INTRODUCTION

Why workers’ nutrition is important

• Nearly a billion people are undernourished and one billion are overweight or obese; a stark contrast of the haves and have-nots (WHO, 2004a).

• Workplace meal programmes can prevent micronutrient deficiencies and chronic diseases, including obesity. Investments in nutrition are repaid in a reduction of sick days and accidents and an increase in productivity and morale.

• Access to healthy food (and protection from unsafe and unhealthy food and eating arrangements) is as essential as protection from workplace chemicals or noise.

• Adequate nourishment can raise national productivity levels by 20 per cent (WHO, 2003a).

• A 1 per cent kilocalorie (kcal) increase results in a 2.27 per cent increase in general labour productivity (Galenson and Pyatt, 1964).

• Increasing the average daily energy supply to 2,770 kcal per person per day with adequate nutrients in a sample of countries could have increased the average annual GDP growth rate by nearly 1 per cent each year between 1960 and 1990 (Arcand, 2001).

• Iron deficiency affects up to half the world’s population, predominantly in the developing world (Stoltzfus, 2001). Low iron levels are associated with weakness, sluggishness and lack of coordination.

• As much as a 30 per cent impairment in physical work capacity and performance is reported in iron-deficient men and women (WHO, 2001, p. 30).

• Micronutrient deficiencies account for a 2–3 per cent loss in GDP in low-income countries; and in South Asia, iron deficiency alone accounts for a loss of US$5 billion in productivity (Ross and Horton, 1998, p. 38).
This book addresses a simple question – how do workers eat while at work? This question, we have found, is not always given much thought. This is strange, as food is the fuel that powers production. One would think that employers, wanting to maximize productivity, would provide their workforce with nourishing food or, at the very least, convenient access to healthy food. 

What we have found in researching material for this book is that workplace meal programmes are largely a missed opportunity. It is a salient fact that worldwide nearly a billion people are undernourished while over one billion are overweight. How do we address this catastrophic misappropriation of food resources? The World Health Organization (WHO) and the Food and Agriculture Organization (FAO), among other international bodies, have taken great steps in remedying malnutrition through projects focused on better food supply chains, storage, land management, food fortification, bulk food distribution and education. Our view, in assisting this global aim, is that the workplace should be a locale for meal provision and nutrition education initiatives.

- Hypoglycaemia, or low blood sugar, which can occur when one skips a meal, can shorten attention span and slow the speed at which humans process information (McAulay et al., 2001).
- Obesity accounts for 2–7 per cent of total health costs in industrialized countries (Kumanyika et al., 2002).
- In the United States, the total cost attributable to obesity calculated for 1995 amounted to US$99.2 billion (Wolf and Colditz, 1998).
- Studies have shown that obese workers are twice as likely as fit workers to miss work (Wolf and Colditz, 1998).
- In 2001, non-communicable diseases contributed to about 46 per cent of the global disease burden and 60 per cent of all deaths worldwide, with cardiovascular disease alone amounting to 30 per cent of deaths (WHO, 2002a, p. 188). The global disease burden from non-communicable diseases is expected to climb to 57 per cent by 2020 (WHO, 2003b, p. 4).
- The diabetes epidemic is particularly acute in the South Pacific, where the percentage of total health-care resources allocated to this disease is 6 per cent in Fiji, 10 per cent in the Federated States of Micronesia, 14 per cent in the Marshall Islands and 14 per cent in the Cook Islands (WHO Regional Office for the Western Pacific, 2003).

Workers’ meal programmes are good for workers, good for business and good for the nations.
Too often the workplace meal programme is either an afterthought or not even considered by employers. Work, instead of being accommodating, is frequently a hindrance to proper nutrition. Canteens, if they exist, routinely offer an unhealthy and unvaried selection. Vending machines are regularly stocked with unhealthy snacks. Local restaurants can be expensive or in short supply. Street foods can be bacteria laden. Workers sometimes have no time to eat, no place to eat or no money to purchase food. Some workers are unable to consume enough calories to perform the strenuous work expected of them. Agricultural and construction workers often eat in dangerous and insanitary conditions. Mobile workers and day labourers are expected to fend for themselves. Migrant workers, far from home, often find themselves with no access to local markets and no means to store or cook food. Night shift-workers find they have few meal options after hours. Hundreds of millions of workers face an undesirable eating arrangement every day. Many go hungry; many get sick, sooner or later. The result is a staggering blow to productivity and health. Poorer nations, in particular, remain in a cycle of poor nutrition, poor health, low productivity, low wages and no development.

Presented in this book are mostly positive examples of how governments, employers and trade unions are trying to improve the nutritional status of workers. In wealthier nations, where obesity and related non-communicable diseases – cancer, diabetes, cardiovascular disease and kidney problems – are epidemic, we find some employers offering healthier menus or better access to healthier foods, such as on-site farmers’ markets. In developing and emerging economies, where hunger and micronutrient deficiencies such as anaemia are epidemic, we find some employers offering free, well-balanced meals or access to safer street foods.

