous: the tunnels and shafts have rickety support structures (if any) and can collapse at any time; no one has ever thought of a safety plan should poisonous or flammable gases escape from underground pockets; there is no protective gear, many work in bare feet with bare hands. In short, the working conditions are deplorable and accidents are a daily occurrence. The living conditions are tough too. Water is scarce; there is no clinic; there are no toilets; there are no police.

The miners see little sunlight, slipping down narrow shafts before the dawn and surfacing only occasionally through the course of the long day. Others face quite the opposite, as they work unprotected under a hot sun, smashing rocks into pebbles and then grinding them down to sand. The hazard they know about is the stifling dust that you can never seem to get out of your lungs; the hazard they *don't* know so much about is the effect mercury has on the brain. They use mercury to separate the gold from the crushed ore.

Mines such as this one produce a fifth of the world's gold according to UN estimates.¹ They also produce gems for our jewellery and rare minerals for our cell phones. They are generally remote and unofficial but often highly organized. The doubling of world-market gold prices in recent years has made such gold prospecting all the more attractive to the abject poor, and all the more dangerous.

Not unexpectedly, a sizeable percentage of the workers drawn to these gold, gem and mineral mines and stone quarries are children – both girls and boys: children digging, hauling, crushing, breathing in dust; children kneading mercury into crushed ore with their bare hands; children negotiating a meagre price for flecks of gold from gun-toting buyers; children without decent food or clean water; children losing their chance at an education.

Many of us possess romantic notions of childhood, a time that is to be reserved for innocence, wonder and discovery. And many others argue from a practical perspective that childhood and the formal transition to work is a modern social construct that takes on different meanings in different cultures. Yet, universally, we agree there's something wrong with the above scenario, be it in a gold mine, a sugarcane field, a garment factory, a timber operation, a construction site or a garbage heap. When we allow children to be placed in such a situation, we surrender a bit of our humanity.

Yes, these children are poor, and what pittance they earn can help support their families. Yes, a child's need to work reflects a larger problem of a failed or sometimes corrupt infrastructure that doesn't offer affordable schooling. Yes, some children are quite mature for their age and seemingly can handle the physical and mental stress that manual labour can entail. Yes, some work is a form of education that can teach valuable life skills. But no child should be rubbing mercury into gold and vaporizing the resulting amalgam.

Let's look at the facts. Consider the adverse effects on a young body from working in the aforementioned goldmine. Mercury, a neurodevelopmental toxicant, impairs cognitive and motor skills. Acute exposure to mercury – acute, as in breathing in mercury fumes – can result in profound

¹ M.M. Veiga and R.F. Baker: *Protocols for environmental and health assessment of mercury released by artisanal and small-scale gold miners* (Vienna, GEF/UNDP/UNIDO, 2004).

problems of the central nervous system, leading to delirium and suicide.² In the gold-mining areas, a child can be exposed to mercury in many ways: through the skin when mixing it into the ore-bearing sand; by inhaling the fumes when it is being burned off over the fire (the most toxic and easily absorbed form); by ingesting it as residue on hands during meals or from food grown in contaminated soil. One research study showed that child miners had *higher* levels of toxic metals in comparison with adults even when they had less contact with the metals.³

What does this mean in terms of health? In one study, children working in a gold mine similar to that described were found to have alarming levels of mercury in their blood, urine and hair. Neurological tests comparing these children with a non-exposed control group were “striking”, the study found, with the mercury-exposed children needing *twice as long* to perform basic cognitive and reflex tests⁴. Moreover, even the children simply living at the mine exhibited higher mercury body burdens than children living further away, implying the broader, community-wide health threat imposed by the hazardous work conditions.⁵

Gram for gram, children breathe more air, consume more food and drink more water than adults do, partly as a result of the faster metabolism needed to support their growing bodies. An infant breathes twice as much air per kilogram of body weight as an adult. Therefore, absorption of toxicants is proportionally higher. Heavy loads can cause lifelong deformities and handicaps, such as crippled feet, bent backs or dislocated shoulders. And the heavy but invisible load of being responsible for supporting the rest of the family has effects still unmeasured on a young person’s capacity for learning ... and for joy.

Until now, the psychological, social and intellectual impact of hazardous work such as mining on children has not received much attention. We sometimes assume that if children don’t complain, they are managing alright. Yet children are often unwilling to speak out for fear they will lose their job or appear stupid, making them vulnerable to all kinds of exploitation. When children work side-by-side with adults in the mines, they are subject to verbal and physical abuse, if not wholesale fraud and deceit. The freewheeling lifestyle which is so common in remote and unregulated mines exposes them to alcohol abuse, gambling, prostitution and crime. Schools are non-existent; the only trade learned is how to survive in a near lawless environment.

If not mercury in this mine, then manganese or lead in a smelter elsewhere. If not armed buyers of gold, then the beatings by an aggressive factory boss elsewhere. If not mine dust, then silica from quarry work elsewhere. If not loud and dangerous machines here, then unwieldy tractors and exposed blades on farm equipment elsewhere.

If not at a workplace where the hazards are easy to see, then in the myriad small-scale industries such as shoe-making, leather tanning, garment sweatshops, automobile battery recycling, metal plating or woodworking, where the health impacts may appear only years later.

Often these jobs are so visible – as in selling flowers in the middle of a busy intersection – that they become *invisible*, blended into the cacophony of urban life.

The cost is not just to this child’s future, but to the society as a whole. The nation suffers alongside the worker, as a poorly qualified workforce leads to lower productivity, lower profits, lower investment, lower wages and the perpetuation of the cycle of poverty.

² *Inorganic mercury*. Environmental Health Criteria 118 (Geneva, UNEP-ILO-WHO, 1991). First draft prepared by Dr. L. Friberg, Karolinska Institute, Sweden.

³ C.L.N. Banza et al.: “High human exposure to cobalt and other metals in Katanga, a mining area of the Democratic Republic of Congo”, in *Environmental Research* (2009), Vol. 109, No. 6, pp. 745–752.

⁴ S. Bose-O’Reilly et al.: “Mercury as a serious health hazard for children in gold mining areas”, in *Environmental Research* (2008), Vol. 107, pp. 89–97.

⁵ *Ibid.*

“There’s nothing that can be done”, some say about the ubiquity of workplace hazards children face. “It’s just the way things are.” But we know this is not true. It may be the way things are now, but times are changing. This document is a testament to the fact that there’s plenty that can be done.

PART I

Why give priority to children in hazardous work?

Hazardous work deserves priority attention because:

- ▶ many children are at risk right now; they cannot wait for gradual changes;
- ▶ almost all countries have made a commitment to take urgent action by ratifying the ILO's Minimum Age Convention, 1973 (No. 138) and/or the Worst Forms of Child Labour Convention, 1999 (No. 182);
- ▶ the progress achieved with younger children indicates that with intensive efforts, we might be able to do the same for those remaining.



Child working on a fishing platform © David Parker

Some definitions

We start off this report by defining key terms that will be used within it and, at the same time, give a glimpse of some of the historical background to the issue.

› What is a child?

Age 18 is the dividing line between childhood and adulthood according to the major ILO child labour Conventions, Nos. 138 and 182, and the United Nations Convention on the Rights of the Child (CRC).⁶ Although many cultural traditions and personal characteristics could argue for a higher or lower age, in first crafting and then in ratifying these Conventions the international community has determined that persons under 18 are children and have the right to special protection.

› What is child labour?

Within this protected realm of childhood, ILO Convention No. 138 marks out minimum ages for different types of employment:

- ▶ age 15 for ordinary work;
- ▶ age 18 for hazardous work;
- ▶ age 13 for light work.

When ratifying, countries have the option to designate a higher age (e.g. 16) or, in the case of developing nations, an age lower by 1 year than the standard (e.g. 14 as the minimum age for regular work and 12 for light work). The notion of setting a minimum age for work has existed since the first decade of the twentieth century.

Child labour, then, is simply work done by children who are younger than the designated minimum age in one or another of these categories. This is the general rule, however, Convention No. 138 is somewhat flexible, in that it allows for some exceptions (artistic performances, supervised apprenticeships, etc.).⁷

Protection against child labour extends over most productive activities undertaken by children, whether or not there is a formal employment relationship or an employer as such (e.g. as in self-employment), whether paid or unpaid, for a few hours or full time, casual or regular, seasonal or year-round, legal or illegal. Productive work within the family falls within this category, such as unpaid family work for home-based manufacturing, family businesses or family farms. Fetching water or firewood for the household's consumption also comes under the category of productive activities.

Especially pertinent to this discussion is that health, along with education, is one of the defining characteristics of each of these categories. For example, the text includes numerous references and qualifications concerning health, such as “consistent with the fullest physical and mental development of young persons”, “on condition that the health, safety and morals of the young persons concerned are fully protected” and “work which is not likely to be harmful to their health or development”.

› What is hazardous work by children?

ILO Convention No. 182, which defines the worst forms of child labour (WFCL), goes a step further by including hazardous work as one of the four worst forms. This Convention, which

⁶ The CRC allows for a few exceptions.

⁷ See Convention No. 138 for a fuller discussion of these exceptions.

requires immediate action, (paragraph 'd' below) does *not* allow exceptions and prohibits children from being engaged in these types of work:

- (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.

Since the passage of Convention No. 182 in 1999 and the subsequent swift ratification by most ILO member States (173 out of 183 having ratified by the time of publication), substantial attention has been given to the first three of the worst forms, including trafficking.

Sadly, what receives less attention – an area harder to define, some argue – is the fourth element from Convention No. 182, referring to work that harms the health, safety and morals of children. The Convention itself does not define what this includes, instead leaving it to the countries to do so in the form of what we commonly call the “hazardous work list”. But the ILO’s Worst Forms of Child Labour Recommendation, 1999 (No. 190), the non-binding guidelines that accompany Convention No. 182, gives some indication as to what work should be prohibited. It urges member States to give consideration to:

- ▶ work that exposes children to physical, emotional or sexual abuse;
- ▶ work underground, under water, at dangerous heights or in confined spaces;
- ▶ work with dangerous machinery, equipment and tools, or that involves the manual handling or transport of heavy loads;
- ▶ 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;
- ▶ work under particularly difficult conditions such as work for long hours or during the night or work that does not allow for the possibility of returning home each day.

The legal foundation

1

It is helpful to think of hazardous work of children in terms of two distinct age groups: the younger children who are under the minimum age for work and should be in school, and the older children who are of legal working age. Generally speaking, if the very young are in hazardous work, they are the priority for action. If what they do is likely to put their health or development at risk, the only option in the case of younger children is to remove them from the work, while for older children there is a choice: either they may be removed from the hazardous situation, or the risks may be reduced through improvement in working conditions such that the work is no longer *likely* to put their health at risk.

The phrase “likely to jeopardise the health” (Convention No. 138) or “likely to harm the health” (Convention No. 182) or “likely to be hazardous” (CRC) is significant. It means that it is not necessary to prove through research or other means that the work will definitely result in illness or injury or some other negative consequence but, instead, that there is a substantial threat of its doing so.

› The hazardous work list

When countries ratify Convention No. 182 and Convention No. 138, they commit themselves to determining work to be prohibited to persons under 18 years of age. Article 4 of Convention No. 182 says:

1. The types of work referred to under Article 3(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] 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.

For short, we refer to this as the “hazardous work 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 exploitation and provide a clear rule on what children above designated ages can or cannot do.

A crucial element written into the two Conventions is the requirement for tripartite consultation. When employers, workers’ organizations and government all sit together to examine the questions “what work is hazardous?”, “where is it found?”, “which should have priority for action?”, it launches a process for addressing child labour that is nationally owned and led.

› The occupational safety and health Conventions

Here we are focusing on children, but neither is hazardous work acceptable for adult workers. The ILO Conventions on occupational safety and health (OSH)⁸ and on labour inspection,⁹ and

⁸ Occupational Safety and Health Convention, 1981 (No. 155), Promotional Framework for the Occupational Safety on Health Conention, 2006 (No. 187).

⁹ Labour Inspection Convention, 1947 (No. 81), or Labour Inspection (Agriculture), 1969 (No. 129).

important sectors such as agriculture, offer protection for *all* workers ... in fact, nearly half of all ILO instruments deal directly or indirectly with OSH issues. The ILO Constitution itself sets forth the principle that workers should be protected from sickness, disease and injury arising from their employment.

These standards promote basic principles, such as assessment of occupational risks or hazards, and promotion of a culture of prevention that includes information, consultation and training that are valid for workers of all ages.¹⁰ It has long been recognized that action *against* child labour can be action *for* decent work for adults.

People everywhere care about children. Where adults may not see their way clear to protect themselves, they often try to make the extra effort to protect their children. In the case of hazardous work, where economic necessity or deeply ingrained tradition blocks attempts to improve conditions for adult workers, it is sometimes the call to stop child labour that can be the entry point to change. Eliminating hazardous work of children can help improve safety and health of *all* workers – the ultimate goal.

In summary:

- ▶ Children can be in “child labour” up to the age of 18 – not 15 as many people assume – because work in hazardous conditions or doing hazardous tasks makes it a worst form of child labour.
- ▶ But hazardous work is also an indicator of child labour for younger children as well, and makes them the number-one priority for action.
- ▶ The “hazardous work list” is a good foundation stone for virtually all work on this issue.

¹⁰ For example, the Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187).

The number of children in danger

2

In this chapter, we look at the numbers. Are many children involved? Where? Girls or boys? We also look at the statistics that are currently available on accidents, injuries, illnesses and deaths of children at work. Unfortunately, the statistics are all too few given the gravity of the problem; and we call on governments, universities and donors to give priority attention to filling this major gap in our knowledge about hazardous work of children.

› Uneven progress

The total number of children in hazardous work is 115 million (2008 estimates, table 2.1). This is over 7 per cent of all children aged 5–17. The proportion varies significantly by age group. While less than one-third of younger children in employment (those aged 5–14) are now in hazardous work, almost half of all children aged 15–17 who are in employment are in work classed as hazardous!

Table 2.1 Estimates of various forms of children's work, 2004 and 2008

	Total children	Children in employment		Child labour		Hazardous child work	
	('000)	('000)	%	('000)	%	('000)	%
5–17 years, both sexes							
2004	1 566 300	322 729	20.6	222 294	14.2	128 381	8.2
2008	1 586 288	305 669	19.3	215 269	13.6	115 314	7.3
Boys							
2004	804 000	171 150	21.3	119 575	14.9	74 414	9.3
2008	819 891	175 777	21.4	127 761	15.6	74 019	9.0
Girls							
2004	762 300	151 579	19.9	102 720	13.5	53 966	7.1
2008	766 397	129 892	16.9	87 508	11.4	41 296	5.4
5–14 years, both sexes							
2004	1 206 500	196 047	16.2	170 383	14.1	76 470	6.3
2008	1 216 854	176 452	14.5	152 850	12.6	52 895	4.3
15–17 years, both sexes							
2004	359 800	126 682	35.2	51 911	14.4	51 911	14.4
2008	369 433	129 217	35.0	62 419	16.9	62 419	16.9

Source: IPEC: *Global child labour development: Measuring trends from 2004 to 2008* (Geneva, ILO, 2008).

Progress in reducing the worst forms of child labour has been uneven. Of greatest concern is an alarming 20 per cent increase in hazardous work of children in the 15–17-year age group, a rise from 51.9 million to 62.4 million children between 2004 and 2008.¹¹ This translates to 10.5 million more adolescents working in dangerous jobs or conditions in only 4 years.

¹¹ IPEC: *Accelerating action against child labour* (Geneva, ILO, 2010), p. 5.

Within the younger age group, however, there has been a rapid decline in the number of children engaged in hazardous work. In 2000, an estimated 111.3 million children aged 5–14 were in hazardous work. By 2004, this had been reduced to 76.5 million, and by 2008, down to 53 million. In other words, within 8 years, the number was cut in half. The 2008 global estimates show that, for the first time, there were more 15–17-year-olds in hazardous work than 5–14-year-olds, whereas in the first global estimates (2000) it was the reverse.

› Regional distribution of children in hazardous work

The number and proportion of children in hazardous work vary by region (table 2.2). The largest number is in Asia and the Pacific. However, the largest proportion of children in hazardous work relative to the overall number of children in the region is sub-Saharan Africa.¹²

Table 2.2 By region, the number and percentage of children aged 5–17 engaged in hazardous work, 2008

Region	Total children ('000)	Hazardous work ('000)	Incidence rate (%)
World	1 586 288	115 314	7.3
Asia and the Pacific	853 895	48 164	5.6
Latin America and the Caribbean	141 043	9 436	6.7
Sub-Saharan Africa	257 108	38 736	15.1
Other regions	334 242	18 978	5.7

Source: IPEC: *Global child labour development: Measuring trends from 2004 to 2008* (Geneva, ILO, 2008).

› Sex distribution of children in hazardous work

Most of the decline in the total numbers of children in hazardous work has been in the number of girls (table 2.3). Younger boys are showing only a slight decrease; among older boys there is an increase.

Table 2.3 Trends in all forms of child employment by sex

Sex	Child population		Children in employment		Child labour		Hazardous work		
	2004	2008	2004 ^a	2008	2004 ^a	2008	2004 ^a	2008	
Both sexes	Number ('000)	1 566 300	1 586 288	322 729	305 669	222 294	215 269	128 381	115 314
	Incidence (% of age group)	100.0	100.0	20.6	19.3	14.2	13.6	8.2	7.3
	% change (2004–08)	–	1.3	–	–5.3	–	–3.2	–	–10.2
Boys	Number ('000)	804 000	819 891	171 150	175 777	119 575	127 761	74 414	74 019
	Incidence (% of age group)	100.0	100.0	21.3	21.4	14.9	15.6	9.3	9.0
	% change (2004–08)	–	2.0	–	2.7	–	6.8	–	–0.5

¹² IPEC: *Global child labour developments: Measuring trends from 2004 to 2008* (Geneva, ILO, 2008) p. 11.

Table 2.3 (cont.)

Sex		Child population		Children in employment		Child labour		Hazardous work	
		2004	2008	2004 ^a	2008	2004 ^a	2008	2004 ^a	2008
Girls	Number ('000)	762 300	766 397	151 579	129 892	102 720	87 508	53 966	41 296
	Incidence (% of age group)	100.0	100.0	19.9	16.9	13.5	11.4	7.1	5.4
	% change (2004–08)	–	0.5	–	–14.3	–	–14.8	–	–23.5

Note: ^a 2004 estimates have been retrospectively adjusted

Source: IPEC: *Global child labour development: Measuring trends from 2004 to 2008* (Geneva, ILO, 2008).

Boys outnumber girls in hazardous work across all age groups. Over 60 per cent of children in hazardous work are boys, in both the 12–14 and 15–17 years age groups. Among boys of all ages, there was hardly any change in the percentage involved in hazardous work between 2004 and 2008. It remained at around 9 per cent,¹³ whereas for girls it declined by 24 per cent (from 54 to 41 million), i.e. 5.4 per cent of girls aged 5–17 were in hazardous work in 2008.¹⁴

› Sectoral distribution of children in hazardous work

Hazardous work is highest in agriculture, which comprises fishing, forestry, livestock herding and aquaculture, in addition to subsistence and commercial farming. Fifty-nine per cent of children in hazardous work aged 5–17 are in this sector, in comparison with 30 per cent in services and 11 per cent in industry. While boys are more likely to work in agriculture and industry, girls outnumber boys in services. Approximately two-thirds of children in hazardous work between 5 and 17 years old work as unpaid family workers; of the remaining, 28 per cent are in paid employment and 7 per cent are self-employed.¹⁵

Progress has been slow in agriculture, in part because these children, spread out over the rural areas of the world, are the hardest to reach. But farming, fishing and livestock herding have many hazards and create more injuries and illnesses than what we hear about. Given the large numbers of children in this sector, agriculture must be a priority for the elimination of hazardous work.¹⁶

› Injuries and illnesses

One of the reasons why we do not feel the full brunt of hazardous work of children is because we have not been seeing data and reports on the accidents and injuries that result from this work. For the developing world, there have been virtually no statistics on occupational injuries and illnesses for children. Even for the industrialized countries, work-related injuries and illnesses are systematically under-reported, but they give us an inkling of what the toll must be in the countries that do not have the same protections that others take for granted: safety regulations and enforcement, health services close by, and mandatory reporting and surveillance systems.

In the United States, just in the 15–17-year age group, 374 children died at work in a 10-year period, 1998–2007 (a fatality rate of 2.9 deaths per 100,000 full-time equivalents) and an estimated

¹³ Ibid.

¹⁴ Ibid.

¹⁵ IPEC/SIMPOC calculations based on IPEC (2008, op. cit).

¹⁶ IPEC: *Accelerating action against child labour* (Geneva, ILO 2010), p. 5.

598,000 children sustained work-related injuries and illnesses severe enough to be treated in hospital emergency departments (an injury/illness rate of 4.2 per 100 full-time equivalents).¹⁷ If you take a larger group – all child workers under 18 years – the average number of injuries per year in the United States is estimated to be 158,000.¹⁸ If you take just one state (North Carolina, in which a careful review of 20 years of records was undertaken), more than one child dies every year as the result of work.¹⁹

These numbers might sound low, but it is the risk relative to that for other groups, the comparisons, that counts: these data show that the rate of injury for children aged 15–17 is *nearly twice* that of workers 25 years and older.²⁰

Looking deeper into these figures we see another alarming fact. The rates of injury are much higher for migrants and ethnic minorities than for the dominant population. For example, Hispanic child workers in the United States had *twice the number of deaths* as the non-Hispanic workers, a rate of 6.3 deaths per 100,000 worker deaths.²¹

European data also show that young workers, aged 15–24, have higher accident rates than adults. For example, in 2003, 4.7 per cent of young workers had an occupational accident with more than 3 days lost, in comparison with an average for the older working population of only 3.3 per cent.²² A recent study of 3,687 working adolescents in Denmark found that nearly half of these young workers reported that their work was heavy or psychologically demanding – two factors that are associated with an increased risk of experiencing an occupational injury – and that the incidence of work accidents was nearly twice as high among adolescents as among the adult work force in terms of incidents per number of working hours.²³

In terms of work-related fatalities, European youth also have higher rates than older workers, accounting for 8.9 per cent of all fatal occupational accidents in 2002. Agriculture had the highest incidence rate for fatal accidents among young European workers, followed by construction and transport. Over 30 per cent of accidents on farms involved children and adolescents.²⁴

Overall, across Europe, the European Agency for Safety and Health at Work (EU-OSHA) concluded, “young workers are at least 50 per cent more likely to be hurt at work than older people [and] more likely to suffer from an occupational illness”.²⁵

There are a few other countries in the world that have been systematically collecting injury and illness data on children in hazardous work. Brazil is one of these. Through its innovative national health worker surveillance system, in the 3-year period 2007–09 it documented 2,676 workplace injuries among those under 18 years – a rate comparable with that of the United States and

¹⁷ CDC: “Occupational injuries and deaths among younger workers – United States, 1998–2007”, in *Morbidity and Mortality Weekly Report* (MMWR) (23 April 2010), Vol. 59, No. 15, pp. 449–455.

¹⁸ Ibid.

¹⁹ K.J. Rauscher et al.: “Work-related fatalities among youth ages 11–17 in North Carolina, 1990–2008”, in *American Journal of Industrial Medicine* (2011), Vol. 54, pp. 136–142.

²⁰ Ibid.

²¹ CDC: “Occupational injuries and deaths among younger workers – United States, 1998–2007”, in *Morbidity and Mortality Weekly Report* (MMWR) (23 April 2010), Vol. 59, No. 15, pp. 449–455.

²² *OSH in figures: Young workers – Facts and figures* (Institute for Occupational Safety and Health, for the European Agency for Safety and Health at Work, 2006).

²³ K. Rasmussen et al.: “Incidence of work injuries amongst Danish adolescents and their association with work environment factors”, in *American Journal of Industrial Medicine* (2000), Vol. 54, pp. 143–152.

²⁴ *OSH in figures: Young workers – Facts and figures* (Institute for Occupational Safety and Health, for the European Agency for Safety and Health at Work, 2006).

²⁵ Ibid.

Europe.²⁶ It is noteworthy that as its reporting system has improved, more accidents, injuries and illnesses associated with work are coming to light.

Similarly, during one year (2008) Chile reported 1,124 work-related accidents or illnesses among adolescents between the ages of 15 and 17. More detailed data from 2009 showed that 93 per cent of these adolescents had suffered a work-related health event which required, on average, 6.5 days for treatment or recovery. Agriculture was responsible for the greatest proportion of these (32 per cent), followed by hotels and restaurants (22 per cent) and trade (12 per cent). Of the estimated 100,000 child labourers in the country, 39 per cent work in unacceptable conditions, more than 44 per cent do not attend school, while almost 38 per cent work more than 49 hours per week. One-third of all working adolescents work during the night.²⁷

An older but well-analysed review of injury data from the Philippines estimated that 23.8 per cent of all economically active children suffered an injury during one year – a total of 882,440 workplace injuries. Interestingly, the survey showed that night work, heavy work and exposure to physical hazards each increased the odds of workplace injury by 40 per cent. Children working in agriculture had a five times greater risk of non-fatal injury in comparison with children working in other industries and that the use of tools in the workplace was the risk factor most often responsible for the injury. Within a 12-month reference period, roughly 637,000 childhood agricultural injuries occurred, for an incidence rate of 0.08 injuries per 100 person-hours worked or 56.8 injuries per 100 full-time equivalents.²⁸

A consultation among researchers specializing in hazardous child labour met in Turin in early 2011 to recommend a course of action for filling current information gaps. They confirmed that, apart from the specific examples cited above, data on the impact of work on children's health were extremely inadequate and that better estimates were needed based on exposure and outcome data and on the risk of both injury and disease as a result of exposure. Such information would have practical use in that it could be used to:

- ▶ support the development/revision of the hazardous work list;
- ▶ raise the profile of the problem of hazardous child work;
- ▶ guide those working in specific occupational sectors and industries.

As a result of this meeting, the ILO launched an important new study in April 2011 to examine more closely the relationship between children's exposure to work hazards and the occurrence of work-related injuries, particularly in developing countries. This study, using data from a large number of specialized child labour surveys conducted during the last ten years by the ILO, will be a first step in calculating global estimates of work-related injury rates by children.

²⁶ CDC: "Occupational injuries and deaths among younger workers – United States, 1998–2007", in *Morbidity and Mortality Weekly Report* (MMWR) (23 April 2010), Vol. 59, No. 15, pp. 449–455.

