

Tackling hazardous child labour in agriculture

Guidance on policy and practice



International
Labour
Organization

Eliminating hazardous child labour in agriculture



International
Programme on
the Elimination
of Child Labour

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Guidebook 3

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International Labour Organization
International Programme on the Elimination of Child Labour

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Tackling hazardous child labour in agriculture: Guidance on policy and practice
Eliminating hazardous child labour in agriculture

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Tackling hazardous child labour in agriculture

Guidance on policy and practice

Additional information on CDROM

The CD-ROM contains five IPEC Guidebooks:

Guidebook 1: *User guide, including background policy information*

Guidebook 2: *An overview of child labour in agriculture*

Guidebook 3: *Eliminating hazardous child labour in agriculture*

Guidebook 4: *Initiatives to tackle hazardous child labour in agriculture*

Guidebook 5: *Training resources for Guidebooks 1-4.*

To supplement the five Guidebooks, additional information on tackling hazardous child labour in agriculture is provided on the CD-ROM as follows:

■ International Labour Organization (ILO) Conventions and their Recommendations

- Convention concerning the Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labour, 1999 (No. 182); and Recommendation (No. 190).
- Convention concerning Minimum Age for Admission to Employment, 1973 (No. 138); and Recommendation (No. 146).
- Convention concerning Safety and Health in Agriculture, 2001 (No.184); and Recommendation (No.192).

■ ILO International Programme on the Elimination of Child Labour: Publications

- IPEC: *Training Resource Pack on Elimination of Hazardous Child Labour in Agriculture* (Geneva, ILO, 2005).
- IPEC. *Bolivia - Child labour in sugarcane* (ILO, Geneva), Rapid assessment, 2002.
- IPEC: *Ecuador - Child labour in flower plantations*. (ILO, Geneva), Rapid assessment, 2000.
- IPEC: *El Salvador - Child labour in sugarcane*. (ILO, Geneva), Rapid assessment, 2002.
- IPEC: *Tanzania - Children Working in Commercial Agriculture in Coffee*. (ILO, Geneva), Rapid assessment, 2002.
- IPEC: *Tanzania - Child Labour in the Horticulture Sector in Arumeru District*. (ILO, Geneva), Rapid assessment, 2002.

- IPEC: *Tanzania - Children Working in Commercial Agriculture in Tea*. (ILO, Geneva), Rapid assessment, 2002.
- IPEC: *Tanzania - Children Working in Commercial Agriculture in Tobacco*. (ILO, Geneva), Rapid assessment, 2001.

■ **ILO Bureau for Employers' Activities (ACTEMP)**

- *Rapid assessment on child labour in the horticultural sector in Moldova*. Moldovan National Federation of Employers in Agriculture and Food Industry (FNPAIA) and ILO ACTEMP, Chisnau, Moldova, 2005.
- *Rapid assessment survey report: Child labour in five commercial oil palm and rubber plantations in Ghana*. Ghana Employers' Association and ILO ACTEMP, 2005.

■ **ILO Bureau for Workers' Activities (ACTRAV)**

Bitter Harvest: Child labour in agriculture. ILO ACTRAV, Geneva, 2002.

■ **ILO SAFEWORK/CIS**

Links to *ILO Encyclopaedia on occupational safety & health*.

■ **Internet connection**

<http://www.ilo.org.childlabour>

I. Introductory note

I.I The ILO's view on child labour

The International Labour Organization's goal with regard to child labour is the progressive elimination of all its forms worldwide. The worst forms of child labour, which include hazardous work, commercial sexual exploitation, trafficking of children and all forms of slavery, among others, should be abolished as a priority.

This guidebook and the three others of this series are based on the framework on child labour policy provided by the ILO Minimum Age Convention, 1973 (No. 138) and the ILO Worst Forms of Child Labour Convention, 1999, (No. 182). Both these Conventions are explained in detail in Guidebook 1, "Background policy information".

In brief, child labour is work that harms children's well being and hinders their education, development and future livelihoods. Child labour is work which, by its nature and/or the way it is carried out, harms, abuses and exploits the child or deprives the child of an education. As per Convention No. 182, the term "child" shall apply to all persons *under the age of 18.*¹

"Hazardous child labour" is work in dangerous or unhealthy conditions that could result in children being killed, or injured (often permanently) and/or made ill (often permanently) as a consequence of poor safety and health standards and working arrangements. Child labour in agriculture is of particular concern as agriculture is one of the most dangerous and under-regulated economic sectors worldwide for all workers, and it is the sector where over 70 per cent of child labour is found.

As mandated by its tripartite constituents – governments, employers' organizations and workers' organizations – the ILO's immediate goal is the elimination of hazardous child labour (along with the other worst forms) in all occupational sectors. In agriculture, governments may make only limited exemptions – as per Article 16 of the ILO Convention on Safety and Health in Agriculture, 2001 (No. 184) – for what are termed "young workers". Young workers aged 16 to 17 years may carry out hazardous tasks as part of their training, but only under strict supervision – and never as part of their routine work.

I.II The ILO's strategy to eliminate child labour

The ILO seeks to strategically position child labour elimination at the macro-level in socio-economic development and poverty reduction strategies of its member countries in order to encourage mainstreaming and integration of child labour issues and concerns. In doing so, the ILO – through its International Programme on the Elimination of Child Labour (IPEC) – emphasizes the need for assessing

and monitoring the extent and nature of the problem, the strengthening of institutional capacities and the provision of assistance for the development and implementation of national policies.

It is clear from IPEC experience that parents and families who are given a viable choice prefer to keep children out of the workplace. Thus, the ILO's strategies have put increasing emphasis on poverty alleviation as well as expanding and improving institutional mechanisms for education and law enforcement, among other key areas of work. As such, the work of IPEC fits into and supports various development frameworks, such as the Millennium Development Goals, the Poverty Reduction Strategy Papers and the Education for All Initiative.

On a practical level, IPEC supports programmes to *prevent* children from ever starting work, *withdraw* children from workplaces and *rehabilitate* child labourers through placement in schools and/or skills training and other services. However, the reality is that many children – both above and below the minimum legal age for employment – continue to work in hazardous conditions and are at immediate risk. Therefore, *protection* is another key priority. This means improving safety and health standards in workplaces where children are found in order to prevent child deaths, accidents and ill health of both children who can legally work and those under the minimum age, pending withdrawal.

I.III The scope of agricultural activities covered

Agriculture is a complex and heterogeneous economic sector comprised of a number of sub-sectors. It involves agricultural production methods that differ from country to country and between developed and developing countries. It ranges from highly mechanised, intensive commercial and industrialized production to traditional small-scale, subsistence-type farming. The distinction that has traditionally been drawn between these two types of farming is slowly eroding, however, with the increasing commercialization and industrialization of agriculture, especially in response to the promotion of export-orientated agriculture by governments and multinational enterprises.

“Agriculture” covers different types of farming activities, such as crop production, horticultural/fruit production, livestock raising, livestock-food preparation, forestry activities, fish farming, and insect raising. It also includes many other associated activities: the primary processing and packaging of agricultural and animal products, crop storage, pest management, irrigation, construction and domestic tasks (carrying of water, fuel-wood, etc.), as well as the use and maintenance of machinery, equipment, appliances, tools and agricultural installations. It can include any process, operation, transport or storage directly related to agricultural production. This should be considered as a working definition of agriculture and not exclusive.

I.IV The contents of this guidebook

This Guidebook provides information, data, ideas, examples, strategies and recommendations to aid policy-makers in their work to save, protect and better the lives of child labourers in agriculture.

Chapter 1, “Hazardous child labour in agriculture: Issues and facts” reviews in depth why agriculture is so dangerous for children and why children are at greater risk than adults. It examines the state of knowledge on fatal and non-fatal accidents, illness and the general problem of underreporting of these.

In Chapter 2, over 20 specific classes of hazard and risks that child labourers may confront in agriculture are presented and illustrated with examples from around the world. Some of these reflect the inherently dangerous nature of agricultural work, such as working with farm vehicles, machinery, cutting tools, pesticides and livestock, while others relate to the often substandard and arduous working and living conditions found in agriculture.

Chapter 3, “What stakeholders can do to eliminate hazardous child labour in agriculture” reviews the ILO’s strategy to end hazardous child labour in agriculture. It also addresses the issue of what roles stakeholders roles can play.

Appendices 1 and 2 at the end of this guidebook provide detailed information on the specific hazards and risks faced by child workers in cocoa production in Cameroon and Ghana, and sugar cane production in El Salvador.

Chapter 1:

Hazardous child labour in agriculture — Issues and facts

1.1 Introduction

Over 70 per cent of all child labourers work in agriculture – an industry with a very poor record of safety and health. The number of child labourers working in agriculture is nearly ten times that of children involved in factory work, such as garment manufacturing, carpet-weaving or soccer-ball stitching. Yet, despite their numbers and the difficult nature of their work, children working in agriculture have received relatively little attention compared to some of the other types of child labour, particularly the manufacturing of goods for export or commercial sexual exploitation.

From tending cattle, to harvesting crops, to handling machinery, to holding flags to guide planes spraying pesticides, over 150 million girls and boys help produce much of the food and drink we consume and the fibres and primary agricultural materials that we use. The numbers vary from country to country, but it is estimated that at least 90 per cent of economically active children in rural areas in developing countries work in agriculture. Child labour in agriculture is not confined to developing countries; it is also a serious problem in industrialized countries.

A large, though uncertain, number of these girls and boys carry out hazardous child labour, which is work that can threaten their lives, limbs, health, and general well-being (see box 1). On farms and plantations of all types and sizes, child labourers carry out jobs or tasks that put their safety and health at risk. Many of them are harshly exploited, toiling in poor to appalling conditions and performing dangerous jobs with little or no pay. They suffer physical and mental hardship and even loss of life.¹ Irrespective of age, agriculture – along with construction and mining – is one of the three most dangerous sectors in which to work in terms of work-related fatalities, non-fatal accidents and occupational disease.

There is no reason why girls or boys working in agriculture will avoid work-related accidents and ill health as they carry out virtually the same work as adults. Whether child labourers work on their parents' farms, are hired to work on the farms or plantations of others, or accompany their migrant farm-worker parents, many of the hazards and risks they face are similar to those faced by adult workers. Any child working in agriculture could incur a traumatic injury or chronic disease. In fact, child workers are at even greater risk than adults because the hazards that affect adult workers can have a more severe

impact on children's immature bodies and minds. Also, a feature of agriculture that sets it apart from most other forms of child labour is that the children usually live on the farms or plantations where they work. This exposes them to additional risks.

Box 1: Hazardous child labour

Hazardous child labour is the largest category of the "worst forms of child labour" defined in ILO Convention No. 182 on the Worst Forms of Child Labour¹. In adopting the Convention in 1999, governments, employers' organizations and workers' organizations pledged to prohibit and take immediate action to eliminate hazardous child labour along with other worst forms.

¹ See Guidebook 1 for more information on this Convention.

The work that children undertake in agriculture is often invisible and unacknowledged because they assist their parents or relatives on the family farm or work on a piecework basis or under a quota system on larger farms or plantations, often as part of migrant worker families. They are often classed as "helpers" though they do similar and equally strenuous work as adults. This means that accidents and ill health that child labourers suffer at work often go unrecorded and unreported. In addition, as certain work-related physical disabilities and health problems only develop or become fully apparent or debilitating in adult life, they too go unrecorded and unreported, and the connection with work exposure as a child labourer is not made.

There is relatively little information available concerning the actual conditions under which agricultural child labourers work and the impacts on their safety and health, as the issue has been principally dealt with from political, economic and sociological perspectives. Concrete data on fatal and non-fatal accidents and work-related ill health experienced by these child labourers is lacking. Similarly, examples of concrete interventions to protect their safety and health are also scarce.

Agricultural child labourers work in a sector that is historically and traditionally under-regulated in many countries. Compared to workers in other sectors, agricultural workers of all ages are under-protected. They suffer markedly higher rates of fatal injuries and accidents than other workers whilst enforcement of safety and health laws is often weak or non-existent. Child labour laws – if they exist – are less stringent in agriculture than in other industries. Children, for example, are generally allowed to operate machinery and drive tractors at a younger age in agriculture than in other sectors.

1.2 How many children are involved in hazardous child labour in agriculture?

While for most countries the exact number of children performing hazardous labour in agriculture is not known, it is assumed to be large. An official survey carried out in South Africa in 1999 shows that the number of children involved can be quite significant (box 2).

Box 2. South African child labour survey shows significant hazardous labour in agriculture

In 1999, the South African Department of Labour commissioned Statistics South Africa to conduct a study, the Survey on the Activities of Young People (SAYP), in order to develop a reliable and credible database on child labour in the country. The SAYP focused on children in households, and covered an estimated 13.4 million children. The SAYP revealed the following categories of hazardous work done by children in agriculture:

- 137,000 children worked with or close to dangerous machinery. Eighty per cent of these children were in deep rural areas, and 66.6 per cent of them were boys.
- 128,000 children did heavy physical work regularly or often, including manual handling and transporting of heavy loads. This kind of hazard is more prevalent in agriculture than in other sectors
- 58,000 of the children said they had suffered illness related to their work due to exposure to some hazardous condition such as an environment that was too cold, hot, dusty or noisy.

In another example, a 2005 IPEC study in Nigeria surveyed child labour in cocoa production in the communities of Agunla Petesi, Aladeldanre, Awo Keyola, Igbatoro, Lasia, Lebira, Oda, Orisumbare, Ulohen, and Wasimi. The report found that about 20 per cent of the male child workers interviewed in these communities helped in transporting pesticide sprayers, 18 per cent in mixing pesticides and 3 per cent in spraying. It also noted that the trend was similar for female children.²

Another research study of cocoa production in four West African countries (Cameroon, Côte d'Ivoire, Ghana and Nigeria) estimated that 153,000 children were involved in the application of pesticides.³

1.3 How dangerous is agriculture for child labourers?

Just how dangerous is agriculture for the millions of children who work as child labourers in this sector? What are the types of hazards (box 3) and the nature and levels of risks to which these child labourers are exposed on a routine basis? What are the consequences of exposure to these hazards and risks both in childhood and adulthood? What are the extra risks that child workers face compared to adults? In addressing these questions, it should be borne in mind that childhood is a critical time for safe and healthy human development. An accurate profile of the safety and health of child workers must go beyond mortality and disease/illness (morbidity) data. It must also consider emotional, psychological and learning problems, the social

and environmental risks to which they are related, and the total costs to countries and society. The World Health Organization's definition of “child health” is a complete physical, mental and social well-being of a child and not merely the absence of disease or infirmity.

Box 3: Hazard and risk

A “hazard” is anything with the potential to do harm. A “risk” is the likelihood of potential harm from that hazard being realized. For example, the hazard associated with power-driven agricultural machinery might be getting trapped or entangled by moving parts. The risk may be high if guards are not fitted and workers are in close proximity to the machine. If however, the machine is properly guarded, regularly maintained and repaired by competent staff, then the risk will be lower.

As most agricultural work is carried out in the countryside, it is not only subject to the safety and health hazards inherent in the specific work processes involved, but also to those in a rural environment. Child labour in rural settings is directly conditioned by the variety and characteristics of local climate and geography. This is all the more so for children who live where they work. Most agricultural work is carried out in the open air and, consequently, agricultural workers are dependent on changes in the weather in performing their tasks. This factor influences working conditions, often making them difficult and dangerous (e.g. working in extreme heat or cold, wind-chill, sudden rainstorms while harvesting, etc.).

An ILO study of child labour in Africa in relation to the rural economy notes that:

One common factor that emerges, despite the great differences in the status of children at work and of the work they have to perform, is the harshness of their working conditions. This has nothing to do with harshness of economic exploitation due to an employer's strategy of cutting labour costs. It simply refers to the arduous nature of work in rural areas. Climatic conditions quickly induce fatigue; there is a constant danger from insects, reptiles and other animals; the ground is hard and tools primitive; distances travelled are sometimes very great; working hours are long; and the overall picture can be even worse if the children themselves are not in good health. The study goes on to add that in Africa, the scale of migration to towns is directly linked to the severity of working conditions in rural areas. People seek less tiring work which will if possible guarantee survival at a lower cost. There is food for thought in the failure of all government attempts to send back to rural areas children or young persons who have left for the town. Even after experiencing what many consider unacceptable living conditions in city streets and shantytowns, the children still prefer them to those of the country.⁴

Also, one of the most distinguishing characteristics of agricultural work is that it is carried out in a rural environment where there is no clear boundary between working and living conditions. As a result, agricultural workers and their families, and other child workers face extra dangers, such as exposure to pesticides from spray drift, as well as pesticide-contaminated water and food. Frequently, there is a lack of clean drinking water, decent washing facilities and toilets. Often their clothes are very dirty due to lack of cleaning facilities. Farm or plantation accommodations for workers are often extremely basic and

makeshift – built of pieces of plastic, wood or cardboard – and lack heating and other amenities.

The many types of hazard and risk for child labourers in agriculture are described below.⁵ Chapter 2 provides additional detail and illustrations of these and others.

Hours of work tend to be extremely long during planting and harvesting. During these high-activity periods, work in the fields can last from dawn to dusk, excluding the transport time to and from the fields (see box 4). The intensity of the work offers little chance for rest breaks, and the length of the working day offers insufficient time for recuperation or leisure.

Box 4: Long hours in the fields

In the Philippines, children working on sugar plantations have been reported to work 10 hours per day from Monday through Saturday with only short breaks and half a day on Sunday. The children earn less than one US dollar daily. They weed, cultivate, turn soil, cut cane, fix canals, harvest, and apply fertilizers and pesticides. Sometimes, child labourers are as young as 7-8 years old and begin to cut the cane at age 12. Children are injured from using sharp knives and are poisoned from the use of dangerous fertilizers.¹

A 2000 South African Broadcasting Corporation news story described several cases of child labour in agriculture that illustrate the long hours and harsh conditions many children face. In one example, an unemployed and poor woman sent her three granddaughters aged between 13 and 15 to fend for themselves on a farm. Hungry and tired, the girls picked chillies and tended groundnut farms for more than eight hours a day. Another group of children was spotted by government officials working in a farm in Rooigrond. They earned R13 (approximately US\$ 2) a day. “We start working from 06:00 until 18:00. At about 09:00 we are fed porridge and milk,” said the child labourers.²

¹ ILO Bureau of Workers' Activities: Bitter Harvest: *Child Labour in Agriculture* (Geneva, ILO, 2002).

² South African Broadcasting Corporation: “Twelve hours a day for 13 rand”, News24.com/News24/South_Africa/News/0,,2-7-1442_1321053,00.html

Much agricultural work is physically demanding and strenuous. It can involve long periods of standing, stooping, bending, repetitive and forceful movements in awkward body positions (see cutting tools below), and carrying heavy or awkward loads – baskets, bundles of crops, water containers, etc. – often over long distances. These types of activities can harm children's musculoskeletal development and may result in permanent disability.

Children must often work in extreme temperatures. They may work in the hot sun or in cold, wet conditions without suitable clothing or protective equipment. In high-altitude tea plantations in the tropics, the weather can be cold and wet, and the children frequently lack suitable warm clothing or footwear. In hot conditions, they may get dizzy from dehydration because they do not have access to drinking water.

Child labourers use dangerous cutting tools. These include machetes, knives, scythes, sickles, etc. to cut crops, hay, weeds, and brushwood. Cuts are frequent and even more serious injuries can be sustained,

such as amputations.⁶ Repetitive and forceful actions associated with cutting can also harm their musculoskeletal development. The machete is the tool that is most commonly used by less skilled workers on farms or plantations.

Children risk falling and injuries from falling objects. Child labourers are especially used to help harvest crops. They may fall off ladders or even out of trees while picking high-growing fruit. They may also be injured by fruit pods falling from trees.

Skin problems are common. Many of the crops children work with are abrasive, prickly or contain skin irritants that can provoke allergies, rashes, blistering, etc.

Child labourers are at risk of being injured or killed by farm vehicles and heavy machinery. This includes tractor overturns and being hit by tractors, trailers, trucks and heavy wagons used to transport the farm produce from the fields. In Australia and the USA, for example, boys are driving tractors on farms as young as the age of 7, and by that age many more are already riding on tractors as passengers.

Child labourers are also injured or killed or by climbing on or off trailers or other machines whilst these are still in motion, slipping or missing their footing, and falling under them and being crushed or run over.

In many countries, child labourers may work around, or even operate, powerful machinery and equipment, such as power take-off shafts, grain augurs, balers, slurry tankers and other large farm machinery and are at risk of being entangled or dragged into such machinery.

Exposure to loud noise can harm hearing. Excessive exposure to noisy machinery can lead to hearing problems in later life.

Many child labourers also mix, load and apply toxic pesticides. Some of these are extremely poisonous and potentially cancer-causing, some may adversely affect brain function, behaviour and mental health, or can harm both female and male reproduction later in life. Some children stand in the fields where pesticides are being aerially sprayed, holding flags to guide the spray planes as they swoop low over the fields. Contamination is virtually inevitable. Lack of proper pesticide storage facilities or systems for disposal of empty pesticide containers can result in child poisonings or even deaths when containers are used for other purposes, e.g. to hold drinking/cooking water, or when children play with the empty, unwashed drums and bottles. They may also apply chemical fertilizers with their bare hands or using a spoon.

Child labourers are often exposed to high levels of organic dust. This generally occurs while harvesting crops or preparing feed for farm animals. Breathing organic dust can result in allergic respiratory diseases, such as occupational asthma and hypersensitivity pneumonia (alveolitis).

Child labourers are at risk of injury and diseases from livestock and wild animals. Herding, shepherding and milking farm animals can be risky. Child labourers are frequently injured by being jostled, butted, or stamped on by farm animals, especially as many child labourers work barefoot. Children in pastoral communities may spend many months in remote, isolated areas looking after the herds or involved in heavy work, such as watering livestock.

Working barefoot in fields or around livestock also exposes them to cuts, bruises, thorn injuries, skin disorders, or even catching water-borne diseases, especially where soils are wet and sticky, or deliberately flooded as in the case of rice cultivation. They are also vulnerable to snake and insect bites, and in some cases, attacks by wild animals. Wild animals can also be disease carriers (vectors).

1.4 Why are children at greater risk than adults?

Child labourers are susceptible to all the dangers faced by adult workers when placed in the same situation. However, the work hazards and risks that affect adult workers can affect child labourers even more strongly. The results of lack of safety and health protection can often be more devastating and lasting for them. It can result in permanent disabilities, and they can also suffer psychological damage from working and living in an environment where they are denigrated, harassed or experience violence.

When speaking of child labourers it is important to go beyond the concepts of work hazard and risk as applied to adult workers and to expand them to include the developmental aspects of childhood. Because children are still growing they have special characteristics and needs that must be taken into consideration when determining workplace hazards and the risks associated with them, in terms of physical, cognitive (thought/learning) and behavioural development and emotional growth.

Children's greater vulnerability than adults to workplace hazards are numerous and complex. Some of these are:

General

- Per kilogram of body weight, children breathe more air, drink more water, eat more food and use more energy than adults. These higher rates of intake result, for example, in greater exposure to diseases (pathogens) and toxic substances/pollutants⁷ (see box 5 page 10).
 - They drink two and a half times more water than adults per kilogram of body weight.
 - They eat three to four times more food per kilogram of body weight.
- Their small physical size and being asked to do tasks beyond their physical strength may pose additional risks.

- As children's tissues and organs mature at different rates, it is not possible to specify precise ages of vulnerability for children to specific workplace hazards and risks.

Skin

- A child's skin area is 2.5 times greater than an adult's (per unit of body weight), which can result in greater skin absorption of toxics. Skin structure is only fully developed after puberty.
- Children have thinner skin, so toxics are more easily absorbed.

Respiratory

- Children have deeper and more frequent breathing and thus can breathe in more substances that are hazardous to their health.
- A resting infant has twice the volume of air passing through the lungs compared to a resting adult (per unit of body weight) over the same time period.

Brain

- Maturation can be hindered by exposure to toxic substances.
- Metals are retained in the brain more readily in childhood and absorption is greater (e.g. lead and methyl mercury).

Gastro-intestinal, endocrine and reproductive systems and renal function

- The gastro-intestinal, endocrine and reproductive systems and renal function are immature at birth and mature during childhood and adolescence, thus the elimination of hazardous agents is less efficient. Exposure to toxic substances in the workplace can hinder the process of maturation.
- The endocrine system and the hormones it generates and controls play a key role in growth and development. The endocrine system may be especially vulnerable to disruption by chemicals during childhood and adolescence.

Enzyme system

- The enzyme system is immature in childhood, resulting in poorer detoxification of hazardous substances.

Energy requirements

- Children require greater energy consumption because they are growing, and this can result in increased susceptibility to toxins.

Fluid requirements

- Children are more likely to dehydrate because they lose more water per kilogram of body weight through the greater passage of air through their lungs, the larger surface area of their skin, and their inability to concentrate urine in their kidneys.

Sleep requirements

- 10-18 year-olds require about 9.5 hours sleep per night for proper development.

Temperature

- Children have increased sensitivity to heat and cold, as their sweat glands and thermo-regulatory systems are not fully developed.

Physical strain/repetitive movements

Physical strain, especially combined with repetitive movements, on growing bones and joints can cause stunting, spinal injury and other life-long deformations and disabilities.

Cognitive and behavioural development

A child's capacity to recognize and assess potential safety and health risks at work and make decisions about them is less mature than that of adults. For younger children this ability is particularly weak. The ability to generate options, to look at a situation from a variety of perspectives, to anticipate consequences and to evaluate the credibility of sources increases throughout adolescence. By mid-adolescence, most youngsters make decisions in similar ways to adults.⁸

Children are vulnerable

Other factors that increase levels of risk include:

- lack work experience – children are unable to make informed judgements;
- a desire to perform well – children are willing to go the extra mile without realizing the risks;
- learning unsafe health and safety behaviour from adults;
- lack of safety or health training;
- inadequate, even harsh, supervision; and
- lack of power terms of organization and rights.

Children may be reluctant to let others know when they do not understand something. They want to show superiors and others that they are big enough, strong enough or old enough to do the job. They may fear dismissal if they fail. Children often are unfamiliar with hazards and risks and not trained to avoid them.

Reduced life expectancy

This concept is difficult to quantify. But the earlier a person starts work, the more premature the ageing that will follow. A study based on a nationally cross-representative survey of 18-60 year-old Brazilian adults found that, after controlling for age, education, (potential/latent) wealth, housing conditions, unemployment status and race, their entry into the labour force at or below the age of 9 years old had a statistically significant and substantial negative effect on health in adulthood.⁹

The magnitude of the effect for women is roughly twice that for men. On average, a 40-year-old woman who started work at or below 9 years of age is estimated to have the health status of a 45-year-old woman who did not work before the age of 9.¹⁰

Box 5: Toxic substances and children

Children have a higher capacity to absorb toxic substances, whether through breathing, through the skin or swallowing. They have a higher skin surface area to weight ratio. Children also have greater exploratory and 'hand-to-mouth' behaviours and are more likely to come into contact with and ingest pesticide/chemical residues, and they are also vulnerable to accidents when pesticides and other chemicals are improperly stored (e.g. in drink bottles and food containers) or when empty but still contaminated chemical containers are used to store water.

In cases of chemical poisoning, an important factor is the body's ability to detoxify and excrete pesticides. A child's metabolism can differ in important ways from adults. For example, considerable laboratory research has demonstrated increased susceptibility to organophosphate pesticides in juveniles.¹

Adolescence is the last period of rapid cell growth as well as the time of complete differentiation of the organs of reproduction. Exposures, particularly potential high-level exposures incurred during child labour to pesticides, neuro-toxicants, endocrine disruptors, allergens and carcinogens, during this critical period may be especially dangerous.¹

While there is still a significant level of uncertainty about the safety of many chemicals, it is known that a number of factors contribute to a child's unique vulnerability to chemicals, including a typical child's biology, physiology and behaviour.

Biology: The central nervous, immune, reproductive, hormonal, and digestive systems, as well as kidneys and lungs, of a foetus, infant, and child are immature and are constantly developing. Depending on the state of development and a variety of other factors, a child's ability to successfully detoxify and excrete toxins differs from that of an adult, sometimes offering them greater protection and sometimes increasing their vulnerability.

Physiology: Young children breathe faster, and eat and drink more in proportion to their body weight than do adults, and their skin absorption may be higher.

Behaviour: Children spend more time outdoors than do adults, playing and experiencing life closer to the ground where contaminants often accumulate. They also typically engage in hand-to-mouth behaviour as part of their normal development. They are unaware of potential risks around them and therefore are less able to protect themselves from potential exposures.²

¹ Natural Resources Defense Council: *Trouble on the farm: Growing up with pesticides in agricultural communities*. (Washington DC, 1998).

² National Research Council of the Institute of Medicine: *Protecting Youth at Work: Health, Safety, and Development of Working Children and Adolescents in the United States*; (Washington DC, National Academy Press, 1998).

1.5 Levels of fatal and non-fatal accidents, and ill health of child labourers

There is lack of concrete data and statistics on both the number and types of work injuries and illnesses suffered by child labourers in agriculture and other occupational sectors as well. Current estimates of fatal and non-fatal injuries and illnesses are limited. Existing estimates are generally not comparable as they are based on different underlying hypotheses and different methodologies (see box 6 for ILO estimates for all workers). There is an urgent need for the

development of better data to define the extent and the severity of the problem of hazardous child labour in agriculture and its associated fatalities, injuries and illnesses as a basis for better targeting and prioritizing child worker accident and illness prevention activities. This issue is highlighted as one of the key recommendations of this report.

Box 6: Facts and figures on occupational deaths, injuries and ill health at work for all age groups

According to ILO estimates:

- 22,000 children are killed at work each year.
- 2.2 million women and men die each year as a result of occupational accidents and work-related diseases and disorders; of this figure, there are about 350,000 fatal accidents and between 1.7 to 2 million fatal diseases.
- An average of nearly 5,000 women and men die each day as result of occupational accidents and work-related diseases and disorders.
- There are an estimated 355,000 on-the-job fatalities per annum. It is estimated that half of them occur in agriculture, the sector with half the world's workforce.
- Cancer is the biggest cause of work-related fatality, responsible for 32 per cent of occupational fatalities.
- Hazardous substances kill 438,000 workers annually.
- 270 million occupational accidents each year that lead to more than 3 days absence from work.
- 160 million non-fatal occupational diseases each year.
- 4 per cent the world's gross domestic product is lost due to cost of work-related deaths, injuries and diseases due to absence from work and the resulting loss of productivity, health care and treatment, disability and survivor benefits.

These figures give an idea of the magnitude of the problem. It is clear that agricultural child labourers figure amongst the 22,000 child labourer fatalities, and in the 270 million accidents and 160 million cases of ill health for workers of all ages.

Sources: ILO: *Prevention: a global strategy on promoting safety and health at work* (Geneva, 2005) and ILO SafeWork: *Facts on Safe Work*, fact sheet (Geneva, 2003).

1.5.1 Fatal and non-fatal accidents

Despite the lack of data on occupational accidents for child labourers, it is often the case that children have more serious accidents than adults. There are a number of reasons why.

Children starting work do not always perceive danger correctly due to lack of information and experience. In some cases, they lack the experience to judge a situation, anticipate what will happen and decide quickly what is to be done. When faced with a series of events which will inevitably result in an accident, or when an accident has taken place, they may not know how to behave. They are less likely to know what to do when accidents occur and lack familiarity with the machines, tools and equipment they are expected to use. Most children blame themselves for their injuries and almost never complain to their parents or consult a doctor unless it is a serious accident. There are also other factors, such as competition among children to retain the job, lack of environmental and personal

protection, and poor sanitary conditions. A child worker has not yet mastered the most efficient, or the fastest and safest working techniques; movements are not always well controlled and in proportion with the desired result, and he or she may not receive appropriate training. Children are inclined to use makeshift tools rather than having access to the proper ones or to appropriate protective equipment. Furthermore, if they are exposed to long hours or arduous work, fatigue will contribute to the occurrence of accidents.

1.5.2 Data and statistics on fatal and non-fatal accidents

Fatal accidents

Based on national occupational accident rates and experience, the ILO's SAFEWORK programme current estimate is that, globally, the general fatal accident rate (for workers of all ages in all occupations) is approximately 12.6 deaths per 100,000 workers. Using this figure, half of all fatal workplace accidents occur in agriculture. In 1997, for example, there were 170,000 work-related deaths in agriculture worldwide out of a total of 330,000 fatalities for all occupations.¹¹

The ILO estimates that 22,000 children die every year due to work-related accidents. This number is calculated by multiplying the pre-2006 figure of 171 million child labourers in hazardous work by an accident ratio of 12.6 deaths per 100,000 workers (rounded up to the nearest thousand).¹²

There is no way, though, of accurately breaking down the figure of 22,000 deaths to estimate the number of child worker fatalities in agriculture (or other occupational sectors for that matter). However, given that over 70 per cent of child labour is in agriculture and that it is one of the three most dangerous industries, then it is likely that the level of child labourer fatalities in this sector is also high.

In comparison, a study done for the World Bank trying to quantify the global health impacts of child labour for all occupational sectors put the number of child work-related fatalities at 32,000 per annum.¹³ Using data from the WHO Global Burden of Disease Study (GBDS) they estimated child occupational mortality rates by GBDS region and found them to be comparable with adult mortality rates, indicating that children work under equally or more dangerous conditions than adults.

Non-fatal accidents

ILO SAFEWORK estimates that for every fatal accident at work, there are about 760 accidents causing 3 days absence or more from work. This gives an estimate of 17 million accidents for child labourers per annum for all occupational sectors (760 x 22,000). Again there is no way of accurately breaking down this figure for agriculture.¹⁴

The World Bank study cited above estimated the annual number of child labour injuries for all occupations at 6 million, resulting in 2.5 million disabilities.¹⁵

National data on fatal and non-fatal accidents

While national data in many countries are very limited, available statistics confirm that agriculture is a dangerous industry:

- In Canada, some 20 children are killed in agriculture-related fatalities each year.¹⁶ Machinery-related injuries are the leading cause of fatal and hospitalised injuries on Canadian farms.¹⁷
- According to the Statistical Office of the European Communities (EUROSTAT), in 1994, 900 fatalities were recorded along with 348,300 agricultural accidents involving more than three working days lost, placing agriculture as the second most hazardous sector in the region.¹⁸
- A 2004 European Union (EU)-wide study of farm injuries reported high levels of death and injury in agriculture. The mortality rate in the EU15 countries was 13 per 100,000 farm workers compared to 22 deaths per 100,000 farm workers in the USA. The report observes that, “A more striking impression makes the fact that these numbers are comparable to those concerning motor vehicle accidents in the general population, which are considered to be the injuries responsible for the highest public health burden (16 deaths per 100,000 US citizens and 11 deaths per 100,000 EU citizens, respectively).”¹⁹ The report contains summaries from research studies of farm injuries among children from around the world, but generally these reports do not distinguish between children injured when working and children injured as bystanders.²⁰
- A total of 217 farm-related fatalities occurred in *Finland* between 1988 and 2000, of which 120 were tractor-related. Other fatalities occurred mainly in construction work, animal husbandry or forestry work. Children and elderly farmers proved to be at risk groups for fatal injuries.²¹
- A study of agricultural fatal and non-fatal accidents in four regions in India found that tractor accidents (overturning, falling from the tractor, etc.) were highest (27.7 per cent), followed by thresher (14.6 per cent), sprayer/duster (12.2 per cent), sugar cane crusher (8.1 per cent) and chaff cutter (7.8 per cent) accidents. Most of the fatal accidents resulted from the powered machinery, with the annual fatality rate estimated as 22 per 100,000 farmers. The hand tools related injuries (8 per cent of the total accidents) were non-fatal in nature.²²
- In the period 1985-1998 in New Zealand, a total of 87 workplace-related fatalities to children under 15 were identified using national electronic mortality data-files. The vast majority of children were fatally injured while a bystander to another person's work and accounted for 46 per cent of New Zealand's

total workplace bystander deaths in this period. The report concluded that this high percentage, “suggests that hazard control in certain workplace settings is lacking”.²³

- In the UK, between 1986 and 1999, 67 children died and nearly 400 received serious injuries as a result of agricultural work. Unfortunately, these figures do not distinguish between those children working on, living on, or visiting farms.²⁴
- In the USA, more than 100 children are killed and 33,000 seriously injured on farms and ranches each year.²⁵ The rate for work-related agricultural fatalities for 15-19 year-olds is 12.2 per 100,000 full-time equivalent. This rate is comparable to those of adults working in agriculture, 20-54 years old.²⁶ In 2001, approximately 22,648 injuries occurred to children or adolescents under the age of 20 who lived on, worked on, or visited a farm operation, but 63 per cent of these are not work-related.²⁷ Children who live on, work on, or visit a farm operation have an agricultural-related injury rate of 12.7 per 1,000 youth.²⁸ Most injuries occur to children/youths who are part of the farm household (rate of 15.7 injuries per 1,000 youth).²⁹ Injuries to males account for 86 per cent of all agricultural-related child/youth injuries. The majority of fatalities to males occur in crop production whilst fatalities to females occur primarily in livestock rearing.³⁰
- In the USA, children in agriculture have a higher fatality rate than children in other industries. For example, a General Accounting Office study estimated that in 1997, an 116,000 15-17 year-olds worked as hired agricultural workers, about 4 per cent of hired workers in this age range. Yet though only 4 per cent of the hired workforce, they accounted for 25 per cent of the deaths of workers in this age range.³¹
- Another US study for the period 1980 to 1987 on fatal and nonfatal injuries in agriculture to 14-17 year-olds revealed the following data. US agriculture which employed only 3 per cent of all working adolescents was the second most hazardous industry overall, in respect of work-related injury awards, (after manufacturing). Overall, adolescents were injured in farm occupations at a rate of 26.3 per 10,000, but accounted for the highest injury rates among 16-17 year-old workers (67.2/10,000 and 72.3/10,000 respectively). The majority of injuries occurred on dairy farms (39 per cent), on crop-producing farms (37 per cent), and in agricultural services (17 per cent). A high proportion of the adolescent occupational injuries in this period caused permanent disability including lacerations, amputations, fractures, dislocations and multiple injuries.³²

1.5.3 III Health

Most countries draw up a list of diseases that are legally classified as occupational diseases for which compensation may be claimed in certain circumstances and within a particular time limit. Differences in classification systems and the regularity with which the lists are revised determine the evaluation of the incidence and prevalence of certain diseases arising at work around the world.

Again, there is little reliable data on the work-related health problems of child labour, either in childhood or in later adult life. The health and social costs of child labour have been ignored.³³ As a UCW study in Vietnam on the health effects of children's work states, "The health consequences of the bulk of child work – agricultural work – are, at present, largely unknown and require empirical investigation."³⁴

There have been more studies which have reported immediate (acute), traumatic injuries suffered by child labourers who work with, for example, farm machinery, livestock, tractors, etc. Far fewer studies have dealt with the long-term (chronic) effects of agricultural work such as those associated with extended work hours, adverse weather conditions, repetitive work methods and exposure to bacteria, viruses, dusts, and pesticides.

Not all illness or even injury can be immediately diagnosed. Health hazards are often slow acting, cumulative, irreversible and complicated by non-occupational factors like malnutrition. Child labourers may be exposed to certain chemicals in the work environment and not experience the effects for many years, often well into adulthood. Hearing loss, repetitive strain injuries, back injury can all have very long latency periods. Problems are often misdiagnosed. What looks like allergy or flu, for example, might really be the result of handling or inhaling too many chemicals on the job.³⁵

There is no single effect of child labour on health but rather a multitude of effects that vary with the work undertaken, the age of the child and so on. Children may be predisposed to occupational diseases by poor health, characterized by malnutrition, anaemia, fatigue and debilitation from infectious and parasitic diseases. Malnutrition is a significant factor. In a well-nourished child, both susceptibility to infection and severity of illness are significantly lower than in a malnourished child. Poor health in childhood affects later occurrence of illness (morbidity), and can result in reduced life expectancy.

1.6 Difficulties in collecting data and under-reporting

Due to inadequate and heterogeneous recording and notification systems, official data on the incidence of occupational accidents and diseases are imprecise and notoriously underestimated in all sectors of the economy. In the case of agriculture, under-reporting is even more evident.³⁶

As for adult workers in agriculture, obtaining accurate and reliable information/data on the number and types of injuries and work-related illnesses occurring among child workers is fraught with difficulty for a variety of reasons:

- **In most countries, there are no reliable annual statistics regarding fatal and non-fatal occupational injuries and diseases in agriculture because there is no national surveillance system for agricultural workers.** A high-level, government-based USA report³⁷, noting the lack of a national surveillance system in the country, stated that, “In addition to the general limitations of data that are available for both adult and young agricultural workers, in agriculture there are the added difficulties of differentiating bystanders (or casual farm visitors) from workers; inconsistencies in the definitions of work, farm, and child; and the lack of a universal classification scheme for coding agricultural injuries”. The Report concluded that, “the true rate of agricultural work-related childhood fatalities is unknown (in the USA)”.³⁸
- **Unlike most occupational settings, in agriculture the distinction between the home and the workplace is often unclear.** The majority of farms are also family residences and have few outside (i.e. non-family) employees. The proximity of the worksite to the home facilitates having children assist with planned or unscheduled work on the farm. Their easy availability to participate in work makes it difficult to distinguish when children are working rather than doing family chores or simply being present at the workplace but not working.
- **Parents often bring their children to the fields because there is little accessible, affordable day care in rural areas.** Thus infants, toddlers, and young children are exposed to the same workplace hazards as their parents. However, any injuries or illnesses suffered by these infants, toddlers would be unlikely to be recorded in any statistics.
- **Cases of work related ill health are even more difficult to quantify than accidents.** Accidents can be readily identified at the moment they occur, while occupational diseases and disorders require medical diagnosis.
- **Accidents and work-related illnesses of children below the legal working age are not reported and thus are not captured in official statistics.** An IPEC study of child labour in agriculture in Francophone West Africa observed that:

By definition, as children under 14 years of age shouldn't be working, they can't be notified to social security bodies (as these bodies would refuse to register them as workers because they are below the legal age for entry into employment). So any accidents and/or illnesses that they suffer are not reported nor recorded by any official body. The only source of information would be village health centres, which record these work-related accidents and illnesses as domestic or routine illnesses. They are never linked to work. Such a question is never even asked by doctors or nurses.³⁹

1.7 Other sources of information

In the absence of recording systems and statistics, one must also rely on other sources, including:

- **on the ground/field observations** to identify the hazardous nature of certain jobs and tasks and to evaluate the risks to which child workers are exposed;
- **interviews with child workers** as well as with their parents, employers and team leaders, work companions; and
- **studies on adults.** While there are very few studies of child labour in agriculture, one can use as a basis for comparison and extrapolate from adult-based studies where children are doing more or less equivalent work/tasks as adults, bearing in mind, of course, their greater vulnerability, fragility, and that tools and materials are rarely adapted to their size, their body shape or their work capacity.