²⁷ IPEC: *Crecer protegido. Manual para la proteccion del adolescente trabajador* (Santiago, ILO, 2009), p. 18.

²⁸ C. Castro: *Measuring hazardous work and identifying risk factors for non-fatal injuries among children working in Philippine agriculture* (Washington, DC, 2010), unpublished document.

The health danger

Hazardous work cannot be acceptable for children because of basic biology. Children are not simply smaller adults, they are physically and mentally different (box 3.1); and regardless of cultural perceptions or social construct, the transition to biological adulthood extends past puberty well into the late teen years. This is the foundation for the argument against hazardous work of children ... the rationale for why it is classed as a “worst form of child labour [that] requires immediate and comprehensive action”.²⁹

Box 3.1 Children are not little adults

- ▶ Children have thinner skin, so toxics are more easily absorbed.
- ▶ Children breathe faster and more deeply, so can inhale more airborne pathogens and dusts.
- ▶ Children dehydrate more easily due to their larger skin surface and because of their faster breathing.
- ▶ Children absorb and retain heavy metals (lead, mercury) in the brain more easily.
- ▶ Children’s endocrine system (which plays a key role in growth and development) can be disrupted by chemicals.
- ▶ Children’s enzyme systems are still developing so are less able to detoxify hazardous substances.
- ▶ Children use more energy when growing and so are at higher risk from metabolized toxins.
- ▶ Children require more sleep for proper development.
- ▶ Children’s less-developed thermoregulatory systems make them more sensitive to heat and cold.

In this chapter we give an overview of some of the basic concepts in occupational safety and health as this is the language we need in order to understand each other when we discuss hazardous work.

› Some basic principles about hazardous work

A hazard is anything with the potential to do harm. A risk is the likelihood of potential harm from that hazard actually occurring. Consider common workplace hazards: an object (knife blade, tall ladder), a solvent (benzene), a material (asbestos), an energy source (electricity), a physical environment (wet floor), a psychological environment (intimidation), a task (welding), a general practice (tobacco growing), a condition of work (excessive hours). The potential harm from some of these hazards is obvious, such as cuts from blades and blindness from welding. Other times, the hazards are obscured or take a long time to be felt. For example, many young farm workers don’t know that when they harvest wet tobacco leaves they will be absorbing nicotine through their skin. A 16-year-old shoe-maker may not know that the glue he uses contains benzene or that it can lead to leukaemia and death by age 30. The dangers associated with psychosocial hazards are known least of all. Stress, long hours, fast-paced work, isolation, intimidation – to name a few – can all cause interior wounds, wounds that are not quick to heal.

²⁹ Preamble to Worst Forms of Child Labour Convention, 1999 (No. 182).

A crucial fact to remember is that almost all work carries some risk. However, work in the presence of hazards is not necessarily hazardous work. A child over minimum age can work (1) if the hazard can be actually removed, (2) if the child can be separated sufficiently from the hazard so as not to be exposed, or (3) if the risk associated with that hazard can be minimized. The ILO speaks of this as “identifying hazards and reducing risks”. In its guidelines for employers, it encourages them “to reduce the risks for all workers, adolescents and adults, through improved workplace safety and health. This will reduce the likelihood that young workers are at risk from hazardous situations. In addition, an employer can determine whether workers below the age of 18 (but above the minimum age) are engaged in tasks where the risks from hazards are high. The employer can then reduce those risks as a way of eliminating hazardous work of children.”³⁰

The challenge is to know where to draw the line. When has the risk been minimized enough? When is the work hazard no worse than, say, the hazards in sports? When, in a vocational training or apprenticeship situation, is instruction and supervision adequate?

› Why children are at greater risk

Some ask whether adult standards can be used as a guide. The rules for adults take into account health and safety risks, but not developmental risks. They have value only as a warning. Logically, if something is off-limits for an adult, such as radiation or asbestos, it is obviously so for youth.

Children’s bodies, minds and judgement are still developing, even in the late teens; their reproductive systems and brain functions are particularly susceptible to any hazard that interferes with that process.

Adolescence is the last period of rapid cell growth. Exposure to pesticides, neurotoxicants, endocrine disruptors, allergens or carcinogens during this critical period can be dangerous.

Adolescent bodies absorb a higher dose of toxicants because of their relatively higher rate of breathing and metabolism per unit of body weight; and they can react more strongly to these toxicants than adults.

Approximately 15–20 per cent of a person’s height is acquired between the ages of 10 and 20, about half during a 2-year period of rapid growth. It is at this time that damage to bones, joints, ligaments and muscles is especially likely and when physical strain and repetitive movements can cause stunting, spinal injury and other lifelong deformities and disabilities.³¹

Box 3.2 Children’s risk is increased because they:

- ▶ lack work experience, and may not make well-informed judgements;
- ▶ have a desire to perform well – children are willing to go the extra mile without realizing the risks;
- ▶ learn unsafe behaviours from adults;
- ▶ might not be carefully trained or supervised;
- ▶ lack status and find it difficult to speak out about their rights;
- ▶ try to appear as if they understand, when actually they don’t, so as to appear competent.

There is as yet no good solid research on this, but experience suggests that it is young people’s psychological and behavioural characteristics that often put them at risk, and it is their psychological

³⁰ ILO-ACT/EMP and IOE: *Eliminating child labour. Guide 2: How employers can eliminate child labour* (Geneva, ILO, 2007), pp. 12–13.

³¹ T. Morse et al.: “Trends in work-related musculoskeletal disorder reports by year, type, and industrial sector: a capture-recapture analysis”, in *American Journal of Industrial Medicine* (2004), Vol. 48, No. 6, pp. 40–49.

health and development which may be most affected (box 3.2). This is of great concern because psychological damage is often slow to manifest itself and hardest for those without explicit training to pick up. Young people are anxious to please; they may be impetuous and act without thinking, are sometimes impatient and move quickly, and lack experience; they are often reluctant to speak out on their own behalf; and they seldom have an organization or individual to represent them. Many of the jobs that are accessible to children are the ones that require – and offer – little formal training and frequently lack adequate adult supervision, which adds to the risks.

› Challenges in understanding children's risks

Why have research and policies on hazardous work of children been lagging behind? It may be because many people assume that children don't work or that the work they do is not so dangerous. Or perhaps they feel that it is not necessary to know about the effects of work on children's health, but simply to concentrate on getting younger children out of work.

What is important to remember – and hardest to judge – is that a child in hazardous work is not subject to just one risk factor, but usually to several. Hazardous work often (but not always) occurs along with poverty. When she is malnourished *and* carries heavy loads, she is exhausted and her risk of illness increases. When he is growing rapidly *and* working for hours in the hot sun, his risk of injury increases. In addition, the child who is scolded for lack of attention or beaten for a mistake pushes herself or himself even harder ... and the risk of an accident increases even more.

Do we need to do more research? Don't we already know that chemicals, long working hours and exploitive situations are bad for adults and therefore bad for children? Yes, we know that being exposed to lead is dangerous (as when children dismantle car batteries for a living), but it is not until someone shines the light on it that we make the connection between the work and the fact that the child can't seem to learn in school. Although large-scale studies would seem a luxury, it is these that help policy-makers justify pushing the issue higher up the priority list. Information is the crucial element in advocacy. Research is needed³² to:

- ▶ obtain a profile of occupational risks to children so that awareness campaigns, training and prevention strategies can be adjusted to meet the real needs;
- ▶ assess the gender differences in these risks, as well as the risks for young migrant workers, indigenous people and other ethnic minorities; and
- ▶ target risk-reduction policies and programmes to the sectors where young workers are most at risk.

› The cost to society of hazardous work

If a child contracts a chronic illness, loses an eye or suffers an amputation by age 18, it is far more costly to society than if an adult worker contracts the same illness or suffers the same injury at, say, age 50. The young person has lost over 30 years of productivity and has not had a chance to reimburse the investment in her training, and it is likely her family would have incurred costs for medical care over that period as well.

Low-grade exposures to pesticides, heavy metals such as lead or mercury, or chronic fatigue may not result in measurable costs, but may render the young worker more vulnerable to other physical or psychological stressors, and ultimately with less energy with which to contribute to the nation's growth.

³² *OSH in figures: Young workers – Facts and figures* (Institute for Occupational Safety and Health, for the European Agency for Safety and Health at Work, 2006).

Take, for example, the case of lead. Lead exposure poses a serious risk for the developing brain and nervous system and has been linked to impaired cognitive function and adverse neurobehavioural effects. An analysis of 24 studies of childhood lead exposure concludes that lead impairs children's neurological functioning and IQ at blood levels under 10 µg/dl and 5.8 IQ points can potentially be lost for each 10 µg/dl increase in blood lead.³³ This impact persists in early childhood and adolescence.³⁴ Box 3.3 illustrates the economic costs of lead exposure.

Box 3.3 The economic costs of lead exposure to child labourers

Researchers have developed a method to quantify, in economic terms, the magnitude of the problem of lead exposure in child workers. This model determined that the loss of 1 IQ point corresponded to an overall reduction in lifetime earnings of 2.4 per cent. Based on the estimate of 4 µg/dl increase in blood lead levels causing a 1 point IQ drop and working on the assumption that there is not a threshold blood lead level for cognitive effects, each 1 µg/dl of blood lead concentration is associated with a 0.25 point decrease in IQ. This finding has important implications not only for young workers and livelihood, but also for the future productivity of developing nations.

Source: Landrigan, P.J. et al. 2002. "Environmental pollutants and disease in American children: estimates of morbidity, mortality, and costs for lead poisoning, asthma, cancer, and developmental disabilities", in *Environmental Health Perspectives*, Vol. 110, No. 7, pp. 721–728.

³³ H.L. Needleman and C.A. Gatsonis: "Low-level lead exposure and the IQ of children. A meta-analysis of modern studies", in *Journal of the American Medical Association* (1990), Vol. 263, No. 5, pp. 673–678.

³⁴ D.C. Bellinger et al.: "Low-level lead exposure, intelligence and academic achievement: A long-term follow-up study", in *Pediatrics* (1992), Vol. 90, No. 6, pp. 855–861.

The best way to reach the target

4

In 2006, the ILO Governing Body set 2016 as the target for when its 183 member States should have freed themselves from the worst forms of child labour. The Governing Body was concerned that the urgency spelled out in Convention No. 182 was being ignored and the fervour that fired the member States to ratify this Convention at such an unprecedented rate had dissipated.

Therefore, the Government of the Netherlands, in cooperation with the ILO, offered to host a conference in The Hague in May 2010 that would assess global progress in reaching the 2016 target. The over-500 delegates from 97 countries who attended decided that there needed to be a re-energized campaign against the worst forms of child labour, and they proposed a roadmap that laid out the steps to be taken to ensure that the 2016 target was met (box 4.1). They concluded that focusing on hazardous work of children could make a large impact at this critical juncture because hazardous work of children is in fact a measure that is often used as a proxy for the worst forms of child labour.³⁵

Box 4.1 The Hague Roadmap

Some guiding principles:

- ▶ Governments are mainly responsible for enforcing the right to education and eliminating the worst forms of child labour; social partners and other civil society and international organizations have important roles in promoting and supporting such action.
- ▶ Governments' responsibility should be assumed at the highest level and should include due attention to the most vulnerable children and the conditions that create their vulnerability.
- ▶ In a globalized economy, government responsibility includes policy attention to child labour issues in international supply chains.
- ▶ The potential vulnerability of children in the context of migration flows needs attention.
- ▶ The worldwide movement against child labour needs strengthening, using both traditional and new media.

The Hague delegates emphasized how we have a clear moral obligation to eliminate hazardous work of children, to protect those most needing our protection. They spoke of it as a significant impediment to the realization of children's rights and the associated Millennium Development Goals, particularly those related to education, gender equality and HIV/AIDS.

But besides ethics, they also noted the economics. Hazardous work of children degrades the human capital of a nation. Therefore, elimination of hazardous work of children can yield high social and economic returns because it contributes to households breaking out of the cycle of poverty and helps countries advance human development.³⁶ But to do this, the delegates stressed, requires public policies that focus on the issue: education policies that ensure accessibility and

³⁵ IPEC: *Accelerating action against child labour* (Geneva, ILO, 2010), p. 5.

³⁶ IPEC: *Roadmap for achieving the elimination of the worst forms of child labour by 2016*, Conference Report (Geneva, ILO, 2010), p. 2.

quality of schools, and pro-employment policies (including labour inspection) that support decent work for adults and children of working age.

In summary, the international community has laid out its “instructions”:

- ▶ in 1999 calling for *urgency* in eradicating the worst forms of child labour (Convention No.182);
- ▶ in 2006 setting 2016 as the target for completing this work (ILO Governing Body);
- ▶ in 2010 laying out the steps for achieving it (The Hague Roadmap).

They could not be more clear.

PART II

Knowledge and practice: What have we learned?

In the following section, we look at the knowledge base derived from research on hazardous work of children, and at positive examples of addressing it, drawn from project evaluations. As noted earlier, this review of research and experience is not intended to “prove” that specific work is hazardous or that certain interventions are effective. Rather, its purpose is to emphasize that hazardous conditions and tasks can have a profound effect on children’s immediate well-being and on their long-term health and productivity; and at the same time, to demonstrate that the situation is not hopeless. Something can be done.

Chapter 5 examines several sectors in which children work in hazardous conditions. We are not suggesting that these are the worst; they are just examples. By explaining the tasks that children typically do in a sector and presenting some of the particularly convincing research evidence on the health impacts, we hope to show that there are many dangers, some of them hidden.

Bear in mind that these are by no means the only sectors with noteworthy hazards. Every sector can have tasks or conditions that should be made “off-limits” to young people. At the same time, most sectors – but not all – have tasks that are safe enough for young workers of legal age to do. But it is important to remember that a job can involve multiple hazards that interact with each other, and that time pressure and fatigue can increase the risk in all industries.



Child amalgamating gold ore © David Parker

The evidence base on hazardous work by sector

› Crop agriculture

Agriculture is the sector with the most child labourers. It is also the sector with the most potential for decent work for rural children and young adolescents who have reached the legal minimum age of employment. Although we must keep in mind that work in field and tree crops has a number of serious risks for children, one must *not* assume that these risks make the whole industry off-limits to children of all ages. Indeed, many types of farm work can be positive for children, providing them with experience and technical skills. Because of the numbers involved and the value of the industry to the family as well as to the national economy, it is absolutely crucial to discern which tasks, which working conditions, which products and which tools are hazardous and to help parents and policy-makers alike to take the necessary steps to protect children from those hazards.

The scope, the hazards

Is the family farm a safe place to work? Can a child combine chores on the farm with school? What was true years ago, may not be so now. With globalization, the profile of child work in crop agriculture is rapidly changing. Subsistence farmers in developing countries are adopting the chemicals used by big plantations, but they may have little training in their use and product warning labels may not be in a language they understand.³⁷ In developed countries, the greatest danger is in the use of motorized equipment (tractors, loaders, chainsaws), and although adolescents may know the dangers, their lack of judgement and impatience may lead them to take risks. Where outgrowers are producing for the international market (e.g. sugar, bananas, flowers, cocoa, tobacco, tea, coffee), child workers may be exposed to toxic substances particular to that industry, such as methyl bromide, a particularly toxic pesticide used in flower production;³⁸ or be expected to use sharp tools, which, although traditional, are being used at an industrial pace, as in cocoa production; or encounter injuries or illnesses from the plants themselves, as when harvesting the sharp leaves of sisal.

Table 5.1 Selected list of common tasks, hazards and potential consequences in crop agriculture

Tasks	Hazards	Injuries and potential health consequences
Loading and carrying produce or water	Heavy loads	Joint and bone deformities; blistered hands and feet; lacerations; back injury; muscle injury
Climbing trees to harvest fruit	Dangerous heights; slippery surfaces; unstable ladders	Fatal or non-fatal injuries, including broken bones, skull fractures and head injuries
Collecting fodder	Heavy loads; thorns and sharp objects	Blistered hands and feet; lacerations; back injury; muscle injury

³⁷ L. Goldmann et al.: *Childhood pesticide poisoning: Information for advocacy and action* (Châtelaine, UNEP, 2004).

³⁸ IPEC: *Ecuador: Trabajo infantil en la floricultura*, Rapid Assessment No. 35 (Geneva, ILO, 2000).

Table 5.1 (cont.)

Tasks	Hazards	Injuries and potential health consequences
Collecting, preparing, redistributing manure	Bacteria, parasites and other micro-organisms	Bacterial and parasitic infections and diseases; rashes and other forms of dermatitis; asthma and breathing difficulties; eye irritation
Weeding and harvesting	Thorns; bending; long hours; insects and animals; biological toxins and exposures	Back and muscle injury; lacerations; blisters; exhaustion; poisonings, such as Green Tobacco Sickness
Caring for farm animals	Kicks; bites; brucellosis, anthrax and other bacterial exposure such as <i>E. coli</i> and salmonella; rabid animals	Head trauma and broken bones from kicks; infections from bites; weakness from brucellosis; bacterial or viral infections resulting in death or severe injury
Handling, mixing, spraying agrochemicals	Toxic chemicals	Rashes and other forms of dermatitis; allergic reactions; breathing difficulties; eye irritation; chemical poisoning; liver damage; nerve and neurological disorders; cancers; reproductive health disorders such as male and female infertility
Using motorized or sharp farm tools	Tools in poor repair; lack of safety features; sharp blades; heavy weights; loud noise; vibrations; faulty power supply; poor ventilation	Amputation of fingers, toes and limbs; noise-induced hearing loss; eye injuries and blinding; electrocution; carbon monoxide poisoning
Driving tractors or other farm machinery	Vehicle or machine in poor repair; lack of safety features; fast-moving blades; moving belts; uneven ground or mud	Severe injury or death from vehicle collision or overturned tractor; lost finger or limb from standing too close to moving part; pulled into or underneath machinery
Outdoor work in general	Exposure to extreme weather; sun; insects; wild animals; parasites; lack of drinking water	Frostbite, sunstroke and other thermal stresses; dehydration; snake and other bites; malaria and mosquito-borne diseases; illness from drinking stagnant or polluted water

The evidence

In crop agriculture, much of the recent research has centred on the health impacts of exposure to pesticides. Pesticide poisonings are under-reported because farmers (and health workers) often do not recognize the symptoms. The evidence we do have comes mainly from national surveillance systems in industrialized nations. However, what is shocking is that while developing countries use only 25 per cent of the world's pesticides, it is estimated that they have 99 per cent of pesticide-related fatalities,³⁹ implying that lack of knowledge of proper use is a critical factor.

An indication of the extent of under-reporting comes from a surveillance study in seven Latin American nations. In 2000, this study reported 816 confirmed poisoning cases (5.7 per 100,000 population) with 27 fatalities (0.2 per 100,000 population) for children under 15 years of age. However, a majority of

³⁹ J. Jeyaratnam et al.: "Acute pesticide poisoning: A major global health problem", in *World Health Statistics Quarterly* (2000), Vol. 43, No. 3, pp. 139–144.

the true cases were not detected.⁴⁰ Another Latin American surveillance study, extrapolating the number of cases to make up for under-reporting, estimated that more than 18,000 cases of acute pesticide poisoning occurred among children 5–14 years old within a 10-year period.⁴¹ The US Environmental Protection Agency reports that 10,000–20,000 physician-diagnosed pesticide poisonings occur each year among US agricultural workers,⁴² but cautioned that this number represents only a small fraction of actual pesticide poisonings.⁴³ Another US study looked at young workers in particular and found, over a 10-year period, 531 acute occupational pesticide poisonings, and that almost a quarter of those affected were below the age of 13. The incidence per year among children aged 15–17 years employed in agriculture was 196.9 per billion hours worked; in comparison, the rate among those employed in other sectors was 7.0 per billion hours worked. The study concluded that the risk of acute occupational pesticide poisoning was higher for young workers than for adults.⁴⁴

Although not well researched, long-term pesticide exposure at low levels has been associated with chronic health problems in children, such as cancer and reproductive health problems.^{45, 46, 47} Exposure to pesticides increases the risk of cancer in childhood (a case-control study of children under 15 years of age found the odds of soft-tissue sarcomas⁴⁸ to be increased by four times and the odds of developing leukaemia by almost three times), as well as increasing the risk of developing cancer later in life.⁴⁹ Reproductive damage has been demonstrated, for example, by a cross-sectional study among young working boys chronically exposed to the insecticide endosulfan, who experienced complications in sexual development, including improper testosterone production and delays in reaching sexual maturity when compared with a control group of boys who were not exposed.⁵⁰

Particularly alarming are studies that show that young people's neurological development is affected by exposure to pesticides. If the nervous system is damaged it can cause lowered intelligence and behavioural abnormalities later in life.⁵¹ This was demonstrated in a cross-sectional study of working youth in Brazil, which found that those exposed to organophosphate pesticides had significant motor and attention deficits. The exposure was found to be strongest among the youngest age category, 10- and 11-year-olds.⁵² Another cross-sectional study in the cotton

⁴⁰ S. Henao and M. Arbelaez: "Epidemiological situation of acute pesticide poisoning in the Central America Isthmus, 1992–2000", in *Epidemiology Bulletin* (2002), Vol. 23, pp. 5–9.

⁴¹ M. Corriols and A. Aragón: "Child labour and acute pesticide poisoning in Nicaragua: Failure to comply with children's rights", in *International Journal of Occupational and Environmental Health* (2010), Vol. 16, No. 2, pp. 193–200.

⁴² NIOSH: *Pesticide illness & injury surveillance* (24 April 2009).

⁴³ In addition to the barriers farmworkers face in accessing any kind of medical care, poisoned workers who do find care may not be correctly diagnosed, and diagnosed cases may not be reported to surveillance systems. G. Calvert et al.: "Acute pesticide-related illnesses among working youths, 1988–1999", in *American Journal of Public Health* (2003), Vol. 93, pp. 605–610.

⁴⁴ G. Calvert et al.: "Acute pesticide-related illnesses among working youths, 1988–1999", in *American Journal of Public Health* (2003), Vol. 93, pp. 605–610.

⁴⁵ Ibid.

⁴⁶ X. Ma et al.: "Critical windows of exposure to household pesticides and risk of childhood leukemia", in *Environmental Health Perspectives* (2002), Vol. 100, p. 955.

⁴⁷ J.L. Daniels et al.: "Residential pesticide exposure and neuroblastoma", in *Epidemiology* (2001), Vol. 12, p. 20.

⁴⁸ Soft-tissue sarcomas are malignant (cancerous) tumours that develop in tissues which connect, support or surround other structures and organs of the body, such as muscles, tendons, fat, nerves or blood vessels.

⁴⁹ S.H. Zahm and M.H. Ward: "Pesticides and childhood cancer", in *Environmental Health Perspectives* (1998), Vol. 106, Suppl. 3, pp. 893–908.

⁵⁰ H. Saiyed et al.: "Effect of endosulfan on male reproductive development", in *Environmental Health Perspectives* (2003), Vol. 111, No. 16, pp. 1958–1962.

⁵¹ L. Rosenstock et al., Pesticide Health Effects Study Group: "Chronic central nervous system effects of acute organophosphate pesticide intoxication", in *Lancet* (1991), Vol. 338, No. 8761, pp. 223–227.

⁵² D.A. Eckerman et al.: "Age related effects of pesticide exposure on neurobehavioral performance of adolescent farm workers in Brazil", in *Neurotoxicology and Teratology* (2007), Vol. 29, No. 1, pp. 164–175.

industry, which compared a group of children who used pesticides and a control group of non-working children matched for age and education level, showed that those who applied pesticides suffered more neurobehavioural impairments, e.g. blurred vision, extreme dizziness, headache, difficulty in concentration, trouble in remembering, difficulty in understanding, feeling depressed and irritable, and numbness.⁵³

It is not only pesticides that may pose such risks. A field study of child labour on tobacco farms reported that children as young as 5 years old suffer from Green Tobacco Sickness, a type of poisoning that occurs when nicotine from tobacco leaves is absorbed through the skin. During humid conditions, child labourers can absorb up to 54 milligrams a day of dissolved nicotine, or the equivalent of smoking 50 cigarettes.^{54, 55}

In terms of injuries, the research shows that agriculture is particularly hazardous for working youth (box 5.1). The following findings come from a sample of the studies. As noted in Chapter 2, fatal injuries were 4.4 times higher among agricultural child workers aged 15–17 than among young workers in other types of work (US data from 2000).⁵⁶ Between 2004 and 2008, over 40 children under the age of 18 died from occupational injuries in crop production – 27 per cent of all child workplace fatalities (US data).⁵⁷ In Europe also, the agricultural sector has the highest incidence rate of fatal accidents among young workers, and the number of occupational farm injuries (fatal and non-fatal) was higher in farms with fewer than ten employees,⁵⁸ which are most likely be family-run farms.

Box 5.1

“Children cutting kale and collard greens in southeastern Michigan showed us fresh cuts they got through their gloves. Robert L. [age 16], whose hands were laced with scars ... worked with a 6-inch knife. ‘You’re bound to get sliced,’ he said. Andrea C. [age 17] showed us two fresh punctures and said, ‘... Sometimes you’re going really fast and you don’t notice and ah!’”

“... ‘[When I was 12] they gave me my first knife. Week after week I was cutting myself. Every week I had a new scar. My hands have a lot of stories.’ (Jose M., age 17, Saline, Michigan, August 24, 2009)”

Source: Human Rights Watch. 2010. *Fields of peril: Child labor in US agriculture*, Chapter VII (New York).

If not fatal, agricultural injuries all too often result in young people being permanently disabled, which is particularly damaging to both their own and society’s future productivity.⁵⁹ European data indicate that accident rates among young workers are decreasing more slowly than for other

⁵³ G.M. Abdel Rasoul et al.: “Effects of occupational pesticide exposure on children applying pesticides”, in *Neurotoxicology* (2008), Vol. 29, No. 5, pp. 833–888.

⁵⁴ Plan Malawi: “Preface”, in *Hard work, long hours, and little pay* (Lilongwe, Malawi, 2008). Note: Average nicotine levels per cigarette vary by brand and country; common nicotine levels in medium strength brands range from 0.6 to 1.5 mg per cigarette.

⁵⁵ T.A. Arcury et al.: “The incidence of green tobacco sickness among Latino farmworkers”, in *Journal of Occupational and Environmental Medicine* (2001), Vol. 43, No. 7, pp. 601–609.

⁵⁶ US Department of Labor, Bureau of Labor Statistics: *Report on the youth labor force* (November 2000), p. 58. Available at <http://www.bls.gov/opub/rylf/pdf/rylf2000.pdf> (accessed 4 February 2011).

⁵⁷ NIOSH: *Child fact sheet on agriculture and injures, annual report* (Washington, DC, 2008).

⁵⁸ *OSH in figures: Young workers – Facts and figures* (Institute for Occupational Safety and Health, for the European Agency for Safety and Health at Work, 2006), p. 144. Available at <http://osha.europa.eu/en/publications/reports/7606507>.

⁵⁹ R. Belville et al.: “Occupational injuries among working adolescents in New York State”, in *Journal of the American Medical Association* (1993), Vol. 269, No. 21, p. 2760.

age groups. In France, for example, young workers accounted for 36 per cent of all accidents in the agriculture sector, a figure that remained unchanged from 2000 to 2003.⁶⁰

Evidence from other regions of the world also shows that children and young workers in agriculture face significant occupational risks. Data from a large-scale survey in the Philippines showed that for children working in agriculture, the risk of being seriously injured is five times greater than for child labourers in any other industry.⁶¹ A prospective cohort study in Poland found that the majority of farm workers aged 12–14 performed tasks deemed dangerous or hazardous by national health standards, resulting in approximately 14 per cent being injured.^{62, 63} And while accidents and chemicals probably account for the largest proportion of health impacts, it is important not to ignore chronic hazards such as stress and noise. For example, a prospective cohort study of youth working on US farms found that exposure to loud machinery over a period of 8 years resulted in hearing loss among more than one-third of the child workers.⁶⁴

In summary, the conclusion we should draw from these data is that because agriculture includes many activities and situations that are hazardous, careful gender-sensitive risk assessments are a good way to better understand these risks and identify safer solutions that could benefit adults and children alike. Better regulation of occupational safety and health in agriculture (including through the ratification and application of ILO Convention No. 184) and its national application is key for eliminating some of the hazards that affect children in agriculture. In addition, awareness campaigns that reach the rural areas and which target specific risks, such as misuse of pesticides and heavy machinery could have a substantial impact on rates of hazardous child work in agriculture.

› Fishing and aquaculture

Fishing refers to harvesting of wild fish, while aquaculture refers to domestic production of fish, seaweed and other aquatic organisms. The fishing industry encompasses a wide spectrum of work – from heavy industrial factory operations out at sea, to leisurely hook-and-line fishing in a local river. Children are seldom involved in the former. Like crop agriculture, fishing is often a business in which the whole family is involved and where children work alongside their parents.

The scope, the hazards

Fishing encompasses a range of tasks, from hazardous work to light work that is possibly suitable for children under certain conditions. On land there is dock work, such as lifting nets and fish cases, repairing nets, maintaining vessels and cleaning and processing fish (e.g. smoking, drying). On the water there is basic crew work, hauling nets, line fishing and diving. Children are engaged in all of these. These activities may entail long hours, extreme temperatures and harsh weather conditions. Girls tend to be more involved in post-harvest work, while boys undertake most of the work related to catching fish. This gender division of labour is especially marked in fishing, hence hazards and risk tend to differ for girls and boys, and requires that risk assessment pay special attention to gender considerations.

⁶⁰ OSH in figures: *Young workers – Facts and figures* (Institute for Occupational Safety and Health, for the European Agency for Safety and Health at Work, 2006), p. 144.

⁶¹ C. Libao Castro: *Child sakadas in Philippine agriculture: Researching injury hazards for working children in the context of international labor standards and United States foreign policy*, Doctoral dissertation, George Washington University, 2007.

⁶² A prospective cohort study enrolls a group of individuals and watches them over a specified period of time for outcomes, such as the development of a disease or a health condition, during the study period and relates this to other factors such as suspected risk or protection factors.

⁶³ S. Lachowski: “Engagement of children in agricultural work activities: Scale and consequences of the phenomenon”, in *Annals of Agricultural and Environmental Medicine* (2009), Vol. 16, No. 1, pp. 129–135.

⁶⁴ K.M. Renick et al.: “Hearing loss among Ohio farm youth: A comparison to a national sample”, in *American Journal of Industrial Medicine* (2009), Vol. 52, No. 3, pp. 233–239.

To give an idea of the extent of child labour in fishing, in one African country, children under 15 years of age composed one-third of the labour force in capture fisheries, boat building and repair, fish processing and trading.⁶⁵

Some of the more dangerous practices that children engage in are: jumping off moving boats at night to position nets; working 10–12 hours a day without protection from the sun; and living and working for weeks at a time on small fishing platforms positioned several kilometres out at sea. Children in the fishing industry get stabbed by bones, hooks and sharp fins; risk poisoning by venomous fish or sea snakes; may become caught in net-lifting winches, nets, snares or lines; or get hit by rudder blades.⁶⁶

Table 5.2 Selected list of common fishing tasks, hazards and potential consequences

Tasks	Hazards	Injuries and potential health consequences
Sorting, unloading and transporting catches	Heavy loads; large machines with moving parts	Joint and bone deformities; blistered hands and feet; lacerations; back injury; muscle injury; amputation of fingers, toes and limbs; noise-induced hearing loss
Cooking on fishing vessels	Sharp blades; stoves in poor repair	Cuts; burns
Diving for various aquatic species, to free snagged nets, or to scare fish into nets	Deep water; dangerous fish; boat propellers; fishing nets; entanglement	Drowning; hypoxia; decompression illness; dizziness; emphysema; bites or stings from fish; hearing loss from ear infections or rapid pressure change
Actively fishing; pulling fish onto boat	Heavy loads; sharp objects	Blistered hands and feet; lacerations; back injury; muscle injury; fish poisoning
Cleaning fish and shellfish; processing, smoking or selling fish	Sharp tools; long hours standing or bending	Blistered hands and feet; lacerations; backaches and other musculoskeletal strains and disorders; exhaustion
Repairing nets, vessels	Sharp or heavy tools	Blistered hands and feet; lacerations
Tending aquaculture farms	Disease control compounds; mosquitoes	Injury from falls; drowning; malaria or dengue; pesticide poisoning
Work on boats and water in general	Crowded conditions; deep water; cold water; polluted water; slippery walkways; fumes and other odours; loud equipment; lack of drinking water; long hours	Drowning; hypothermia; nausea; claustrophobia; schistosomiasis, guinea worm and similar parasitic infections; broken bones and head injuries from slips; physical or emotional abuse; exhaustion; hunger; dehydration
Long periods at sea on boats or fishing platforms	Sexual abuse, intimidation, exposure to and pressure or enticement to engage in adult behaviours	Sexually transmitted diseases; alcoholism, drug use and smoking; diminished sense of self-worth

⁶⁵ ILO: *Conditions of work in the fishing sector: A comprehensive standard (Convention supplemented by a Recommendation) on work in the fishing sector*, Report V(1) (Geneva, 2003).

⁶⁶ P. Markkanen: "Dangers, delights, and destiny on the sea: Fishers along the east coast of northern Sumatra, Indonesia", in *New Solutions* (2005), Vol. 15, No. 2, pp. 113–133.

The evidence

There is considerable anecdotal evidence about child labour in fishing (box 5.2) but little hard data on the numbers or health impacts. One careful study from East Africa found that more than 70 per cent of children working in this sector had been injured or sick during the prior 6 months.⁶⁷ A study that compared children working in fisheries with a control group of non-working children found that the fishers suffered from greater health complaints than the controls, such as skin damage from fungal infections, festering skin lacerations, musculoskeletal pain, severe cuts, bruises, burns, conjunctivitis, trachoma and oral submucosal fibrosis. Most of these children worked more than 10 hours a day and more than 95 per cent complained of lack of sleep.⁶⁸

Box 5.2

“I am 15 years old now and left school when I completed secondary level. I am now going out to sea to catch fish with my uncle. He has a fishing boat without enough workers, so he admitted me to work for him. He pays me 500,000 VND per month and directly gives it to my mother, not me. Sometimes my uncle also gives me some small money for my private spending.

My uncle’s fishing-boat has 3 workers, including my uncle, his son (16 years old) and me. Every 10 p.m. it takes us about 2 hours to sail the boat out to sea to find the places for laying fishing nets. (Now we have to go far to seek fish). When we have found a suitable place, my cousin and I lay the nets and use a string to stir water to attract fish to be caught into nets. Finally, we pull the nets. The nets are very heavy, so if we are careless, our fingers are easily cut. About at noon in the next day, we arrive at the seashore and we go to sleep until late afternoon. I have dinner, watch TV, go somewhere until 10 p.m. and I continue my work in the next day. I am only off when the sea is too rough or my uncle is busy with his family’s big events.

...I left school and no longer want to study more. I do not know what to do except for sea fishing work. My expectation is able to buy my own fishing boat.”

Source: IPEC. 2009. *Working children situation in eight provinces/Cities of Vietnam* (Hanoi, ILO).

The literature describes some particularly distressing forms of hazardous work of children in fishing, but these tend to be localized. Examples from South-East Asia are: “muro-ami”, where children dive several metres to scare fish into the nets; the use of cyanide to extract aquarium fish from the reefs; “pa’aling”, which is a form of fishing with compressed air; work on fishing platforms several kilometres out at sea for considerable periods of time; and collection of shrimp larvae by sucking in seawater, then spitting it into a container, which poses risk of eye, skin and gastro-intestinal infections due to polluted water in the estuaries where this is done.⁶⁹

› Domestic work

The member States of the ILO are currently considering an international standard on decent work for domestic workers. Following the text of the draft instrument(s) that will serve as a basis for the second and final discussion at the International Labour Conference 2011, domestic work is

⁶⁷ E.J. Walakira: “Child labour in fisheries and aquaculture in East Africa: With a deeper insight into the Uganda case”, Presentation at the FAO Workshop on Child Labour in Fisheries and Aquaculture, Rome, 14–16 April 2010.

⁶⁸ P. Markkanen: “Dangers, delights, and destiny on the sea: Fishers along the east coast of northern Sumatra, Indonesia”, in *New Solutions* (2005), Vol. 15, No. 2, pp. 113–133.

⁶⁹ U. Halim: “Child labour in fishery and aquaculture: Need for a perspective – in the light of experiences from India”, Presentation at the FAO Workshop on Child Labour in Fisheries and Aquaculture, Rome, 14–16 April 2010.

defined as work performed in or for a household; and a domestic worker is anyone engaged in domestic work within an employment relationship.⁷⁰

Within that context, child domestic labour can be defined as domestic work undertaken in the household of a third person by a child below the legal minimum age for work or employment, or by a child above the legal minimum age but under the age of 18 in hazardous or under slavery-like conditions, in which case it would be considered as a worst form of child labour. Thus, both Convention No. 138 and Convention No. 182 are relevant to child domestic labour.

Child domestic work is socially acceptable in many cultures and viewed positively as a protected kind of work. This is particularly so in the case of girls, in that the home is perceived as a positive and safe place for girls to be working, a natural extension of traditional female roles in caring for a household and its members, and part of a girl's apprenticeship for adulthood and marriage. It is important to remember that a substantial percentage of child domestic workers are boys, especially in certain types of work, such as gardening and wood-hauling.

In fact, domestic work is not always recognized as a form of economic activity, and so it becomes, in effect, an invisible form of work socially, economically and statistically. This is even more so in the case of domestic work by children. Consequently, there is widespread reluctance on the part of institutions to address the issue with specific policies and laws. It also accounts, in some cases, for ignorance of or disregard for the hazards to which a child may be exposed.

Child domestic labour has multiple causes. Push factors include poverty and its feminization, discrimination due to low social status or ethnicity, displacement and migration, lack of education and lack of alternative employment opportunities. Pull factors include economic uncertainty and various common perceptions: e.g. that domestic work offers an opportunity for better living conditions and education (especially for young children from rural areas), and that it will lead to other opportunities. With the increasing participation of women in the labour force, there is more demand for affordable child domestic labour.

The scope

Statistics on child domestic labour are limited due to the hidden nature of the work. The high incidence of informal and undeclared working relationships leads to under-reporting. However, the ILO has recently carried out statistical work to produce a new global estimate on child domestic labour. Worldwide, it is believed that there are at least 15.5 million children in domestic work. More than half of these children, approximately 8.1 million, are engaged in hazardous work. However, it must be noted that this figure represents an extremely conservative estimate as it does not take into account situations involving child domestic workers in slavery-like conditions or within bonded labour.

The hazards

The most common hazards are: long working hours, which create fatigue; lack of public scrutiny, which can provide opportunities for sexual exploitation; and isolation, inhibiting normal social and intellectual development. In addition, domestic service often involves carrying heavy loads (laundry, water, children), being exposed to fires and hot stoves, handling household chemicals and using sharp knives, as well as deprivation of education. Child domestic labour has only recently come to the forefront of the international debate as potentially one of the most widespread forms of child labour. Since a proportion of these children, mostly girls, are very young, tasks that seem trivial in wealthier nations, such as collecting water or lighting a stove, in a poor country can be both arduous and dangerous.

⁷⁰ ILO: *Decent work for domestic workers*, Report IV (2B), Fourth item on the agenda, Article 1(a) and (b), International Labour Conference, 100th Session, Geneva, 2011.

These hazards must also be seen in association with the denial of children's fundamental rights, such as access to education and health care, the right to rest, leisure, play and recreation and the right to be cared for and to have regular contact with their parents and peers (UN Convention on the Rights of the Child). These factors can have an irreversible physical, psychological and moral impact on the development, health and well-being of children.

Table 5.3 Selected list of common domestic tasks, hazards and potential consequences

Tasks	Hazards	Injuries and potential health consequences
Cooking, cleaning, ironing and other household chores	Sharp blades; hot pans; stoves and other tools in poor repair; toxic chemicals	Cuts; burns; respiratory disease; rashes and other forms of dermatitis; allergies; ergonomic injuries
Gardening	Sharp objects; heavy loads; hot weather; stinging insects; toxic pesticides and fertilizers	Cuts; back and other muscle pain; heat stroke; sunburn; dehydration; insect and animal bites; developmental and neurological effects
Gathering fuel, water, groceries	Heavy loads; traffic and other urban hazards; long distances by foot	Back and other muscle pain; injury from traffic accident or urban violence; harassment
All tasks out of public view	Inadequate food and shelter; long hours; no privacy; physical, verbal and sexual abuse; humiliating or degrading treatment	Exhaustion; hunger; depression; behavioural disorders; suicidal tendencies; bruises, burns and other injuries incurred from abuse
All tasks when working alone	Isolation; separation from family and peers	Disrupted psychological, social and intellectual development

The evidence

Due to difficulties in assessing the work of children inside the home, domestic work is a sector where hard data on health impacts of work is lacking. For example, although studies show that lack of sleep causes numerous developmental problems, ranging from depression and behaviour disorders to chronic diseases,⁷¹ and although child domestic workers in many countries report working more than 12 hours per day, and even up to 16 hours per day in some cases, 7 days a week (children living in the homes of their employers are often on call for work duty day and night, with little or no separation between work and private time),⁷² we do not have data showing the health impacts of lack of sleep on child domestic workers.

An IPEC survey of child domestic workers in Viet Nam found that 36 per cent had been sick or injured during their service, with a higher percentage among the younger workers (between the ages of 9 and 14). Common illnesses reported by these child domestic workers included coughs and respiratory problems, headaches, back pain and wounds.⁷³

A large cross-sectional study of more than 3,000 children aged between 10 and 17 found that those involved in domestic work experienced more musculoskeletal pain, associated with awkward posture and monotonous and heavy physical work, than those employed in other

⁷¹ M.A. Stein et al.: "Sleep and behavior problems in school-aged children", in *Pediatrics* (2001), Vol. 107, No. 4, p. E60.

⁷² IPEC: *Hazardous child domestic work: A briefing sheet* (Geneva, ILO, 2007).

⁷³ IPEC: *Survey report: Child domestic workers in Ho Chi Minh city* (Hanoi, ILO, 2006).

sectors.⁷⁴ This is of concern because injuries to muscles and bones in childhood can hinder proper development; injuries to growth plates in the teens have been shown to result in various long-term orthopaedic problems, including limbs of unequal length.⁷⁵

In addition to injuries, accidents and illnesses, evidence demonstrates that child domestic workers suffer disproportionately from various types of abuse. A 2006 study in Bangladesh showed that almost 70 per cent of child domestic workers experienced physical abuse and systematic beatings, either to ensure compliance or as punishment when perceived to be slow or uncooperative. Nearly half of the physical abuse resulted in bodily injury and very few of the children received medical attention.⁷⁶ A survey in Latin America of female child domestic workers found that, on average, more than 66 per cent were physically or psychologically abused and that the threat of sexual advances from their employers was a constant presence.⁷⁷ A survey of children involved in commercial sexual exploitation found that 25 per cent of the children were former child domestic workers who had either run away because of abuse or been thrown out by the employing family after becoming pregnant.⁷⁸

A cross-sectional study of 3,139 children and adolescents found that behavioural problems were particularly associated with domestic service, and were 2.7 times greater among younger child workers when compared with non-working adolescents.⁷⁹ Another cross-sectional study of 2,400 children aged 8–15 found that child domestic workers suffered a higher proportion of psychosocial disorders (phobia, bedwetting and separation anxiety) than non-working children and child labourers in other sectors. These were attributed to lack of personal freedom, long working hours and abusive situations.⁸⁰

Note on hazardous household chores

Separate from domestic work as defined above (services in the household of a third party), children also often perform household chores in their own household or for their own family. Labour force surveys do not call these chores “domestic work” but instead “unpaid household services”, which are not, in principle, an economic activity. However, when such services are performed by a person under 18 for long hours, in an unhealthy environment with unsafe equipment or heavy loads, in dangerous locations, and so on, they could be considered as “hazardous unpaid household services” and constitute child labour. When determining “long hours”, it is important to consider the compounding effect of chores plus possible other work activities on a child’s education.⁸¹

› Manufacturing

What may be surprising to some is the diversity of manufacturing in which children are employed. This includes manufacturing in both the formal and informal sectors, in large- and small-scale enterprises, from vast garment factories to home-based workshops doing piecework or traditional

⁷⁴ A.G. Fassa et al.: “Child labour and musculoskeletal disorders: The Pelotas (Brazil) epidemiological survey”, in *Public Health Reports* (2005), Vol. 120, No. 6, pp. 665–673.

⁷⁵ T. Morse et al.: “Trends in work-related musculoskeletal disorder reports by year, type, and industrial sector: A capture-recapture analysis”, in *American Journal of Industrial Medicine* (2005), Vol. 48, No. 1, pp. 40–49.

⁷⁶ Save the Children: *Abuse among child domestic workers: A research study in West Bengal* (Calcutta, India, 2006).

⁷⁷ IPEC: *El Salvador: Trabajo infantil doméstico: Una evaluación rápida* (Geneva, ILO, 2002).

⁷⁸ Ibid.

⁷⁹ L.A. Benvegna et al.: “Work and behavioural problems in children and adolescents”, in *International Journal of Epidemiology* (2005), Vol. 34, No. 6, pp. 1417–1424.

⁸⁰ A. Alem et al.: “Child labor and childhood behavioral and mental health problems in Ethiopia”, in *Ethiopian Journal of Health Development* (2006), Vol. 20, No. 2, pp. 119–126.

⁸¹ *Resolution II, Resolution concerning statistics of child labour*, Adopted by the Eighteenth International Conference of Labour Statisticians, Nov.–Dec. 2008, §§ 13, 36 and 37. Available at http://www.ilo.org/wcmsp5/groups/public/@dgreports/@integration/@stat/documents/normativeinstrument/wcms_112458.pdf (accessed 28 April 2011).

crafts. Many national laws concerning occupational safety and health in the formal economy do not apply to micro-enterprises or home-based work, and in some countries labour inspectors are barred from examining such operations.

The scope, the hazards

Perhaps as many as 7 per cent – approximately 14 million of the estimated 215 million child labourers – are in manufacturing.⁸² Hotly reported incidents of child labour abuses at factories owned by or affiliated with multinational companies may alert the general public, but in fact these reports belie the full extent of the problem: that is, the most hazardous conditions are often found in the thousands of smaller-scale operations – the suppliers of the suppliers and the suppliers to local markets. In many cases, children work at home alongside a parent or guardian who is a home-based worker.

Table 5.4 Selected list of common manufacturing tasks, hazards and potential consequences

Tasks	Hazards	Injuries and potential health consequences
<i>Textile:</i> dyeing; weaving; sewing; embroidery; cleaning	Harmful dyes; awkward postures; repetitive movements; sharp tools; close work	Finger deformities and premature arthritis; neck, shoulder and other muscle discomfort; vision loss; skin rashes, nail damage and other dermatitis; breathing difficulties; byssinosis
<i>Leather:</i> dehairing; tanning; sewing; cleaning	Harmful dyes, solvents and other chemicals; fumes; sharp tools	Chemical poisoning; lung damage; asthma; bronchitis; skin rashes; bladder cancer; anthrax poisoning
<i>Footwear:</i> shoe manufacturing and repair	Dangerous solvents, adhesives and other chemicals; sharp tools	Cancers of nose, nasal sinuses, larynx, lung and gall bladder; haematological disorders; neurological impairment; dermatological disorders such as occupational vitiligo; musculoskeletal problems such as carpal tunnel syndrome
<i>Crafts:</i> jewellery-making; stonework; woodwork	Awkward postures; repetitive movements; close work; dust; sharp tools	Finger deformities and premature arthritis; neck, shoulder and other muscle discomfort; vision loss; lung disease such as asthma, bronchitis, silicosis, tuberculosis or cancer from inhaling fine particles or toxic chemicals; lead poisoning

The evidence

Manufacturing is a sector for which we do have high-quality studies. One study, which sampled over 3,000 children, found that those involved in manufacturing had a more than 30 per cent higher risk of experiencing pain of various kinds, especially back pain, in comparison with non-working children, even after controlling for sports and household chores.⁸³

Another well-designed survey found that children working full time in small industrial shops experienced frequent abuse and experienced two to three times more health complaints (95 per cent reported skin, eye and ear problems in the last 2 weeks), were seven times more likely to have significant skin problems and were four times more likely to be injured than non-working counterparts.⁸⁴

⁸² IPEC: *Global child labour trends 2000 to 2004* (Geneva, ILO, 2006), p. 10.

⁸³ A.G. Fassa et al.: “Child labour and musculoskeletal disorders: The Pelotas (Brazil) epidemiological survey”, in *Public Health Reports* (2005), Vol. 120, No. 6, pp. 665–673.

⁸⁴ I.A. Nuwayhid et al.: “Health of children working in small urban industrial shops”, in *Occupational and Environmental Medicine* (2005), Vol. 62, No. 2, pp. 86–94.

Manufacturing enterprises often have toxic substances present, such as organic solvents used in furniture work, shoe-making and automobile repair. A cross-sectional study found that working children exposed to solvents performed significantly worse than control groups on neurobehavioural tests, complained of more headaches, performed worse on motor dexterity and memory tests, showed loss of concentration and memory deficits and were overall more irritable, angry and confused.⁸⁵ This study concluded that solvent-exposed working children face a very high risk of developing long-term neurobehavioural impairments.⁸⁶

A cross-sectional evaluation of children engaged in the manufacture of ceramics found that child labourers exhibited very high blood lead levels. In ten of these children, ranging in age from 6 to 15, blood lead levels were more than 60 µg/dl for those who had worked 3 months or longer – not surprising in that children as young as 6 years old were glazing ceramics with lead salts from melted batteries.⁸⁷

Leather-tanning is another form of work that poses so many risks that it is likely to be hazardous in all respects. A study of child tannery workers showed that 80 per cent reported disturbed sleep; more than half reported injuries (slips, chemical accidents and burns); nearly 30 per cent suffered from acid peptic disease, a very serious condition caused by involuntary ingestion of noxious chemicals, particularly acidic compounds; and 6.3 per cent of the working children (but none of the non-working children) reported bedwetting, a sign of psychosocial stress.⁸⁸

Another research study assessed the health status of 40 boys, aged 7–14, employed in tanneries. Severe low back and ankle pain, dizziness and tingling pain in the hands, presumably from handling chemicals, were found in a significantly higher proportion of the working children in comparison with their non-working peers.⁸⁹

A 2007 literature review assessing the relationship between exposure to leather dust and cancer of the nose found that four out of five of the case-control studies showed an elevated risk of sino-nasal cancer among tannery workers. As children and adolescents are in critical stages of development, their risk of developing cancers associated with hazards in tanneries could be significant.⁹⁰

In summary, the wide scope of manufacturing and repair industries makes it impossible to make any judgements as to the relative risk of one versus another. But the studies point out that certain ones – and they are easy to spot – are so dangerous that immediate action is called for. There is no excuse (poverty and enforcement capacity notwithstanding) for children to work with lead.

› Mining and quarrying

Mining and quarrying are forms of work dangerous to children in every way (box 5.3). Being lowered deep through tunnels only as wide as their bodies; hauling loads weighing more than they do; sitting for hours under the sun, pounding boulders into road gravel; squatting the whole day in dirty water, sifting through sand for a precious gem...

⁸⁵ B. Saddik et al.: "Evidence of neurotoxicity in working children in Lebanon", in *Neurotoxicology* (2003), Vol. 24, Nos 4–5, pp. 733–739.

⁸⁶ B. Saddik et al.: "The effects of solvent exposure on memory and motor dexterity in working children", in *Public Health Reports* (2005), Vol. 120, No. 6, pp. 657–663.

⁸⁷ R. Harari and M.R. Cullen: "Childhood lead intoxication associated with manufacture of roof tiles and ceramics in the Ecuadorian Andes", in *Archives of Environmental Health* (1995), Vol. 50, No. 5, p. 393.

⁸⁸ S. Awan: *Hazards faced by young workers in textile, garments and leather goods sectors in Pakistan* (Lahore, Pakistan, Centre for the Improvement of Working Conditions & Environment, 2007).

⁸⁹ S. Mitra: "A study of the health conditions of child workers in a small scale leather industry in Calcutta", in *British Journal of Industrial Medicine* (1993), Vol. 50, pp. 938–940.

⁹⁰ V. Bonnetterre et al.: "Sino-nasal cancer and exposure to leather dust", in *Occupational Medicine* (2007), Vol. 57, pp. 438–443.

Box 5.3

“I have one elder sister, three elder brothers and two younger brothers. Only the youngest went to school. I was working on the quarry and earned Rs 30/- a day. I worked all day from morning to evening, chiseling stones, making them into rubble, carrying head loads and all other very painful tasks. I had blisters on my hands and feet all the time. There was no day when I did not get hurt and cry in pain. My father would tell me to stop working but I would not listen to him.