1.8 Regulation of child labour in agriculture

As an IPEC handbook for parliamentarians on child labour notes, “... elimination of the worst forms of child labour cannot be achieved by legislation alone, but it certainly cannot be achieved without it.”⁴⁰ However, as an ILO report on the health and safety risks to children at work states, “It has to be acknowledged that remarkably little information exists to evaluate the effectiveness of existing legislation in protecting the health and safety of child labourers.”⁴¹

Compared to those working in other economic sectors, many agricultural workers – whatever their age – are only poorly protected by national labour law. As a result, working conditions in this sector remain poor and well below those prevailing in other economic sectors.

In some countries, the agricultural sector is specifically excluded from general labour legislation. The scope of the relevant legislation – a factories act or health and safety regulations, for example – may be limited to industrial enterprises and their workforce. Where it exists, protective safety and health legislation may not be fully applicable to the agriculture sector, may be out of date or may simply not be applied.

1.8.1 Types of law relating to child labour

Almost all countries have incorporated the principle of prohibition of child labour in hazardous conditions in their national legislation. Indeed, the vast majority of the ILO’s 178 member States have ratified Convention No. 182 on the worst forms of child labour. There are three main categories of legislation affecting child workers: 1) compulsory schooling, 2) minimum working age legislation and 3) age restrictions for specific hazardous occupations.

1. Indirect regulation by establishing **compulsory schooling** until a certain age can help keep children out of the workforce prematurely. In Turkey, for example, the raising of the number of years of compulsory education from five to eight in 1997 seems to have played a significant role in reducing child labour of children below 15 years of age. According to the State Institute of Statistics, during the period 1994-1999, the incidence of child labour among underage children (6-14 years) dropped by a half and the age at first labour market entry rose. There was also a drastic fall in the proportion of all children below age 18 engaged in hazardous types of work. Parallel to these developments, national education statistics showed that school enrolment rates of children continued rise in the years afterward with a larger proportion of children continuing to higher levels of schooling.
2. Legislation setting the **minimum age for employment** and regulating permissible hours of work for children of various ages is the most direct means of prohibiting child labour. In many countries, there is a prohibition to engage children below 14 years of age.⁴² Sometimes these laws can distinguish between periods of the year when school is in session and when it is not (see Guidebook 1, for more information on the ILO Minimum Age Convention, 1973 (No. 138)).

Under ILO Convention No. 138, a number of countries permit light work to be carried out at a younger age than the basic minimum age of admission to employment. Such employment can begin at ages as young as 12 years with the stipulation this work must not interfere with the child's education. Light work can, in some instances, include certain agricultural activities, especially harvesting. However, the definition of "light work" is imprecise, and it is often unclear where such work turns into work of a heavier and more dangerous nature.
3. **Regulations, such as age restrictions for hazardous occupations**, have a direct health and safety impact for child labourers as they prohibit or restrict certain occupational activities. In addition to basic minimum age legislation, almost all countries set a higher age limit, or limits below which, hazardous work generally, or work in certain conditions or occupations, or with certain (chemical) agents is prohibited. Many ILO member States have established, or are in the process of establishing, national lists of hazardous child labour as per Article 4 of ILO Convention No. 182 (see Guidebook 1, section 2.3). In addition, the ILO Safety and Health in Agriculture Convention, 2001 (No. 184), Article 16 on young workers states that 16-17 year-olds shall not carry out hazardous work on a regular basis but only as part of training and with proper supervision.

Child labour laws – where they exist – are generally less stringent in agriculture than in other industries. National laws often have exclusions that apply uniquely to children working in agriculture. In many countries, for example, child workers are allowed to operate machinery and drive tractors at a younger age in agriculture than in other sectors. Children may also be excluded from protective legislation because no basic minimum age for admission to employment is specified in this sector. Many countries exclude family undertakings, children working with parents or family members, or subsistence agriculture from national legislation on child labour (see boxes 7 and 8). Yet a large proportion of children may be found – in many cases from 5 years of age upwards – helping their parents.

Box 7: Exemptions in labour regulations for agriculture facilitates the exploitation of children for labour

The ILO Convention concerning the minimum age for admission to employment, 1973 (No. 138) requires the application of legislation to commercial agriculture. It does permit, however, exemptions to be made for “family and small-scale holdings mainly producing food for local consumption and not regularly employing hired workers”. While this exemption may have been included for practical reasons regarding enforcement as much as for any other reason, exemptions of this nature in national legislation have the potential to exclude children working in agriculture from the scope of protective legislation.

Also, the exclusion from national labour legislation of workers on temporary and casual contracts, small enterprises and employees who work for no remuneration may have the potential to exclude children working in agriculture from the ambit of protective legislation.

It is estimated that at least 90 per cent of economically active children in rural areas in developing countries are employed in agriculture. The implication of such figures is clear. If the majority of working children are located in developing countries and a large proportion of these children are employed in agriculture, then the exclusion of agriculture from national legislation represents the exclusion of large numbers of children from coverage by protective legislation.⁴³

Even in countries with a legal framework for addressing child labour, there are often problems of illegal employment of children. One of the consequences of illegal employment of children is that it can increase the levels of hazard to them. As a US report by several leading academics states:

The extreme hazards of illegal employment of children (*in all occupational sectors*) are illustrated by the following calculations: (i) at least 70 per cent of work-related injuries are concentrated in the 1 million (US) children (20 per cent of the (child) workforce) who are employed illegally; (2) the remaining 30 per cent of injuries occur in the 4 million children (80 per cent of the (child) workforce) who are employed under legal conditions; and (3) the risk of injury is therefore almost 10 times greater among children who are employed under illegal conditions (*in all occupational sectors*) than among those working in compliance with the law.⁴⁴

Box 8: US law and child labour in agriculture

Agriculture holds a special place among industries in the USA. It is often treated differently than other industries under federal and state laws and regulations. The child labour laws applied to agriculture are less restrictive than those applied to non-agricultural industries, despite the fact that agriculture is one of the most hazardous industries in the country. Children working on their parents' farms are exempt from many legal protections. They are allowed to perform even those tasks designated as hazardous, which is not the case in non-agricultural work, where children are prohibited from hazardous jobs even if working in their parents' businesses. Farms are also exempted from many health and safety standards under the Occupational Health and Safety Act. Farms and ranches are exempt from the Occupational Health and Safety Act if they employ 10 or fewer employees and do not have temporary labour camps. About 95 per cent of farms in the USA are therefore exempt. Under the Fair Labor Standards Act, all children working on their parents' farms are exempt from limits on hours of work and hazardous conditions which apply to other children working in agriculture.

¹National Research Council of the Institute of Medicine: *Protecting Youth at Work: Health, Safety, and Development of Working Children and Adolescents in the United States*; (Washington DC, National Academy Press, 1998).

Chapter 2:

Specific hazards and risks to child labourers in agriculture

In Chapter 1, the principal issues associated with hazardous child labour were discussed. This chapter provides further technical detail on over 20 specific hazards and risks faced by child labourers in agriculture. These are presented in alphabetical order.



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2.1 Cutting tools

Where manual labour prevails, child workers regularly use *cutting tools* – machetes, knives, scythes, sickles, etc. – to cut crops, hay, weeds, brushwood, and to split open fruit pods. Many injuries are machete related, ranging from minor cuts to the severing of body parts.¹ Repetitive and forceful actions associated with cutting can also harm children's musculoskeletal development.

The machete, or cutlass, is the tool most commonly used by less skilled workers on farms or plantations. Factors that affect both cutting injuries and musculoskeletal damage are the size of the machete, sharpness and cutting frequency. Keeping the machete sharp aids in reducing injuries since with a sharp machete the worker does not have to swing as hard and can maintain better control over the machete. Safety gloves armoured with chain mesh have been developed to provide protection to the hand from machete-related injuries.² In spite of the fact that machetes are so widely used, there is very little easily available safety literature on safer working methods.

Some high-growing fruits pose especial problems and risks when manually harvesting. Oil palm trees are cultivated in vast plantations in tropical regions throughout the world. Oil palm fruits grow in bunches four to five metres above the ground, along thorny leaf fronds, and weigh between 15 to 25 kgs. Men and, sometimes, boys cut down fruit bunches from trees using a *malay*, a long, heavy pole with a knife on the end, or by climbing the trees to harvest the fruit directly. The use of a malay puts considerable strain on the musculoskeletal system.³

2.2 Diseases (biological hazards)

A wide range of diseases can result from agricultural work. The types of disease that pose risks for child and adult agricultural workers are governed by several factors, including:

- the organisms they are exposed to;
- the geographical region in which they live tropical, temperate, etc.;
- the general environment in which they work and live;
- the general health status of the individual; and
- the degree of malnutrition the workers suffer.

Occupational diseases are acute or chronic illnesses arising from the contact with or absorption, ingestion or inhalation of harmful materials and organisms in the workplace and its immediate environment.

Diseases can be contracted through routine contact with animals (a term which also includes insects, mites, parasites, etc.) and animal carcasses, work near livestock houses and stabling areas, and exposure to crop dusts and contaminated plant material, water or soil.

2.2.1 Respiratory diseases

Allergic respiratory diseases

In agriculture, respiratory diseases resulting from the development of allergic reactions to animal or crop dusts, that is, from dusts containing organic matter, are widespread. Plant material usually causes disease by inhalation of very fine vegetable dust into the respiratory tract. Vegetable matter may itself contain biologically active compounds such as histamines and acetylcholine. In addition

to vegetable matter, these dusts may contain biological contaminants such as bacteria or moulds, or even storage mites. Pesticide residues may also be present. Animal material such as feathers or wastes may also cause similar types of diseases to plant materials.

The two main allergic-type respiratory diseases caused by occupational exposure to organic dust particles are occupational asthma and extrinsic allergic alveolitis. In the case of both asthma and alveolitis, once an individual has been sensitized to a particular allergen, specific cellular changes occur so that, after a period of latency, further contact results in an acute allergic reaction. Many allergic sensitizers have a gradual effect that appears only weeks or even years after exposure started (even in adulthood in the case of child labourers). Avoiding serious damage to health means removing the sensitized person from further exposure to the allergen. If exposure is allowed to continue, the respiratory symptoms will become progressively worse, resulting in chronic lung disease, which can become life threatening.

Occupational asthma

Asthma is widespread in agriculture, and farmers and farm workers usually have asthma rates higher than national averages.

Asthma results in attacks of wheezing, chest tightness and breathlessness resulting from constriction of the airways. Exposure to the allergen may cause an immediate health reaction within minutes of exposure or a reaction may develop later on, within 4-24 hours (usually 4-8 hours). In this latter case, the effect of the allergenic dust or fume may not be noticed until the evening of the day of exposure, and therefore perhaps not linked to work.⁴ If not treated, the disease may become chronic, and can even result in death.

The list of potential lung allergens in the agricultural setting includes grain, flour, hops, tobacco dust, beetles, locusts, cockroaches, grain mites, bird feathers, fungi and various wood dusts.⁵ Plants and vegetable products that can cause allergic asthma are bromelain, castor beans and wax, freesia, grain pollen, guar gum, papain, paprika, hops, ipecacuanha, plictic acid, quillaic acid, saponin, and sunflower pollen.⁶

Extrinsic allergic alveolitis (also called hypersensitivity pneumonia)

This respiratory disease is caused by moulds and their spores, which grow on other organic materials, especially under damp conditions (box 9). Alveolitis affects the air sacs in the lungs (the alveoli), technically involving the lowering of gas exchange transfer of oxygen and carbon dioxide across the blood-gas barrier in the lungs. These diseases frequently have acute, influenza-like episodes with breathing difficulties, which, if exposure is continued, lead to sub-acute and chronic pulmonary fibrotic disease.⁷

Box 9: Examples of extrinsic allergic alveolitis

Type	Exposure to	Allergen (causal agent)
Farmer's lung	Mouldy grains, hay, straw	Fungi (<i>Micropolyspora faeni</i> , <i>Thermoactinomyces vulgaris</i>)
Bagassosis	Mouldy sugar cane	Fungi <i>Thermoactinomyces vulgaris</i>
Suberosis	Cork dust	
Wheat disease	Wheat flour	Sitophilus granaries
Bird fancier's lung	Droppings and feathers	Avian protein
Animal handler's lung	Dried flakes of animal skin (dander), dried rodent urine	Serum and urine proteins

Source: WHO Prevention and Control Exchange (PACE): *Airborne Dust: Hazard Prevention and Control in the Work Environment* (Geneva, WHO/SDE/OEH, 1999), Chapter 2-1, Table 2-I.

Other respiratory disease/disorders in agriculture

Certain dusts, which include vegetable dusts and dusts of some pesticides also have irritant effects upon the upper respiratory tract (the trachea, etc.) and can produce **chronic bronchitis** from continuous irritation, which can lead to **chronic emphysema** (breathlessness due to the air sacs in the lungs, the alveoli, being damaged and enlarged).

Exposures to heavy concentrations of micro organism-contaminated organic dusts may also lead to **organic dust toxic syndrome**. This syndrome occurs without prior sensitization as is the case with extrinsic allergic alveolitis. An example of this condition is grain fever due to exposure to stored grain dust. The epidemiology of the syndrome is not well defined.⁸

Many dusts are confirmed cancer-causing agents (carcinogens). For example, exposure to asbestos dust, particularly crocidolite (blue asbestos), has been linked to two types of cancer – lung cancer and mesothelioma. Asbestos exposures are clearly linked to occupations like building maintenance, an activity that is regularly found on farms and plantations. Certain wood dusts have been recognized as causing nasal cancer.

Inhalation of particles containing fungi, viral or bacterial pathogens may also play a role in the transmission of infectious diseases.

There is also a risk of fire and explosion with some dusts such as flour dust.

2.2.2 Skin diseases

The most common type of agriculture-related skin disease is **irritant contact dermatitis**. Acute contact dermatitis is characterized by skin reddening (erythema), swelling (oedema), pimples (papules), vesicles or blisters. It is especially localised on the hands, wrists and forearms. The chronic form can have deep fissures, thickening and hardening of

the skin (lichenification), and severe dryness (xerosis). It can be incapacitating and even irreversible.⁹

Irritant contact dermatitis can be caused by a number of substances, including among others crop dust, vegetable and bulb plants, animal feeds, pesticides, motor/machinery oil and grease, and degreasing solvents.

Allergic contact dermatitis is a reaction to exposures to sensitizers in certain flowers produced in ornamental floriculture; chrome contained in rubber boots or gloves; veterinary antibiotics; pesticides¹⁰; disinfectants and soaps. In vegetable production, for example, artichoke, brussel sprouts, cabbage, celery, chicory, chive, endive, garlic, horseradish, leek, lettuce, okra, onion, parsley and parsnip have been reported to contain vegetable allergens and to sensitize vegetable workers.¹¹

Other skin diseases include photo-contact, sun-induced, heat-induced, arthropod-induced¹² **dermatoses**. Certain photosensitive substances, such as mineral oils and greases and antibiotics, can produce acute inflammatory cutaneous lesions (including acne) when the skin is exposed to the sun. Dry chemical fertilizer can draw out moisture from the skin and cause burns.

Fungal infections may be directly contracted from infected animals or developed in areas of skin maceration. This maceration results from humidity and heat, contact with sugar from fruit, and excessive perspiration due to the use of waterproof clothing such as rubber boots and gloves. Such lesions are often difficult to treat, take a long time to cure and are contagious.

Bites, scratches, stings and thorn punctures can also damage the skin, and may also be ways of disease getting into the body. Skin abrasions or wounds can become infected if not cared for and treated. They increase the likelihood exposure to diseases such as tetanus, which can only enter the body through a wound.

The skin can also be a medium for absorbing harmful substances into the body. Tobacco harvesters can suffer from **green tobacco sickness** when working with damp tobacco leaves. Water from rain or dew on the tobacco leaves probably dissolves nicotine – an acute poison – facilitating its absorption through the skin. The symptoms are headache, pallor, nausea, vomiting and prostrations.¹³

2.2.3 Diseases transmitted by animals to humans (zoonoses)

Infectious diseases transmitted to humans by contact with domestic or wild animals in agricultural work constitute a serious health problem, especially in developing countries. A disease transmitted from animals to humans is called a zoonosis. Zoonoses include some of the most widespread and serious diseases in the world. They also include diseases which are not directly transmissible between animals and humans but have a common, inanimate reservoir such as soil (paprozoonoses), an example of which is tetanus.

Diseases originating from animals are often unnoticed, either because animals themselves do not develop the illness, only acting as carriers/vectors, or because there is a long interval before symptoms begin to appear in humans.

Contamination can occur through direct contact with the animal, with substances derived from it (such as hair, meat, carcasses, bones, and the products of rejection, abortion or slaughter), or contact with contaminated environments. These illnesses can be extremely serious in humans, and their treatment and care lengthy, costly and burdensome.

The main categories of zoonoses include:

- **bacteria:** e.g. anthrax, brucellosis (undulant fever), ersipeloid, leptospirosis, tetanus, tuberculosis, tularaemia, wound sepsis;
- **chlamydiae and rickettsiae:** e.g. orthinosis, Q fever, tick-borne rickettsiosis;
- **fungi:** e.g. candidiasis and dermatophytosis of the skin and mucuous membranes, coccidiomycosis, histoplasmosis, tinea (ringworm);
- **helminths:** diseases are caused by intestinal worms, e.g. ankylostomiasis (hookworm disease); roundworms (filariasis, etc.) These diseases are not directly linked to occupation but are often prevalent in agricultural production areas in tropical zones;¹⁴
- **protozoa:** e.g. malaria, yellow fever, kala-azar (leishmaniasis), sleeping sickness (trypanosomiasis), and river blindness (onchocercosis);
- **viruses:** e.g. viral hepatitis, Newcastle virus disease (poultry), rabies.

2.3 Drug addiction and agricultural child labour

Drug addiction among agricultural labourers linked to the strenuous nature of their work may be an under-recognized problem as the following examples of methamphetamine abuse in Cambodia and khat chewing in the Middle East and Africa illustrate.

Based on interviews with agricultural workers, an article in the Cambodia Daily newspaper reported that roughly 80 per cent of adult farm labourers and an unknown number of child farm labourers in the Battambang districts of Phnom Proek and Sampov Loun, Cambodia smoke **methamphetamine**¹⁵, or yaba, to increase their working ability on agro-industry farms.¹⁶ Senior Cambodian anti-drug officials said that there are strong indications to suggest that the majority of labourers who toil on the large agricultural farms in north-western Cambodia use this illegal drug.

The article described how young workers abuse this dangerous drug:

Tipping the [methamphetamine] powder into the bottom of an empty plastic water bottle, Sao Sony, a 14-year-old [farm labourer] pursed his lips around a straw protruding from its neck. A friend of the same age would hold a cigarette

lighter beneath the bottle, allowing him to draw the milky-coloured smoke into his lungs, before the friend did the same. The hit gave Sao Sony a sense of euphoric confidence and a drug-enhanced rush of physical energy that helped him labour through the day to support his family

IPEC reports have shown child labour to be involved in **khat** production, and there is evidence that many of these children also become users. Khat is a natural stimulant from small tree native to East Africa and Southern Arabia. Khat leaves contain a number of chemicals among which are two controlled substances – cathinone and cathine – according to US law. Chewed in moderation, khat alleviates fatigue and reduces appetite. Compulsive use may result in manic behaviour with grandiose delusions or in a paranoid type of illness, sometimes accompanied by hallucinations. It is used in Arabia, the Congo, Ethiopia, Kenya, Malawi, Tanzania, South Africa, Uganda, Zambia and Zimbabwe. It is also brought from source countries to the USA and other countries for use by emigrants.¹⁷

2.4 Dusts

Agricultural workers are exposed to a wide variety of animal and crop dusts, fibres, mists, fumes, gases and micro-organisms, which can cause respiratory and/or skin or eye problems. The health effects of dusts are discussed in section 2.2 on diseases.

Much of the dust that creates health problems is invisible to the naked eye. For example, minute particles of crop and livestock dust that penetrate deep into the lungs can be as small as 7-8 microns in diameter (a micron is one-thousandth of a millimetre). By way of comparison, the average width of a single strand of human hair is 100-150 microns.

2.5 Ergonomic hazards

IPEC's position is that tools should not be better designed or work posts better adapted for child workers, as such developments would signal of the recognition of child work, a de facto legitimization of child labour.

Ergonomics is the study of work in relation to the workplace environment and the workers who perform it. It is used to determine how the workplace can be designed or adapted to the worker in order to prevent a variety of health problems and increase efficiency – in other words, to make the job fit the worker, instead of forcing the worker to conform to the job. It is a broad science encompassing the wide variety of working conditions that can affect worker comfort and health, including factors such as:

- lighting and temperature;
- noise and vibration;
- tool, machine and workstation design;
- footwear and protective equipment; and



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- work organization and job design, including factors such as shift work, rest breaks and meals.

Without the application of ergonomic principles, tools, machines, equipment and workstations are often designed without due consideration given to the fact that people are of different heights, shapes and sizes, and they have different levels of strength. Women workers have suffered particularly in this regard. Similarly, there are mismatches between the size of adolescents and the dimension of equipment or machinery designed for adults. Traditional agricultural tools and methods in particular require high human energy input.