One day the blisters on my hands were unbearably sore and bleeding that my father said that I should take some rest. I said OK and stopped for one whole week. I felt that staying back from work would cause a lot of trouble to the family and was anxious about the income. How will we survive if I took rest I asked myself?

I went to night classes with my friend in the village every day. He had dropped out of class 6 but joined these tuition classes. I was a very good student and did better than my friend in studies. My teacher was so impressed that he sent me to the camp at Dhona. At last deliverance from a miserable working life where there was nothing but endless toiling and countless injuries was in sight.”

Source: Story by Balanjaneyulu, 14-year-old boy. Child interviews by IPEC partner organization Mamidipudi-Venkataramaiah Fdn (MVF).

Mining and quarrying are physically dangerous because of the heavy and awkward loads, the strenuous work, the unstable underground structures, the heavy tools and equipment, the toxic dusts and chemicals and the exposure to extremes of heat and cold. The work is morally and psychologically risky, too, given that mining often takes place in remote areas where law, schools and social services are unknown, where family and community support may not exist and where “boom or bust” conditions foster alcohol abuse, drugs and prostitution.

The scope, the hazards

Almost all child miners work in artisanal, small-scale mines. Children working in quarries are more visible – often they are seen along roadsides or near construction areas – and tend to be the poorest of the poor.⁹¹ Children mine gems, gold, coal and construction materials: sand, clay and rock. They begin “helping” at 4–5 years of age, and by their teens they put in a full day’s work. They meet the same risks as adults – cave-ins, rockfalls, mercury poisoning, asphyxiation – but, because their bodies and judgement are still developing, injuries are more likely to happen, and they are more likely to fall victim to the free-wheeling lifestyle common in mining camps.⁹²

Their health risks are compounded by the environment in which they live, where the soil, water and air may be contaminated with toxic mercury or other heavy metals. Clean drinking water, health services and schools are often lacking, especially in the remote mining areas. But even where schools and clinics are available, the children’s work obligations often prevent them from attending or using them. Those who do not work directly in the pits provide services to those that do.

Some children in the mining areas are coaxed or forced into prostitution. In the Mirerani mining zone of the United Republic of Tanzania, 85 out of 130 girls interviewed revealed that they were engaged in commercial sex work, 25 of whom practiced it full time, which demonstrates the high level of demand for sex with young girls in the masculine mining environments.⁹³ And yet to assume girls at mines primarily engage in prostitution is incorrect. They do everything the boys do.⁹⁴

⁹¹ IPEC: *A load too heavy: Children in mining and quarrying* (Geneva, ILO, 2005).

⁹² IPEC: *Minors out of mining! Partnership for global action against child labour in small-scale mining* (Geneva, ILO, 2006).

⁹³ Tanzania Media Women’s Association (TAMWA): *A report on the assessment of child sexual abuse and exploitation* (United Republic of Tanzania, 2004).

⁹⁴ IPEC: *Girls in mining: Research findings from Ghana, Niger, Peru, and United Republic of Tanzania* (Geneva, ILO, 2007).

Children's work in and around informal mines is varied. They might accompany their parents to the site, especially when there is no alternative means of looking after them during the working day. The entire mining environment tends to be a massive hazard, even for bystanders. In such a setting, one can envision health problems such as injuries from falls, body aches from heavy loads, skin disorders from contaminated water, and the long-term developmental issues and diseases associated with exposure to toxic chemicals.

Table 5.5 Selected list of common mining and quarrying tasks, hazards and potential consequences

Tasks	Hazards	Injuries and potential health consequences
Tunnelling; diving into muddy wells	Drilling equipment; explosives; confined spaces; faulty supports; stagnant air; poisonous gases; dust; darkness; dampness; radiation	Death or traumatic injury from tunnel collapse; suffocation from compressor mining; injury from explosions; silicosis and related respiratory diseases; nausea; exhaustion
Digging or hand-picking ore, slabs, rock or sand	Heavy tools; heavy loads; repetitive movements; dangerous heights; open holes; falling objects; moving vehicles; noise; dust	Joint and bone deformities; blistered hands and feet; lacerations; back injury; muscle injury; head trauma; noise-induced hearing loss; breathing difficulties; frostbite, sunstroke and other thermal stresses; dehydration
Crushing and amalgamating; sieving, washing and sorting	Lead, mercury and other heavy metals; dust; repetitive movements; bending, squatting or kneeling	Neurological damage; genito-urinary disorders; musculoskeletal disorders; fatigue; immune deficiency
Removing waste or water from mines	Heavy loads; repetitive movements; chemical and biological hazards; dust	Musculoskeletal disorders; fatigue; infections
Transporting materials via carts or carrying	Heavy loads; large and unwieldy vehicles	Musculoskeletal disorders; fatigue; crushed by vehicles
Cooking and cleaning for adults	Physical and verbal abuse; unsafe stoves; explosive fuels	Injury from beatings; sexual abuse; burns
Selling goods and services to miners	Physical and verbal abuse	Injury from beatings; behavioural disorders
Mining and quarrying in general	Remote locations; lawless atmosphere; poor sanitation; contaminated drinking water; stagnant water (and mosquitoes); inadequate nutrition; recruitment into sex trade; gambling, drugs and alcohol	Death for lack of medical treatment; behavioural disorders; addiction; sexually transmitted diseases; pregnancy; stunted growth; diarrhoea and digestive disorders; malaria and mosquito-borne diseases

The evidence

Evidence from various surveys and research studies demonstrates that mining is by far the most hazardous sector for children with respect to fatal injuries. Evidence from research studies demonstrates an average fatality rate of 32 per 100,000 full-time worker equivalents (FTEs) for youth between the ages of 5 and 17 years employed in the mining sector, in comparison with fatality rates of 16.8 and 15 per 100,000 FTE in agriculture and construction, respectively.⁹⁵

⁹⁵ A.G. Fassa: *Health benefits of eliminating child labour* (Geneva, ILO, 2003).

Evidence from IPEC baseline surveys, although qualitative, indicates similar trends. In one example (from Mongolia), more than one-fifth of child miners reported increased health problems since starting work; over 40 per cent suffered from musculoskeletal pain and 30 per cent from exhaustion, while one-third of the child miners complained of respiratory and genito-urinary diseases. Of children who fell ill or were injured, 43 per cent were not able to access medical services. One-third continued working despite his or her illness.⁹⁶

Like fishing, mining presents some particularly horrific examples of child labour. Compressor mining is one of these. Children are sent down into narrow muddy wells as much as 30 metres deep and stay submerged for several hours while extracting ore-bearing soil in zero visibility, wearing only crude eye masks and sucking air from a rubber tube attached to a compressor. Suffocation, drowning and sino-nasal damage are obvious threats, but there are no data on the number of children who have perished in this practice.

The chemical of major concern in mining right now is mercury, because it is very commonly used. A cross-sectional study of children between the ages of 9 and 17 working in an artisanal gold mine found that they had levels of mercury as high as 41 µg/l in urine and 100 µg/l in blood. The commonly accepted reference values for mercury levels in children are 0.7–0.4 µg/l in urine and 1.0–0.8 µg/l in blood. A medical examination of the working children showed severe nervous system impairment in comparison with non-working children. Neurological tests revealed the children involved in mining needed twice as long to perform basic cognitive and reflex tests as non-working children. More than half of the working children were clinically diagnosed with severe mercury intoxication.⁹⁷ Symptoms of mercury intoxication are uncontrollable tremors, particularly of facial muscles; mood swings, including irritability and nervousness; insomnia; neuro-muscular changes, such as weakness and muscle atrophy; headaches; and decline in cognitive function. High levels of mercury exposure can lead to kidney and respiratory failure and death.⁹⁸

Lead is also a concern in mining (box 5.4). A recent case series study found that more than 100 children suffered from severe poisoning from contact with lead-bearing ore; their mean blood lead levels were ten times greater than maximum acceptable levels.⁹⁹

Box 5.4

“This work is too hard for us. We do it because we have no alternative. Actually there is no future in this kind of work. If you continue working with lead, it is likely that you are going to die early.”

Source: IPEC. 2008 *Rapid assessment of child labour in non-traditional mining sector in Zambia* (Geneva, ILO).

Cobalt, which has the potential to damage the heart, thyroid and lungs, and can exacerbate occupational asthma, was found in 87 per cent of children living close to a mining site. Blood levels not only exceeded the occupational limit values, but were the highest ever reported for a general population. A cross-sectional study within one artisanal mine measured the levels of 17 different metals and non-metals in 47 children below the age of 14 years working in or living at the

⁹⁶ IPEC: *The informal gold mining sub-sector in Mongolia: A comprehensive sector based project to prevent and eliminate child labour and improve the situation of informal gold miners* (Ulaanbaatar, ILO, 2004), unpublished document.

⁹⁷ S. Bose-O'Reilly et al.: “Mercury as a serious health hazard for children in gold mining areas,” in *Environmental Research* (2008), Vol. 107, pp. 89–97

⁹⁸ T.W. Clarkson et al.: “The toxicology of mercury: Current exposures and clinical manifestations”, in *New England Journal of Medicine* (2003), Vol. 349, pp. 1731–1737.

⁹⁹ World Health Organization (WHO): 2010. *Nigeria: Mass lead poisoning from mining activities, Zamfara State*, Global Alert and Response (Geneva, WHO, 2010).

mine. This study revealed substantial exposure to various metals in the child workers. Overall, an analysis of urine samples demonstrated far higher levels of toxic metals in children miners in comparison with adults despite their lower exposure.¹⁰⁰

In summary, it is true that hazardous work of children is on the increase in certain mining areas, as the price of gold rises and where child soldiers are trying to escape into another life; true, these are hard-to-reach places – the mountains of the Andes, the deserts of western Africa. On the other hand, child labour in mining is not widespread; it is concentrated in particular places and the numbers of children involved – fewer than 1 million – suggest that determined efforts could eliminate this form of work.

› Construction and associated industries

The construction industries rank among the most dangerous for children; although generally falling behind agriculture and mining, they are in first place in some of the European countries.

The scope, the hazards

The concept of construction might bring to mind skyscrapers and other large projects. In fact, construction entails all that is built, from roads and bridges to the very structures that these roads will bring you to. The risks that adult construction workers face are well known: dangerous machinery, dangerous heights, dangerous materials and ubiquitous dust. And yet children are found on construction sites around the world, performing support work in this hazardous environment. In many countries, particularly in South Asia, children (including girls) are recruited to carry, stack and align heavy bricks for long hours. In industrialized countries, adolescents of legal working age work with tools designed for full-grown adults.

Similar risks abound in the industry of brick manufacturing. Added to the hazards, however, are the extreme temperatures and airborne ash created by the kilns. Children often younger than 10 years old haul bricks – each weighing about 2 kilograms – from one place to another all day long, breathing air thick with dust.

Table 5.6 Abbreviated list of common construction tasks, hazards and consequences

Tasks	Hazards	Injuries and potential health consequences
<i>Construction:</i> hauling and stacking materials; carpentry; masonry	Heavy loads; dangerous heights; falling objects; sharp objects; power tools; live wires; moving vehicles; loud machines; exposure to extreme weather; dust	Joint and bone deformities; blistered hands and feet; lacerations; punctures from nails; back injury; muscle injury; head trauma; broken bones from falls; electrocution; noise-induced hearing loss; frostbite, sunstroke and other thermal stresses; dehydration; breathing difficulties
<i>Brick-making:</i> toting, stacking	Heat from kilns and ovens; flying ashes; heavy loads; dropped bricks; dust; exposure to extreme weather; remote locations; poor sanitation; moving vehicles	Burns and heat stroke; dehydration; joint and bone deformities; musculoskeletal problems from repetitive motion; blistered hands; bruised feet from dropped bricks; lacerations; breathing difficulties; silicosis and other occupational lung diseases; heat and cold stress; insect bites; poor nutrition; bacterial and viral diseases; injury from moving vehicles

¹⁰⁰ C.L.N. Banza et al.: “High human exposure to cobalt and other metals in Katanga, a mining area of the Democratic Republic of Congo”, in *Environmental Research* (2009), Vol. 109, pp. 745–752.

The evidence

Many countries have banned the practice of employing children at construction sites, yet child labour in construction remains prevalent. Because of the undocumented nature of construction work, there is a lack of high-quality studies. Here's what we know:

It is estimated that at least 108,000 workers are killed on site every year in construction.¹⁰¹ In the United States, although construction provided only 3 per cent of youth employment in 1990,¹⁰² the construction industry accounted for the second largest proportion of fatal work injuries for 16- and 17-year-olds (17 per cent of all fatalities), second only to agriculture.¹⁰³ A survey of young workers in the United States found that the fatality rate for teenage construction workers age 19 and younger was 12.1 per 100,000 per year, which was slightly less than for adult workers; however, approximately half (49 per cent) of the 76 fatal injuries were in apparent violation of existing child labour regulations.¹⁰⁴

Workers in the construction sector also experience a high rate of work-related non-fatal injuries. A cross-sectional study of young construction workers conducted in the United States showed that overall, the number of years worked in the construction trade was significantly associated with knee and wrist/hand musculoskeletal injuries and low-back pain. Apprentice workers identified that “working in the same position for long periods” was the job factor most problematic for them, with almost half reporting musculoskeletal symptoms as a result.¹⁰⁵ A cross-sectional study in Brazil determined that musculoskeletal pain is common among working children and teens. Approximately two-thirds of child construction workers experienced musculoskeletal pain, and for 41.5 per cent of them, the pain impaired their normal activity.¹⁰⁶ A study of young construction workers in the United States showed that younger age, limited work experience, inadequate risk perception, lower body weight and lack of education or occupational training are related to a greater risk of injury.¹⁰⁷

Brick kilns are common throughout Asia, but are also found in the Middle East, Africa and Latin America. A study of child labourers in Cambodia showed that child workers in brick factories suffered more from work-related health effects than child scavengers, children working in fish-processing centres and child car-washers. Sickness and injury were reported by 65 per cent of the children, in comparison with less than 50 per cent of child workers working in other job categories, and 85 per cent experienced frequent fatigue due to overwork, cuts and wounds from carrying bricks, and bruises from bricks falling onto their feet. The children also complained of body ache, backaches, skin diseases, eye problems, headache, diarrhoea and respiratory problems, some of which may be attributable to their work (box 5.5).¹⁰⁸ A cross-sectional survey of brick-workers in Pakistan found that chronic bronchitis, asthma and tuberculosis were much higher in

¹⁰¹ ILO: *Safework: Construction hazards* (Geneva, 2004).

¹⁰² NIOSH: *Child labor research needs*. Special hazard review, Publication No. 97-143 (Cincinnati, OH, DHHS (NIOSH), 1997), pp. 97–143.

¹⁰³ D. Castillo et al.: “Occupational injury deaths of 16- and 17-year-olds in the United States”, in *American Journal of Public Health* (1994), Vol. 84, pp. 646–649.

¹⁰⁴ A. Suruda et al.: “Fatal injuries to teenage construction workers in the US”, in *American Journal of Industrial Medicine* (2003), Vol. 44, No. 5, pp. 510–514.

¹⁰⁵ L.A. Merlino et al.: “Symptoms of musculoskeletal disorders among apprentice construction workers”, in *Applied Occupational and Environmental Hygiene* (2003), Vol. 18, No. 1, pp. 57–64.

¹⁰⁶ A.G. Fassa et al.: “Child labour and musculoskeletal disorders: The Pelotas (Brazil) epidemiological survey”, in *Public Health Reports* (2005), Vol. 120, No. 6, pp. 665–673.

¹⁰⁷ N. Chau et al.: “Relationships between certain individual characteristics and occupational injuries for various jobs in the construction industry: A case-control study”, in *American Journal of Industrial Medicine* (2004), Vol. 45, No. 1, pp. 84–92.

¹⁰⁸ WVC: *How and why we work: Child workers in the informal economy in Phnom Penh and Battambang*, WVC Report for the Combating the Worst Forms of Child Labour Project (Phnom Penh, Cambodia, Peace and Justice Programme, 2005).

the brick-kiln workers than in the control group. Girls working in the brick sector often had poor nutrition and the numbers of girls with low weight was double that of boys. Alarming, 68 per cent of boys and 76 per cent of girls between the ages of 10 and 14 were not attending school and were classified as illiterate.¹⁰⁹

Box 5.5

“Children participate in unloading the brick-kilns after burning. They have to carry bricks and tiles from the top of the kiln to the ground (4–5 meters). The work requires health, experience, skilfulness, so sometimes children do not know how to avoid risks and they still fall.

... Labour accidents usually happen with the hands cut by machines. 70 cases, both adults and children, had accidents last years. Children are easily broken their legs and arms when they fall off the planks.

... The dust in brick-kilns is very terrible. When doctors examine children, it is found that many of them get respiratory disease. Even the workers and non-workers get the illnesses.

... I have carried out bricks since I did not go to school. My parents, brothers and sisters go to work, so I follow them and I gradually got used to the work. When I was about 5 or 6 years old, my mother taught me how to carry bricks. At first, I only carried some, but when I was used to it, the number was greater and greater. I used to fall and be twisted with my hand bones, so I have to rest at home. When I studied the first grade, I did not get much care from my parents, so I studied badly at school. Working helps me to earn money and sometimes my mother gives me some small money (5 thousand) to buy drink or books, etc. I work much, so I feel tired and have no time for rest. Sometimes I fall asleep in class because I am too tired.”

Source: Story by T., 13-year-old girl.
Group discussion with communal officers and children's parents,
in Nhon My Commune (An Giang province, Viet Nam, 2009).

› Service sector and street work

The scope, the hazards

Many service activities take place on the street: serving as a bus attendant, running errands, transporting goods, shining shoes, washing and guarding cars, vending everything from food to flowers, working in markets and collecting recyclables, to name a few. Some children are employed as entertainers, obliged to act, model or otherwise perform, sometimes unwillingly. Not a few of the activities are illegal, such as prostitution, selling drugs and begging, yet these are all common methods of income generation for many of the world's children.

A majority of research focuses on street children and their health status as a result of poverty and social factors arising from street life. It is important to differentiate, however, between street children and children's employment in sectors “on the street”, such as selling products or providing services on the street. This discussion centres on the latter.

Labouring outdoors can be dirty, hard work. Children are exposed to extreme weather, traffic, violent people and, in the case of scavengers, potentially contaminated materials. Children on the street also are exposed to violence, crime, illicit drugs, tobacco, alcohol and sex, all elements that can hurt them physically and mentally. Table 5.7 attempts to capture some of the hazards and health consequences from work on the streets.

¹⁰⁹ S. Awan et al.: *Occupational safety and health hazards of brick kiln workers* (Lahore, Pakistan, Centre for the Improvement of Working Conditions & Environment, 2008).

Table 5.7 Selected list of common street work tasks, hazards and consequences

Tasks	Hazards	Injuries and potential health consequences
Portering and transport	Heavy loads; long hours; unsanitary conditions; poor access to food; long distance from home; violence; exposure to alcohol, cigarettes, drugs and adult language and situations; sexual exploitation	Musculoskeletal problems; lacerations and blistering; diarrhoea and other bacterial- and viral-based illnesses; nutritional deficiencies; depression; addiction; psychological harm; sexually transmitted disease
Outdoor shop work, such as vehicle repair, scrapyards	Toxic fumes and liquids; acids from batteries; clutter; slippery floors; sharp objects; heavy and dangerous machinery; loud noises	Respiratory diseases; nausea; burns; injury from falls; cuts and scrapes; exhaustion; skin rashes; hearing loss
Scavenging; trash and recycling collection	Sharp objects; contaminated objects; moving traffic; vehicle exhaust; bending; heavy loads; long hours; extreme weather; street crime	Infectious diseases such as tetanus; joint and bone deformities; blistered hands and feet; lacerations; back injury; muscle injury; breathing difficulties; frostbite, sunstroke and other thermal stresses; dehydration; death or injury from moving vehicle
Street-corner services such as shoe-shine or food sales	Street crime; harmful chemicals; hot surfaces; long hours; extreme weather	Injury from assault; rashes from shoe polish; breathing difficulty from chemicals or vehicle exhaust; heat stroke; exhaustion
Street environment in general	Exposure to violence, crime, illicit drugs, tobacco, alcohol and sex	Physical and mental harm; addiction

The evidence

Abuse is perhaps the most common threat to children who are doing street work. One study from India reports rates as high as 62 per cent, with boys being more abused than girls,¹¹⁰ while a second from Turkey reported over 50 per cent, more than half being perpetrated by other working children.¹¹¹ A large-scale survey of street children indicated that for each additional 10 hours of work per week on the streets, the likelihood of experiencing abuse increased by 8 per cent.¹¹²

Portering

Similar to the construction industry, a primary hazard for children involved in portering and transport is the heavy load they often must carry, resulting in bone, joint and muscle problems. In Nepal, child porters reported carrying loads averaging 49 kg, heavier than their own weight. But musculoskeletal problems were not the only problem they experienced. There was abuse

¹¹⁰ M. Mathur et al.: "Incidence, type and intensity of abuse in street children in India", in *Child Abuse and Neglect* (2009), Vol. 33, No. 12, pp. 907–913.

¹¹¹ S.S. Celik and M.S. Baybuga: "Verbal, physical and sexual abuse among children working on the street", in *Australian Journal of Advanced Nursing*, (2009), Vol. 26, No. 4, pp. 14–22

¹¹² A.M. Pinzon-Rondon et al.: "Workplace abuse and economic exploitation of children working in the streets of Latin American cities", in *International Journal of Occupational and Environmental Health* (2010), Vol. 16, pp. 162–169

of various kinds, nutritional deficiencies and low body weight resulting from long periods away from home. One study of child porters found that 92 per cent had suffered an injury while working, including musculoskeletal pain (77 per cent), sprains (72 per cent), lacerations (39 per cent) and fractures/broken bones (6 per cent). Approximately 30 per cent of child porters have been found to be anaemic and 75 per cent to have stunted growth.¹¹³

Street vendors

A cross-sectional study of youth street vendors showed that 84 per cent experienced headaches, 59.1 per cent reported stress, 58.2 per cent fatigue, and 11 per cent had had occupation-related accidents. The most frequently occurring health problems were discomfort caused by heat (93.2 per cent), noise (88.6 per cent) and repetitive work (84.1 per cent).¹¹⁴

Waste-pickers

Waste-pickers experience significant rates of gastrointestinal, respiratory and skin diseases, as well as life-threatening tetanus. Other hazards on garbage sites are violence, drug use especially of alcohol, and competition from armed groups. A cross-sectional study in Nicaragua reported that children who were working as waste-pickers had the highest-ever reported levels of polybrominated diphenyl ethers (PBDEs) from breathing the dust at the garbage sites. PBDEs are toxic to the liver and thyroid, and inhibit neurodevelopment. These studies also showed elevated levels of persistent organic pollutants, mercury, lead and cadmium.¹¹⁵

A series of small studies in the Philippines observed that child scavengers' learning ability progressively deteriorated with the amount of time working on the garbage dump. One probable cause is exposure to polychlorinated biphenyls (PCBs), lead or myriad other toxins that are released by the burning of refuse.¹¹⁶

¹¹³ S. Doocy et al.: *Nutrition and injury among child porters in Eastern Nepal* (Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, and United States Department of Labor, 2006).

¹¹⁴ M. Rojas et al.: "Trabajo infantil y salud en un mercado público de Valencia, Venezuela", in *Revista de Salud Pública* (2010), Vol. 12, No. 1, pp. 135–143.

¹¹⁵ M. Athanasiadou et al.: "Polybrominated diphenyl ethers (PBDEs) and bioaccumulative hydroxylated PBDE metabolites in young humans from Managua, Nicaragua", in *Environmental Health Perspectives* (2008), Vol. 116, pp. 400–408, doi: 10.1289/ehp.10713

¹¹⁶ S. Gunn and Z. Ostos: "Dilemmas in tackling child labour: The case of scavenger children in the Philippines", in *International Labour Review* (1992), Vol. 131, No. 6, pp. 629–646.

Solutions with potential to go big

What follows here are snapshots of concepts and ideas that are worth looking at seriously. By and large, the ingredients are not so extraordinary. Most have grown out of a small pilot test project here or a meeting there. But what makes this selection remarkable is that one party or another has dared to take the lead and bring the idea to scale.

These examples – and there are many, many others – reveal how governments, trade unions, employer organizations, labour inspectors, civil society organizations and occupational safety and health (OSH) experts can make a real change when they have a “can do” vision.

No one party is changing the world overnight. But together these ideas represent a sense of hope and a way forward. Sector by sector, child by child, they show that we can make a difference.

› Leadership by government

Using the “hazardous work lists” to stimulate policy change

When the International Labour Conference in 1998 and 1999 was considering the new Convention to protect children who were most seriously at risk (Convention No. 182) it agreed to leave to national governments the responsibility for determining what types and conditions of work should be prohibited for those under 18 years of age. Each country is different, both in its profile of industries and occupations and in its capacities. So instead of laying out a standard list of hazardous work for every country to follow (which inevitably would have ended up being irrelevant to some, or so general it would not be helpful as guidance), they laid out the process by which hazardous work prohibited to children should be determined.¹¹⁷

The process requires government to convene a tripartite committee; or literally, to develop the list “in consultation with” workers and employers as to what work should be prohibited to all children under 18 years. This put tripartism at the heart of policy development and implementation. The three parties who know the most about work and working conditions – and who view the issue from three different but often complementary perspectives – sit down together with a common task before them: to “determine” what work is “OK or not OK” for a child above the minimum age (box 6.1).

Box 6.1

- ▶ Both Conventions Nos. 138 and 182 forbid all hazardous work for children under the age of 18.
- ▶ However, if a type of work is included on the hazardous work list, Convention No. 138 permits, with tripartite agreement, the exceptional authorization of “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”.
- ▶ Not many countries have availed themselves of this derogation, and it means that ratifying countries cannot authorize hazardous work for children under the age of 16 under any circumstances.
- ▶ A child in vocational training has the right to the same protections. Training is not an excuse to expose children to hazardous work.

¹¹⁷ While the Conference did not agree to include in the Convention a minimum list of hazards to be taken into account, it agreed instead to make an explicit cross-reference to Recommendation No. 190.

It also gives the three parties an opportunity to discuss what it means to protect older youth from workplace hazards and how to remove younger children from potentially hazardous workplaces altogether. And since Convention No. 182 calls on countries to review this periodically, this discussion will take place again and again. It is in the context of this discussion among workers' and employers' organizations, led by government, that the key parties can ask themselves the crucial question: what shall we do about it?