Children's safety and health problems arise because their physical proportions, working capacity and limitations are not taken into consideration in designing work methods, tools and

equipment. Therefore, they are more at risk of being injured. Children using hand tools designed for adults run a higher risk of fatigue and injury. When personal protective equipment does not fit children, they have to work without it or use alternative devices, such as handkerchiefs to cover their nose and mouth, which do not provide protection. In heavy work, including the carrying of heavy loads, excessive stress may be placed on the bones and may result in skeletal damage.

2.6 Extreme temperatures and climatic conditions

Agricultural work involves extremes of temperature and climatic conditions. Child labourers may be exposed to hot, humid work in tropical areas or in temperate zones in the summer. Heat stroke and excessive sun exposure are hazards in these circumstances. Conversely, children may be exposed to cold, wet conditions in temperate zones and even in tropical zones at altitude, such as tea-growing estates.

Heat causes a dilation of superficial blood vessels and thus dehydration through excessive perspiration (sometimes rendered more severe by excessively protective and waterproof clothing), as well as leg oedemas, cramps, fainting, exhaustion. It also facilitates poisoning

through cutaneous absorption and the spread of pesticides inside the organism.

Heat stress is greater in children because their sweat glands are developing and the same moderately low environmental temperature will cause an increase in the consumption of oxygen of the child before that of the adult. As the child grows and becomes more active, muscular activity plays a more important part than temperature in oxygen consumption.¹⁸ However, a US study in part questions this assumption, by stating that, “It is well known that young children are more vulnerable to heat-related illnesses than adults; however, whether older children and adolescents are also more vulnerable than adults is not known”.¹⁹

Studies on the effect of heat exposure on workers’ health have shown that temperatures that differ even minimally from the comfort zone tend to increase the risk of accidents.

Exposure to the sun can also cause burning, diffuse redness on the exposed parts of the skin, associated with cutaneous atrophy which may lead to localized thickenings after several years and varying degrees of sunstroke. Long-term exposure to the sun can lead to premature ageing of the skin and increased likelihood of skin cancers.²⁰

Low temperatures and lack of warm dry clothing can result in frost nip, chilblains and even frostbite and hypothermia in more extreme conditions. Working in cold and wet/rainy working conditions also increases the risk of respiratory infections. Working in humid/wet conditions, whether hot or cold, can also result in foot rots. An IPEC rapid assessment study of tea estates in Lushoto and Rungwe districts of Tanzania found that child labourers were working without any warm clothing, raincoats or boots to protect them against the rain, cold weather, the terrain or snake bites. Without boots, they also suffered leg injuries from thorns and protruding tea stumps.²¹

The negative effects of long hours of work may also be increased by the effect of extreme climatic conditions.

2.7 Falling objects

Falling objects pose a serious risk on farms and plantations. These include, among others, branches or fruit, especially when the fruit is being cut while children are standing under the trees, and stacked bales or containers. Oil-palm fruit harvesting, for example, presents this type of hazard. Oil palm trees are cultivated in vast plantations in tropical regions throughout the world. Oil palm fruits grow in large bunches 4 to 5 metres above the ground along thorny leaf fronds. Men and often boys use a cutting tool on a long pole to harvest them and risk being hit by the falling bunches, which are made up of thousands of oval-shaped fruits and weigh between 15 and 25 kilograms.²²

2.8 Falls

Falls may occur from heights or on the same level, or even into wells/pits. Falls from the same level occur from slippery surfaces, uneven ground, poor lighting, tripping over objects or being pushed by a moving object.

One of the most common causes of accidents is falling from ladders or working platforms. In the case of bins, silos, barns and other storage structures, falls from heights most often occur from and in storage structures. The causes are unguarded roofs, floor openings, stairways, lofts and shafts, and climbing ladders or standing on raised work areas such as an unprotected platform. Falls from height may also result from climbing on or off the transportation unit (for example, wagons, carts and tractors) or climbing trees to harvest fruit.

Between 1996 and 2000, the Bureau of Workers Compensation in the American state of West Virginia received 14,093 compensation claims from workers aged 19 years of age or less. Analysing 2,000 of these claims, the study found that 270 claims in children were injuries serious enough to require surgery. Falls were the main type of injury. Proportionately, fingers (1.70x) and hands (1.64x, 1.6 to 1.7) were injured in children. Lacerations (3.4x), fractures (1.4x), and amputations (3.75x) frequently resulted in general anaesthetic procedures. Services, manufacturing, construction, and agriculture were the main injury-related occupations in children.²³

In an example from Indonesia, an IPEC-funded report on child labour in tobacco production noted that:



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The riskiest job for the child worker in the sheds is when they have to hang the tobacco leaves on the poles because they are required to climb unstable bamboo pillars reaching between 3 - 10 meters high. To make things worse the sheds are poorly constructed because they are only made of bamboo which easily decays and the poles are lashed together with whatever wire there is around. Many sheds deteriorate before they are a year old. Most of the hanging is performed by adults, or fathers of the child workers, but still the boys often climb up to follow their fathers. Most of the boys here are over 15 years old and boys below this age are forbidden by their fathers to climb in the sheds.²⁴

On these Indonesian tobacco plantations, falling into wells is also a work hazard. Wells are dug in every contracted plot of land to ensure a source of water for irrigating the tobacco. Most of the wells are open and therefore pose a risk to child workers when they draw water or approach them.²⁵



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2.9 Farm machinery, including tractor accidents

Powerful and high-speed machinery is commonly used in agriculture. Many workers – child or adult – do not realize just how powerful machines are in comparison to their own force, nor do they fully comprehend how fast the machines are. A quick pull away action of a human arm normally generates less than 1 horsepower or even less. A small 16 horsepower machine such as a walk-behind mower may have 20-40 times more power to pull a person into the machine than the person can generate pulling away. A medium-sized machine operating at 40-60 horsepower will have hundreds of times more power than a person.²⁶ The following examples from the UK illustrate several types of accidents involving children and farm machinery that had dramatic consequences.²⁷ Box 10 provides some statistics on machinery accidents involving children in Bangladesh.

Contact with machinery

- A 9-year-old boy was pulled feet first into a forage harvester losing a leg. He had been left unsupervised near the stationary machine.

Young people working without adequate training or supervision

- A 14-year-old schoolboy had his hand trapped inside a grass baling machine.

Children working unsupervised

- A 14-year-old child suffered serious head injuries when struck by the forks of a materials handler.

Box 10: Farm machinery accidents involving children in Bangladesh

Bangladesh is a primarily rural country and most children live in homes where the main occupation is farming. For children in these homes, working to help grow, harvest, transport or sell farm products is a normal, everyday role from the earliest days of childhood. In these circumstances, they are exposed to farm machinery and tools that often result in devastating injuries. About 50 children a day are injured by machines, and three of them are injured so severely that they become permanently disabled. The issue of farm machine injury is a serious one, as rural children have machine-injury rates that are twice that of urban children. Male children had machine-injury rates approximately twice those of females in the early age groups (1-4 and 5-9). In the older age groups (10-14 and 15-17) the difference girls and boys was five-fold, reflecting the difference in gender roles in adolescence, with boys increasingly exposed to farm machinery, and girls working in the kitchen and inside.²⁸

Common machinery hazards involve pinch points, wrap points, pull-in points, shear/cutting points, free-wheeling parts, thrown objects, stored energy, burn points, and excessive noise that induces hearing loss.²⁹ For powertake-off accidents (wrap/pull-in points), see “tractor accidents” below.

Machinery safety is largely a matter of keeping the original guards and shields in place, replacing them in position immediately after machinery repairs or maintenance, and promptly replacing damaged ones.

Tractor accidents

Farm tractors have many characteristics that result in them being the most important piece of power equipment on the farm. The most serious hazards associated with tractor operations include **overturns, run-overs, and power take-off (PTO) entanglement**.

Tractor **overturns** fatally injure far more victims than any other type of accident. There are two principal types of overturn: rearward and toppling over sideways.

1. **Rearward overturns:** A tractor with its rear wheels turning at only 2 miles per hour (3 kph) will be vertical in 1 second if the object it is pulling resists movement. An inexperienced driver may need as much as 1.5 seconds to decide on and carry out remedial action. A chain or a towrope hitched to high could cause a rearward overturn of the towing tractor even on level ground.

In an example from Zimbabwe, the wheels of a tractor, which had been standing overnight, had become bogged down in the mud. The following morning, a 12-year-old boy started the tractor, revved up the engine to free the wheels, trying to move in a forward direction (when the safe procedure would have been to try to reverse out). The wheels remained stuck, that is, resisted movement, and the tractor reared up on its front wheels and overturned backwards, fatally crushing the boy beneath it.³⁰

2. **Toppling over sideways:** Driving near ditches or banks especially when turning is another common source of tractor overturns, as

is working on steep slopes, especially if these are slippery, e.g. grass covered, frozen, etc.

The most important safety device for a tractor is a rollover protective structure – a bar or cab.

There are three basic types of **run-over** incidents:³¹

3. **Extra rider accidents:** There is no safe location for an extra person on a tractor, yet the practice of taking extra riders is very common as a means of saving time, for convenience or baby-sitting. Safety experts and tractor manufacturers strongly recommend against an operator carrying an extra rider for any reason.³²

In an example from the UK, a schoolboy was riding on the drawbar of a tractor/trailer combination when he fell off and was run over by the trailer nearside wheel. He died of internal injuries.³³

4. **Accidents due to falling off the tractor or starting it from the ground:** It is a common practice for tractor drivers to start the engine from the ground, operating the tip control from there. For reasons such as a faulty handbrake, the tractor may often move and can trap/crush the operator.³⁴
5. **Person on the ground is run over:** Climbing onto or off farm trailers whilst still in motion, and falling beneath the trailers wheels and being crushed, is another common type of run-over accident. Forklift trucks are another common source of knock down and/or run-over accidents on farms and plantations.

The tractor's **power take-off (PTO)** stub shaft transfers power between the tractor and the PTO-powered machinery. Power transfer is accomplished by connecting a detachable drive shaft from the tractor's PTO stub to the machinery. The PTO stub and drive normally rotate at circa 540 rpm (9 times/second) or 1,000 rpm (16.7 times/second) when operating at full-recommended speed.³⁵ Most accidents or incidents involving PTOs stem from clothing suddenly caught by an engaged but unguarded PTO stub or shaft, or when feeding crop material into machinery intakes.

When a machine is running at the fully recommended PTO speed, crop material moves into the machine intake at approximately 3.7 metres/second. If a worker is holding onto crop material as it begins entry into the machine, she or he is usually unable to let go quickly enough to release the material before being pulled into the machine. In 0.3 seconds, the worker will be pulled 1.1m into the machine. This situation often happens when the crop material plugs the intake point of the machine and the worker attempts to unplug it with the PTO engaged. A master shield over the PTO stub, and PTO guards on each detachable PTO drive shaft protect against entanglement.³⁶

In the UK, a 13-year-old boy became entangled on an unguarded power take off shaft. He was one of two young people milling grain

and shovelling it into bags. The farmer's son was looking for some string to tie the bags and as he approached the machine he somehow became entangled and wrapped around the PTO shaft. The other boy realized what had happened and leant into the tractor to disengage the PTO. The child's left hand was amputated and he subsequently lost his left lower leg, below the knee. He also received trunk and head injuries.

Also in the UK, an 11-year-old boy was operating the suction control lever of a slurry tanker when his clothing was caught on the unguarded power take-off shaft. He received multiple injuries.³⁷

2.10 HIV/AIDS

AIDS (Acquired Immuno Deficiency Syndrome) is a disease caused by destruction of the immune system by a virus called HIV (human immunodeficiency virus). This disease is creating new threats and challenges in respect of elimination of child labour which policy-makers will have to address in order come up with new preventive measures and solutions.

Child labourers in agriculture are often at direct risk of infection from HIV. Through their vulnerability to sexual exploitation/harassment they can be victims and can also fuel the spread of the disease. Poor conditions of work and low wages have driven many workers into behavioural patterns that increase the risk of infection and transmission of the disease, such as involvement in commercial sex, and sexual favours.

A series of IPEC studies on child labour and HIV/AIDS in selected African countries³⁸ found that once in the labour force, children are vulnerable to HIV infection or the consequences of infection. Children working alongside a parent appear least likely to be sexually exploited. However, there were plenty of examples of working conditions where physical threats and harassment were common, particularly for girls and younger children, with an over-arching potential for sexual assault or manipulation.

The other main consequence is that HIV/AIDS may result in increased use of child labour, especially in those developing countries particularly affected by the disease. To date little research has been carried out to correlate rises in child labour and HIV/AIDS in developing countries; however, IPEC rapid assessment studies in Africa suggest that HIV/AIDS is among the major causes of child labour in that region.³⁹

Increased use of child labour due to HIV/AIDS can come about in a variety of ways:

- **Children can be used to fill jobs previously undertaken by adult agricultural workers who have died of AIDS.** By 2010, in sub-Saharan Africa, for example, the total labour force – which is predominantly in agriculture in nature – is expected to have shrunk by 9 per cent due to HIV/AIDS losses. So there is

growing pressure to use children to fill the gaps in the workforce. All the more so as they can be paid lower wages, which will be a significant economic factor given that another consequence of AIDS is rising labour costs due to labour shortages.

- **When parents develop AIDS, children, particularly older ones, often get pushed into the labour market.** When an adult in a family becomes ill with AIDS-related illnesses, children, especially girls, are likely to have to take on more household tasks, or seek income generating work to make up for lost income and help pay for medical expenses. It is probable that at least one child in the household will have to leave school.

When a parent dies of the disease, especially the “breadwinner”, pressure on children in the household to work increases. When both parents die, older children are forced to become heads of households and look after younger brothers and sisters.

The number of AIDS orphans with no family is growing. Many of them end up living and working on farms/plantations as their sole means of survival. These orphans may have to work in agriculture to cover the cost of their remaining on a farm or plantation and to pay school fees. One issue that policy-makers will have to address in such situations is how to avoid the very real dangers that these children will be exploited and at risk from poor safety and health standards.

Findings from the IPEC rapid assessment study in Zimbabwe indicated a high correlation between orphanhood and child labour. Within this rapid assessment sample, 98 per cent of the children were orphans and 84 per cent were working. It remained to show whether there had been a high incidence of HIV/AIDS among the orphans’ deceased parents.⁴⁰

2.11 Lack of childcare facilities

Child labour is also a childcare issue. Parents bring their children to the fields because day care in rural areas either not available or little accessible or affordable. Thus infants, toddlers, and young children are exposed to the same workplace hazards as their parents.⁴¹

An NGO report on US agriculture notes that, “Ironically, in some areas where day care centres do exist, they are located immediately adjacent to fields and are readily contaminated with over-spray from pesticide applications”.⁴²

2.12 Livestock

Agricultural child labourers working with livestock are frequently injured by being bitten, butted, jostled, stamped on, gored or trampled. Animals do not need to be aggressive to cause serious harm or even kill a child. The dangers of mature cattle and horses are



obvious, but sheep and pigs can also cause serious injury, often when apparently playful.⁴³

Child labourers herd farm animals, water them and milk them. Draught animals such as horses, donkeys, mules and oxen are used for dragging or carrying loads. These animals can injure workers by biting or kicking.⁴⁴

A US study for the period 1980-87 on fatal and nonfatal injuries to 14-17 year-olds found that while US agriculture employed only 3 per cent of all working adolescents, it was the second most hazardous industry overall in respect of work-related injuries, (after manufacturing) and accounted for the highest injury rates among 16-17 year-old workers. In agriculture, the majority of injuries occurred on dairy farms (39 per cent).⁴⁵

A survey of 26,000 farm households was conducted for the National Institute for Occupational Safety and Health by the United States Department of Agriculture in 1998. The survey results estimated that there were 6,438 animal related on-farm injuries to youth (younger than 20 years of age) in 1998, 69 per cent of which were work related.⁴⁶

A report on child injury in Bangladesh estimated that each year some 59,000 children in rural areas are injured by being bitten, stepped on, butted, gored or kicked by livestock.⁴⁷

Children in pastoral communities may spend many months as shepherds/herders in remote, isolated areas looking after the herds. Herders are one of the most widespread categories of child worker in Africa. One of their principal tasks is to water their animals. When the well is deep (40 to 50 metres), water must be drawn up with the help

of a team of animals. The child worker must lead the team to the end of the pumping track and then lead it back to the well often at a run. Assuming a well depth of 40 metres and a container averaging 30 litres, the child worker has to travel 27 kilometres back and forth in order to water a herd of 200 camels.⁴⁸

2.13 Long hours of work, fatigue and sleep needs of adolescents

Long hours of work are a serious hazard for child agricultural workers: too many children work too many hours. In agriculture, dawn to dusk is too often a typical working day, and the need for rest periods and holidays is generally ignored. Excessive working hours have a direct impact in terms of health and growth, with long-term consequences in some cases, including chronic fatigue syndrome (see box 11).

Child workers of all ages may be particularly susceptible to fatigue due to physiological changes that cause them to require more sleep.⁴⁹ It is now widely recognized that adolescents may actually need as much or more sleep than younger children. Sleep laboratory research has found that the amount of sleep needed by adolescents does not decrease significantly between the ages of 10 and 18 but remains at about 9.5 hours per night.⁵⁰

Fatigue or drowsiness associated with extended work hours may also lead to poor judgement in performing duties, including the temptation to take dangerous shortcuts. Some work schedules, such as those involving long or unusually late or early hours, may contribute to fatigue in child workers, and fatigue is associated with an increased likelihood of injury.⁵¹ There is also evidence that insufficient sleep is associated with moodiness, irritability and difficulty in modulating impulses and emotions.⁵²

Long hours of work and associated drowsiness can interfere with schooling and education. Even if a child attends school, she/he may not be able to concentrate or participate fully due to being tired. US research findings indicate that working more than 20 hours a week during the school year can negatively affect student achievement to a significant degree. US National Agricultural Workers Survey data show, however, that many children in agriculture in the US work 35 hours a week or more. Although some of these work hours might be during the summer, peak demand periods for agricultural work also take place during the fall and spring when the school year begins and ends.⁵³

Box 11: Chronic fatigue syndrome

Chronic fatigue syndrome (CFS) is a complex illness characterized by debilitating fatigue and numerous somatic complaints persisting for months or years. The illness has been described as occurring in epidemics or as isolated cases, and the cause or causes are unknown. In 1988, the US Centre for Disease Research published diagnostic criteria and suggested the term, chronic fatigue syndrome. Children can develop CFS though scientific reviews are less frequent than for adults.

There are many well-documented examples of child labourers working long hours, especially during busy periods like harvesting and planting:

- An IPEC Rapid Assessment study of child labour in tobacco and cotton growing in Kazakhstan⁵⁴ found that the average length of the working day for child labourers was:
 - in tobacco growing
 - under 10 years of age - about 5 hours (35 hours a week);
 - 11-15 year-olds - 6 hours (42 hours a week);
 - 16-17 year-olds - 8 hours (56 hours a week).
 - in cotton production
 - under 10 years of age - about 8 hours (56 hours a week), with a maximum of 10 hours a day (70 hours per week);
 - 11 years of age and over - 10 hours a day (70 hours a week) and up to 12 hours a day (84 hours a week).

The working day for child labourers studied exceeded the limits laid down by Kazakhstan national labour law by 2-3 times.

- A US Department of Labor report on child labour in sugar cane production in Brazil found that over 40 per cent of the children worked more than 40 hours per week. On one plantation, children woke up at 04:00 and went to work without eating breakfast. They carried candles with them so they could work in the pre-dawn hours.⁵⁵
- An IPEC rapid assessment study of sugar cane production in Bolivia revealed that children routinely worked for up to 12 hours per day. The long working hours were compounded by the travelling time to and from the fields.⁵⁶
- An IPEC rapid assessment study in 2001 of tobacco growing in Iringa and Urambo districts, Tanzania, found that child labourers regularly worked from eight to 14 hours a day, with shifts of 18 to 20 hours during harvest time as they worked in the fields during the day and in the barns curing tobacco throughout the night.⁵⁷
- An IPEC-UNICEF-World Bank study examined the impact of hours of work and child health in a variety of occupational sectors in Cambodia, Brazil and Bangladesh. The report found that, based on estimation results, the number of hours worked exerted a significant effect on the probability of negative health outcomes for children in the three countries. The study found that, “each hour of work performed during a week adds about 0.3 percentage points to the probability of falling ill in Cambodia, 0.2 percentage points in Bangladesh, and 0.1 percentage points in Brazil. This implies that in Cambodia, for example, a child working eight hours a day for six days a week has a probability of a bad health episode 8 percentage points

higher than a child working for four hours a day. Similarly, a child working eight hours a day for six days a week in Bangladesh and Brazil faces a 5 percentage point and a 3 percentage point higher risk of injury respectively than a child working six days a week for four hours per day.”⁵⁸

2.14 Malnutrition due to poverty

Malnutrition is the largest contributor to disease in the world. It is directly or indirectly associated with 50 per cent of all child mortality. Childhood and maternal underweight alone are responsible for 138 million disability adjusted life years (DALYs) lost or 9.5 per cent of the global burden of disease.⁵⁹ Malnutrition is also part of the cycle of poverty, escape from which is extremely difficult. There is evidence that chronically undernourished farm children grow up to become chronically undernourished adult farm workers.⁶⁰

Malnutrition weakens resistance to infections. Malnutrition, hot and humid weather, and endemic diseases are all contributing factors to the capabilities and performance of agricultural workers. Another consequence may be stunting – small physical size in relation to age – in rural child workers. Stunting is a process that begins in infancy and is a result of the dual impact of under-nutrition and infection.⁶¹ A 2003 study on farm workers in South Africa highlights the problem:

Farm work in South Africa is remarkable for the closed nature of the sector. Farm workers tend to move from one farm to the next but stay within the same social stratum. Relatively few children of farm workers manage to leave the sector, precisely because of the inadequate educational infrastructure in rural farming areas, and poor social circumstances, manifested in levels of childhood stunting of the order of 30 per cent.⁶²

Malnutrition also reduces mental capacity. Malnourished children are less likely to enrol in school or more likely to enrol later. Hunger and malnutrition reduce school performance. According to the WHO, better-nourished girls are more likely to stay in school and to have more control over future choices.⁶³

2.15 Noise

Continuous exposure to high levels of noise at work can cause permanent hearing problems and damage. The main factors involved are:

- the noise level, which is based on measuring sound intensity and frequency (Measurements are made in units called decibels. The “A weighted decibel scale” or dB(A) is generally used, as this measures sound frequencies that have most effect on the human ear);
- the amount of daily exposure to noise and over how many years.