Box 6.2

An example of how the listing process is becoming embedded and is not just an externally imposed, legal requirement is provided by Pakistan. Starting as early as 2006, each of the provinces had gone through the tripartite consultation process in preparation for the final discussion and consolidation at national level. Then, on its own in 2010, one of the provinces decided to review its initial list, and in the process identified a hazardous form of child labour that was specific to the locality: a special form of basket-weaving that was performed by children and left them with many cuts and bruises. Having gone through the process once, they were now more sensitized to the vulnerabilities of child workers and ready to take the initiative of enacting a local ordinance to protect the children.

On the policy side, we have seen time and time again that the enactment of the hazardous work lists has a powerful deterrent effect. It provides a policy and institutional structure that can make the gains in protecting young workers more permanent and sustainable. Changing social attitudes about hazardous youth employment, by raising awareness of the risks of working in hazardous activities or conditions and by establishing appropriate sanctions to enforce the law, can also have long-term effects by mobilizing society against this type of work for all workers.¹¹⁸ Indeed, the stronger the OSH culture for all workers, the better the chances that the hazardous work of children list will be robust, applied and enforced.

Experience has shown us that countries vary considerably in how they conduct the process, such as in the composition of the committee, the resources allocated, whether technical assistance is available or not, the time allotted and, most of all, the political will applied. For instance, in the Dominican Republic, the tripartite committee leading the process organized eight regional and one national consultation. A total of 245 stakeholders participated in those nine consultations. Honduras organized more than 14 workshops in different parts of the country. In Lebanon, the committee met five times and workshops were organized with stakeholders in three regions of the country.

However, although most countries have a list (table 6.1), some lists require improvement. Some of the text may have been borrowed from neighbouring countries or be a leftover from the colonial period; most will not have been recently reviewed and will be rather out of date – for example, not including new industries and hazards (such as long working hours in call centres or in fast-food restaurants); or they have included mainly the “easy” ones (e.g. mining) but did not tackle some of the more difficult issues that challenge existing and entrenched poor practice, such as in agriculture (are there tasks in the agricultural sphere – probably the mainstay of the economy – that should be banned for adolescents?) or child domestic service (can such a common and accepted practice be wrong?).

It is clearly within the realm of possibility that within 5 years every government that has ratified Convention No. 182 (and even some of the very few which have not) will have (1) launched its consultation with workers' and employers' organizations and (2) established or updated its list.

¹¹⁸ ILO Youth Employment Programme: *Conceptual framework on the linkages between child labour and youth employment* (Geneva, ILO, 2010).

Table 6.1 Hazardous work lists by region

Region	No. of countries
World	183
List exists	108 (14 in revision)
First list in process	47
General prohibition only (no list)	20
No list. No prohibition	8
Africa	53
List exists	28 (17 in revision)
First list in process	13
General prohibition only (no list)	9
No list. No prohibition	3
Americas	35
List exists	16
First list in process	14
General prohibition only (no list)	5
No list. No prohibition	0
Arab states	11
List exists	8 (1 in revision)
First list in process	2
General prohibition only (no list)	1
No list. No prohibition	0
Asia and the Pacific	33
List exists	14 (2 in revision)
First list in process	11
General prohibition only (no list)	4
No list. No prohibition	4
Europe	51
List exists	42 (4 in revision)
First list in process	7
General prohibition only (no list)	1
No list. No prohibition	1

As has been demonstrated many times, the determination of hazardous work is an action that governments *can* take; it costs time but not money, and it brings together the parties which are key to initiating and sustaining action to protect child workers for years to come.

In summary, we have found the following factors crucial to the success of establishing the lists:

- ▶ *Composition of the committee.* The process works if there is truly tripartite representation and an opportunity for full discussion, rather than simply having an “expert” or consultant prepare a report that is then adopted without further consideration.
- ▶ *Health and sectoral expertise.* It is helpful to have a person with OSH training, a paediatrician or another health professional present as a resource person. Similarly, the ministries covering the main occupational sectors where children work (e.g. agriculture, mining) should be represented.

- ▶ *Prioritization for action.* The list needs to cover all the major forms of labour where children work – even those which are difficult to handle – so as to provide the basis for legal recourse if necessary. However, since a long and complicated list is difficult to enforce, it is advisable to select from the list certain items for priority action.

Documenting child workers' injuries and illnesses

Over the past 15 years, quite a few countries have been carrying out surveys on child labour. While the data from these have made it possible to calculate a global estimate of the total number of children in hazardous work, most were not detailed enough with respect to occupational injuries and illnesses to produce a similar estimate of the health impacts of children's work.

Why do we need such estimates? They are a powerful tool for drawing attention to the problem and showing where children in hazardous work are concentrated and for allocating funds and assigning priorities. In short, they give the problem visibility.

The good practice

Brazil was one of the first countries to collect data on child labour, starting in the early 1990s. Subsequently, its *Programa de Erradicação do Trabalho Infantil* (PETI) was established to remove children from “dangerous, unhealthy, degrading or otherwise distressful working conditions”,¹¹⁹ focusing primarily on ensuring that children at risk are retained in school. It takes its strength from its association with a much larger programme – the *Bolsa Família* – a conditional cash transfer mechanism that provides a stipend for over 11.3 million poor families – a total of 46 million people – which corresponds to a quarter of Brazil's population. Both PETI and *Bolsa Família* are underpinned by an extensive network of community coordinating committees on which local counterparts of the education, social welfare, labour and other agencies, as well as civil society, are represented.

When a child labourer is identified, for example by a labour inspector, the community coordinating committee is the body to coordinate action; it establishes a record on the national child database, and then arranges for financial support for the child's family and for the child to return to full-time schooling. This is fine as far as it goes.

What was missing in this was the health aspect. Many child labourers were in hazardous work and being injured ... but were not caught by the system, much less by the statistics. After negotiations with the health authorities, an innovative distance-training course was developed to train primary health-care workers to recognize and record work-related illnesses and injuries of children under 18 years. In total, over 37,000 primary health-care workers had gone through the training by 2005. The figures on adolescent occupational health conditions show that the health system is now recording the injuries and responding to the needs of this vulnerable population.

The potential for global scale-up

Although one can point to the medium-income status of Brazil and assume, therefore, that it isn't comparable to other nations struggling with hazardous work of children, its sheer size in terms of area and population and, yes, poverty do suggest that it can provide an important model for other nations, particularly the large ones. What is interesting is that this started with one governor in one of the smaller states. Within 15 years, with vision and will, the health-worker training programme to identify children in hazardous work has blanketed the entire country. As of 2011, the trainers from the programme are assisting neighbouring countries in the region – notably Bolivia, Ecuador and Paraguay – to set up similar surveillance systems and to train their primary health-care workers to recognize occupational injuries in children.

¹¹⁹ IPEC: *Action against child labour: Highlights 2006* (Geneva, ILO, 2006), pp. 59–60.

The concept is not especially complicated. It requires a network – in this case of primary health-care workers – that extends throughout the country, but particularly one that reaches the grassroots: the rural farming areas, urban slums, etc. It is the concept, rather than the actual training team, which is now spreading beyond Latin America, to Niger in Africa and Bangladesh in Asia. As the idea jumps into an entirely different cultural and economic context, it becomes grafted onto the grassroots networks that exist there.

Key lessons

There are several elements that appear to be critical in the successful upscaling of these programmes:

- ▶ *Conducting programmes in combination.* One programme or ministry cannot operate on several fronts at once (e.g. economic development, education and health). Synergies can be achieved when several build upon and reinforce each other.
- ▶ *Awareness-raising.* Activities were not actually rolled out until after an extensive sensitization exercise had been carried out among the staff of the agencies concerned.
- ▶ *A community base.* The multidisciplinary committees at community level provided the anchor that not only coordinated the inputs of the different parties, but also adapted them to the locality.

Labour inspectors protect children from hazardous work

In this example it is the labour inspectorate that is the engine for change. Turkey and a number of other countries have demonstrated that when the state commits itself to ensuring there is an adequate number of inspectors for the size of the country and the number of establishments, to seeing that they have a decent salary, and to creating regular opportunities for career improvement and training, as for example on child labour issues, the inspectorate has great potential to effect change.

Looking at the case of Turkey for the moment, we see that it placed child labour as one of the central objectives of its national economic and social policy. This made it possible to take a holistic approach, one which integrated the struggle against child labour into the work of several government bodies with the labour inspectorate as the entry point. The Labour Inspection Bureau brought strong assets to the problem of hazardous work of children: it has an extensive staff and field structure and a national-level role in policy-making, and at the same time has direct contact with the enterprises that hire children and youth.

The good practice

The labour inspectorate started its fight against hazardous work of children by organizing a multi-sectoral coalition at national level, with employers' and workers' associations, the Ministry of National Education, the Social Services and Child Protection bureau and a research institution. Choosing the furniture industry because of its use of toxic paints and solvents, they organized a similar coalition in the affected areas. These were called provincial action committees (PACs) and operated under the auspices of the provincial governors.

The inspectors took pains to develop close working relationships with the governors, municipal staff and local occupational health departments. This created a sense of ownership and joint responsibility on the part of the local authorities, which was cemented through a protocol of cooperation. Having the PACs report to the provincial governorate ensured that the Government was continuously updated on what was happening on the ground and could develop an understanding of the complexities of the issue, which they could then apply when designing local development initiatives. Most important, the governors were in a position to insist that the various offices and ministries coordinated.

Although previously inspectors had seen enforcement as their main role, they now emphasized prevention, presenting the message that stopping hazardous work of children was a good way to improve productivity and conditions in the furniture sector. This approach, along with special

training in communication skills and OSH, gave them the ear of the employers in a way they never had before. They were able to sensitize employers and young workers alike to the risks involved and why hazardous work for children is a priority for elimination, which has since shown clear results in enterprise-level improvements in workplace organization and safety.

This example shows how, when one agency takes the lead but builds a collaborative structure, a host of other partners become involved to address different aspects of the problem. In fact, this structure created a platform for social dialogue between workers and employers that had never existed before. Having hazardous work of children as a common concern enabled Turkey's three largest trade unions to conduct joint activities in spite of substantial differences in ideology.

Potential for global scale-up

This experience – leadership by the labour inspectorate underpinned by larger national policy – is echoed in several Latin American countries. The labour inspectors were particularly effective members of the child labour committees at community and state levels. Because they had been sensitized to the issue, trained to handle child labour cases with discretion and delicacy, linked to a national system that had “muscle” in the form of sanctions for those employers who were repeat offenders, and legally mandated to enter all establishments and workplaces, the labour inspectors have been a powerful ally against hazardous work of children.

The proof is in the numbers. Between 1993 and 2005, the Labour Inspection Bureau in Turkey reached more than 10,000 children in 28 cities who were working in 12 occupational branches and six sectors of the informal economy, thus demonstrating that this is an approach that can go to scale, even in the informal economy. In contrast, the previous 5 years of widely scattered project-based approaches had been unable to generate the synergies needed for sustainability and impact. Once the approach shifted towards a broader integrated policy, replication moved forward quickly ... and has been sustained up to the present with self-generated funds.

Key lessons

- ▶ *Sustained political commitment.* The fact that strong political leadership and decisive political will was present from the very early stages at the national level, and then deliberately fostered at provincial level, was a key factor.
- ▶ *Buy-in of all partners.* Working in conjunction with the labour inspectorate, the workers' and employers' organizations have been central to an effective national campaign and formed a vocal constituency against child labour.
- ▶ *A coordination mechanism.* The meetings and flow of information through the provincial action committees enabled the partners to see linkages among sector strategies and ensure consistency between macro-level policies and micro-level needs.

Reducing hazardous work of children through technology change

The manufacture of hand-knotted carpets is an important craft-based industry in rural areas of several Asian, North African and Middle Eastern countries, where labour is abundant and cheap. The rising demand for carpets, coupled with low wages, illiteracy and availability of children for this highly labour-intensive industry, has created ripe conditions for use of children as carpet-weavers. A survey¹²⁰ in Pakistan in 2002 found 154,956¹²¹ carpet-weaving children in the Punjab province alone, with 69 per cent in the age group 5–14 years (41 per cent males and 59 per cent females), while the remaining 31 per cent were in the age group 15–17 years. Carpet-weaving is

¹²⁰ Results of an unpublished survey of child labour in the carpet-weaving industry in Punjab, IPEC Carpet Project (Lahore, 2002).

¹²¹ Out of these 107,066 (44,161 males and 62,905 females) are in the age group of 5–14 years, while the remaining 47,890 were in the age group of 15–17 years. According to the results of this survey, children in the age group 5–14 years form 60.37 per cent of the workforce in the carpet-weaving sector, while females including children form approximately 80 per cent of the workforce.

one of the prohibited occupations under the law¹²² in Pakistan for children below the age of 14, but since the law is not applicable in homes, child labour is widely used by poor families in rural areas and provides an important source of livelihood.

A 2010 health study¹²³ with control groups showed that the carpet-weavers most commonly suffer from musculoskeletal problems (carpal tunnel syndrome, knee problems as well as low back pain and pain in neck and shoulders), due to the crouched position in which they work and the extensive use of their wrists, fingers and shoulders during weaving. Girls experienced more musculoskeletal disorders than boys because they tended to work longer hours and had less physical exercise and poorer nutritional status. These were exacerbated, in turn, by the poor sanitation, lack of first aid and lack of light and ventilation in poor households, with the result that these workers were more likely to suffer from respiratory illnesses and other diseases related to living style (e.g. scabies).

Among weaving children, as compared with a control group, social and psychological stresses were more common and intense. For example, the data indicate that carpet-weaving children are more likely to suffer physical punishment, and a remarkably high proportion suffer from cuts and bruises.

These conditions of work are conducive to neither productivity nor quality, since the more experienced the workers become, the more health problems they are likely to encounter; thus gradually the industry loses good experienced workers and has to rely on children, who can only deliver comparatively poorer-quality products.

The good practice

The Occupational Safety and Health Institute took the lead on this issue and did so by tackling two problems – improvement in productivity and reduction in hazardous work of children – with one solution. It designed a more ergonomic loom, which was the right size for adults, but not for children. With the new loom, experienced adult weavers could take over the work from the children, and could produce the more intricate designs that command higher prices. Each of the safety and health factors that made this work unsafe for youth of working age and unproductive for adults were then tackled, one by one: “nip” points were eliminated, back and foot rests were added, dangerous bars and hooks were reconfigured, and the whole loom was made free-standing so that it did not have to be fixed against the interior back wall of the house where there was little light or ventilation.

The Institute tested the new loom with 30 families, revised it, and then retested it, this time doing pre–post studies of workers’ health and checking the ages of the weavers. Within 18 months there was already a discernible downward trend in the health complaints. There were fewer injuries, due to the safety controls, and less stress, due to the comfortable seating position, improved lighting, dust control and ventilation. After the pilot-testing period demonstrated the advantages of the improved loom, the local government stepped up to the plate and allocated funds to assist poorer families in acquiring the improved loom.

The potential for global scale-up

Demand is increasing for hand-knotted and hand-woven carpets, especially for export to the industrial countries. In 2008–09, the total value of carpet exports from India alone was over US\$ 600 million. The world export of floor coverings, which include handmade carpets, in 2003 was estimated at US\$ 9,575 billion.¹²⁴ The industry is important not only for the national economy,

¹²² ILO: *National labour law profile: Islamic Republic of Pakistan, Employment of Children Act 1991; Rules 1995*, Government of Pakistan.

¹²³ S. Awan et al.: “Health hazards, injury problems, and workplace conditions of children in three districts of Punjab, Pakistan”, in *International Journal of Occupational and Environmental Health* (2010), Vol. 16, No. 2, pp. 115–121

¹²⁴ United Nations: *Yearbook of International Trade Statistics 2004*, Vol. I (New York, 2004).

but also especially for rural and/or resource-poor areas. It is also valuable socially as it keeps alive treasured and beautiful traditions. Therefore, an innovation that raises productivity but lowers the risk of hazardous work of children is an excellent solution that deserves scaling up.

Carpet-weaving is just one industry. There are a number of others where technological innovations might well be the key to removing hazardous work of children and promoting opportunities for safe youth employment. A 2007 ILO study which reviewed both historical and contemporary changes in child labour associated with technological change concluded that to successfully use innovations to reduce child labour requires looking at each industry individually and taking into account its unique cultural and financial factors. These include the employers' financial margins, the cost of the new technology, the potential for increased profit and the potential impact on employees' overall family incomes (some technological innovations have reduced adult employment, especially that of women). Any innovation that reduces child labour should also be coupled with improved access to schooling. Of particular interest with respect to hazardous child labour, it appears that innovations may be more likely to be accepted when introduced as a way to reduce hazards in the activities being performed by adolescents, although the report cautions that new technologies can also create new hazards.¹²⁵

Key lessons

- ▶ *Responding to social values.* Apart from its utility in responding to OSH concerns, the technical intervention must be as good as the traditional model in meeting social requirements.
- ▶ *Cost-effectiveness.* The technology must be made sufficiently inexpensive, either through the materials used or by providing subsidies, so that those most in need can afford it.
- ▶ *Changing attitudes.* Strong awareness-raising and social mobilization are needed to coax the workers and employers away from the traditional methods and towards the more productive and healthier new models resulting from innovation.

› **Leadership by employers**

At the level of the individual enterprise – whether farm, office or workshop – the real key to protection of the adolescent worker is an employer who is aware and sensitized to occupational safety and health and who knows what is acceptable and not acceptable for a young worker to do. Risk assessment and risk reduction can transform hazardous work for the young worker into an opportunity for decent youth employment.

The formal and the informal economies used to be separate worlds – but that is changing. Businesses are subcontracting more and more of their work to independent producers, and employers' organizations are lending a hand to informal enterprises in agriculture, mining, manufacturing and services.

At the global level, multinational enterprises have required their suppliers to improve labour practices and have negotiated global framework agreements with sectoral union federations to respect fundamental rights at work, including the elimination of child labour in their operations, supply chains or spheres of influence.

Reducing hazardous child work through workplace policies

Strategies aimed at improving the working conditions of youth workers include various types of protective measures: hours of work can be reduced; work at night or travel to and from work at night can be prohibited for youth under 18 years; workplace policies against harassment can be established and enforced; youth can be barred or protected from dangerous substances, tools or

¹²⁵ R. Galli: *Child labour and technology: Lessons from the past and the present* (ILO, 2007), unpublished working paper.

equipment; adequate rest periods can be provided; and so on. As in the United Kingdom, employers can undertake a workplace risk assessment that is especially geared to the greater vulnerability of young workers below 18 years and their greater risk of becoming hurt due to their inexperience.

Where possible, guidance should be provided by a person with OSH training; for example, an OSH specialist or a labour inspector. However, tools are increasingly available that train employers to appreciate the importance of risk reduction, to assess whether a work environment is suitable for youth over age 15, to judge the seriousness of any risks and to assess whether risks have been reduced sufficiently for a young person to work.

A measure that is particularly good is instituting a workplace policy on young workers. Leading companies have included explicit clauses on tasks and conditions for young workers in employer codes of conduct (also commonly called business principles, ethics statements, vendor standards, and sourcing guidelines). This has been driven to some degree by multinational enterprises striving to be responsive to consumer demands for “clean” goods, clear of child labour;¹²⁶ however, it has also been found to be good business. A handbook for employers advises, “Through the code, all employees ... can be made aware of the policy regarding child labour, of procedures for screening in the recruitment process and of steps to be taken to remove children or young workers from hazardous conditions.”¹²⁷

A key part of the code is age verification. In order to avoid any allegations that they are using underage workers in hazardous jobs, some companies (some Pakistan-based textile producers are an example) have made it a policy not to hire anyone under the age of 21. This is distressing because it effectively cuts off opportunities for youth who have reached the minimum age of employment to enter the industry. Whereas a sounder policy is to verify a young applicant’s age through reputable documents or, where none exist, through expert witness or event recall, and place them in low risk tasks until they reach 18 years.

Those producing on a “just in time” basis for the international market are subject to pressures to produce faster and cheaper which often leads to basic occupational safety and health rules and good labour practices being overridden. Employers may want to establish policies and strategies that would enable them to resist these pressures, particularly as it relates to young workers.

Some countries have enacted special policies for apprentices and those undertaking a work experience scheme. These require that the young person be given adequate health and safety training before starting work and that the training should explain the hazards of the job and precautions to be observed as well as the young person’s duty to cooperate and what they are entitled to expect from their employer and others.

Such training for youth is most effective when combined with assistance to employers. This package needs to include sensitization to the special vulnerabilities of youth; but its main emphasis is on the ways that the enterprise can improve its productivity – in short its bottom line – through low-cost, practical improvements. These improvements include both the intangible (adhering to the law on child labour and encouraging social dialogue) as well as tangible (changes in machinery and layout that make the workplace safe for youth employment).

In support of youth and employer training, employment services and other labour market institutions need to stay conscious of the child labour laws and basic occupational safety and health principles. At present, in the haste to produce jobs for youth, the health implications of youth employment tend to be “off the radar screen”. It is not difficult to include education on risks in every youth training programme and policy!

¹²⁶ ILO-ACT/EMP and IOE: *Eliminating child labour. Guide 2: How employers can eliminate child labour* (Geneva, ILO, 2007), p. 39.

¹²⁷ *Ibid.*, p. 41.

The good practice

A workplace improvement programme (WIP) was tested under the challenging conditions of the slum areas in Dhaka, the capital of Bangladesh, where many children both under and over 14 years of age work in repair shops, small manufacturing establishments and services of all kinds. The aim was to teach employers how to make positive changes to their working environments that would minimize hazardous work of children. The WIP targeted five large clustered informal sectors in Dhaka, namely light engineering, electrical goods, shoe-making, automobile repair and wooden furniture making. Many of the children working in these industries were informally apprenticed, often for years. A large proportion resided at the workplace, with the employer acting as guardian and providing them with basic shelter, food, clothing and protection.

The programme focused on employers of micro and small enterprises (MSEs) who hired older children above the legal working age but below 18 years. It used participatory training methods to demonstrate the relationship between improved working conditions and enhanced business performance and created safety, health and environment committees comprising business owners in each of the five sectors. Incentives in the form of a matching Challenge Fund were made available to workplaces that addressed hazardous work issues, at the recommendation of the committees. A three-member field team conducted the training and monitored the Challenge Fund.

These actions resulted in reinforcing, on the part of the employers, a sense of “what is right” in terms of working conditions for workers under 18 years of age. It stimulated competition (for the Challenge Fund) towards implementing concrete OSH measures for higher quality, greater productivity and better working conditions, such as installing ceiling and exhaust fans, improving electrical wiring and lighting, adopting better waste management practices and using safer tools and equipment.¹²⁸

The WIP methodology could be replicated in other urban informal sector settings. The integration of business development and decent work objectives, with particular emphasis on the gradual reduction of the worst forms of child labour, is an ambitious but doable goal.¹²⁹

Key lessons

- ▶ *Reducing work hours.* Employers are in a position to eliminate a substantial percentage of the worst forms of child labour simply by ensuring that their young workers do not work long hours and stay away from dangerous equipment and chemicals
- ▶ *Adopting safety measures.* Employers are well-inclined to adopt safety measures, especially where it concerns young workers and offers improvements in their bottom line
- ▶ *Creating a youth-oriented OSH policy in each enterprise.* The health and safety policy should clearly identify the tasks where young people’s lack of experience may put their own or other people’s health and safety at risk.

Training materials for rural areas

Agriculture has witnessed some of the best examples of employer leadership in addressing hazardous work of youth. Some of the large industry associations have been involved: cocoa, tobacco, sugar, tea and coffee, as well as more localized industries, such as flower production and palm-oil and rubber plantations. Given that rural agriculture is still the largest form of employment in the world, it is desirable wherever possible to maintain children of legal employment age in agriculture, but in decent non-exploitative conditions.

¹²⁸ Personal communication: Sharfuddin Khan, Programme Coordinator of the IPEC worst forms of child labour Urban Informal Economy project, Dhaka, Bangladesh.

¹²⁹ Ibid.

Good practice 1

Employers in the plantation sector in Indonesia were instrumental in the development of a manual, *Improving safety, health, and working conditions in plantations. A practical guide for the plantation sector*, for workers, family members of the workers, supervisors, management, employers and people living in the neighbourhood of plantations. It was developed using the findings of OSH studies on rubber, tobacco and palm-oil plantations in Indonesia, where those directly involved in formal and informal plantations (mostly adult workers) were interviewed to understand their experiences, perspectives and needs.

The manual provides ideas about possible steps to improve safety, health and the work environment in the plantation sector and to eventually make the plantations free of child labour entirely. Basic principles of OSH are presented with illustrations of simple, inexpensive and yet effective actions that can improve workplace conditions in a relatively short period. Throughout the manual, issues relevant to child labour are emphasized. For example, in the discussion of chemicals it states that children under 18 years old must not be allowed to work with hazardous chemicals. When discussing improvement of work methods and ergonomic conditions, the manual highlights that children under 18 are not allowed to lift/carry heavy weights and advises referral to the regulations on hazardous work of children.

The manual has been used in training at the local level in North Sumatra, Lampung and East Java. These workshops are intended also to build commitment from stakeholders or participants to improve OSH conditions on the plantations and at the same time to halt employment or involvement of younger children in hazardous work.

Good practice 2

El Salvador has been able to mark significant progress in eliminating hazardous work of children in the sugar cane industry. Harvesting cane is dangerous because workers use sharp machetes to cut the cane, fires are set to clear the fields, and workers end up having to haul heavy loads for long hours in the hot sun, breathing air that is thick with smoke.

The Sugarcane Producers Association signed a memorandum of understanding with the Government of El Salvador to eradicate child labour in the sugar cane industry in 2002. Through a strategy that included raising awareness, improving educational services and skills training, and organizing community-based monitoring mechanisms, it was able to reduce the number of child labourers in sugar cane production from 12,380 children in 2004 to 1,559 children in 2009.¹³⁰

The international markets have been strengthening the resolve of the sugar producers in El Salvador as well as in other sugar-producing countries, such as the Philippines. These provided external motivation in the form of a major export market and a major international buyer, creating unique opportunities and commitments at high levels to address problems. Several factors contributed to this success: enforcement of provisions in the regional trade agreement (CAFTA),¹³¹ growing commitment from the business sector, increased pressure from foreign opinion regarding the use of hazardous work of children, changes in political will, the Sugarcane Producers Association's adoption of a clearer code of conduct, and adaptation of services and tools from the public sector but managed with private resources. Constant dialogue between the Sugarcane Producers Association and the government, brokered by IPEC, generated a reliable information base, direct interventions in the field and capacity-building of the social partners involved.