Repeated noise levels of 80 dB(A) upwards can result in risk of permanent hearing damage. As a guide, if you cannot hear a normal conversation clearly when you are two metres away from the speaker,

the noise level is likely to be around 85dB(A) or higher. If you cannot hear someone clearly when you are about one metre away, the level is likely to be around 90dB(A) or higher.

Types of hearing damage from repeated exposure to excessive noise are:

- **“Peak” type of noise hearing damage:** The level of noise may be so great that there is a risk of instantaneous and permanent hearing damage, such as when using cartridge operated tools or guns.
- **Temporary hearing loss:** This is most noticeable when starting on a noisy job. Recovery from temporary hearing loss usually takes a few hours, or at most a couple of days if the noise exposure has been severe.
- **Permanent noise-induced hearing loss:** People working in conditions noisy enough to induce temporary hearing loss can expect to suffer permanent damage after about ten years of such exposure. The disorder does *not* generally result in total deafness. The main consequence is the inability to understand speech in normal conditions. Hearing loss cuts its victim off from other people, social interaction becomes more and more of a strain, and family life becomes difficult.
- **Tinnitus:** Is a disturbing “ringing in the ear” which is actually the echo of our own hearing mechanism. Tinnitus usually persists all the time and is especially troublesome at night when it can prevent sleep. In people with normal hearing, it gets drowned out, but as deafness sets in, the echo becomes tormenting.
- **Stress:** High noise levels can result in stress and contribute to cardiovascular, circulatory problems and digestive problems; psychological disturbances and symptoms such as nervousness or sleeplessness; reduced work performance; and can provoke annoyance responses and changes in social behaviour in those inflicted.

Studies on noise exposure among young and adult workers have found that young workers are more susceptible to noise-induced hearing loss than adults. Noise exposure limits set for adults would *not* be adequate for children.⁶⁴

For example, audiometric testing of vocational agricultural students in Wisconsin, USA found that 57 per cent of the students who lived and worked on farms had noise-induced hearing loss, a condition found in only 33 per cent of students who had little or no farm experience.⁶⁵



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2.16 Pesticides and other chemicals in agriculture

The main categories of chemical substances used in agriculture are pesticides, chemical fertilizers, veterinary products and general commodity chemicals.

2.16.1 Pesticides

Pesticides are widely used in agriculture and to control organisms carrying diseases (vectors) and have extensive home, school, amenity and industrial uses. Many leaflets and books talk of fungicides, herbicides, insecticides, and the other classes of pesticides as though they were separate categories of chemicals when, in fact, they are *all* pesticides.⁶⁶ Pesticides are often referred to by other names, such as agrochemicals, crop protection products or plant protection products.

Poisoning and contamination from pesticides is one the main health and safety risks that child labourers face. They can be exposed through opening/handling pesticide containers; diluting, mixing and applying the substances; being contaminated by spray drift when working too close to fields being sprayed; contamination from acting as field markers for aerial spraying; contact with residues on plant leaves or on the soil surface, especially if working barefooted and/or if re-entry periods are ignored (see box 13); and eating and drinking in the field with unwashed, pesticide-contaminated hands.

Pesticide-contaminated water may also be used for drinking, bathing, cooking, or even washing clothes. Furthermore, many of the pesticides used in agriculture in developing countries are banned or severely restricted in industrialized countries.⁶⁷

Health effects of pesticides include:

Acute poisoning from pesticide exposure

Acute poisoning symptoms can range from mild to severe, depending on the pesticide involved and the degree of exposure. Symptoms include skin, eye and lung irritation, breathing difficulties, nausea, vomiting, loss of consciousness, sensory perception problems, heart symptoms, etc. Exposure may be fatal, though generally those poisoned will recover following medical treatment and recuperation.

Long-term, chronic health effects

A number of delayed health problems have been associated with pesticides. Chronic harm from pesticides should not be underestimated because it is often not visible or obvious, especially when health problems, resulting from childhood exposure may only become evident in later life. Chronic health damage cannot be reversed and its effects include:

- **Reproduction:** Certain pesticides have been linked to reproductive problems such as birth defects, spontaneous abortions, stillbirths, lower birth weights and early neonatal deaths.
- **Cancers:** Cancers in children including leukaemia, sarcomas, lymphoma and brain cancer have been associated with parents or homes that have been exposed to pesticides.⁶⁸ People may face an increased risk of developing cancer during their lifetime if they have been exposed to cancer-causing substances (carcinogens) in their childhood.⁶⁹
- **Neuro-toxicological and neuro-behavioural effects:** Impaired development of the nervous system can cause lowered intelligence and behavioural abnormalities. However, there is a lack of studies on neuro-behavioural effects.
- **Immunological effects:** A weakened immune system, particularly in growing children, exacerbates the risk of infectious disease and cancer, thus increasing mortality rates.⁷⁰
- **Endocrine disruption:** The endocrine system and the hormones it generates and controls is critical to healthy growth and development, especially sexual differentiation, in humans and animals. Many currently used pesticides are now known to disrupt hormonal function in animals. At very low concentrations, these pesticides are able to mimic or block hormones or trigger inappropriate hormonal activity. As the endocrine system is nearly identical in animals and humans, there is a growing concern that exposure to pesticides may permanently alter normal growth and development of the foetus and the child.

Other chronic health effects may include chronic dermatitis, fatigue, headaches, sleep disturbances, anxiety, memory problems, blood disorders, abnormalities in liver and kidney function, and mutagenic effects.⁷¹

Limitations of epidemiological studies and lack of adequate risk assessment for chronic effects of pesticides make it difficult to provide total proof of negative health impacts in humans. Given the levels of scientific uncertainty and the high economic and social costs of chronic ill health, implementing a more precautionary approach on pesticide hazards and risks is urgently needed, particularly for the protection of children.⁷²

Box 13: Pesticide field re-entry intervals and children

In the USA, re-entry intervals for pesticides, which stipulate how long farmers/growers must wait after pesticide application before allowing workers back into sprayed/treated fields, are calculated based on a theoretical 68 kg male. In the USA, children as young as 10 can legally work in fields (though no one under the age of 16 must work with hazardous substances). Children, who weigh much less and have a greater skin surface area relative to their size, are likely not adequately protected by current US re-entry intervals.

¹National Research Council of the Institute of Medicine: *Protecting Youth at Work: Health, Safety, and Development of Working Children and Adolescents in the United States*; (Washington DC, National Academy Press, 1998), p, 2

Pesticide exposure, some examples from recent studies

Ignorance about the seriousness of the dangers posed to children by pesticides and disregard for regulations cause millions of children working in agriculture to be exposed to harmful chemicals. While a particular problem in developing countries, neglect in application and handling pesticides is also a problem of developed countries.

- An IPEC assessment of coffee producers in Costa Rica found that child labourers on both large coffee plantations and family farms were exposed to some of the most toxic categories of pesticide.⁷³
- An IPEC-funded study of plantation tobacco production and child labour in South Sumatra, Indonesia, found that the plantation company carried out aerial spraying with pesticides for all the plots of land looked after by individual workers and their families. The study noted that:

According to many reports from workers and residents in the area, workers are not notified of when the spraying will be done so they have no opportunity to move away and therefore they often get sprayed in the fields along with the plants. This results in sore eyes and respiratory problems causing hot and stinging sensations, as well as runny noses.⁷⁴
- According to a Human Rights Watch report on banana production in Ecuador, nearly 600,000 children work in the rural sector many of them in banana fields and packing plants. Children, 8 to 13 years old, work in the plantations for up to 12 hours a day. The report found that some 90 per cent of the children were working whilst toxic fungicides were aerially sprayed (i.e. they were not removed from the danger zones), and in the packing plants children also applied fungicides to bananas being prepared for export.⁷⁵

- According to an FAO study, 48 per cent of Cambodian farmers surveyed in 2000 said they allowed children to apply pesticides.⁷⁶
- A survey of the health effects of pesticide exposure in 1993⁷⁷ of 50 farm-worker children in New York State, USA found that:
 - 10 per cent of children under 18 reported mixing or applying pesticides (legally, no one under the age of 16 must work with hazardous substances);
 - 33 per cent of the children had been injured at work within the past year;
 - more than 40 per cent worked in fields still wet with pesticides;
 - 40 per cent had been sprayed either by crop-dusters or by drift; and
 - 15 per cent reported having experienced health symptoms consistent with organophosphate poisoning, but few had sought medical care for the symptoms.
- A study by the NGO Greenpeace of evidence of chronic health effects on children in cotton growing areas in India included cases of arrested development, decreased stamina, under-developed hand-eye coordination, poor memory and deficient drawing skills.⁷⁸

2.16.2 Fertilizers

Dry chemical fertilizer, which is hygroscopic and attracts moisture, can draw out moisture from the skin and cause burns. There are many instances of child labourers applying chemical fertilizers with their bare hands or with spoons. Dry fertilizer can also cause irritation of the mouth, nose and eyes. Liquid fertilizers also need careful handling as these are in a highly concentrated form. Fire is a risk with all types of fertilizers with toxic fumes being released.⁷⁹

2.16.3 Veterinary products

Veterinary products, often termed “animal medicines”, range in fact from powerful drugs to sheep dips, which are in reality pesticides. The term “medicine” can be misleading. Equipment associated with administration of veterinary products includes syringes and needles, dosing guns, flutter valves, tail and ear tags, etc. Safe storage of veterinary products, proper training in their use and maintenance of equipment is needed to minimise risks.⁸⁰

2.16.4 Commodity chemicals

Commodity chemicals often come in bulk containers and contain caustic or corrosive materials. Chemicals in this category include powerful disinfectants for use in livestock production, acids for straw

and silage treatment, and acids and solvents used for cleaning glass, machinery, etc. Fumes released when mixing products can be a particular hazard, especially if they are being used in confined or enclosed spaces.⁸¹

2.17 Poor sanitation and hygiene

A lack of clean drinking water, hand washing facilities, and toilets, especially when working in the fields, presents another hazard to agricultural workers. Both adult and child labourers are at high risk of infectious diseases, dermatitis, urinary tract infections, respiratory illnesses, eye disease, and other illnesses, and the spread of parasites is also encouraged. In addition, because there is a lack of day-care services for children in rural areas, parents often bring their infants and young children with them to the fields and they too are exposed to poor sanitation and hygiene.⁸² Lack of washed, clean clothing is often also an important problem.

2.18 Psychosocial hazards: stress and violence

Child labour damages children's mental health. Because of their premature incorporation into the workforce, children often have to perform tasks that are unsuited to their physical and mental abilities and needs. Working children are more vulnerable than adult workers because of a combination of psychological and social reasons. Some children at work are under psychological stress. The motivation for them to start working and to retain the job is to contribute to the financial support of the family, which is a heavy responsibility at an early age. Children react differently from adults when exposed to similar hazards. For example, child workers may prefer to face a challenge rather than be considered weak by other children, and may therefore attempt tasks that present greater risks.⁸³

2.18.1 Stress

Stress is not easy to define. Stress involves arousal in response to perceived environmental pressures, measurable at a physiological level, for example in changes in hormone levels, notably the secretion of cortisol. Stress is not just another word for anxiety: it also implies a range of behavioural changes.⁸⁴

Coping with stress is part of everyday life – for children as well as adults. Indeed, children often seek out moderate levels of stress, especially in adventurous play, although there are marked individual differences in vulnerability and reaction to stress, notably linked to gender.⁸⁵

Unhealthy levels of stress at work (and in the family) may lead to a number of disorders and illnesses including chronic fatigue, depressions, insomnia, anxiety, migraines, headaches, emotional problems, and allergies. It can result in abuse of alcohol, drugs and tobacco. Stress can also contribute to hypertension, heart and

cerebrovascular disease, as well as to peptic ulcers, inflammatory bowel diseases and musculoskeletal problems. It may also alter immune functions, which can in turn facilitate the development of cancer.⁸⁶

Stress and anxiety are frequently linked to low self-esteem, low self-efficacy and feelings of helplessness.

2.18.2 Violence and harassment

Violence is a workplace risk, and the prevention and control of violence are workplace issues. However, defining what is meant by violence at work is difficult. As an ILO report on violence notes:

The variety of behaviours which may be covered under the general rubric of violence is so large, the border line with acceptable behaviours is often so vague, and the perception in different contexts and cultures of what constitutes violence is so diverse, that it becomes a significant challenge to both describe and define the phenomenon.⁸⁷

The term “violence” is used here in its broadest sense to include all forms of aggressive or abusive behaviour that may cause physical or psychological harm or discomfort to its victims, whether they may be the intentional targets or innocent bystanders involved only impersonally or incidentally.⁸⁸

Child labourers face violence at work, including physical, mental and sexual harassment. Violence can include systematic harassment by managers and supervisors, harsh supervision, being ganged up on by fellow workers and violence against workers by clients and members of the public. Sexual harassment is unwelcome conduct of a sexual nature that detrimentally affects the individual concerned and the work environment.



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2.19 Strenuous labour, heavy loads and musculoskeletal disorders

Agricultural labour involves strenuous, heavy, often monotonous work. Human effort provides more than 70 per cent of the energy required for crop production tasks in developing countries. The carrying of excessive and/or awkward loads, repetitive and forceful actions, bending, stooping, and the adoption of awkward and uncomfortable postures can cause numerous but largely unreported musculoskeletal disorders.⁸⁹

Musculoskeletal disorders include a group of conditions that involve the nerves, tendons, muscles, and supporting structures, such as intervertebral discs. They represent a wide range of disorders, which can differ in severity from mild periodic symptoms to severe chronic and debilitating conditions. Examples include: sprains and strains; carpal tunnel syndrome; tenosynovitis; tension neck syndrome; swelling of the wrist, forearm, elbow and shoulder; lower back pain; hernia; arthritis; and sciatica.⁹⁰

Manual handling includes lifting, putting down, pushing, pulling, carrying, moving or supporting a load by hand or bodily force. It is not just the weight of the load that can cause injury – the size, shape, available grip, the way that the load is carried, where and how often it has to be carried can also play roles. Workers may suffer from musculoskeletal problems such as aches, strains and sprains as a result of manual handling. These can also be caused by other tasks which involve repetitive movements, force, unusual postures, prolonged pressure on joints and badly organized work practices or environment. There is strong evidence that various disorders of the neck, elbow, hand and wrist, and back are related to factors in the workplace.⁹¹

Approximately 15 to 20 per cent of an individual's height is acquired between the ages of 10 and 20 years. About half that growth occurs during a two-year period that includes the phase of most rapid growth, the peak height velocity.⁹² During this period of rapid growth, adolescents are at particularly high risk of injury to ligaments and to bone growth plates (epiphyses).⁹³

Heavy work at an early age has direct consequences on a child's physical and mental development. Physically, children are not suited to long hours of strenuous and monotonous work. Child agricultural labourers are particularly at risk for musculoskeletal damage as their bones and joints are developing. Their bodies suffer the effects of fatigue because they expend energy faster than adults. Most of these children also suffer from malnutrition, which lowers their resistance and makes them more vulnerable to illnesses (see box 14). The prevalence of anaemia, poor nutrition and long hours of work further reduces children's working capacity, and fatigue contributes to the frequency and severity of accidents and diseases.⁹⁴

Examples of children exposed to this type of hazard are plentiful. An IPEC study of tea estates in Lushoto and Rungwe districts of Tanzania found that 13-year-olds carried up to 20 kilograms of green tea leaves, and 14-year-olds up to 30 kilograms, from the fields to the weighing stations, often for distances between 1 and 4 kilometres.⁹⁵ Another IPEC study of tobacco growing in Iringa and Urambo districts, Tanzania, found that carrying water for the seedbeds in Urambo district often involved children walking 5 to 10 kilometres.⁹⁶

Such work may result in physical disability or impairment in later life. Back strains represent a fairly high proportion of the work-related strains affecting children. Inasmuch as back pain is rare among children and adolescents, and the history of back pain has been identified as a risk factor for new back injuries, the long-term consequences of back strains among adolescent workers are of substantial concern.⁹⁷

Box 14: Muscular strength and age

Based on attributing a value of 100 per cent to the muscular strength of a young male adult of 25 years of age, the development of the muscular system may be described as follows

- Age 10: 40 per cent in both girls and boys
- Age 14: 60 per cent in boys, 50 per cent in girls
- Age 18: 90 per cent in boys, 60 per cent in girls (in whom any subsequent increase will not exceed a few per cent)

It is generally considered that in order to preclude the appearance of symptoms of fatigue, repeated efforts exceeding 15 per cent of the maximum capacity should be avoided. Thus, in order to operate a lever by flexion of the forearm and upper arm (maximum capacity about 30 kg in adults), an adult should not have to exert a force of more than 4.5 kg, whereas in the same conditions the effort required of a 14-year-old child should not exceed 2.7 kg.¹

¹S. Forssman, and G.H. Coppée: *Occupational Health Problems of Young Workers*, OSH Series (Geneva, ILO 1973), No. 26, 1973

2.20 Substandard housing

Because many agricultural workers live where they work, their lives and occupations are inseparable. There is a close link between housing, worker well-being and productivity.

Housing of agricultural workers is often characterized by inadequate and overcrowded installations, no heating, poor ventilation, deficient sanitary facilities and non-potable drinking water, which enhance the spread of communicable diseases such as upper respiratory tract infections, influenza and tuberculosis.⁹⁸ Living conditions on many farms, plantations and labour camps remain inhuman, with workers living in tents, makeshift plastic huts/shacks or hostels for long periods. In some cases there may be no housing provided at all. Poor housing may also be a factor in contributing to the spread of HIV/AIDS.

Housing on plantations in Kenya illustrates some of the problems. By law, companies have to provide housing for permanent staff. An ILO visit found that housing facilities on a number of plantations were in need of repairs and upgrading to improve the living standards of workers.⁹⁹ Some older houses simply needed to be replaced. On several estates, workers were housed in rows of brick-built quarters with shared toilet facilities and water points, whereas in others, grass-thatched mud houses were still common. Workers complained of poor or non-existent sanitation made worse by the congestion in the living quarters. In the lower-grade housing estates, several families shared a single pit latrine, while drainage systems were non-existent in a majority of the cases. In some instances, employees had to draw water from nearby rivers and streams due to the absence of piped water. Cases of waterborne diseases were cited frequently among the workers living in such situations.

2.21 Venomous/wild animals

In many parts of the world, in rural areas, there is constant danger from insects, reptiles and other animals. Hazards include being bitten by snakes or stung by spiders, scorpions, centipedes, hornets, wasps, bees, mites (acarids), and mosquitoes.¹⁰⁰ In addition, child workers in tropical and sub-tropical areas, working in crops such as tobacco, are often exposed to bloodsucking creatures like leeches.¹⁰¹

Chapter 3:

What stakeholders can do to eliminate hazardous child labour in agriculture

Hazardous child labour is one of the worst forms of child labour scheduled for immediate action and prohibition. To achieve this aim in agriculture will require comprehensive, targeted and coordinated efforts by the stakeholders involved. It will require innovative thinking and ideas, a wide variety of strategies, capacity building, improved networking, and the forming of alliances and partnerships as appropriate. Social mobilization is instrumental in building a strong social foundation for the eradication of the worst forms of child labour. It aims to create a broad alliance of organizations that works towards changing social norms or values related to child labour, increasing awareness about its causes and consequences and ensuring that the opinions of communities directly affected by child labour are heard by policy-makers.¹⁰²

This chapter presents some strategies, ideas and suggestions for tackling hazardous child labour by stakeholders which have been compiled from a variety of sources. Examples of initiatives which apply some of these strategies and suggestions are provided in Guidebook 4: Initiatives to *tackle hazardous child labour in agriculture*.

3.1 Strategies to eliminate hazardous child labour

Eliminating hazardous child labour in agriculture is a complex task that, involves both downstream direct action (withdrawal and rehabilitation) and upstream government policies aimed at promoting adult employment, raising incomes and improving living standards and access to quality education. For this reason, the ILO seeks to strategically position child labour issues at the macro-level in socio-economic, development and poverty reduction strategies of the countries to encourage mainstreaming and integration of child labour issues and concerns. In doing so, the ILO, through IPEC, emphasizes the need for assessing and monitoring the extent and nature of the problem, the strengthening of institutional capacities and the provision of assistance for the development and implementation of national policies. It also seeks to expand and improve institutional mechanisms for education and law enforcement. IPEC's work and cooperative/partnership efforts to eliminate child labour, and particularly hazardous child labour in agriculture, are based on the following hierarchy of strategies: prevention, withdrawal and protection. These are described briefly below. How these strategies are implemented is covered in detail in other IPEC publications, particularly IPEC's *Time-bound programme manual for action planning*, which is available electronically.¹⁰³

3.1.1 Prevention

Prevention is the primary long-term aim. It is based on identifying children at potential risk, keeping them out of hazardous work and stopping them from beginning to work in the first place. Investment in the prevention of child labour is the most cost-effective approach in the long run.