¹³⁰ IPEC: *Elimination of the worst forms of child labour in sugarcane sector: A different world is possible* (El Salvador, ILO, 2010)

¹³¹ US Department of Trade: *Central America Free Trade Agreement* (Washington, DC, 2004).

Key lessons

- ▶ *Combining internal and external motivators.* By taking advantage of external pressures when they arose – much like riding an ocean current – the sugar producers were able to move further and faster than they would have if having to rely simply on their own efforts.
- ▶ *Formalizing agreements.* To ensure that matters progressed even when the environment was temporarily not conducive to change, it was useful to have a signed memorandum of understanding among the parties.

› **Leadership by trade unions**

Some trade unions organize young workers, giving a voice to those who have had none. Other unions, with lesser incidence of child labour in their sectors, campaign differently, but all are committed to the elimination of child labour as a fundamental principle.¹³²

All too often, current production systems are organized in such a way that workers are expected to absorb pressures for higher productivity by accepting less protection and more job insecurity, often risking their health and lives for a wage. Acting collectively to combat this through trade unions is a first step towards a safer workplace for both younger and older workers.

There is virtually no hazardous child labour in the factories and workshops where social dialogue thrives, and where organized workers can negotiate terms with employers regarding maintaining standards of decent work. The big challenge is the vibrant but murky world of the informal economy, which is unregulated, not inspected, and where laws may not apply.

Trade unions have begun organizing workers in the informal economy while at the same time campaigning for all fundamental rights at work, including the elimination of child labour, just as they did in the early days of the trade union movement in Europe.

The issue of hazardous child labour may, in fact, be an entry point for union organizing and improvements in working conditions because employers can quickly see the benefits to the enterprise as well as the ethical importance of child labour-free, safe and healthy workplaces. The ILO Resolution on Youth Employment adopted by the International Labour Conference in 2005 called for “workers’ and employers’ organizations to reach out and engage young workers ... to ensure that their specific needs are taken into account in social dialogue processes, including collective bargaining”.¹³³

Reducing hazardous work of children through representation and training

In most industrialized countries, the law not only requires that young people are restricted from taking high-risk jobs – the work that is laid out in the hazardous work of children list – but also that they must receive extra training and be closely supervised. While it is the employer’s responsibility to provide this training and supervision, adult workers are often the ones who are providing this support on an informal basis.

Training should always stress that young workers have the same fundamental rights at work as adults, including the right to join or establish a trade union. These are universal rights and apply to all workers, including those in agriculture and domestic service, without distinction – whether in the formal or informal economy and regardless of whether they are in an employment relationship or whether that relationship is formally recognized. Young workers should be encouraged to exercise their rights to freedom of association and to benefit from its advantages.

¹³² IPEC: *Accelerating action against child labour* (Geneva, ILO, 2010).

¹³³ ILO: *Resolutions of the International Labour Conference, 93rd Session* (Geneva, 2005), p. 11

Trade unions have frequently taken the lead in creating a more formal institutional structure to promote occupational health and safety. These include joint occupational health committees, as well as occupational safety representatives. Both have been helpful in bringing worker concerns to the attention of the employer. Many of these have received good training on how to identify health risks in the work environment.

Large enterprises may have joint occupational health committees. These are composed of people who represent the workers and the employer and who work together towards improvement of health and safety conditions in the workplace. These committees identify potential health and safety problems, inform management to address them, and keep workers informed of health and safety developments. In this way, they help to ensure that everything possible is done to eliminate health and safety hazards.

Good practice 1

“Roving safety representatives” was a concept developed to meet the needs of small firms, which have higher levels of injury but lower levels of union organization and very limited internal structures for consultation between management and workers, which is the type of firms where hazardous child labour is likely to be found. Smaller businesses which are working on especially narrow profit margins may not be accustomed to giving the attention to occupational health and safety and child labour regulations that larger firms do, and therefore need more frequent monitoring from external bodies such as the inspectorate or union safety representatives. The concept was pioneered in Sweden and later taken up more widely. Although often a joint effort of employers, workers and government, it is frequently championed or led by trade unions. In a UK pilot project, “worker safety advisors”, who were experienced representatives trained by trade unions, visited workplaces at least three times in a 9-month period: first for familiarization, second for examining more closely any issues arising out of the first visit, and third to check on changes made. The role of these advisors was not to “inspect” or to provide OSH advice, but rather to facilitate the setting up of systems for consultation whereby workers could raise safety concerns with their employers. This has been well received by employers and has stimulated increased worker involvement in OSH issues.¹³⁴

Good practice 2

Social media (e.g. interactive internet sites, blogs, Facebook, YouTube videos) are being increasingly used to organize young workers, inform them of health and safety issues and provide support to those who are involved in labour disputes. Innovative programmes have been launched in Finland, New Zealand and Ireland and show particular promise in situations where young workers are far apart and would be otherwise “on their own”. In one application, a group of young people who were involved in a collective bargaining process were able to post questions on a moderated wall or bulletin board to solicit comment from others and to discuss the issues on a daily basis with more experienced colleagues through a closed group. Such a method is youth-oriented, highly accessible and enables troublesome situations to be handled early.¹³⁵ The videos are particularly helpful in conveying workplace hazards in a way that makes sense to young people.

The potential for global scale-up

Until now, scale-up has usually been considered primarily within the context of individual industries and occupational sectors, such as construction or hotels/tourism. But with a number of on-line training courses now available, unions are in a position to increase the number of their safety representatives and speed up their training on occupational health as concerns young workers.

¹³⁴ ITUC: *OHS Reps @ Work* (2003). Available at <http://www.ohsrep.org.au/news-views/people-in-ohs/owen-tudor-unions-and-ohs/index.cfm> (Accessed April 2011).

¹³⁵ MUA: *Social media organizing techniques*, MUA Young Workers Conference, Strachan Crang, Dec. 2009.

Examples of some of the training tools currently available are included in Appendix II. Health and safety committees have been established recently in a number of African countries in a range of sectors; this testifies to the fact that OSH committees and the roving safety representatives are solutions with wide applicability.

Key lessons

- ▶ *Encouraging recruitment of young people into unions.* Whether or not they are in full-time training or employment, young people need the support of unions, not least, in their contract negotiations and to access training opportunities.
- ▶ *Having special monitoring of OSH and supervision for young workers.* The health and safety of young workers should always be a special part of safety committee meetings, and supervisors should be specially trained in how to monitor health and safety arrangements for young people.

Protecting rural children from hazardous work in agriculture

It is not so difficult to see hazardous work of children when it occurs in population centres; and once seen, it is easier to work out what to do about it. The situation is very different in outlying regions of the country – subsistence farming areas, range land, vast mono-crop plantations, forests, the deserts and mountainous areas where mining sites are located, remote islands, and so on. We cannot just forget about these because they are too difficult. The children who live and work there deserve protection too.

Are rural people aware of occupational hazards to children? Or do they accept the inevitable injury as simply a part of life? Is poverty so extreme or pervasive in these areas that it is in the best interests of children to contribute however they can to family subsistence?

Sectoral trade unions, particularly those in agriculture and mining, have demonstrated that it is possible to reach dispersed communities and to have a clear impact on the hazardous work of children that they find there. They have advantages that others do not.

The General Agricultural Workers' Union (GAWU) of Ghana was started by cocoa farmers in 1948, gradually expanding its attention to all agricultural sectors, including fishing. Although GAWU organized plantation workers, its forte was always the work with small farmers, either as economic groups (i.e. farmers who were growing the same types of crop, e.g. rubber, palm, cotton, rice, cocoa) or as community groups.

Turning first to the economic groups, the union has at its disposal some strong tools. It can support workers or outgrowers in their contract negotiations with plantation owners or multinational buyers, writing into the contracts clauses that stipulate that no children are allowed to work within the plantations and that proper schools are accessible on or near the plantations. Through the regular union training and education activities, there is a chance to emphasize proper respect for and use of pesticides, including the effect these have on young workers. Their role as spokespersons for the workers and outgrowers gives them access to duty bearers in the estates and the chance to help the growers access poverty reduction opportunities offered by government.

The community groups, operating through their local unions, have been particularly successful in combating hazardous work of children. Initially, it tends to be difficult for union organizers to access communities due to the perception on the part of many that unions only support full-time paid workers. But there are two techniques that have worked well: training on OSH (using the study circle methodology); and organizing around immediate local issues.

The good practice

The OSH training takes place on days that farmers do not go to the farm or have returned from it. A trained union member gives a short talk in a central place, presents simple messages on flipcharts with drawings and then hands out leaflets showing the dangers of, for example, the

incorrect use of chemicals. Farmers value pesticides so much that they want to protect them, so keep them in the rooms where their families eat and sleep; they also don't realize the danger posed to children when pesticide spray drifts outside the fields. By showing the farmers a picture of how pesticide enters the body, what it does to the body and what it looks like when children are affected by pesticides or other chemicals, the farmers then make the connection between the hazard and the result. They have the "aha" moment, when they link the pictures with the illnesses and deaths they have seen in the village. They also, for the first time, make the link between the union and its value to them in protecting them at work. It is a wake-up call. Other effective techniques have been the use of body- and hazard-mapping techniques developed by the IUF in collaboration with the ILO.

This experience is echoed in Mongolia. In the communities clustered around informal mining sites, the union started with one simple slogan: "No child in the pits." It was an idea that almost everyone could accept, especially after the union trainer helped them make the link between the health problems seen in the young workers and the flipchart lessons about the dangers of mercury contamination. Then, one by one, they added new concepts, moving the miners gradually towards a concept of what was safe and not safe for young people. It seems slow, but it is sustainable.

The second approach that the GAWU uses in Ghana – organizing around local issues – leads to a profound structural shift wherein communities, by becoming aware, can champion their own causes. In the course of gatherings, which are normally very informal, the trained union facilitator encourages community members to bring up topics of concern to them. Sooner or later, a child-related topic will surface. This is an opportunity to talk about child rights, the value of education and children's participation in hazardous work ... and then not just to leave it there, but to carry it forward into a chain of action: for example, contacting teachers about children who need attention, having the teachers alert community leaders or chiefs with whom they have close links, and having the chiefs in turn, follow up with the parents, invoking community sanctions if necessary.

The potential for global scale-up

Rural communities will come around if there is an issue to address. Any issue can be a means of mobilization. "Remove hazardous work of children" has been a successful strategy for upscaling nationwide because it mobilizes the communities around addressing the needs of their children. In Ghana, communities organized their own groups to champion the cause; there were even clubs formed in schools. Hazardous work of children, in fact, has become the entry point for addressing the larger needs of people in the communities. The training provided by the trade union helped the farmers know how to organize themselves and campaign for their rights. This whole process promotes a high level of sustainability.

Non-governmental organizations (NGOs) and unions can complement each other. At the community level, the unions are good at sensitization, organizing and training for change, while the NGOs offer the immediate schooling and social services needed by the children and their families. In turn, the unions are good at motivating the community leadership so that services and benefits are extended to the entire population.

At national level, the union structure again offers a special advantage in that it is able not only to draw public attention to an issue but also to gain the ear of the private sector and government at the highest levels. For example, in 2009, the Zambia Congress of Trade Unions (ZCTU) adopted a national policy on child labour through an extensive consultative process with stakeholders, the government, national employers' organizations and civil society organizations that was meant to guide, complement and strengthen other policies and laws. Similarly, in Niger the unions established a trade union coalition against child labour, *Intersyndicale de lutte contre le travail des enfants au Niger*, which, in addition to their advocacy role and interventions at the policy level, created a task force for project design and management as a strategy to make social dialogue an effective mechanism against hazardous work of children at the national level.

At the same time as the national policy was being formulated in Zambia, several union federations¹³⁶ decided to tackle together one of the most hazardous forms of child labour: traditional mining. The unions conducted a strategic planning exercise, mobilized the affected communities, carried out awareness-raising activities and even provided some direct support.

What was unprecedented then was that they took this action to the regional level. They invited sister African workers' organizations, such as the Central Organization of Trade Unions from Kenya and the National Organization of Trade Unions from Uganda, to contribute their expertise. Hazardous work of children, therefore, became an area of concern uniting workers across national borders in a spirit of South–South cooperation. The advances against hazardous work of children in mining in Zambia have been the result of this unity.

Key lessons

- ▶ *Simple messages* presented simply.
- ▶ *Listening* to the immediate concerns of the community ... and acting on them.
- ▶ *Uniting* across sectoral lines and national boundaries.
- ▶ *Recognizing* the different groupings and sectors within the communities.
- ▶ *Encouraging* communities with the “can do” spirit.

› **Leadership by the community**

It is somewhat easier to *prevent* hazardous work of children by ensuring that all children go to school and to provide social protection for families that are struggling to make ends meet than it is to reach children who are already caught in some form of hazardous work. The large proportion of these children will not be in school, so teachers will not notice their absence; they may well be working in out-of-the-way places, so the ordinary public and social agencies will not see them; they are likely in informal workplaces, where the labour inspectors will not be passing very often, if at all. If what they are doing is known to be illegal or socially shameful, the children themselves may try to avoid being seen. How do you find them?

On the watch for hazardous work of children: Child labour monitoring

One element of child labour programmes that is expressly designed for sustainability is the “child labour monitoring” (CLM) system. This mechanism was developed as a temporary support to the labour inspectorate in reaching the informal economy workplaces where child labour occurs most frequently and where almost all jobs pose some sort of physical or psychological risk.

In its simplest form, a three-person team of community members (such as a school teacher, mothers' club member or retired policeman) are given training in how to monitor child labour. They then periodically visit places where children are likely to be working. If they find a child, they report the case to a specially constituted community committee, as well as to the labour inspector or local government authority for follow-up. Depending on the child's situation, the committee will recommend a course of action, e.g. in the case of younger children this is usually removal from the workplace and their placement in an appropriate educational programme; in the case of older youth it may be improvement and monitoring of the work environment; assistance to the family is another option.

The good practice

In Viet Nam, a CLM system was set up to take account of children working in hazardous sectors, such as markets, plastic manufacturing, scavenging, grassmat-ware production and manufacturing

¹³⁶ The ZCTU, the Federation of Free Trade Unions in Zambia and the Gemstone and Allied Workers' Unions, along with the Zambia Federation of Employers and the Small-scale Mining Association of Zambia.

of construction material. It is a joint activity of the Women's Union, the Ministry of Labour, Invalids and Social Affairs (MOLISA), teachers, educational administrators, social workers, local authorities and the Committee for Population, Family and Children. To support the CLM system, a computer-based system linked to a web site was developed, which is convenient for tracking children and effective for data collection and analysis. The database contains information pertaining to the working status of children and their families in target sites, profiles of children and their needs and the action taken. The CLM system in Viet Nam is facilitated through the use of information technology, which allows all partners to share what they know.

The potential for global scale-up

Albania, Romania and Ukraine have all developed the basis for a national CLM system, authorized at ministry level and executed first in pilots and then replicated in other (or all) districts. These countries then conducted training courses for other Central Asian states: Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan. Given the comparatively stronger labour inspectorates in these countries, the labour inspectors performed a significant role in the CLM work, but others were involved, including social welfare officers, education officers, trade unions, parents' associations, employment officers and community police. To strengthen sustainability, each country produced, in local languages, an adapted manual for CLM system monitors.

Key lessons

- ▶ *Training.* CLM provides the framework for training on how to observe child workers in different situations and how to listen to them to understand and assess why they work – a crucial set of skills.
- ▶ *Prioritizing.* CLM involves prioritizing specific sectors or localities and assessing which children are at risk of entering the labour force; this contributes to the work of all partner agencies.

Protection of working children: From the community up

In an attempt to demonstrate substantive reductions in the worst forms of child labour, many projects select a particular form of hazardous work of children – fishing, for example – and focus on this for the duration of their work. The classic interventions are withdrawal and rehabilitation combined with policy adjustments. This does indeed result in fewer children in that form of work, maybe because they have been placed in school ... or perhaps because they simply moved into something else. It is the latter that causes us concern.

Hazardous work is not a choice. Children end up in hazardous situations because there doesn't seem to be any alternative. The way to stop children doing hazardous work is not to "pick off" one form of child labour after another. Instead, a more sustainable approach is to work in an area and address all forms of hazardous work that occur in that area.

Shifting from a "sectoral" approach to an "area-based" approach leads to the creation of a more integrated and comprehensive style of work. Karnataka (India), which, with 52.7 million people, is comparable in size to many countries, chose not only to shift from a sectoral to an area-based approach, but also to shift focus from the child to the child's whole household. By targeting the households, rather than just the children, it becomes possible to address the factors causing hazardous work of children, such as household vulnerability, and to bring into play poverty alleviation and adult employment measures. This, in turn, puts the onus on policy-makers to establish a support system for households and communities at risk.

The good practice

The theory underlying Karnataka's area-based, household-based approach is that the solution to hazardous work of children starts with and rests in the hands of the community, parents especially. For action against hazardous work of children, Karnataka has chosen to work with self-help groups (SHGs). An SHG is a group of 15–20 women organized primarily to access micro-

credit for income-generating activities. They are trained in women's rights and other issues that empower them and enable them to work collectively to improve their well-being, as well as being trained and motivated to engage in the identification, referral and prevention of child labour.

Each group meets once a week to review its micro-finance activities, to receive training and to discuss the situation of children in the community. When a child is found working, peer pressure is brought to bear on the mother and the group tries to help her find solutions to her problems by putting her in touch with appropriate social welfare programmes. This is the first level of response.

At the second level of response, the child labour case is referred to local school officials, who visit the home of the working child and counsel the parents. Referral to the Gram Panchayat – decentralized local bodies who are the link with a range of government programmes (skills development, wage employment, housing, etc.) – is the third level of response.

In practice, 90 per cent of the cases of child labour are resolved at one of these three levels of response. In the rare cases that remain unresolved, the fourth level of response is referral to the labour and factory inspectors at the state level for rescue of the children and possible prosecution of the employers.

The potential for global scale-up

In that this model depends so much on community organizations, one of the crucial steps in scaling up is to assess what groups exist in the community. Some may be formal and as such quite visible, while others may have formed with respect to an issue. In India and Bangladesh, which have women's savings and income-generating groups, this is a good foundation; otherwise, school committees or mothers' clubs have been effective.

This model has good potential for scale-up because it is low cost. If there are existing community structures, it does not require a large amount of external funding as training costs are minimal, and the decentralized manner in which cases of hazardous work of children are handled means that the labour inspection system is not clogged by a large number of referrals at the higher levels.

Key lessons

- ▶ *Empowerment of community groups.* The critical factor is for them to understand that they have the right to speak out and have the communication skills to do so effectively.
- ▶ *Positive rather than punitive.* The community tries to attack the forces that are pushing the household to put its children to work, rather than to attack the family or the employer.
- ▶ *Access.* There needs to be a channel for reaching the ears of those who could make a change (the district officials and managers of large-scale development programmes).
- ▶ *A system.* Any one of these interventions alone would not achieve the desired result. An outsider (e.g. ILO project) can help to tie together the various pieces and link them to the regular government structures on social protection and law enforcement.

PART III

How to achieve fundamental change in hazardous child work

In the examples we have seen in the previous part, regardless of who takes the lead initially, at some point these local actions – if they are successful and merit being sustained – become transformed into a multiparty effort and incorporated into policy. When terms such as “convergence”, “coherence” and “mainstreaming” appear in country plans, it is a reflection of such structural changes taking place.

In this final part we look at an integrating concept that may be particularly applicable to hazardous work of children, “the life-cycle approach”. This is a concept that situates children who work – the 5–17-year-olds – within a longer age continuum. Its advantage is that it allows one to look further back into the factors that lead a child into hazardous work in the first place, and forward into her or his life as an independent, productive adult to see what preparation bears fruit. Throughout this continuum, education and social policy are the core elements.



Children carrying bricks in a brick kiln © David Parker

Integrating action and policy

7

› Viewing working children within the context of the life cycle

For policy-makers who are dealing with political crises and economic strictures, child labour is often seen as a peripheral issue, a problem that can wait. The life-cycle concept is a potentially powerful tool to provide them with a way to place children's safety and development more centrally within a country's priorities and to use it as a measure of success.

We now understand that vulnerabilities are not evenly distributed throughout the life cycle. Not only are they significantly greater in earlier stages of life, but they can also have important long-term and sometimes irreversible consequences during later stages of life. When we chart the most critical points within the life cycle, we see that while risks are extremely high in infancy – as we would expect them to be – they increase again and are concentrated in adolescence and youth, a period that can have an immediate impact on the next generation.¹³⁷

Because major physical, social and psychological development takes place in this period, it largely determines whether an individual “succeeds” or “fails” in later stages of life. Thus, the negative impacts that hazardous work of children has on a child's development can limit an individual's opportunities to make the transition to decent work during youth. In turn, the labour market disadvantage incurred when a child's schooling is compromised by strenuous or abusive work can result not only open a persistent cycle of poverty but also in social vulnerability and marginalization (box 7.1).

Box 7.1

Why should we put children and youth together in a single framework?

Pro-poor: many income and non-income poverty indicators are much worse among children and youth; and today, these two groups represent the majority of the developing world's poor. Strategies that focus on investing broadly in children and youth are inherently – and doubly – pro-poor, that is, reaching the currently poor while reducing future poverty.

Unique vulnerability: among the poor, children and youth are the most susceptible to increased vulnerability during periods of economic downturn and other external shocks (eg. as indicated by malnutrition, dropping out of school to assist their families, youth unemployment, violent and risky behavior, etc.).

Highest risk: both age groups represent the two periods of highest physiological and social risk in the life cycle. In younger children, this is manifested in malnutrition and lagging intellectual development, whereas in adolescence, this is manifested more in the form of injuries, risky behaviors, violence. Preventive risk management would argue that these are the two most productive and efficient periods toward which to direct interventions.

Life-cycle: They are *integrally linked along the life-cycle* during a critical period of life in which investments – or under-investments – will have a much longer period to manifest positive and negative consequences to individuals and to society. If interventions are not made in the early years, the costs and consequences become particularly evident in early adulthood. And if they are not corrected at this stage, the costs to society can be staggering not just for this generation, but as well for the next as children born to young disadvantaged parents continue the cycle of poverty.

Source: World Bank. 2005. *Children and youth: A framework for action* (Washington, DC).

¹³⁷ World Bank: *Children and youth: A framework for action*, HDNCY Working Paper Series, No. 1, p. 15 (Washington, DC, 2005).

To focus solely on extricating a young child from an abusive work situation or shielding a working youth from workplace dangers is a short-sighted strategy. Instead, by seeing child labour in this larger life-cycle context, it is obvious that strategies to combat child labour must be closely linked to efforts at both “ends” of childhood: at the one end, to give young children a good start in life; and at the other end, to give older children and their parents a chance to get decent work.

This approach demands, therefore, an integrated policy framework that traverses the boundaries between labour, health and education. It also requires collaboration on the ground in delivery of services and schooling. Experience from evaluations shows that achieving this interconnection at policy level and at implementation level is one of the most challenging aspects of both child labour and youth employment programmes.

› Adolescents as a critical target group

Adolescents are at the hinge between childhood and adulthood. If they are 15 (sometimes 14 or 16) to 17 years, they can be either child labour or legally employed youth, depending upon whether the work they do and the conditions they work in are hazardous (figure 7.1). Since they are of concern to both those *promoting* work (youth employment programmes) and those trying to *end* it (child labour programmes), one assumes that adolescents would be receiving double the attention. In fact, however, they often fall into the cracks between the two.

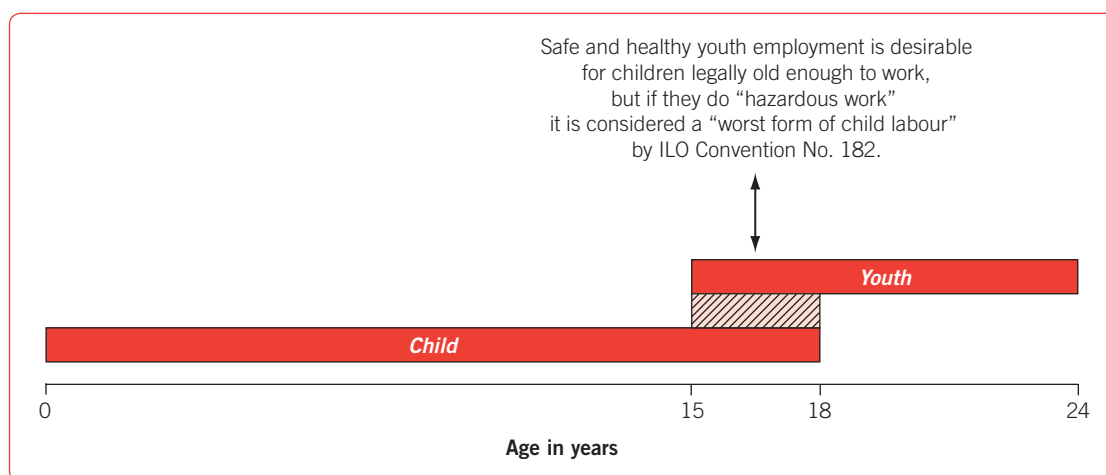
An integrated youth employment–hazardous work of children policy and programming framework can inject new energy and ideas to support this group, which is of mutual concern.

The numbers involved are substantial. Within this age group, an estimated 67 million youth (48.3 per cent of the total) are engaged in acceptable work.¹³⁸ Nearly an equal number, 62.5 million (54.1 per cent), are engaged in unacceptable work: hazardous work of children.

Moreover the statistics are not static. The startling finding from the analysis of child labour trends over the past 8 years is that child labour in this adolescent age group is actually increasing, most significantly among boys.

Preventing adolescents of legal working age from becoming involved in hazardous work requires short-, medium- and long-term strategies. Determining the list of work to be prohibited (the hazardous work list), establishing sanctions, and then putting in place an effective system of monitoring and inspection has a powerful long-term deterrent effect when regulations are enforced.

Figure 7.1 Hazardous child labour and youth employment



¹³⁸ ILO Youth Employment Programme: *Conceptual framework on the linkages between child labour and youth employment* (Geneva, ILO, September 2010).

Strategies aimed at changing social attitudes about adolescent work, such as by raising awareness of the risks of working in hazardous activities or conditions, can not only have a short-term impact, but also a long-term effect by mobilizing society against the engagement of adolescents in this type of work.