Systems of prevention need to be carefully designed by the state or non-state agencies. Families need income security and social benefits, such as health insurance, in order to survive short and long-term crises. Parents must be able to see investment in schooling as a viable option for their children. Micro-insurance schemes organized by civil society groups at the local level can be linked into larger structures, such as banks and credit schemes. Governments can help by providing start-up funds, matching workers' contributions and developing supportive laws. Self-help groups can provide assistance through cooperatives, mutual benefit societies and so on, which are usually financed by beneficiary contributions. The educational system also plays a critical role in preventive policies and actions by ensuring places in schools, adequate numbers of trained teachers and good standards of education.

3.1.2 Withdrawal

Withdrawal (and rehabilitation) of children already carrying out hazardous work is another central strategy. This involves:

- identifying those children in hazardous work;
- removing them from workplaces; and
- getting them into school and/or skills training.

Children in the worst forms of child labour need urgent action for rescue and rehabilitation. Measures used to withdraw children from hazardous work include:

- persuasion, through dialogue with parents, children, employers or law enforcement authorities; and
- rapid response measures (including rescue operations).¹⁰⁴

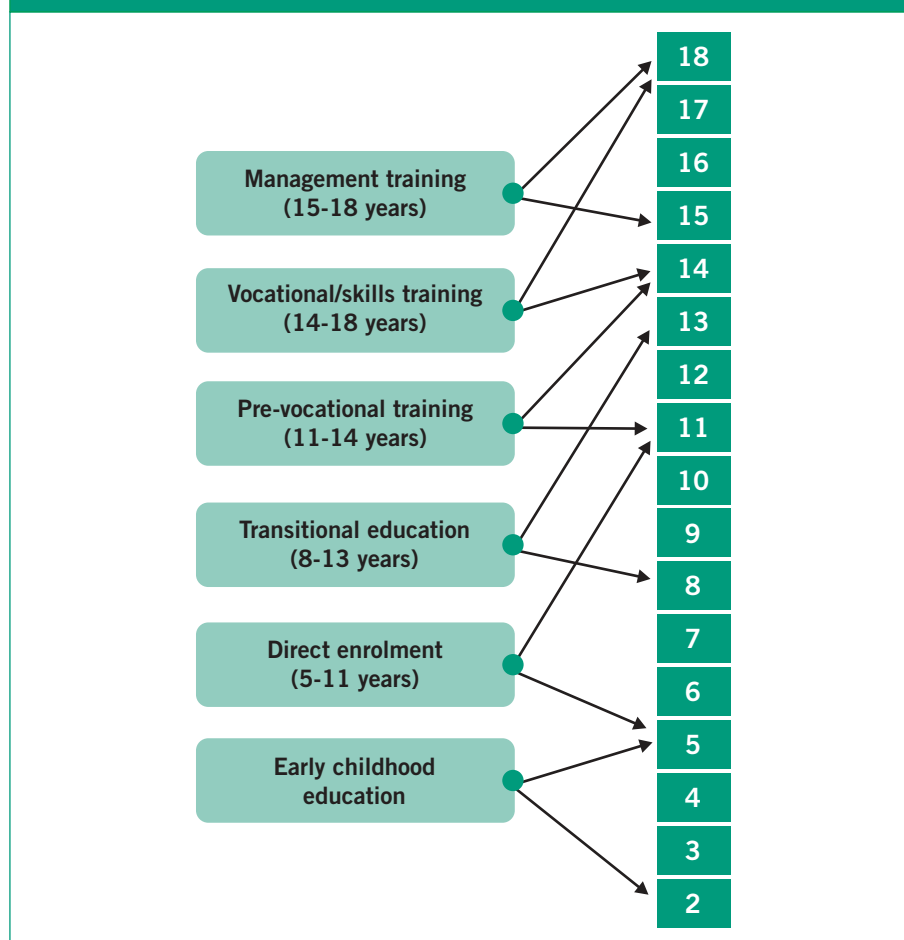
Experience shows that community-based, integrated solutions tailored to the specific needs of each target group, with close community participation are the most effective. Alongside rapid response action to rescue child victims of the worst forms of child labour, a holistic approach is needed that attacks underlying family poverty through long-term solutions, including access to land, housing and economic opportunities.

There is also a need to match interventions to the age of the child removed. There should always be a strong link between transitional education programmes (rehabilitation programmes) and the formal education system, since basic education will ensure opportunities for further education and employment. Forging close links between interventions with the aim of rehabilitating existing child labourers

and those that aim to prevent children from being drawn into child labour is central to IPEC's education strategy.¹⁰⁵

Educational interventions for children removed from hazardous work are related to the approximate age of the child and depend on the level of her/his literacy and psychosocial development, as well as the age brackets defined by the child labour conventions. IPEC's work in this area has shown that transitional education in isolation has not necessarily ensured opportunities for further education or employment for former working children, which is why swift reintegration into formal schools or vocational training is vital.

Diagram 1: Combatting child labour through education



Unemployment and underemployment of adults in rural areas are major causes of poverty among waged agricultural workers and are regular and significant features of their lives. Child labourers' jobs should be given to their adult relatives so the family as a whole does not suffer. As ILO tripartite meeting report on agriculture noted:

If full employment is assumed to be 260 days per year (52 five-day weeks, excluding leave and holidays), waged agricultural workers typically find employment for 175 days and are available for work (i.e. unemployed) for 85, with little income to sustain them between seasons...These large pools of unemployed or underemployed labour keep down wages locally.¹⁰⁶

Withdrawal in the context of family farms has a special meaning, in that whilst the children are withdrawn from dangerous work situations, they continue of course to live on the farm as it is their home.

3.1.3 Protection

Protection is based upon the reality that many children remain in the workplace in the short term whilst prevention and withdrawal strategies are pursued or because they have achieved the current minimum working age in their country (14-17 years, depending on national legislation).

These children remain at risk. So, there is a need to protect them whilst at work by improving occupational safety and health (OSH) and working conditions and arrangements in the workplace. The basis for improving OSH standards and protection is by strengthening risk management, of which risk assessment is a key part in the agricultural undertaking (see box 15).

Box 15: Carrying out a risk assessment at the enterprise level

A workplace risk assessment is carried out by an employer, ideally in cooperation with the workforce. It is a three-step process:

Step 1. The **hazard** is identified. An employer should look around the workplace and see how people work; learn from experience of previous accidents and work-related ill health; ask workers on the farm or plantation for their views; and think about the potential for harm from each work activity involving machinery, tools, transport, chemicals, dusts, disease, processes, etc.

Step 2 The employer evaluates the **risks** arising from the hazards identified: who may be harmed, how, and whether the risks from each hazard are prevented or controlled. Child labourers on farms or plantations are potentially at great risk.

Step 3. The employer (i) works out the **risk prevention and control (protective) measures** needed to avoid or minimize the risk of accidents and/or ill health to workers; and (ii) puts them into place/operation in the following strict order:

a) **Risk Prevention** through elimination of the risk(s) is the optimal solution.

If the risk cannot be prevented, then the employer should proceed to Step 3 b to manage/reduce the risk(s) through:

b) **Risk Control** (protective) measures, implementing them in the following strict order:

Step 3.b.1 Engineering away the hazards using technology

Step 3.b.2 Putting in place of safe work systems/practices

Step 3.b.3 Provision of appropriate information and training

Step 3.b.4 Providing health checking/surveillance (where appropriate)

Step 3.b.5 In so far as the risk remains, providing and ensuring use of personal protective equipment (which includes clothing) at no cost to the worker.

Example: a toxic chemical pesticide

Risk Prevention: toxic chemical pesticide use is eliminated by (i) using organic farming methods or (ii) applying a bio-pesticide as a safer substitute for the chemical substance

c) If the assessment decides that chemical pesticide use is necessary, then risk control (protective) measures should be decided upon and implemented, in the following order:

- Step 3.b.1 Lowering the risk to the operator by *technical/engineering controls*, e.g. using a sealed mixing and filling system to fill the spray tank.
- Step 3.b.2 Also putting in place *safe work systems/practices*, e.g. proper supervision; spray warning notices; keeping other workers well away from spraying operations; observing re-entry periods to treated fields.
- Step 3.b.3 Also providing *appropriate information*, e.g. labels, pesticide safety data sheets; *specialised training* for the spray operator; and *general training* for other workers at risk of exposure to the pesticide
- Step 3.b.4 Health surveillance (if appropriate) e.g. when using organophosphate pesticides
- Step 3.b.5 In so far as the risk remains, provision and use of personal protective equipment (which includes clothing) at no cost to the worker.

Note: It may not necessary to use all the control measures to manage a particular risk. If, for example, steps 3.b.1, 3.b.2 and 3.b.3 have been successfully implemented, then PPE should not be needed.

Source: ILO: *Guidelines on occupational safety and health systems* (Geneva, 2001).

3.2 How stakeholders can contribute to the elimination of hazardous child labour in agriculture

3.2.1 Children

Children are important stakeholders in programmes and activities to tackle hazardous child labour in agriculture as it is their safety and health – now and in the future – which is at stake. They have a key role to play in this respect. They have both a need and a right to be protected from harm at work whether they are working on their own family farm or on other type of agriculture enterprises.

Everyone under 18 years of age has the right to be protected from hazardous work, including excessive work hours and unsafe or unhealthy work environments, regardless of the size of the enterprise in which she or he is employed (or working), her or his relationship to the “employer”, or the sector of the economy in which the enterprise operates.¹⁰⁷

Children's participation in designing and implementing and programmes affecting their occupational safety and health and well-being should be fully encouraged.

3.2.2 Young workers

Young workers are children aged 16 to 17 who have the legal right to work, but who should not be carrying out hazardous work (the only exception being for training purposes, on a limited basis, and under strict supervision).

Young workers should be aware they have the right to work in a safe and healthful workplace environment where hazards have identified, risks assessed and risk prevention or control measures put in place. Also, young workers should have the right to refuse dangerous work tasks and conditions. They should be entitled to workers' compensation in the event of work injury or illness.

They should also participate in any training programme(s) offered by their employer.

3.2.3 Parents

Parents have a critical role to play in tackling hazardous child labour. In cases where the parents are farmers whose own children work with them on the farm, they should ensure good occupational safety and health conditions for their children (including those of close relatives working on their farm).

Parents whose children are employed on a farm or plantation should be encouraged to take an active role in employment decisions of their children. This would include an understanding/appreciation of types of hazardous work that their children may undertake or be exposed to. Parents should discuss the types of work involved and the training and supervision offered by the employer. They also evidently have a critical role to play about decisions on education for their children.

3.2.4 Government

Many government policies and programmes impact on child labour in agriculture. These include inter alia specific child labour policies and policies on development, education, labour standards, agriculture, health, etc. All relevant government policies affecting child labour in agriculture should consider the needs of the children involved, and ensure coordination between the different ministries and departments involved.

There is a need for a national policy on child labour (promoting the welfare and sound development of children). Governments should also ensure they ratify and implement ILO Conventions No. 182 and No. 138, including development of a National Plan of Action to eliminate child labour and time-bound measures. As part of implementation of Convention No. 182, they should ban the most hazardous forms of child labour in agriculture – starting with development of a national list of prohibited or severely restricted activities as required under Article 4.

Governments should recognize that the vulnerable, formative and malleable nature of childhood and adolescence requires a higher standard of protection for young workers than that accorded to adult workers. They should also register all births so that all children can be monitored.

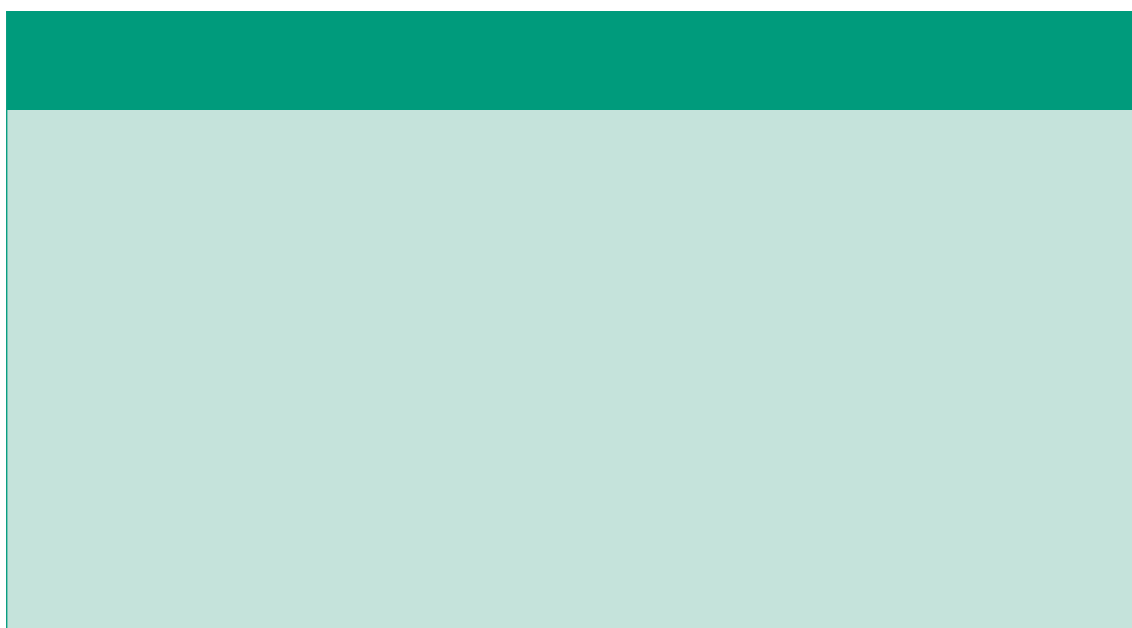
National health and safety policy and programmes in agriculture

Eliminating hazardous child labour must become a central component of national health and safety policies in agriculture and other sectors. The ILO encourages countries to develop national OSH programmes that focus on specific national priorities, such as OSH in agriculture. National OSH programmes in general aim to promote compliance with good standards in practice, and often include a wide range of activities, such as labour inspection, publicity and awareness-raising campaigns, training and educational activities, etc. Combatting hazardous child labour could be one of the key issues to be tackled under such programmes.

National OSH programmes for agriculture should also be a practical way of implementing national policy on safety and health in the sector, as required by the Safety and Health in Agriculture Convention, 2001 (No.184). This policy aims to prevent accidents and injury to health arising out of, linked with, or occurring in the course of work, by eliminating, minimizing or controlling hazards in the agricultural working environment. (see box 16)

Such a programme could deal with the protection of children's safety and health and well-being. Specific elements could include:

- the evaluation of the safety and health status of child labourers working in hazardous conditions, adapted to local needs and conditions;



Agricultural policy (government)

National agricultural policies should include objectives and programmes to eliminate of child labour, especially hazardous child labour. This is particularly important given the promotion of export-orientated, intensive agriculture in many countries. It is also critical that the child labour elements of agricultural policies are coordinated with the child labour policies and programmes of other government programmes and agencies.

Agricultural policies and programmes should also include awareness-raising and training programmes on the elimination of child labour for agricultural extension officers.

3.2.5 Employers

All businesses assume certain obligations when they hire employees. Businesses that employ young workers assume a higher level of social obligation, which should be reflected in the expectations of society as well as in explicit public policy. These obligations include ensuring that they do not employ underage children and that they avoid indirect employment of child labour when using contractors, sub-contractors or outgrowers who might hire or supply child labour.

Specifically, employers should:

- know and comply with child labour laws and occupational safety and health regulations that apply to their businesses, posting these regulations for workers to read;
- identify hazards and assess potential risks for fatal and non-fatal injuries or illnesses associated with tasks performed by young workers (or younger children where legal exemptions exist that allow them to work), taking steps to prevent or control the risks identified;
- inform child labourers of the tasks they are prohibited from doing;
- provide training to ensure that young workers recognize hazards and risks and are trained in safe work place practices;
- provide effective supervision to ensure they use the safe work practices in which they have been trained;
- routinely verify that young workers continue to employ safe workplace practices and provide refresher training as appropriate;
- involve supervisors and experienced workers in developing an injury and illness prevention programme in the workplace/undertaking;
- evaluate and check equipment that young workers are required to operate to ensure that it is both safe and legal for them to use;
- prepare young workers for emergencies; and

- provide training on sexual harassment policy: young workers need to get training on how to deal with problem situations and to understand how psychologically injurious such harassment can be.

Employers could be encouraged to drive policies to ensure that children attend school. Provision of vocational training, including health and safety training for young workers is also important.

At the national level, cross-sectoral employer bodies such as chambers of commerce and national employer organizations should develop policies and programmes to help eliminate child labour in agriculture.¹⁰⁹ This should include participation in national policies and processes to eliminate child labour, including agricultural policies.

3.2.6 Trade unions/ workers' organizations

Trade unions in agriculture have an important role to play in the elimination of child labour in agriculture at the workplace, district, regional, national and even international levels.

The active involvement of trade unions in combating child labour requires a step-by-step approach that could embrace:

- a watchdog role that includes fact-finding at the local and national level and bringing abuses to light;
- establishing sustainable structures like child labour focal points, units, committees, and networks with other organizations;
- developing and updating policies and plans of actions;
- publicizing the various forms of agricultural child labour and those which put children at most risk;
- ensuring collective bargaining agreements include a commitment not to employ/use child labour;
- making sure collective agreements and codes of conduct are being adhered to;
- raising awareness through workers' education and public information activities;
- pressing for enforcement, public education, consumer action, etc.;
- forming alliances with others, both within and outside the labour movement, to press for improved child protection measures and to advocate children's right to education;
- utilizing the supervisory machinery of international instruments, for example, reporting to the ILO Committee of Experts, the Working Group on Contemporary Forms of Slavery, and the United Nations Committee for the Rights of the Child.

In recent years, trade unions in many countries have been able to implement some, if not all of these steps.

In particular, trade unions could support worker health and safety representatives to help eliminate hazardous child labour. Again, this could include providing advice and assistance to other local enterprises employing child labour to help them eliminate such practices. Roving health and safety representative schemes could provide ideas and models for such a development.¹¹⁰

They can actively participate at the national level in government or government-driven policies and programmes, including agricultural policies.¹¹¹ It can be an element in their collective bargaining agreements with employers. Through their workplace representatives and bodies, (in cooperation with employers) unions can play a unique role in the workplace on child labour. Workers can help ensure that no children under the minimum age for employment are hired either directly by the employer or indirectly via contractors/subcontractors. Improving health and safety protection in their workplaces is a central and daily issue for trade unionists and this can include protecting young workers.

Trade unions, through their own training/education programmes, can provide training for young workers so that they recognize hazards and risks and are trained in safe work place practices.

Trade unions can contribute to and use child labour campaigns as a means of attaining core trade union objectives – job promotion, increased wages, improved working conditions, no discrimination of any kind in employment – that can help combat child labour.

3.2.7 Cooperation among workers and employers

Employers and workers in an enterprise could be encouraged to cooperate in the following areas:

- using joint management-worker health and safety committees at the enterprise level to help eliminate hazardous child labour (see Convention No. 184 on safety and health in agriculture, Article 8.1), including providing advice and assistance to other local enterprises employing child labour to help them eliminate such practices; and
- strengthening links with the community and providing advice and assistance to community-based childhood agricultural injury prevention activities - starting with local resources.

3.2.8 Corporations

Transnational corporations in the agri-food industry can exert enormous influence on labour practices on farms and plantations. This includes corporations both supplying products to farmers and those corporations buying the farmers' produce for processing or supply to the consumer.

Transnational corporations can ensure that children's human rights are respected on all directly owned and supplier-operated farms and plantations by adopting effective monitoring systems to verify that labour conditions on these facilities comply with ILO child labour standards and relevant national child labour laws, reporting annually on compliance.

Where the facilities fall short, they can provide the economic and technical assistance necessary to bring them into compliance.

In terms of the supply chain, corporations can be urged to control and monitor their suppliers to ensure child-labour-free products and services. They can include elimination of child labour in agriculture as an objective and activities in their codes on corporate social responsibility.

3.2.9 Agricultural/rural cooperatives

Cooperatives play a significant role in agriculture around the world. More than 50 per cent of global agricultural output is marketed through cooperatives. In addition, a large share of the markets for agricultural commodities is handled by cooperatives.

Agricultural cooperatives could be encouraged to work with the ILO social partners on elimination of child labour in agriculture. Use could also be made of cooperative training facilities and trainers to train cooperative members on elimination of child labour in agriculture.

Other suggestions from the ILO Cooperative Branch include ensuring that cooperative members be sensitized on the child law regulating the minimum age for seasonal agricultural employment. Increased educational opportunities for children should be provided from the farm cooperatives. Besides, training programmes for farmers may in time result in a significant reduction of the safety and health hazards faced by children. Additional measures addressing both the cooperative's employment practices and the underlying economic factors contributing to the children's employment are necessary if children are to enjoy their rights under Convention 182.