Strategies aimed at improving the working conditions of adolescent workers, as we have seen, include various types of protective measures:

- ▶ Hours of work can be reduced.
- ▶ Work at night, or travel to and from work at night, can be prohibited.
- ▶ Workplace policies against harassment can be established and enforced.
- ▶ Adolescents can be barred from using dangerous substances, tools or equipment.
- ▶ Adequate rest periods can be provided.

When working conditions cannot be improved, an adolescent would need to be withdrawn and provided with a decent work alternative or some type of education, such as skills training or further schooling. Not infrequently, adolescents withdrawn from exploitative situations may need a range of social services: emergency shelter, medical care, psychosocial counselling, legal support, family tracing and assessment, post-reintegration follow-up, etc.

Strategies to address adolescents in the workplace at risk of hazardous work could include the following:

- ▶ Expanding access and completion of formal schooling (including back-to-school programmes) so that youth do not enter the labour market below minimum working age. Alternative pathways, such as providing pre-vocational training, are critical to keep adolescents in structured learning programmes.
- ▶ Training and awareness-raising on OSH is essential for employers and their young workers, master craftspersons and their apprentices. Training includes adequate and consistent supervision.
- ▶ Implementing monitoring mechanisms. Trade unions, business associations, chambers of commerce, community organizations, social protection agencies – when properly trained and linked with the labour inspectorate – can monitor minimum age guidelines, the safety of the workplace and the work of apprentices.

In many developing countries, *informal apprenticeships* are the largest provider of skills for the – mostly informal – labour market, far surpassing the output of formal education and training institutions. The strengths of informal apprenticeships include: providing skills training at a suitable level of technology; using the equipment currently in use in the trade and being involved in real production processes; covering all skills relevant for a trade, including vocational skills and to a small extent organizational, management and business skills, including costing, marketing, and supplier and customer relations; and allowing apprentices the opportunity to build up social and economic networks that will facilitate the establishment and running of their own enterprise.

› Younger children and girls have priority

ILO Recommendation No. 190, which accompanies Convention No. 182, emphasizes, with particular force, that programmes to eliminate the worst forms of child labour should give special attention to younger children (para. 2(c)i). When a child below the minimum age is found working in a hazardous environment or in hazardous circumstances, removal is the only option. It is not possible to allow the child to continue through workplace improvement or similar measures. Depending upon the danger involved (some situations may be so drastic that immediate rescue is required), the only condition is that a structure be in place so that any children removed from the workplace can receive the support they need (e.g. counselling) and the necessary measures

can be taken to see that they are able to return to an educational programme. Recommendation No. 190 is quite specific about this: “protecting them from reprisals and providing for their rehabilitation and social integration through measures which address their educational, physical and psychological needs” (para. 2(b)).

Girls are also singled out for special attention in the Recommendation, as well as in the child labour Conventions. In that programmes and policies may be making a strong effort to reach girls, it may help to account for the decline observed between 2004 and 2008 in the number of girls in hazardous work. The Recommendation also draws our attention to the fact that girls are often found in hidden workplaces such as domestic service.

The next section shows how these specifically child-focused strategies fit within a larger integrated policy framework.

› A framework for sustainable change

An integrated policy response to support elimination of hazardous work by children and promotion of opportunities for later employment would combine macroeconomic and microeconomic interventions. The 2005 International Labour Conference, in its resolution on youth employment, called for national-level efforts that:

- ▶ combine supportive economic policies with targeted interventions;
- ▶ address both labour demand and supply;
- ▶ tackle both the quantity and quality of employment;
- ▶ involve multiple stakeholders, including employers’ organizations, trade unions and young people, in the formulation and implementation of interventions.

This framework suggests the following strategies for tackling the challenges of hazardous work of children and promoting decent work for youth at the policy level, or in other words, for creating an “enabling environment”.

First is mainstreaming the issue in national development frameworks. This is not only crucial for sustainability, but it also brings the issue into the room where discussions on resource mobilization and allocation take place and priorities are set. It enables child labour–youth employment strategies to be linked with macroeconomic policies that promote economic growth, job creation, sectoral development, the balancing of labour supply and demand, and the quantity and quality of employment.

Second is establishing national plans of action. Although it may be appropriate that both child labour and youth employment continue to have detailed national plans aimed at their full target group (e.g. 5–17-year-olds in the case of child labour, and 15–24-year-olds in the case of youth employment), it is desirable to provide references, links and even common elements in the two plans so as to ensure that the framework outlined in this document bears fruit at the country level.

Third is providing a system of quality education accessible to all. Many children drift into child labour when schools are not available or are of poor quality; where the direct and indirect costs of schooling are high; where parents consider that to have a child work is more valuable than for the child to go to school; and where cultural factors discourage education, particularly at the secondary level – a situation that commonly affects girls. Children in rural communities are particularly vulnerable – they account for 82 per cent of all out-of-school children. Ensuring all children receive a quality education until the minimum age of employment would make a major contribution to tackling child labour.

Fourth is guaranteeing social protection to reduce vulnerabilities of poor households. Some of the countries that have made the greatest progress in reducing child labour – and in particular hazardous work of children – over the past 10 years are those that have taken decisive measures to develop their social protection infrastructure. These include cash transfer programmes, school

feeding programmes, public works programmes and other initiatives to provide work for parents, access to credit and savings schemes, and some form of health and retirement insurance. Protection against financial shocks caused by economic crises, natural disasters or other emergencies can help families keep their children in school and out of work. The UN Social Protection Floor Initiative has the aim of ensuring all countries have in place a basic level of social protection.

Table 7.1 compiles key elements described in earlier chapters and in the good practice summaries to lay out what we feel to be the critical components for an integrated policy approach. Strategies specifically to improve the long-term health and productivity of children engaged, or at risk of being engaged, in hazardous work can be of three types: they may be aimed (1) at preventing the engagement in hazardous work, (2) at improving the working conditions of those older children already working in activities, conditions or occupations that are hazardous, or (3) at supporting the transition to decent work; all supported by an enabling environment.¹³⁹

Table 7.1 The critical components for an integrated policy approach

The enabling environment
Ratification of ILO Conventions Nos. 138, 182, 184, 150, 81, and 129
Establishment of a National Plan of Action on child labour linked to or coherent with similar plans on child protection, youth employment and labour inspection
Mainstreaming key elements in national economic frameworks (e.g. PRSPs, MDG monitoring)
Strengthening the social protection framework, including income support, insurance and medical care
Strengthening the social dialogue framework to promote organization of young workers and their representation in collective bargaining situations
Establishing a list of hazardous work to be prohibited to those under 18 years, enacting it into law and identifying where hazardous work is concentrated (locations, social and ethnic characteristics, age groups and industries)
Promoting an education policy and education system that emphasizes accessibility and quality
Preventing engagement of younger children
Ensuring children of all ages enter, attend and complete school up to minimum age of employment
Providing added support for children transitioning between primary and secondary school, and for those in danger of dropping out
Providing remedial literacy and numeracy education and second-chance education programmes for out-of-school youth
Encouraging sports and youth clubs to fill non-school time
Adding 'work preparation' component to school curricula to raise children's awareness about work life, risks and rights and responsibilities
Raising awareness of parents about the deleterious effects of hazardous work on children's health and life potential
Adopting rigorous age-screening procedures by employers and businesses
For children below minimum age of employment, removing them from work and supporting their recovery and (re)insertion in school

¹³⁹ ILO Youth Employment Programme: *Conceptual framework on the linkages between child labour and youth employment* (Geneva, ILO, September 2010).

Table 7.1 (cont.)

Protecting older children in or at risk of hazardous work

Offering comprehensive packages of training and services to facilitate the transition from school to decent work (skills, apprenticeships, vocational training, job counselling, enterprise development, financing)

Raising awareness among employers of productivity gains to be achieved through improvement of working conditions to a level that is safe for young people to work

Establishing joint worker-employer safety committees, safety representatives and connections to workers' organizations to provide support for young people in the work environment

Ensuring regular inspection of enterprises regarding workplace conditions and adherence to minimum age restrictions

Establishing community-based systems, linked to the labour inspectorate, for monitoring farms and other family-based work environments

Training frontline health-care providers to detect and document occupational injuries and illnesses of children

These strategies are presented separately but they are interrelated. For instance, most preventive strategies also protect young workers, as is the case with regular monitoring of working conditions. Similarly, the enforcement of protective measures (e.g. OSH regulations) has a preventive effect. ILO experience with the WIND and WISE programmes (see Appendix II) demonstrates the importance of coupling OSH with improvements in productivity at the local level, and with other incentives (e.g. conditional cash transfers, training vouchers) on a wider scale.

The pay-off is that measures to protect children from hazardous work, short to long term, are themselves contributing to support decent work for young workers above age 18.

CONCLUSION

Yes, but what can I do?

We are now at a critical juncture in meeting the target of eliminating the worst forms of child labour by 2016. If we can stop hazardous child work, we will have largely achieved that goal.

This report has shown how serious the problem is. But it has also provided a picture of the array of tools that are now available to address it: wider awareness of the international labour standards, laws and regulations, education policies, enterprise policies and closer monitoring of supply chains, local regulations grounded in the “hazardous work lists”, active worker associations even in rural areas, and most of all a growing sense worldwide that having children doing hazardous work can no longer be tolerated in a modernizing and globally connected society. The proof that such measures can have an effect is seen in the declining rates of hazardous work among younger children and girls.

Given the challenge of removing 115 million children from hazardous work and the various possibilities of responding to it, it is important to set a clear strategy for moving forward.

Three broad areas of response were outlined in the previous chapter: (1) preventing younger children from becoming engaged in hazardous work, (2) protecting older children in the workplace, and (3) strengthening the underlying policy framework. In each of these areas, there are both immediate and longer-term actions to be taken. All require a broad range of partners – from government and workers’ and employers’ organizations to local communities – and that all partners are actively involved.



Migrant girl picking cotton © David Parker

Key ways forward

1. Prevent younger children from engaging in hazardous work

Make a renewed effort to ensure that all children are in school, at least until the minimum age of employment.

Children's right to education is a human right, but it is also crucial for economic and social development. If children work, and especially if they work long hours or in hazardous conditions, it prevents their being in or benefiting to the full extent from education. Identifying and addressing the reasons why children are not in education – cost, access and quality – is an important step towards preventing hazardous child labour. However, it is not the only step as regards young children. If they are doing hazardous work outside school hours or in summer vacation, they must be withdrawn from that work.

Immediate action: Mapping schools in relation to concentrations of hazardous child work

With the assistance of community groups, local government units and especially teachers, the barriers that are preventing children in these areas from attending school can be assessed. Often a local solution can be found to provide at least stop-gap measures to get the children at high risk of hazardous work back into school while improvements are made in the education system overall.

2. Protect older children from hazardous work

Strengthen workplace safety and health for all workers, but ensure there are specific safeguards for children between the minimum age of employment and the age of 18.

Children from the minimum age of employment, generally 15 years old, though in some cases 14 or 16, can legally work. Against the background of the major global problem of youth unemployment, it is in the interests of individuals and nations to ensure that when children have reached the minimum age, and when they have completed their education, they are able to enter the workforce.

All workers require protection of their safety and health and it is a duty of employers to ensure appropriate standards are established and maintained. However, as the report shows, young workers require additional protection. There is clear evidence that young workers are more likely to suffer accidents or illness as a result of their work. It is because of this that laws restrict young people from taking high-risk jobs – the work that is laid out in the “hazardous child labour lists” – or require that they receive extra training and be closely supervised.

Regular inspection of places where children are likely to work, including home-based and informal economy workplaces (e.g. subcontractors, domestic service, street-based trades), is absolutely crucial for ensuring that they are not exposed to hazardous working conditions. Monitoring by the community, worker representatives or businesses is increasingly common; however, it is important that these entities do not work independently, but under the umbrella of or in close conjunction with the labour inspectorate.

Parents, employers and children themselves need to be aware that young workers are especially vulnerable to workplace risks, that some hazards are invisible (psychological) and that there may be severe long-term effects from hazardous work. Awareness-raising can start in school, and can be especially effective if carried out by employers' associations.

Immediate action: Regulation of work hours

Children must not work at night or overtime. A large proportion of hazardous child work is classified as such simply because of the excessive hours. Therefore, a first step to reduce rates of hazardous child labour is to ensure that labour laws are clear on maximum hours and times of work for children. A vigorous campaign should then be undertaken to ensure that the working hours of children of working age are maintained at a safe level. This will require both awareness-raising and consistent monitoring, but it can be done.

3. Create the proper policy environment

Join with workers and employers to provide the crucial policy and legal foundation for action against hazardous child work.

The roots of most child labour are in poverty and lack of access to quality education. The key to tackling child labour is to address these root causes. By providing adults with opportunities for decent work and ensuring social protection for the vulnerable, individuals and communities can begin to work their way out of poverty. This in turn will mean they are less dependent on the work of children.

Immediate action: Update the hazardous work lists

As required by ILO Conventions, each member State should (1) compile a list of the types and conditions of work that are to be prohibited to children below the age of 18, (2) ensure that such list is regularly reviewed, and (3) ensure that action is taken to enforce the list. The report has explained the importance of the process of establishing the list, because it enables government and employers' and workers' organizations to work together, not only in deciding on the elements to be included, but also in assessing priorities for subsequent action.

Because some of the most dangerous types of children's work are concentrated in specific occupations and tasks, focusing attention on these pockets could go a long way towards generating the momentum needed to make progress.

* * * * *

The Director-General of the ILO has called for "new and large-scale efforts" and a "re-energized campaign"¹⁴⁰ to reach the 2016 goal of eliminating the worst forms of child labour, the major part of which is hazardous work. He urged the international community to recapture the sense of urgency and level of hope and energy that it had when it started down this path over a century ago, to protect children who were working in mines, factories and on ships.

It is not possible to meet the 2016 goal of eliminating the worst forms of child labour with a business-as-usual approach and fragmented and piecemeal initiatives. Creative and large-scale efforts are needed. The tripartite ILO will continue to be a powerful advocate for the children in hazardous work, as well as for those on the threshold who might yet be lured or forced to choose between school and work.

This report has shown that the problem is large: 115 million children are now in hazardous work. On the other hand, it has also shown that when a concerted effort is made by government, employers, workers and civil society working together, it results in significant reductions within a short period of time. Girls in hazardous work? Down. Children under age 15 in hazardous work? Down. This was no coincidence, no spontaneous occurrence. The reductions in hazardous child

¹⁴⁰ IPEC: *Accelerating action against child labour* (Geneva, ILO, 2010), p. x.

labour have happened because of a concerted effort involving a wide range of actors at national and grassroots levels.

With new commitment it is possible to continue this progress and to reach all those children who are still trapped in hazardous work.

Appendix I

› Countries with hazardous work lists

Global distribution of hazardous work lists as of April 2011

Global regions*	Countries
Total	183
Completed list	108 (14 in revision)
No list but commencing the process	47
No list but general prohibition	20
No list	8
<hr/>	
Africa	53
Completed list (28, 17 in revision)	Benin, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Congo, Côte d'Ivoire, Democratic Republic of Congo, Egypt, Ethiopia, Gabon, Ghana, Guinea, Libyan Arab Jamahiriya, Madagascar, Mali, Mauritania, Mauritius, Morocco, Namibia, Niger, Senegal, Sierra Leone, South Africa, Togo, Tunisia, Zimbabwe
No list but commencing the process (13)	Algeria, Botswana, Cape Verde, Comoros, Eritrea, Kenya, Liberia, Malawi, Mozambique, Rwanda, Sudan (and South Sudan), Uganda, Zambia
No list but general prohibition (9)	Angola, Djibouti, Gambia, Lesotho, Nigeria, Sao Tome and Principe, Seychelles, Swaziland, United Republic of Tanzania
No list (3)	Equatorial Guinea, Guinea-Bissau, Somalia
<hr/>	
Americas	35
Completed list (16)	Brazil, Chile, Columbia, Costa Rica, Cuba, Dominican Republic, Ecuador, Guatemala, Guyana, Haiti, Honduras, Nicaragua, Panama, Paraguay, Peru, United States
No list but commencing the process (14)	Antigua and Barbuda, Argentina, Bahamas, Belize, Plurinational State of Bolivia, Canada, Dominica, El Salvador, Jamaica, Mexico, Saint Kitts and Nevis, Suriname, Trinidad and Tobago, Uruguay
No list but general prohibition (5)	Barbados, Grenada, Saint Lucia, Saint Vincent and the Grenadines, Bolivarian Republic of Venezuela
No list (0)	
<hr/>	
Arab States	11
Completed list (8, 1 in revision)	Bahrain, Jordan, Kuwait, Lebanon, Qatar, Syrian Arab Republic, United Arab Emirates, Yemen
No list but commencing the process (2)	Iraq, Oman
No list but general prohibition (1)	Saudi Arabia
No list (0)	

Global regions*	Countries
Asia and the Pacific	33
Completed list (14, 2 in revision)	Cambodia, China, India, Indonesia, Islamic Republic of Iran, Japan, Republic of Korea, Mongolia, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Viet Nam
No list but commencing the process (11)	Afghanistan, Australia, Brunei Darussalam, Kiribati, Lao People's Democratic Republic, Malaysia, Papua New Guinea, Samoa, Singapore, Solomon Islands, Vanuatu
No list but general prohibition (4)	Bangladesh, Fiji, New Zealand, Timor-Leste
No list (4)	Maldives, Marshall Islands, Myanmar, Tuvalu
<hr/>	
Europe	51
Completed list (42, 4 in revision)	Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Iceland, Ireland, Israel, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Malta, Republic of Moldova, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, Uzbekistan
No list but commencing the process (7)	Bulgaria, Hungary, Montenegro, San Marino, Serbia, Tajikistan, The former Yugoslav Republic of Macedonia
No list but general prohibition (1)	Bosnia and Herzegovina
No list (1)	Turkmenistan

Note: * Defined by ILO administrative divisions.

Appendix II

› Star tools

Safe Work for Youth toolbox

This ongoing ILO initiative is designed to reduce child labour among the older age group using participatory methods. The toolbox comprises three sets of materials, each prepared for a different actor:

- ▶ “*Keep Them Safe*” is designed for employers and includes a manual, checklist and other materials for use in the small-workshop sector. Materials on other sectors are under preparation.
- ▶ “*Stay Safe*” is designed for young workers to sensitize them to work safety issues. It includes factsheets on different types of work, such as hotel cleaning and car repair.
- ▶ The *Administrators’ packet* is the third, with a set of background materials for those who will be organizing a programme on occupational safety and health (OSH) or child labour. It will assist them in building OSH of youth into school curricula, vocational training programmes, trade union safety projects or a child labour or youth employment project, noting that the materials are best used in either a training setting or for outreach activities organized by employers’ or workers’ associations.

The Safe Work for Youth programme also includes back-up support for those who are using the materials in the form of a panel of OSH experts. These specialists review locally produced materials for accuracy and consistency with OSH standards, can answer questions, identify local trainers or resource persons and can provide additional materials as needed.

Keys to success

The materials are not printed but instead are in the form of templates. These can be downloaded, for free, at <http://www.ilo.org/ipecc/areas/Safeworkforyouth>. If a sensitization exercise is being conducted with young people who are currently working, the administrator (trade union safety representative, for example) downloads the blank templates and then uses them as the basis for a “focus group discussion” with the young workers and/or the employers. Once the participants have filled in the factsheets, these are sent to the OSH expert panel for review and addition of elements that may not have been obvious to the participants. They are then formatted and returned to the administrator for translation and distribution.

If the existing materials fit the needs of the administrator, all that the administrator needs to do is add local illustrations or photos, a case example and the relevant laws, and then arrange for translation into the local language.

The fact sheets and related materials are continually updated and expanded to new sectors.

Case example: An OSH institute using Safe Work for Youth

The National Institute of Industrial Engineering and the Office of Welfare in Mumbai, India, organized focused group discussions with small numbers of workers, usually about a dozen, ranging in age from 14 to 18 years, in lock-making, brasswork and other local trades. Early on, the team from the OSH institute discovered that few of the young workers had even a basic understanding of the concept of workplace safety and health, so the group discussions had, in fact, a two-way result: they yielded factsheets on lock-making etc. for distribution to all the workshops in the area; they also sensitized the institute staff about the needs of workers in the informal manufacturing sectors. Together, the OSH team and the young workers were able to develop lists of work activities

that they considered hazardous and to suggest how the workers or their employers could minimize the hazards.

This demonstrated that localizing increases impact. By working with real-life situations, and by educating one group of young workers and having them teach other young workers, the impact can be spread. The youth-to-youth approach proved effective in ensuring that the messages were heard.

OSH education: Youth@Work

In an effort to reduce the numbers of work-related injuries and illnesses among youth that require treatment in hospital emergency departments each year,¹⁴¹ the US Centers for Disease Control / National Institute for Occupational Safety and Health (NIOSH) and its partners developed “Youth@Work: Talking Safety”, a foundation curriculum in OSH. The curriculum enhances knowledge and skills among secondary school students concerning the perception of occupational risks, awareness of workplace hazards, youth labour laws, emergency procedures, and problem-solving and communication skills.

The students using the curriculum showed significantly increased knowledge of key OSH concepts in comparison with a control group. The greatest gains were in understanding methods to control workplace hazards, knowledge of youth labour laws and knowledge of emergency procedures. The students using the curriculum also demonstrated new skills associated with hazard recognition, the ability to conduct safety audits and reporting of unsafe work conditions or workplace harassment. The curriculum is being investigated for its applicability for use in Egypt and possibly other Arabic-speaking countries.

Keys to success

The curriculum was tested in both traditional and vocational schools, as well as rural, suburban and urban schools. It is interactive and includes games and fun activities to convey key concepts. The curriculum is free and fits easily into lesson plans and thus is welcomed by teachers looking for fresh material.

Case example: Greek secondary schools

Like most adolescents throughout the world, young Greeks receive information about work accidents mainly from the mass media and have little training on OSH before they enter the labour market. Hopes that a good OSH curriculum could some day save the child-turned-youth-turned-adult from death or injury in the workplace prompted a 5-year pilot programme in secondary schools in the Athens municipality of Psychico, starting in 2002. If successful, the aim was a national plan to integrate OSH education in schools.

The first stage involved assessment of students’ attitudes and knowledge on OSH. The second was an essay competition among students, in conjunction with OSH education, publicity in the mass media and a public municipal event with presentations by experts and dignitaries. In the third stage, a book entitled *Health protection at work: A subject for education of general secondary school students* was published, which contained the ten best essays. In this model, the students themselves became educators on the topic.¹⁴²

Local partnering in agriculture: WIND

The Work Improvement in Neighbourhood Development (WIND) programme promotes safety and health in rural agricultural areas through low-cost improvements initiated by village women

¹⁴¹ <http://www.cdc.gov/niosh/topics/youth> (accessed 10 February 2010).

¹⁴² T. Bazas: “An example of a successful pilot education program on occupational health in general secondary schools in Greece”, in *Global Occupational Health Network Newsletter* (2005), No. 9, Summer, pp. 8–9.

and men. Its charm is its use of local wisdom and local examples of good practice and its use of pictures to convey concepts to people whose literacy is low.

Participatory approaches are fundamental to WIND. The 2-day training courses start off with farm visits before any presentations take place and revolve around small group sessions, where even shy farmers feel comfortable in speaking up. The training emphasizes farmers' own capacity to identify problems and seek practical solutions. It uses simplified diagrams of good safety practices that can be pinned to a wall and simple "what-to-do" checklists.

Although aimed at all agricultural workers, WIND has clear implications for eliminating hazardous work of children by, in part, delineating appropriate work and working conditions for children and for adults.

Keys to success

WIND has been evaluated and the keys to its success lie in: (1) responding to rural people's immediate needs through simple and practical improvements that they can make themselves; (2) a method that maximizes the use of associations that exist in rural areas, such as agricultural worker organizations or cooperatives; (3) eliciting equal involvement of village men and women in planning and implementing improvements; (4) use of volunteers to spread the messages further into the countryside; and (5) the simple training tools that can be developed by volunteers, trainers or participants themselves. The ILO developed WIND in the 1990s with organizations in Viet Nam.¹⁴³ It is based on the successful WISE business improvement methodology.

EU-OSHA's Safe Start campaign

Hazardous work of children is not only a problem of poor nations and emerging economies. Child workers die every day somewhere in the developed world, from US farmlands, to EU factories, to Japanese fisheries. Work for youth in these countries, on average, tends to be safer than it is in large swaths of Africa, Asia and Central and South America. But safer is not necessarily safe.

Safe Start¹⁴⁴ promotes risk awareness among young workers and provides advice to employers on training of young workers. It is concentrating now on the education community, introducing Safe Start concepts in schools and colleges, youth organizations and vocational training centres.

Keys to success

Training is carried out as part of an OSH system; the focus is on preventing exposure to harm by controlling risks at the source. The main success factor is involvement of all relevant partners in the project. For example, labour inspectors and OSH specialists convey their messages most effectively when they collaborate with schools and educational organizations. Involving commercial firms and labour representatives, in turn, gives a wider perspective to the training activities run by educational institutions. Engaging the interest of young people in OSH clearly is paramount. Young workers who have learned the basics on OSH could improve the perception of OSH risks among the entire workforce, thus contributing to the development of an improved safety culture.

Promotion and dissemination of OSH culture in the school

The European Union's strategy on health and safety at work has identified education and the prevention culture as key factors for maintaining and improving the quality of work.

¹⁴³ Centre for Occupational Health and Environment, Department of Health: *Work improvement in neighbourhood development* (Can Tho city, Viet Nam, 2005).

¹⁴⁴ European Agency for Safety and Health at Work: *Preventing risks to young workers: Policy, programmes and workplace practices* (Brussels, 2009).

Supporting this strategy, the European Agency for Safety and Health at Work has published a report, *Mainstreaming occupational safety and health into education: Good practice in school and vocational education* (2004), which provides a comprehensive overview of good practice examples throughout Europe and outlines steps towards a systematic strategy to integrate OSH into education and training.

To underpin OSH education in schools and colleges it is necessary to formalize it in curriculum requirements.

There is considerable progress and activity at both primary and secondary education levels in terms of both implemented and planned actions in the Member States.

Actions to include OSH in education at the curriculum level include:

- ▶ statutory requirements;
- ▶ voluntary curricula;
- ▶ guidelines and resources to support the statutory requirements and voluntary curricula;
- ▶ formal recommendations;
- ▶ national guidance and resources in cases where no curricula have been set;
- ▶ promotional campaigns to support the above;
- ▶ approaches linked to safe and healthy schools.