3.3 Other key stakeholders

3.3.1 The health sector

In the countryside, health provision is often less comprehensive than in urban areas; there are, for example, fewer health clinics for primary care in rural zones (see box 17). Thus, the health sector in rural areas has an especially key role to play in providing occupational health service support to employers and workers in agriculture.

Box 17: Scarcity of health workers in rural areas

Limited training and low pay for qualified health workers in many developing countries cause severe problems in service delivery, especially in rural areas. In Cameroon, the ratio of health professionals per square kilometre is 1: 400 in urban areas and 1: 4000 in rural locations, requiring people to travel great distances to find health care in rural areas. This kind of imbalance is just as severe in rural areas of Cambodia, where 85 per cent of the population lives, but where only 13 per cent of health workers are based; and in Angola, where 65 per cent of the population live in rural areas but only 15 per cent of health workers, the vast majority of these having opted for better-paid jobs in urban areas.

Source: WHO: *Infectious Diseases Report 2002*;
<http://www.who.int/infectious-disease-report/2002/healthservices.html>

To improve health service provision, guidelines for when to seek medical treatment should be part of health and safety training, not only for young workers but also for employers and supervisors. Furthermore, it would be important to ensure that health policies include awareness-raising and training programmes on elimination of child labour for health workers at all levels.

Paediatricians and their associations could also be encouraged to play more active roles in tackling child labour issues. The following suggestions are based on an adaptation of recommendations from the American Academy of Pediatrics:¹¹²

- Paediatricians need to recognize that many children and adolescents work, and they also need to understand why children should not work. Paediatricians need to become knowledgeable about the industries in their area and about the hazards associated with working in those industries. Industries that engage in illegal employment practices are especially hazardous for children and adolescents.
- When pre-employment physical examinations are performed on children and adolescents for work permits, physicians should inquire about the type of work intended. If the work is in clear violation of the law, or involves toxic or hazardous exposures, the physician should advise against such employment, and even help prevent children from entering hazardous work.
- Traumatic injuries to a child or adolescent may be work-related. Other conditions such as carpal tunnel syndrome or organophosphate pesticide poisoning also may be work-related. A brief occupational history needs to be obtained on every injured child when the cause is not validated. Moreover, a child may be reluctant to reveal that work was the source of the trauma because of fear of losing a job, reprimand, or even deportation. Paediatricians may wish to conduct surveys of medical records of trauma patients in their practice to assess the possible frequency and patterns of work-related injury. Medical records are an important way of assessing the possible frequency and pattern of not only work-related injury but also ill health.

IPEC would encourage paediatric associations to work out how such data – respecting patient confidentiality of course – could be better communicated to relevant bodies with a view to improving the reporting of cases of injury and/or ill health to child workers, as well as indicating trends of injury/ill health, as a basis for improving preventive measures.

Paediatricians are also encouraged to work through their respective national association and the International Paediatrics Association to address the problems associated with child labour, and to serve as advocates for legally working children.

Paediatricians are extraordinarily well positioned to speak out against the abuses of child labour, to urge strengthening of regulation and legislation, and to insist on the need for mandatory occupational health and safety training of children and adolescents who propose to enter the work force.

3.3.2 Education system

Education and development are of primary importance during the formative years of childhood and adolescence. Although work can contribute to these goals, it should never be undertaken in ways that compromise education or development.

It should be ensured that, in keeping with the Millennium Development Goals, ILO Conventions No.138 and No.182 and the UN Convention on the Rights of the Child, all children benefit from free and compulsory education of good quality and relevance up to at least the minimum age for employment. School fees and other associated cost and physical barriers that create obstacles in universal access to education should be removed. Specific preventive education-related measures to eliminate child labour should be introduced, including training of teachers, development of relevant curricula components, pre-vocational education programmes, transitional and non-formal education programmes to help reinsertion into formal education, provision of counselling and other support services and awareness-raising among communities and parents. In addition, special education or skills training programmes should be developed to target children in rural and agricultural areas, especially former child labourers and children at risk.

Agricultural colleges/training institutions could also be encouraged to include elimination of child labour in agriculture into their curricula and teaching programmes.

3.3.3 Research

The lack of specific information on safety and health problems in child workers caused by occupational hazards and risks and the great need for further research, especially epidemiological studies, was noted earlier.

It will be necessary to develop better data to define the extent and the severity of the problem of hazardous child labour in agriculture and its associated fatalities, injuries and illnesses. Also, data produced should be disaggregated by sex and age.

Useful information is, however, available in the areas of occupational safety and health, public health, etc. If brought together, these would permit an assessment of the safety and health risks to most hazardous exposures and activities. For example, a systematic examination in situ, i.e. in the field, of the hazards and risks faced by child workers in specific occupations should provide a good information/policy base for the development of comprehensive preventive and corrective measures.¹¹³

3.3.4 Communities

Community-based childhood agricultural injury prevention activities should be encouraged, starting with local resources.

The development of community-based child labour monitoring schemes to ensure that children are not carrying out hazardous work is another suggestion that has been successful in the past. In the Philippines, for example, Community Child Labour Watch Committees are composed by community leaders, teachers, health promoters, representatives from the families concerned and sometimes with children or adolescents withdrawn from work. They carry out monitoring visits to plantations, families, schools, and health posts. These visits are conducted on a regular basis in conjunction with official visits by labour inspectors.

3.3.5 Non-governmental organizations (NGOs)

Local, national and international NGOs should be urged to include tackling hazardous child labour in their awareness raising activities, programmes, projects and campaigns. They should consider how to provide training for their own staff on occupational health and safety and hazardous child labour so that they are better informed when dealing with workplace hazards and risks.

NGOs could also explore how they can link up with government health and safety experts/institutions to provide backing for their work on workplace hazards and risks and elimination of hazardous child labour. They could potentially play an intermediary role between government health and safety experts/institutions and local entrepreneurs and the local community on health and safety issues.

3.3.6 International agencies and institutions

International bodies, and especially intergovernmental agencies, have both the right and the duty to support national and local activities and initiatives to eliminate hazardous child labour in agriculture.

Mechanisms ought to be developed to provide better focus and coordination of international efforts.

One element of this would be for international agricultural organizations to focus some activities on child labour. Several major international agricultural bodies have contributed to Guidebook 4, *Initiatives to tackle hazardous child labour in agriculture*. (see Chapter 6) in order to stimulate discussion in this area.

Another element would be to ensure that elimination of child labour is firmly incorporated in policies, programmes and activities on sustainable development. Linking in more closely especially with the United Nations Commission on Sustainable Development and its work on promoting Agenda 21 both globally and locally.

3.3.7 Media

In many countries, working through the media, notably television and radio, has been very successful in reaching younger workers and influencing their attitudes towards occupational safety and health. Governments, employers, trade unions and others have run campaigns, often in cooperation with schools and other partners that enlisted the media to broadcast their messages. This has been very helpful in increasing children's and young people's awareness of work-related hazards and how to avoid them. More use of imaginative and innovative ways of getting important safety and health messages across to child labourers is to be encouraged.¹¹⁴

Appendix 1: Hazardous child labour in cocoa production in Cameroon and Ghana

The following tables (A1 through A3) illustrate the specific hazards and risks faced by child workers in cocoa production. Tables A3 – A5 describe some of the injuries and diseases children in cocoa production suffer as well as the effects of this work their development, growth and future well-being. This information was collected by specialists working on the IPEC West Africa Cocoa Agriculture Project (WACAP).¹

Table A1: Child labourers' farm activities and possible hazards

Activities	Role of children	Dangers/Hazards	Protective Measures in place	Suggested Protective Measures
(i) Clearing of land/felling of trees	Cutting of trees, burning	Cutlass (machete) cuts, lack of boots, snakebites, burns, trapping by falling trees, cuts may result in tetanus, and thorn pricks.		Introduction of new methods of land clearing, protective clothing, Wellington boots
(ii) Preparation of seedlings	Transport seedlings to farm through head portage	Carrying heavy loads over long distance, fungal infection.		Use of power tillers to cart load
(iii) Planting of cocoa seedlings	Use earth chisel for planting	Cuts from chisel, worm infestation, thorn pricks.		Wear Wellington boots
(iv) Weeding of farm	Weeding	Cutlass cuts on legs and hands, insect and snake bites, cuts may result in tetanus		Wear Wellington boots
(v) Fertilizer application	Carrying, spreading of fertilizer	Corrosion of hands, Chemical burns, Allergic reactions.		Wear hand gloves, training on fertilizer application, sensitization
(vi) Spraying with pesticides	Fetch water and assist in mixing pesticides	Poisoning, long term health effects		Use trained spraying gangs. With proper personal protective equipment
(vii) Harvesting of pods	Plucking pods, gathering pods	Eye and head injuries from falling, insect and snake bites, exhaustion, cuts may result in tetanus		Should be avoided by children, wear gloves, use less sharp tools
(viii) Breaking of pods/ fermentation	Breaking pods, fermentation	Lacerations, cuts on hands		Children should be excluded, use leather gloves



¹Sources: IPEC: *Health and safety risks of children involved in cocoa farming in Ghana*. West Africa Cocoa Agriculture Project (WACAP) (Geneva, ILO, draft report 2005), pp. 30-34; and IPEC: *Cameroon: Etude sur la santé et la sécurité au travail dans le secteur agricole: Identification et détermination des risques du travail des enfants dans les plantations de cacao et l'agriculture commerciale*, WACAP project (Geneva, ILO Draft report 2005), French only.

Activities	Role of children	Dangers/Hazards	Protective Measures in place	Suggested Protective Measures
(ix) Carting of beans for drying	Carrying on head	Neck and backbone ailments, exhaustion, deformities impairment of normal physical development		Reduce weight of load
(x) Drying of beans	Spreading beans, stirring	Pricks from palm fronds		Wear hand gloves, use rake for spreading
(xi) Bagging of beans	Collect beans in to bags, sealing bags	Inhale dust, eye injuries, allergies from dust.		Use sunshade, respirators
(xii) Carting of beans for sale	Carrying load on head, walking long distances	Neck and backbone ailments, deformities, exhaustion, tiredness		Reduce weight of loads

Table A2: Other risks

Risk	Explanation
Violence	Occurs in instances where children are unable to execute task assigned to them as expected, refuse to participate in farm work or complain about inadequate remuneration for work done.
Sexual abuse	Especially for girls aged 15 yrs+ out in the field with men
Commercial sex workers (CSW)	CSW's invade cocoa growing areas with the view to taking advantage of the cocoa harvest season. Child workers on cocoa farms are lured by these CSW's resulting in sexually transmitted infections being spread among them.
Indulgence in drugs	Children on cocoa farms in several instances live under the illusion that drugs like (cannabis) have the potential to enhance their capacity to work.
Children caught by traps set for game	Unsuspecting children on cocoa farms fall prey to traps under cocoa and other fruit trees set for game. In the process children suffer injuries to their lower limbs and other parts of their bodies. Tetanus infections can set in. Physical deformities may occur from this. A pupil who was still nursing wounds from one of such traps showed the research team a trap into which he fell at "Kwanfinfin" in the Atwima District of the Ashanti Region.
Deprivation from food and adequate nutrition	Deprivation from food occurs in instances where children are unable to execute tasks assigned to them as expected or refuse to participate in farm work. It was also mentioned that not enough attention is given to the right nutrition of these children. This leads to malnutrition in several instances.

Table A3: Cameroon Cocoa Farming: Percentage of workers carrying loads on the back weighing between 5 and 30 kilograms

Weight of load	Percentage of workers carrying different loads	
	Adults	Children
5 kgs	8.2%	20.24%
5-15 kgs	19.5%	26.19%
16-30 kgs	45.7%	35.71%
30kg and over	26.6%	17.86%

Based on an IPEC study of 600 child and adult workers in cocoa production came up with the following data on the carrying of heavy loads:



Victim of trap set for game (Beside him is the trap which caught his ankle)

Table A4: Injuries suffered by children in the course of cocoa farm work

Injuries	Description
Pricks	This occurs from thorns, sticks and sharp tree stumps coming into contact with various parts of children's bodies. Injuries to the foot are facilitated by the fact that a good number of them work barefooted.
Cuts or Lacerations	Occurs from the use of cutlasses/machetes when weeding and when loosely attached "go-to-hell" for plucking cocoa pods fall. They also occur from thorn pricks, falls on sticks and twigs.
Scars on scalp	Following cuts from falling
Neck pain, back bone pain, spinal deformities	These occur as a result of carrying heavy loads or loads with weights beyond the physical capabilities of the children.
Eye injuries	Insects, flies, tree bark and particle from pods fall on eyes.
Exhaustion	From long hours of working, carrying loads and walking over long distances.

²Adapted from: Quesada Lino, J.E. and Vargas Aguilar, A.: *El Salvador: Trabajo infantil en la caña de azúcar - Una Evaluación Rápida*. (Geneva, ILO, 2002) cited in *Child labour: A textbook for university students* (Geneva, ILO 2004), p. 71.

Table A5: Diseases suffered by children as a result of cocoa farm work

Disease	Explanation
Malaria	Bites from mosquitoes on farms and in poorly protected homes
Typhoid fever	Drinking contaminated water and eating infected food on farm and at home
Diarrhoea	Drinking and eating contaminated water and food from unsafe water sources
Skin rashes	Improper hygiene practices like not bathing regularly, working in damp surroundings.
Anaemia	Little or no attention is given to the nutritional requirements of child labourers. Foods are carbohydrate based with little protein. This situation was found to be a community wide problem that is not only peculiar to child labourers.
Respiratory problems	Poor housing conditions and use of fuel.
Buruli Ulcer	Improper hygiene practices and filthy surroundings
Tetanus	This occurs with wounds resulting from cuts getting infected when the children are not sent for medical treatment. Some of the children may die in the process.
Water related diseases e.g., guinea worm, bilharzia, diarrhoea	Occurs from drinking/bathing contaminated water from sources like streams, rivers, dug-outs commonly used on the farm.

Ghana. Measures In Place To Protect Children From Risks

Respondents indicated that there were virtually no measures in place to protect the children who work on cocoa farms from risks mentioned above. Some amount of orientation and advice on various activities was however provided to them.

Concerning how cocoa farm work affects the development, growth and future well-being of children who do farm work at tender ages, a host of views and experiences were shared as summarised below.

Table A6: Cocoa farm work and effects on development, growth and future well-being of children

Effects on children	Explanation
Low intelligent quotient of children	This occurs among these children as a result of poor nutrition. Meals are carbohydrate dominated.
Poor outlook to life	The psychology of not attending school at all or effectively torments these children when they meet their peers. Their perceptions and aspirations in life remain dominated by traditional farm work.
Poor performance at exams and high school drop-out rate	These children loose important lessons at school that affect them during examinations since they have to skip classes to work on the cocoa farms.
Social misfit and deviant behaviour	Deviant behaviour and engaging in social vices is rife among these children whose future is seriously threatened. The quest to achieve their dreams in life and the reality that they don't possess what it takes to achieve these dreams often leads to frustration and some may turn to social vices (criminality – armed robbery, fraud, drug pushing, money laundering) in order to survive. One respondent cited the case of some deviants in parts of the Kumasi metropolis who have arrogated to themselves names like “Taleban” and “Al Qaeda” and go about terrorising people in various parts of the city.
Poor health and physical development	Inadequate attention to food and nutrition is a common feature in communities where these children work. Malnutrition is thus a direct outcome that contributes to their poor health status and physical development – stunting is common. Availability and low access to health facilities adds to the woes of the children. Unorthodox sources of health care have been sought in some instances.
Low future employment opportunities, low income earning ability and poor living standards	These children hardly attain ideals of basic education and this affects their chances of acquiring further schooling and skills development. Their chances of employment are thus low. They tend to obtain jobs in the low-income brackets. Their standards of living are therefore low - a vicious cycle thus persists for the rest of their lives.
Less emphasis on education	Benefits from farming are rather immediate compared to education which involves many years in school. Once these children are being used on the farms to achieve economic benefits, less emphasis is given to their education.
Physical disabilities and impairment	The injuries and diseases suffered by these children have in some instances led to physical disabilities and impaired growth.
Drug addiction	Small beginnings and trials for the purpose of enhancing working capabilities lead to over indulgence and these children may become drug addicts

Appendix 2:

Hazardous child work in sugar cane production in El Salvador²

According to studies carried out by the Salvadorian Sugar Foundation (Fundación Salvadoreña del Azúcar de El Salvador, FUNDAZUCAR) and by Radda Barnen, a Norwegian NGO, 47.1 per cent of the 233,700 boys and 185,000 girls who worked in 1999 were employed in the agricultural sector. The data compiled for this assessment indicate that an estimated 5,000 boys and girls participate directly in the sugar cane harvest, or *zafra*. According to the sugar cane producers interviewed, children account for between 27 and 30 of every 100 workers in a team, or *cuadrilla*. It is believed that some 25,000 children are indirectly involved in sugar cane cultivation, most often accompanying their parents or relatives and helping them carry out the various tasks related to harvesting.

Characteristics of the sugar-producing sector

Sugar cane is one of three traditional export crops that generate a significant percentage of foreign currency and jobs. Currently, there are about 7,000 sugar cane producers who cultivate a total of approximately 100,000 *manzanas* (one *manzana* is roughly equivalent to 0.71 hectares). Of these, 40 per cent are independent producers and 60 per cent are partners in one of the 473 cooperatives in the sector or in other partnerships. The cane is processed at 10 mills.

Children's working environment

Sugar cane plantations typically offer little shade, since the crop needs plenty of sun. This situation is exacerbated by the practice of burning the cane in order to facilitate the task of cutting and to remove the down from the leaves, or *ajuate*, which is a skin irritant. The mills generally provide very little infrastructure for workers to rest, although some cooperatives do have recreational facilities for the partners' children and there are streams near some of the plantations where children can wash off the sap, sweat and dust clinging to them after a days' work.

Work conditions

Boys' participation in sugar cane cultivation is higher than girls, since men traditionally work in the fields. Of the girls and boys interviewed, 92.7 per cent work near their homes, with the exception of those who travel to San Miguel from other districts and who use the public transportation before 5 a.m.

Of the boys and girls interviewed, 68.5 per cent were between the ages of 7 and 14. Boys made up 86.9 per cent of this age group. The

age at which 58 per cent of the children began working was between 7 and 10 years old. Ninety-eight per cent of the children get up at 5 a.m. and begin their work by helping with household chores. The working day at the plantations starts at 6 a.m. and ends between noon and 4 p.m. Girls work an average of six hours per day and boys work an average of five hours. The average number of days worked is 6 days per week for 47.3 per cent of the children, 7 days for 32.7 per cent, and 5 days for 17.9 per cent.

In general, children go to work in the fields with their parents. Some 85.1 per cent of these children receive wages ranging from US\$ 3.20 to US\$ 3.26 per day. Children who help others, but who are not paid directly by the producer, earn between US\$ 0.57 and US\$ 2.57 per week. They receive this money from the older children whom they help. Children under age 12 do not receive pay from the owners; however, their parents usually give them some money. Non-remunerated work is considered to be “help”. In addition to the sugar cane harvest, some children perform other types of work the rest of the year. When at home, boys and girls carry out differing domestic chores. The majority (68.5 per cent) of the boys and girls reported that they gave their earnings to their parents. There were only a few cases in which the child’s income constituted the family’s sole source of sustenance; in most cases, it was only part of the household income.

Work in the plantations is broken down according to gender. The girls sow, pick up the ends of cane that have been cut without burning, stack the cut cane into neat piles for later transportation in tilt-bed trailers, and haul cane. A number of the older girls (36.4 per cent) cut cane. Cutting the cane is facilitated by a technique involving a hook-shaped stick that the children fashion for themselves; they then separate the cane to be cut and fasten it securely before striking so as to deliver a well-aimed blow. The majority of the boys (65.5 per cent) cut cane. The rest (35.5 per cent) chop the cane into small pieces for various uses, gather and stack cane, and make handles for carrying it to where it will be collected. They also pick up the ends of the cane, comb, fertilize and, in one case, fumigate. The smallest children also sow — although this is considered to be exclusively a girl’s job. Cultural patterns dictate that it is unacceptable for boys to perform less dangerous jobs, such as sowing cane, as this detracts from their masculinity.

The tools used include: *cumas* (a type of curved knife), machetes, hoes, shovels, hooks, rakes, fumigation pumps and files. These tools are dangerous, given their sharp edges, as well as being heavy, since they are made of iron and have wooden handles. Some employers disapprove of children working, owing to the dangers inherent in the job; 66 per cent feel it is very dangerous and that it requires a high degree of responsibility. Nevertheless, they cannot prevent parents from bringing their children, as the latter must become familiar with the work and learn it well in order to minimize risks.

Health

The exhausting workdays under the sun, the use of sharp tools, exposure to insects, uncomfortable positions, excessive loads to carry, and other factors jeopardize the health of boys and girls. The most frequent afflictions are headaches, back problems, cuts and skin irritations. These problems are treated in 51.4 per cent of the cases at health clinics, and in the remaining cases through private medical consultation, or through an acquaintance, pharmacist, folk healer (or *curandero*), social worker, or cooperative clinic.

The children's inadequate clothing exposes them to wounds from the cane leaves and to skin irritations from the down released by the plants. Given that many children do not wear shoes, they risk stepping on splinters on the ground, or on glass or tin cans, which can cause infections or tetanus. Scars from wounds caused by tools, as well as blisters and calluses were noted on the boys. Other dangers to which children are exposed include: harmful sun rays, since the children do not use any form of protection; dust and ash produced by the burning cane, which can cause respiratory problems and allergies; and, a large number of insects that bother the children at work when their bodies become covered with molasses.

Notes

Introductory Note

1. Article 2 of ILO Convention concerning the Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labour, 1999 (No.182).

Chapter 1

1. IPEC: *Every child counts: New global estimates on child labour* (Geneva, ILO, 2002).
2. Federal University of Technology: *Towards understanding of hazardous child labour in cocoa/commercial agriculture in Nigeria*. Draft report prepared by the Department of Agricultural Economics and Extension for ILO-IPEC (Akure, Nigeria, FUT, 2005), p. 21.
3. Sustainable Tree Crops Program of the International Institute of Tropical Agriculture: *Child Labor in the Cacao Sector of West Africa: A synthesis of findings in Cameroon, Côte d'Ivoire, Ghana, and Nigeria*. (USAID/USDOL/ILO, 2002).
4. M. Bonnet: "Child Labour in Africa" in *International Labour Review* (Geneva, ILO, 1993), Vol. 132. No. 3, p. 382.
5. See also V. Forastieri: *Children at work: health and safety risks* (Geneva, ILO, 2nd edition, 2002).
6. ILO: *Encyclopaedia of occupational health and safety* (Geneva, ILO, 4th edition (revised), 1998), Vol. III, 64.36, Column 1.
7. UNEP, UNICEF, WHO: *Children in the new millennium: Environmental impact on health* (Geneva, WHO, 2002), p 32.
8. D.P. Keating: "Adolescent thinking" in S.S. Feldman et al (eds): *At The Threshold: The Developing Adolescent* (Cambridge, Mass, 1990), pp. 54-89.
9. A. Guiffrida et al.: *Health and Poverty in Brazil*, cited in *Understanding Children's Work: Child labour and health: Evidence and research issues* (Washington DC, Mimeo, Inter-American Development Bank, 2002), p. 16.
10. *ibid.*
11. ILO: *Safety and Health in Agriculture: Report (VI) I*, International Labour Conference, 88th Session, Geneva, 2000, p. 3.
12. See <http://www.ilo.org/public/english/protection/safework/accidis/index.htm>.
13. P.L. Graitcer, and L.B. Lerer: *Child labour and health: Quantifying the global impacts of child labor* (Geneva, World Bank, 1998), p. 1.

14. Personal communication with Jukka Takala, Director, ILO SafeWork, 24 February, 2004.
15. Graitcer and Lerer, op. cit.
16. National Children's Center for Rural and Agricultural Health and Safety: *North American guidelines for children's agricultural tasks* (see www.nagcat.org/default.htm.) 5 September, 2003.
17. See L.M. Hagel et al.: *Effect of age on hospitalised machine-related farm injuries among the Saskatchewan farm population* for University of Saskatchewan Royal University Hospital, Institute of Agricultural, Rural and Environmental Health, (Saskatoon, Canada).
18. ILO: *Safety and health in agriculture*, op. cit., p. 52.
19. Health and Consumer Protection Directorate General: *The magnitude and spectrum of farm injuries in the European Union countries* (Brussels, 2004), pp. 5-6.
20. *ibid.* pp. 43-51.
21. P. Rissanen and K. Taattola: *Fatal injuries in Finnish agriculture 1988-2000* (Kuppio, Finland, Regional Institute of Occupational Health, *Agricultural Safety and Health* 2003 Nov;9(4):319-26).
22. P.K. Nag and A. Nag: *Drudgery, accidents and injuries in Indian agriculture* for the National Institute of Occupational Health, Indian Council of Medical Research (Meghani Nagar, Ahmedabad, India, *Industrial Health* (vol. 42).
23. R. Lilley et al.: *The New Zealand child work-related fatal injury study 1985-1998* for the New Zealand Environmental and Occupational Health Research Centre, Dept of Preventive and Social Medicine (Dunedin, New Zealand University of Otago, 2004 *New Zealand Medical Journal* 2004; 117(1194).
24. Health and Safety Executive: *Preventing accidents to children on farms* (London, UK, AS10(rev2) Reprinted 2002) C150, p. 2.
25. National Children's Center for Rural and Agricultural Health and Safety, op.cit.
26. D.N. Castillo, N. Adeyoka and J.R. Myers: "Fatal Work-related Injuries in the Agricultural Production and Service Sectors Among Young People in the United States, 1992-1996" in *Journal of Agromedicine* USA, www.haworthpress.com/web/JA/ 1999, Vol. 6, No. 3, pp. 27-41.
27. USDA-National Agricultural Statistics Service: *Childhood agriculture-related injuries* (Washington, 2004) cited in National Children's Center for Rural and Agricultural Health and Safety: "Childhood agricultural injuries fact sheet" (Marshfield, WI, National Farm Medicine Center, 2004).
28. *ibid.*

29. *ibid.*
30. Castillo, Adeyoka and Myers: *op. cit.*
31. United States General Accounting Office: *Child Labor in Agriculture: Changes Needed to Better Protect Health and Educational Opportunities* (Washington DC 1998).
32. R. Belville et al.: "Occupational injuries among working adolescents in New York State" in the *Journal of the American Medical Association* (Chicago, AMA), June 1993, Vol. 269(21), pp. 2760.
33. P.L. Graitcer and L.B. Lerer: *The impact of child labour on health: Report of a field investigation in Egypt* (Atlanta, Georgia, USA, 2000), p. 27.
34. UCW: *Health effects of children's work: evidence from Vietnam* (Florence, Italy, ILO, UNICEF, World Bank, 2003).
35. P. Tselikis: "Why young workers get hurt" in *Business and Health* (USA), 2001, Vol.19 i5, p. 39.
36. ILO: *Safety and health in agriculture*, *op. cit.*, p. 3.
37. National Research Council of the Institute of Medicine: *Protecting Youth at Work: Health, Safety, and Development of Working Children and Adolescents in the United States*; (Washington DC, National Academy Press, 1998), (Available at <http://www.nap.edu/openbook/0309064139/html>)
38. *ibid.*, p. 152.
39. J.M. Derrien: *Le travail des enfants dans l'agriculture commerciale en afrique de l'ouest francophone* (Geneva, ILO, draft, 2002), p. 20 (in French only).
40. IPEC and the Interparliamentary Union: *Eliminating the WFCL: Handbook for Parliamentarians* (Geneva, ILO, 2002) No. 3, p. 44.
41. Forastieri, *op. cit.*, p. 5.
42. M. Dayioglu and A. Gündüz-Hosgör: *The IPEC experience in Turkey* (Geneva, ILO, draft, 2005), p. 4.
43. S. Nola: *Child labour in agriculture: A survey of national legislation* (Geneva, ILO, 2000).
44. P.J. Landrigan et al.: "The health and safety hazards of child labour" in R. Belville et al.: *Child labor in the 90s: How far have we come?* National Child Labor Committee, New York, USA, 1994), p. 14.

Chapter 2

1. ILO: *Encyclopaedia of occupational health and safety*, op. cit, 64.39, column 1.
2. *ibid.*
3. IPEC: *Child labour in oil palm production*, IPEC Fact Sheet on Hazardous Child Labour in Agriculture (Geneva, ILO, 2004).
4. J.M. Harrington and F.S. Gill: *Occupational Health: Pocket Consultant* (Oxford, UK, Blackwell Scientific Publications, 2nd edition, 1988), p. 72.
5. *ibid.*
6. ILO: *Encyclopaedia of occupational health and safety*, op. cit., 64.39, column 2.
7. Harrington and Gill, op.cit., p. 77.
8. ILO: *Encyclopaedia of occupational health and safety*, op. cit., 64.61.
9. *ibid.*, 64.14.
10. *ibid.*, 64.39, column 2.
11. *Ibid.*, 64.39, column 1.
12. Arthropods are insect-type creature, e.g. mites.
13. ILO: *Encyclopaedia of occupational health and safety*, op. cit., 64.14 and 64.62.
14. *ibid.*, 64.58, column 1.
15. Methamphetamine is an addictive stimulant drug that strongly activates certain systems in the brain. It is closely related chemically to amphetamine, but the central nervous system effects of methamphetamine are greater. Both drugs have some limited therapeutic uses, primarily in the treatment of obesity. Methamphetamine is made in illegal laboratories and has a high potential for abuse and addiction. Street methamphetamine is referred to by many names, such as "speed," "meth," and "chalk."
16. W .Shaw, and K. Naren: "High speed labor" in *Cambodia Daily* (Phnom Penh), 11 September, 2004.
17. See "Khat", www.streetdrugs.org, May, 2005.
18. Forastieri, op. cit., p. 74.
19. M.G. Arroyo and L. Kurre: *Young agricultural workers in California* (Berkley, University of California, 1997).
20. ILO: *Encyclopaedia of occupational health and safety*, op. cit., 64.42, column 1.
21. IPEC: Tanzania: *Children Working in Commercial Agriculture - Tea, Rapid Assessment No. 11*(Geneva, ILO, 2002).
22. IPEC: *Child labour in oil palm production*, op. cit.

23. P.F. Ehrlich et al.: *Understanding work-related injuries in children: a perspective in West Virginia using the state-managed workers' compensation system* (Morgantown, WV, USA, University of West Virginia School of Medicine, 2004).
24. University of North Sumatra: *Study on child labour in tobacco plantations, South Sumatra* (Geneva, ILO, 2004), p. 50.
25. *ibid.*
26. ILO: *Encyclopaedia of occupational health and safety*, op. cit., 64.33.
27. Health and Safety Executive, op. cit.
28. TASC: *Child injury in Bangladesh: A call for action* (Bangkok, DGHS, ICMH, UNICEF, TASC, 2005), p.11.
29. ILO: *Encyclopaedia of occupational health and safety*, op. cit., 64.31, table 64.7.
30. Personal communication: Mr Mutubuki, Chief Inspector of Factories, Zimbabwe, 2003.
31. ILO: *Encyclopaedia of occupational health and safety*, op. cit., 64.31.
32. *ibid.*
33. Health and Safety Executive, op. cit., p. 6.
34. Health and Safety Executive: *Tractor action: A step by step guide to using tractors safely* (London, UK. INDG185(rev) 08/2003) C450, p. 7.
35. ILO: *Encyclopaedia of occupational health and safety*, op. cit., 64.33, column 1.
36. *ibid.*, 64.33.
37. Health and Safety Executive: *Preventing accidents to children on farms.*, op. cit., p. 12
38. B. Rau: *HIV/AIDS in Sub-Saharan Africa: A synthesis report* (Geneva, ILO, 2003), No. 6.
39. Rapid assessments by UNICEF and the ILO, as well as qualitative studies from the World Bank, have been conducted on the topic or closely related areas recently and may shed light on this new area of study.
40. See B. Rau: *HIV/AIDS and Child Labour in Zimbabwe: A rapid assessment* (Geneva, ILO, 2002).
41. V.A. Wilk: "Health Hazards to Children in Agriculture" in *American Journal of Industrial Med ??*. (USA, Wiley InterScience, www3.interscience.wiley.com/cgi-bin/jhome/34471), 1993, Vol. 24(3); p. 286.
42. Natural Resources Defense Council: *Trouble on the Farm: Growing Up with Pesticides in Agricultural Communities* (Washington, DC, USA, 1998), Chapter 3, p. 2.

43. Health and Safety Executive: *Preventing accidents to children on farms.*, op. cit.
44. ILO: *Encyclopaedia of occupational health and safety*, op. cit., 64.7, column 1.
45. Belville et al., pp. 2754-2759.
46. J.H Hendricks and N. Adekoya: "Non-fatal animal related injuries on farms in the United States, 1998" in *Injury Prevention* (USA), Dec 2001, vol. 7iV, p. 307(5).
47. Alliance for Safe Children (Thailand) and the Institute of Child and Mother Health (Bangladesh), op. cit., p. 12.
48. M. Bonnet: "Child Labour in Africa" in *International Labour Review* (Geneva, ILO) 1993, Vol. 132, No. 3, p. 382.
49. M.A. Carskadon: "Patterns of sleep in adolescents", In *The Pediatrician*, (American Academy of Pediatrics, Elk Grove Village, Illinois, USA), 1990, Vol.17, pp. 5-12.
50. M.A. Carskadon: "Sleep patterns during adolescent development", presentation to the US National Research Council, Washington DC, 25 June, 1997.
51. R.R. Rosa: "Extended work shifts and excessive fatigue" in *Journal of Sleep Research* (Loughborough, UK), 1995, Vol. 4, pp. 51-56.
52. R.E. Dahl: "The impact of inadequate sleep on children's daytime cognitive functions" in *Seminars in Pediatric Neurology* (LANL Research Library, USA, <http://library.lanl.gov/cgi-bin/journalinfo?10674050>), 1996, 38i, pp. 44-50.
53. United States General Accounting Office: *Child Labor in Agriculture: Changes Needed to Better Protect Health and Educational Opportunities*, (Washington DC, 1998), p. 50.
54. IPEC: *Child labour in tobacco and cotton growing in Kazakhstan, Rapid assessment report* (Geneva, ILO, 2005), p. 9.
55. US Department of Labor: *By the Sweat and Toil of Children: The Use of Child Labor in American Imports* (Washington,1994).
56. IPEC: *Bolivia: Trabajo Infantil en la Caña de Azúcar, Rapid Assessment No. 36*, (Geneva, ILO, 2002), Spanish only, p xiii.
57. IPEC: Tanzania: *Children Working in Commercial Agriculture - Tobacco...*, op. cit., pp. 48-50.
58. L. Guarcello, et al.: *Impact of working time on children's health*. (Geneva, ILO IPEC Working Paper, 2004), p. 34.
59. UN System Standing Committee on Nutrition: "World nutrition situation: key points" in *Highlights, Nutrition for improved development outcomes: 5th report on the world nutrition situation* (Geneva WHO, 2004) p. 4.

60. L. London: "Occupational epidemiology in agriculture: a case study in the South African context" in *International Journal of Occupational Environmental Health*, (Burlington, North Carolina, USA, Abel Publication Services, Inc.) 1998; Vol. 4, pp. 245-256.
61. Graitcer and Lerer: *The impact of child labour on health: Report of a field investigation in Egypt*, op. cit., p. 79.
62. L. London: "Human rights, environmental justice and the health of farmworkers in South Africa" in *International Journal of Occupational and Environmental Health*, (Burlington, North Carolina, USA, Abel Publication Services, Inc.) 2003, Vol. 9, p. 65.
63. UN System Standing Committee on Nutrition, op. cit.
64. V. Forastieri, op.cit., p. 74.
65. S.K. Broste et al.: "Hearing loss among high school farm students", *American Journal of Public Health*, (Washington, DC, American Public Health Association 1989), Vol. 79(5), pp. 619-622.
66. "Pesticide" means any substance or mixture of substances intended for preventing, destroying or controlling any pest, including vectors of human or animal disease, unwanted species of plants or animals causing harm during or otherwise interfering with the production, processing, storage, transport, or marketing of food, agricultural commodities, wood and wood products or animal feedstuffs, or substances which may be administered to animals for the control of insects, arachnids or other pests in or on their bodies. The term includes substances intended for use as a plant growth regulator, defoliant, desiccant, or agent for thinning fruit or preventing the premature fall of fruit, and substances applied to crops either before or after harvest to protect the commodity from deterioration during storage and transport." Source: FAO: *International Code of Conduct on the Distribution and Use of Pesticides* (Rome, revised ed., 2003), p. 6.
67. See FAO: "Rotterdam Convention enters into force" (www.fao.org/newsroom/en/news/2004/37667/index.html).
68. S.H. Zahn and M.H. Ward: "Pesticides and childhood cancer" in *Environmental Health Perspectives*, (Cary, North Carolina, USA, Brogan and Partners)1998, Vol.106, Supplement. 3, pp. 223-7.
69. FAO, UNEP, WHO: *Childhood Pesticide Poisoning: Information for advocacy and action* (Geneva, UNEP, 2004); p. 9.
70. ibid.
71. M. Moses: "Pesticide-related health problems and farm workers" in *American Association of Occupational Health Nursing Journal*, (Atlanta, Georgia, USA, SLACK Inc.)1989, Vol. 37(39), pp. 115-130.

72. Intergovernmental Forum on Chemical Safety (IFCS) Working Group: "Protecting children from harmful chemical exposures" in *Central European Journal of Occupational and Environmental Medicine* (Budapest, Occupational Health Foundation), 2003, Vol. 9, Special issue.
73. IPEC: *Prevention and Progressive Elimination of Child Labour in the Coffee Industry in El Salvador*, IPEC Project document (Geneva, ILO, 1999).
74. University of North Sumatra, op. cit., p. 23.
75. Human Rights Watch: *Tainted Harvest. Child labour and obstacles to organizing on Ecuador's banana plantations* (New York, 2002).
76. P. Sodavy et al.: *Farmers' awareness and perceptions of the effects of pesticides on their health*. FAO Community IPM Programme Field Document, (Rome, FAO, 2000).
77. Belville et al., op cit., pp. 2754-2759.
78. K. Kuraganti: *Arrested development: the impacts of pesticides on children's mental health and development*, A Greenpeace study conducted in six states of India in collaboration with Greenpeace India, Dharamitra, ICRA, Janachetna, Kheti Virasat, Sewa Sirpi, SYO and YMC (New Delhi, Greenpeace, 2003).
79. P. Hurst and P. Kirby: *Health, Safety, and Environment; A Series of Trade Union Education Manuals for Agricultural Workers*. (Geneva, ILO and IUW, 2005).
80. ibid.
81. ibid.
82. P. Hurst et al.: *Agricultural Workers and their Contribution to Sustainable Agriculture and Rural Development* (Geneva, FAO-ILO-IUW, 2006), p. 41.
83. Hurst and Kirby, op. cit.
84. Harrington and Gill, op cit., p. 118.
85. R.H. Scaffer: *Social Development* (Oxford, UK, Blackwell, 1996).
86. ILO:SOLVE: *Managing emerging health-related problems at work* (Geneva, ILO, 2002), Section 3.
87. D. Chappell and V. Di Martino: *Violence at work* (Geneva, ILO, 2nd ed., 2000), p. 11.
88. Warshaw, L. *Violence at the workplace*. ILO Encyclopaedia of occupational health and safety, Health, 4th edition, 1998, Chapter 51.2.
89. B.P. Bernard et al.: *Musculoskeletal disorders and workplace factors* (Cincinnati, Ohio, USA, NIOSH, 1997), p. 156.
90. National Institute of Occupational Safety and Health: *Work-related musculoskeletal disorders*, fact sheet (See www.cdc.gov/niosh/muskdsfs.html).

91. See also Bernard, op. cit., pp. 97-141.
92. A. Marks and M.I. Cohen: "Developmental processes of adolescence" in *Volta Review* (Newcastle, Australia, Renwick College Library) 1978, Vol. 80(5): pp. 275-285.
93. M.A. Nelson: "Sports medicine" in M. Friedman et al. (eds): *Comprehensive adolescent health care.*, (St Louis, Mo, USA. Quality Medical Publishers, Inc., 1992), pp. 1132-1151.
94. Wilk, op. cit., pp. 283-290.
95. IPEC: *Tanzania: Children Working in Commercial Agriculture - Tea*, op. cit.
96. IPEC: *Tanzania: Children Working in Commercial Agriculture - Tobacco*, op. cit.
97. D. I. Parker et al.: "Characteristics of adolescent work injuries reported to the Minnesota Department of Labor" in *American Journal of Public Health*, (Washington, DC, American Public Health Association), 1994, Vol. 84(4), pp. 606-611.
98. Wilk, op. cit., pp. 283-290.
99. See ILO : *Kenya: Facing the challenge of Africa's integration in the global economy: The role of multinational enterprises in the plantations sector*, Working Paper 91 (Geneva, ILO, 2002), p. 14.
100. ILO: *Encyclopaedia of occupational health and safety*, op. cit., Vol. III, 64.39, column 1.
101. University of North Sumatra, op. cit., p. 50.

Chapter 3

1. IPEC: *Time-bound action programme manual for action planning: Guide Book IV* (Geneva, ILO, 2003), p. 9.
2. See IPEC: *Time-bound action...op.cit*, Guide Books 1-5, (available at www.ilo.org/childlabour).
3. IPEC: *Rapid response for children involved in trafficking or dire situations: A brief note* (Geneva, ILO, 2005), pp. 1-3.
4. IPEC: *Combating child labour through education* (Geneva, ILO, 2004), p. 7.
5. ILO: *Wage workers in agriculture - conditions of employment and work* (Geneva, ILO Report TMAWW/1996).
6. National Research Council of the Institute of Medicine, op. cit. p. 213-214.
7. IPEC, ILO Safework and the International Association of Labour Inspectors (IALI): *Combating child labour: A handbook for labour inspectors* (Geneva, ILO, 2002).
8. See also International Organisation of Employers: *Employers' Handbook on Child Labour: A Guide for Taking Action* (Geneva, IOE, revised ed. 2001).

9. See also P. Hurst, and P. Kirby: *Roving health and safety representatives in agriculture, Manual 6*, Appendix 1 in Hurst and Kirby, op. cit.
10. See also International Organisation of Employers, op. cit.
11. See also American Academy of Pediatrics: "The hazards of child labor" in *Pediatrics*, Elk Grove Village, Illinois, USA, Feb 1995, Vol. 95, No. 2, p. 311(3).
12. See also Forastieri, op. cit.
13. See also ILO: *Prevention: a global strategy on promoting safety and health at work* (Geneva, ILO, 2005), p. 9.

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