Cooperation on education at the European level is resulting in a convergence in the core subjects and learning objectives in schools across the Member States. Risk education and OSH are generally not treated as a stand-alone subject; instead, opportunities are being taken to incorporate them into the learning objectives of other relevant subjects in school curricula, such as science, physical education, health education and citizenship. It is therefore important to develop risk education and OSH learning objectives for the core curriculum subjects for different age levels.

Useful links

<http://osha.europa.eu/en/publications/factsheets/82>

<http://agency.osha.eu.int/publications/reports>

<http://osha.europa.eu/en/publications/factsheets/52>

<http://agency.osha.eu.int>

Other resources on hazardous work

Health and Safety Awareness for Working Teens, Washington state, USA

<http://www.uwworksafe.com/worksafe/request/>

The flexible five-unit curriculum for students in grades 9–12 provides youth with basic information about workplace health and safety for those who will be working in non-agricultural jobs. Composed of age-appropriate activities and lessons, the curriculum can be used in a wide range of career and technical education courses.

The SAFE Work Student Program, Manitoba, Canada

<http://www.gov.mb.ca/labour/safety/youth/pdf/youthbinder.pdf>

This instructor's guide focuses on young workers' rights and responsibilities, as well as principles of hazard recognition in the workplace. Modules consist of a detailed lesson and instructional aids such as videos, visuals and student handouts. Additional instructional materials and resources assist in adapting the information for the type, ages and varying experiences of classes.

Student WorkSafe Program: Planning 10, British Columbia, Canada

http://www2.worksafebc.com/PDFs/YoungWorker/Plan_10/plan10.pdf

<http://www.publications.gov.bc.ca>

The six-lesson curriculum reflects new OSH regulations related to orientation and training of young workers. It also includes a brand-new lesson on preventing violence in the workplace.

Rights and Responsibilities Programme, British Columbia, Canada

<http://www.raiseyourhand.com>

This self-paced, interactive, curriculum-based programme helps new and young workers understand their health and safety rights and responsibilities in the workplace. The programme builds on the work done in Student WorkSafe Programme: Planning 10 and directly supports prescribed and elective curricula at the 11th- and 12th-grade levels.

Six Steps to a Safe and Healthy Workplace, New Zealand Council of Trade Unions, New Zealand

<http://www.osh.dol.govt.nz/kidz/ctu/images/ctukit.doc>

<http://www.osh.dol.govt.nz/kidz/ctu/images/ctukit.pdf>

The purpose of this student and teacher information kit is to empower young people to make their workplaces safer and healthier. It is suitable for young people between the ages of 15 and 25 who are either working part time after school and during the holidays, or are in their first jobs since leaving school. It is also useful for people of all ages who have little or no knowledge of health and safety in the workplace.

Worksafe Smart Move, Western Australia

<http://www.safetyline.wa.gov.au/pagebin/edcnwssm0095.htm>

For working high-school students in grades 10, 11 and 12, this Internet resource is designed to help students understand OSH hazards and laws and provide practical solutions to some common safety and health problems. It also has ten industry-specific modules describing hazards in various common workplaces.

Workplace Health and Safety Queensland's Interactive Café: The Hazards of Hospitality, Queensland, Australia

<http://www.deir.gld.gov.au/workplace/cafeonline/index.htm>

This web site uses graphics and simple text to teach youth common hazards and prevention strategies in various aspects of restaurant work.

Wood Shop Safety Web Site, Washington state, USA

<http://www.uwworksafe.com/woodshop/default.cfm>

This web site was developed to help students learn how to protect themselves from different hazards that they may encounter while working in the workshop at their school. One section covers health and safety information that applies to wood shops; the other section covers how to work safely with different tools.

Youth Worker Safety in Restaurants, US Department of Labor

<http://www.osha.gov/SLTC/youth/restaurant/index.html>

This illustrated, interactive Web-based training tool describes common hazards and potential safety solutions for young workers and employers in the restaurant industry.

Training resources for employers

ACT/EMP and IOE: *Eliminating child labour: Guides for employers*, Anne-Brit Nippierd, Sandy Gros-Louis, Paul Vandenberg, Second Edition, ILO, 2009

<http://www.ilo.org/public/english/dialogue/actemp/whatwedo/projects/cl/guides.htm>

A set of guides by the Bureau for Employers' Activities, designed to help businesses and their organizations understand and take action against child labour.

Dare to Care, Ontario Service Safety Alliance (OSSA)

<http://www.ossa.com/content/resources/darecare.cfm>

This set of videos and interactive training manuals provides new employees and their managers with information about health and safety in the workplace. Guides are available for the office, restaurant, retail, vehicle sales, and hospitality industries, and the materials emphasize how cost-effective a safe workplace can be. The training was developed through focus groups involving both youth and employers.

Safeteen Employer Kit, Maine Department of Labor

<http://www.maine.gov/labor/bls/safeteen/>

The Safeteen kit was designed to help employers and young workers understand the responsibilities and requirements of workplace safety. The guide explains the rules and regulations related to employing youth. Safetools is filled with training exercises and activities to illustrate safe working procedures. The *Guide for working teens*, the poster and the wallet cards are to be distributed to young workers.

Tools for Orienting Work Site Supervisors about Youth Health and Safety, Labor

Occupational Health Program, University of California at Berkeley

<http://www.youngworkers.org>

An information packet for work site supervisors, with four tools to use in job-training programmes: (1) Checklist for Job Trainers and Job Developers; (2) Safety Training Agreement; (3) Safety Orientation Checklist; (4) Facts for Employers: Safe Jobs for Youth.

Young Workers: Employer's Resources, The Royal Society for the Prevention of Accidents

<http://www.youngworker.co.uk/employers/resources/index.htm>

Bibliography

- Abdel Rasoul, G.M. et al. 2008. "Effects of occupational pesticide exposure on children applying pesticides", in *Neurotoxicology*, Vol. 29, No. 5, pp. 833–888.
- Alem, A. et al. 2006. "Child labor and childhood behavioral and mental health problems in Ethiopia", in *Ethiopian Journal of Health Development*, Vol. 20, No. 2, pp. 119–126.
- Arcury, T.A. et al. 2001. "The incidence of green tobacco sickness among Latino farmworkers", in *Journal of Occupational and Environmental Medicine*, Vol. 43, No. 7, pp. 601–609.
- Athanasiasidou, M. et al. 2008. "Polybrominated diphenyl ethers (PBDEs) and bioaccumulative hydroxylated PBDE metabolites in young humans from Managua, Nicaragua", in *Environmental Health Perspectives*, Vol. 116, pp. 400–408, doi:10.1289/ehp.10713.
- Awan, S. 2007. *Hazards faced by young workers in textile, garments and leather goods sectors in Pakistan* (Lahore, Pakistan, Centre for the Improvement of Working Conditions & Environment).
- ; et al. 2008. *Occupational safety and health hazards of brick kiln workers* (Lahore, Pakistan, Centre for the Improvement of Working Conditions & Environment).
- ; et al. 2010. "Health hazards, injury problems, and workplace conditions of carpet-weaving children in three districts of Punjab, Pakistan", in *International Journal of Occupational and Environmental Health*, Vol. 16, No. 2, pp. 115–121.
- Banza, C.L.N. et al. 2009. "High human exposure to cobalt and other metals in Katanga, a mining area of the Democratic Republic of Congo", in *Environmental Research*, Vol. 109, No. 6, pp. 745–752.
- Bazas, T. 2005. "An example of a successful pilot education program on occupational health in general secondary schools in Greece", in *Global Occupational Health Network Newsletter*, No. 9, Summer, pp. 8–9.
- Bellinger, D.C. et al. 1992. "Low-level lead exposure, intelligence and academic achievement: A long-term follow-up study", in *Pediatrics*, Vol. 90, No. 6, pp. 855–861.
- Belville, R. et al. 1993. "Occupational injuries among working adolescents in New York State", in *Journal of the American Medical Association*, Vol. 269, No. 21, p. 2760.
- Benvegnu, L.A. et al. 2005. "Work and behavioural problems in children and adolescents", in *International Journal of Epidemiology*, Vol. 34, No. 6, pp. 1417–1424 .
- Bonnetterre, V. et al. 2007. "Sino-nasal cancer and exposure to leather dust", in *Occupational Medicine*, Vol. 57, pp. 438–443.
- Bose-O'Reilly, S. et al. 2008. "Mercury as a serious health hazard for children in gold mining areas", in *Environmental Research*, Vol. 107, pp. 89–97.
- Calvert, G. et al. 2003. "Acute pesticide-related illnesses among working youths, 1988–1999", in *American Journal of Public Health*, Vol. 93, pp. 605–610.
- Castillo, D. et al. 1994. "Occupational injury deaths of 16- and 17-year-olds in the United States", in *American Journal of Public Health*, Vol. 84, pp. 646–649.
- Castro, C. 2010. *Measuring hazardous work and identifying risk factors for non-fatal injuries among children working in Philippine agriculture* (Washington, DC), unpublished document.
- Celik, S.S.; Baybuga, M.S. 2009. "Verbal, physical and sexual abuse among children working on the street", in *Australian Journal of Advanced Nursing*, Vol. 26, No. 4, pp. 14–22.

- Centers for Disease Control and Prevention (CDC). 2010. "Occupational injuries and deaths among younger workers – United States, 1998–2007", in *Morbidity and Mortality Weekly Report (MMWR)* (23 April), Vol. 59, No. 15, pp. 449–455. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5915a2.htm> [28 Apr. 2011].
- Centre for Occupational Health and Environment, Department of Health. 2005. *Work improvement in neighbourhood development* (Can Tho city, Viet Nam).
- Chau, N. et al. 2004. "Relationships between certain individual characteristics and occupational injuries for various jobs in the construction industry: A case-control study", in *American Journal of Industrial Medicine*, Vol. 45, No. 1, pp. 84–92.
- Clarkson, T.W. et al. 2003. "The toxicology of mercury: Current exposures and clinical manifestations", in *New England Journal of Medicine*, Vol. 349, pp. 1731–1737.
- Corriols, M.; Aragón, A. 2010. "Child labour and acute pesticide poisoning in Nicaragua: Failure to comply with children's rights", in *International Journal of Occupational and Environmental Health*, Vol. 16, No. 2, pp. 193–200.
- Daniels, J.L. et al. 2001. "Residential pesticide exposure and neuroblastoma", in *Epidemiology*, Vol. 12, p. 20.
- Doocy, S. et al. 2006. *Nutrition and injury among child porters in Eastern Nepal* (Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, and United States Department of Labor). Available at: http://www.dtiassociates.com/ilab-iclp/fullpapers/Doocy_Crawford_Lewy_Wall.pdf [28 Apr. 2011].
- Eckerman, D.A. et al. 2007. "Age related effects of pesticide exposure on neurobehavioral performance of adolescent farm workers in Brazil", in *Neurotoxicology and Teratology*, Vol. 29, No. 1, pp. 164–175.
- European Agency for Safety and Health at Work. 2009. *Preventing risks to young workers: Policy, programmes and workplace practices* (Brussels).
- Fassa, A.G. 2003. *Health benefits of eliminating child labour* (Geneva, ILO).
- ; et al. 2005. "Child labour and musculoskeletal disorders: The Pelotas (Brazil) epidemiological survey", in *Public Health Reports*, Vol. 120, No. 6, pp. 665–673.
- Goldmann, L. et al. 2004. *Childhood pesticide poisoning: Information for advocacy and action* (Châtelaine, UNEP).
- Gunn, S.; Ostos, Z. 1992. "Dilemmas in tackling child labour: The case of scavenger children in the Philippines", in *International Labour Review*, Vol. 131, No. 6, pp. 629–646.
- Halim, U. 2010. "Child labour in fishery and aquaculture: Need for a perspective – in the light of experiences from India", Presentation at the Food and Agriculture Organization of the United Nations (FAO) Workshop on Child Labour in Fisheries and Aquaculture, Rome, 14–16 April.
- Harari, R.; Cullen, M.R. 1995. "Childhood lead intoxication associated with manufacture of roof tiles and ceramics in the Ecuadorian Andes", in *Archives of Environmental Health*, Vol. 50, No. 5, p. 393.
- Henao, S.; Arbelaez, M. 2002. "Epidemiological situation of acute pesticide poisoning in the Central America Isthmus, 1992–2000", in *Epidemiology Bulletin*, Vol. 23, pp. 5–9.
- Human Rights Watch. 2010. *Fields of peril: Child labor in US agriculture* (New York).
- Institute for Occupational Safety and Health, for the European Agency for Safety and Health at Work. 2006. *OSH in figures: Young workers – Facts and figures 2006*. Available at: <http://osha.europa.eu/en/publications/reports/7606507> [28 Apr. 2011].

- International Labour Office (ILO). 1995. *National labour law profile: Islamic Republic of Pakistan, Employment of Children Act 1991; Rules 1995*, Government of Pakistan. Available at: <http://www.ilo.org/public/english/dialogue/ifpdial/info/national/pak.htm> [23 Mar. 2010].
- . 1999. *Child labour in small-scale mining: Examples from Niger, Peru & Philippines*, Working paper, edited by N.S. Jennings (Geneva).
- . 2003. *Conditions of work in the fishing sector: A comprehensive standard (Convention supplemented by a Recommendation) on work in the fishing sector*, Report V(1) (Geneva).
- . 2004. *Safework: Construction hazards* (Geneva).
- . 2010. *How to guide on economic reintegration*, ILO-YEP Conceptual Framework (Turin).
- . 2011. *Decent work for domestic workers*, Report IV (2B), Fourth item on the agenda, Article 1(a) and (b), International Labour Conference, 100th Session, Geneva. Available at: http://www.ilo.org/wcmsp5/groups/public/---ed_norm/---relconf/documents/meetingdocument/wcms_152576.pdf [28 Apr. 2011].
- ILO-ACT/EMP; IOE. 2007. *Eliminating child labour. Guide 2: How employers can eliminate child labour* (Geneva, ILO).
- International Programme on the Elimination of Child Labour (IPEC). 2000. *Ecuador: Trabajo infantil en la floricultura*, Rapid Assessment No. 35 (Geneva, ILO). Available at: <http://www.ilo.org/ip-ecinfo/product/viewProduct.do?productId=665> [18 May 2011].
- . 2002. *El Salvador: Trabajo infantil doméstico: Una evaluación rápida* (Geneva, ILO). Available at: <http://www.ilo.org/ip-ecinfo/product/viewProduct.do?productId=6934> [18 May 2011].
- . 2005. *A load too heavy: Children in mining and quarrying* (Geneva, ILO). Available at: <http://www.ilo.org/ip-ecinfo/product/viewProduct.do?productId=880> [18 May 2011].
- . 2006a. *Action against child labour: Highlights 2006* (Geneva, ILO). Available at: <http://www.ilo.org/ip-ecinfo/product/viewProduct.do?productId=3764> [18 May 2011].
- . 2006b. *Global child labour trends 2000 to 2004* (Geneva, ILO). Available at: <http://www.ilo.org/ip-ecinfo/product/viewProduct.do?productId=2299> [18 May 2011].
- . 2006c. *Minors out of mining! Partnership for global action against child labour in small-scale mining* (Geneva, ILO). Available at: <http://www.ilo.org/ip-ecinfo/product/viewProduct.do?productId=2519> [18 May 2011].
- . 2006d. *Survey report: Child domestic workers in Ho Chi Minh city* (Viet Nam, ILO). Available at: <http://www.ilo.org/ip-ecinfo/product/viewProduct.do?productId=4784> [18 May 2011].
- . 2007a. *Girls in mining: Research findings from Ghana, Niger, Peru, and United Republic of Tanzania* (Geneva, ILO). Available at: <http://www.ilo.org/ip-ecinfo/product/viewProduct.do?productId=5304> [18 May 2011].
- . 2007b. *Hazardous child domestic work: A briefing sheet* (Geneva, ILO). Available at: <http://www.ilo.org/ip-ecinfo/product/viewProduct.do?productId=4044> [18 May 2011].
- . 2008. *Rapid assessment of child labour in non-traditional mining sector in Zambia* (Geneva, ILO). Available at: <http://www.ilo.org/ip-ecinfo/product/viewProduct.do?productId=13633> [18 May 2011].
- . 2009a. *Crecer protegido. Manual para la proteccion del adolescente trabajador* (Santiago, ILO). Available at: <http://www.ilo.org/ip-ecinfo/product/viewProduct.do?productId=14113> [18 May 2011].
- . 2009b. *Give girls a chance: Tackling child labour, a key to the future* (Geneva, ILO) Available at: <http://www.ilo.org/ip-ecinfo/product/viewProduct.do?productId=10290> [18 May 2011].
- . 2009c. *Working children situation in eight provinces/cities of Vietnam* (Hanoi, ILO) Available at: <http://www.ilo.org/ip-ecinfo/product/viewProduct.do?productId=13014> [18 May 2011].

- 2010a. *Accelerating action against child labour* (Geneva, ILO). Available at: <http://www.ilo.org/ippecinfo/product/viewProduct.do?productId=13853> [18 May 2011].
 - 2010b. *Elimination of the worst forms of child labour in sugarcane sector: A different world is possible* (El Salvador, ILO). Available at: <http://www.ilo.org/ippecinfo/product/viewProduct.do?productId=15175> [18 May 2011].
 - 2010c. *Global child labour developments: Measuring trends from 2004 to 2008* (Geneva, ILO). Available at: <http://www.ilo.org/ippecinfo/product/viewProduct.do?productId=13313> [18 May 2011].
 - 2010d. *Roadmap for achieving the elimination of the worst forms of child labour by 2016*, Conference Report (Geneva, ILO). Available at: <http://www.ilo.org/ippecinfo/product/viewProduct.do?productId=13453> [18 May 2011].
 - Unpublished. *The informal gold mining sub-sector in Mongolia: A comprehensive sector-based project to prevent and eliminate child labour and improve the situation of informal gold miners* (Ulaanbaatar, ILO).
- ILO Youth Employment Programme. 2010. *Conceptual framework on the linkages between child labour and youth employment* (Geneva, September).
- Jeyaratnam, J. et al. 2000. “Acute pesticide poisoning: A major global health problem”, in *World Health Statistics Quarterly*, Vol. 43, No. 3, pp. 139–144.
- Lachowski, S. 2009. “Engagement of children in agricultural work activities: Scale and consequences of the phenomenon”, in *Annals of Agricultural and Environmental Medicine*, Vol. 16, No. 1, pp. 129–135.
- Landrigan, P.J. et al. 2002. “Environmental pollutants and disease in American children: Estimates of morbidity, mortality, and costs for lead poisoning, asthma, cancer, and developmental disabilities”, in *Environmental Health Perspectives*, Vol. 110, No. 7, pp. 721–728.
- Leiss, J.K. et al. 1995. “Home pesticide use and childhood cancer: A case-control study”, in *American Journal of Public Health*, Vol. 85, pp. 249–252.
- Libao Castro, C. 2007. *Child sakadas in Philippine agriculture: Researching injury hazards for working children in the context of international labor standards and United States foreign policy*, Doctoral dissertation, George Washington University.
- Ma, X. et al. 2002. “Critical windows of exposure to household pesticides and risk of childhood leukemia”, in *Environmental Health Perspectives*, Vol. 100, p. 955.
- Markkanen, P. 2005. “Dangers, delights, and destiny on the sea: Fishers along the east coast of northern Sumatra, Indonesia”, in *New Solutions*, Vol. 15, No. 2, pp. 113–133.
- Mathur, M. et al. 2009. “Incidence, type and intensity of abuse in street children in India”, in *Child Abuse and Neglect*, Vol. 33, No. 12, pp. 907–913.
- Merlino, L.A. et al. 2003. “Symptoms of musculoskeletal disorders among apprentice construction workers”, in *Applied Occupational and Environmental Hygiene*, Vol. 18, No. 1, pp. 57–64.
- Mitra, S. 1993. “A study of the health conditions of child workers in a small scale leather industry in Calcutta”, in *British Journal of Industrial Medicine*, Vol. 50, pp. 938–940.
- Morse, T. et al. 2004. “Trends in work-related musculoskeletal disorder reports by year, type, and industrial sector: A capture–recapture analysis”, in *American Journal of Industrial Medicine*, Vol. 48, No. 6, pp. 40–49.
- National Institute for Occupational Safety and Health (NIOSH). 1997. *Child labor research needs*, Special hazard review, Publication No. 97-143 (Cincinnati, OH, DHHS (NIOSH)).
- 2008. *Child fact sheet on agriculture and injuries, annual report* (Washington, DC).

- . 2009. *Pesticide illness & injury surveillance* (24 April). Available at: <http://www.cdc.gov/niosh/topics/pesticides/> [27 Jan. 2010].
- Navch, T. et al. 2006. *Informal gold mining in Mongolia: A baseline survey report covering Bornuur and Zaamar Soums, Tuv Aimag* (Geneva, ILO).
- Needleman, H.L.; Gatsonis, C.A. 1990. “Low-level lead exposure and the IQ of children: A meta-analysis of modern studies”, in *Journal of the American Medical Association*, Vol. 263, No. 5, pp. 673–678.
- Nuwayhid, I.A. et al. 2005. “Health of children working in small urban industrial shops”, in *Occupational and Environmental Medicine*, Vol. 62, No. 2, pp. 86–94.
- Pickett, W. et al. 2008. “Hospitalized head injuries in agricultural settings: Who are the vulnerable groups?”, in *Accident Analysis and Prevention*, Vol. 40, No. 6, pp. 1943–1948.
- Pinzon-Rondon, A.M. et al. 2010. “Workplace abuse and economic exploitation of children working in the streets of Latin American cities”, in *International Journal of Occupational and Environmental Health*, Vol. 16, pp. 162–169.
- Plan Malawi. 2008: “Preface”, in *Hard work, long hours, and little pay* (Lilongwe, Malawi).
- Rasmussen, K. et al. 2000. “Incidence of work injuries amongst Danish adolescents and their association with work environment factors”, in *American Journal of Industrial Medicine*, Vol. 54, pp. 143–152.
- Rauscher, K.J. et al. 2011. “Work-related fatalities among youth ages 11–17 in North Carolina, 1990–2008”, in *American Journal of Industrial Medicine*, Vol. 54, pp. 136–142.
- Renick, K.M. et al. 2009. “Hearing loss among Ohio farm youth: A comparison to a national sample”, in *American Journal of Industrial Medicine*, Vol. 52, No. 3, pp. 233–239.
- Rojas, M. et al. 2010. “Trabajo infantil y salud en un mercado público de Valencia, Venezuela”, in *Revista de Salud Pública*, Vol. 12, No. 1, pp. 135–143.
- Rosenstock, L. et al. 1991. Pesticide Health Effects Study Group: “Chronic central nervous system effects of acute organophosphate pesticide intoxication”, in *Lancet*, Vol. 338, No. 8761, pp. 223–227.
- Saddik, B. et al. 2003. “Evidence of neurotoxicity in working children in Lebanon”, in *Neurotoxicology*, Vol. 24, Nos. 4–5, pp. 733–739.
- . 2005. “The effects of solvent exposure on memory and motor dexterity in working children”, in *Public Health Reports*, Vol. 120, No. 6, pp. 657–663.
- Saiyed, H. et al. 2003. “Effect of endosulfan on male reproductive development”, in *Environmental Health Perspectives*, Vol. 111, No. 16, pp. 1958–1962.
- Save the Children. 2006. *Abuse among child domestic workers: A research study in West Bengal* (Calcutta, India).
- Stein, M.A. et al. 2001. “Sleep and behavior problems in school-aged children”, in *Pediatrics*, Vol. 107, No. 4, p. E60.
- Suruda, A. et al. 2003. “Fatal injuries to teenage construction workers in the US”, in *American Journal of Industrial Medicine*, Vol. 44, No. 5, pp. 510–514.
- Tanzania Media Women’s Association (TAMWA) 2004. *A report on the assessment of child sexual abuse and exploitation* (United Republic of Tanzania).
- United Nations (UN). 2004. *Yearbook of International Trade Statistics 2004*, Vol. I (Geneva, Trade by Commodity).
- . 2008. *World Population Prospects, 2008*. Available at: <http://esa.un.org/unpp/p2k0data.asp> [20 Mar. 2011].

- United Nations Environment Programme (UNEP)-ILO-WHO 1991. *Inorganic mercury*, Environmental Health Criteria 118 (Geneva, UNEP-ILO-WHO). First draft prepared by Dr. L. Friberg, Karolinska Institute, Sweden.
- US Department of Labor, Bureau of Labor Statistics. 2000. *Report on the youth labor force* (November), p. 58. Available at: <http://www.bls.gov/opub/rylf/pdf/rylf2000.pdf> [4 Feb. 2011].
- US Department of Trade. 2004. *CAFTA-DR Free Trade Agreement* (Washington, DC). Available at: <http://www.ustr.gov/trade-agreements/free-trade-agreements/cafta-dr-dominican-republic-central-america-fta> [28 Apr. 2011].
- Veiga, M.M.; Baker, R.F. 2004. *Protocols for environmental and health assessment of mercury released by artisanal and small-scale gold miners* (Vienna, GEF/UNDP/UNIDO).
- Walakira, E.J. 2010. "Child labour in fisheries and aquaculture in East Africa: With a deeper insight into the Uganda case", Presentation at the Food and Agriculture Organization of the United Nations (FAO) Workshop on Child Labour in Fisheries and Aquaculture, Rome, 14–16 Apr.
- World Bank. 2005. *Children and youth: A framework for action*, HDNCY Working Paper Series, No. 1 (Washington, DC).
- World Health Organization (WHO). 2010. *Nigeria: Mass lead poisoning from mining activities, Zamfara State*, Global Alert and Response (Geneva, WHO).
- World Vision Cambodia (WVC). 2005. *How and why we work: Child workers in the informal economy in Phnom Penh and Battambang*, WVC Report for the Combating the Worst Forms of Child Labour Project (Phnom Penh, Cambodia, Peace and Justice Programme).
- Zahm, S.H.; Ward, M.H. 1998. "Pesticides and childhood cancer", in *Environmental Health Perspectives*, Vol. 106, Suppl. 3, pp. 893–908.

This report reviews the current state of knowledge concerning children in hazardous work and presents the case for a new focus on the issue as part of the wider global effort to eliminate the worst forms of child labour. The report highlights recent global trends while comprehensively summarizing the scientific evidence base related to health and well-being of working children. It identifies the key challenges not only in understanding the effects of hazardous work on childhood development, but also in preventing and eliminating hazardous occupational exposures for children. In addition, the report features good practice approaches of various stakeholder groups that have demonstrated the potential to be scaled up and discusses the importance of an integrated policy response to the issue.

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