Chapter 1 provides governments, employers and workers with a rationale for embracing a proper workplace meal programme. Governments gain from a well-nourished population through reductions in health costs, through tax revenue from increased work productivity, and – in feeding its children – through the security of future generations of healthy workers. The savings are significant. In Southeast Asia, iron deficiency accounts for a US$5 billion loss in productivity. In wealthier nations, obesity accounts for 2 to 7 per cent of total health costs. In addition to these costs, employers must understand that poor nutrition is tied to absenteeism, sickness, low morale and higher rates of accidents. Obesity, inadequate calories and iron deficiency result in fatigue and lack of dexterity. Employees must understand that their health and thus job security is dependent upon proper nutrition. The workplace can be an instrument for eating well.

Chapter 2 is an overview of nutrition, complemented by Appendices A and B. Chapter 3 demonstrates how the workplace is the logical setting for
nutrition intervention. First, nutrition is an occupational health and safety concern. Spoiled food can be as deadly to the workforce as a chemical leak; poor nutrition can be as deadly as a weak ladder rung. Second, workers usually come to the workplace regularly for an extended period, making intervention convenient. Larger enterprises regularly have the means to make some improvement at little cost, such as negotiating with food suppliers for safer, healthier food or providing better shelter to make the meal more restful and enjoyable. Even the smallest enterprises have low-cost options, such as working with local vendors to supply clean water or discount vouchers. Issues raised in this chapter include cost, place, time, comfort, accessibility and gender.

Chapter 4 begins a series of case studies – the heart of this publication. The Chapter 4 case studies concern canteens, a facility where freshly prepared, hot food is served. A proper canteen is a reflection of a well-run enterprise. Canteens require the greatest investment of resources among the meal solutions presented in this book, but examples of inexpensive canteen improvement are also listed here. Canteens are well suited for remote sites, such as mines and factories, where there are no local food options. Some remote sites offer lavish canteens as a means to attract employees, while other sites (particularly in the agricultural sector) offer very basic meals of grain with little meat or vegetables. Notable canteens presented in Chapter 4 include those who: have removed unhealthy foods completely; offer subsidized meals designed to combat specific nutritional deficiencies; made radical improvements at the request of unions or employees; and improved hygiene.

Chapter 5 contains case studies of countries with food and meal vouchers. Vouchers are tickets provided by the employer to the employee, or sometimes their families, for food and meals at selected shops and restaurants. The voucher programme, sanctioned by the government, is common in Europe and South America and is spreading to other regions. The programme offers many benefits: saves employers the cost of maintaining a canteen; helps governments in tax collection, keeping transactions on the books; and revitalizes urban centres with restaurants and shops. The Brazil voucher system has sharply reduced malnutrition and increased productivity. Vouchers work best in densely populated areas with a variety of shops to choose from.

The case studies in Chapter 6 are about mess rooms and kitchenettes – spaces at an office or facility set aside for eating. Mess rooms and kitchenettes usually require less investment than canteens and vouchers. At a minimum, a decent mess room could be a simple room with chairs, tables, protection from the weather and a place to wash before eating. Mess rooms entail little or no cooking and food storage. Employers, for example, can invite a local caterer daily to sell food. Kitchenettes are small rooms with some means to cook or heat food (stove, microwave oven, hotplate, rice cooker), to store food
(refrigerator or cupboard) and to wash up. Although simplistic, properly maintained mess rooms and kitchenettes can increase an employee’s meal options and provide a high level of comfort and convenience.

In Chapter 7 the case studies describe local vendors: nearby shops, street food vendors, vending machines and office foods for meetings and events. Employers who work with local vendors can improve their employees’ meal options. For example, employers can provide street vendors with fresh water, ice chests, stainless steel utensils or any other item that improves food safety, as well as assisting them to receive training on food safety and nutrition. Construction workers usually rely on local vendors. Often this is low-quality food eaten in undesirable conditions, such as on the roadside or on a dirty construction site. Novel programmes presented in this chapter include workplace farmers’ markets, the workplace free fruit programme and street food improvement activities.

Chapter 8 extends workplace nutrition to the family. Feeding an adult at work will leave more food at home for the family. Yet some employers can reach out directly to the workers’ families. In wealthier nations, the take-home dinner option from the company canteen is growing in popularity among working parents. Some companies distribute food staples in bulk, such as rice, which can curb hunger at home. Other companies run low-cost shops or bakeries with discounted foods for the worker to bring home.

Chapter 9 concerns water. Access to clean drinking water is particularly important for workers in warm climates or performing arduous work. Some workers are drinking more water for health or dietary reasons. Employers have many options in providing clean water. If the municipal water is unsafe or inaccessible, employers can install water coolers or water filtration systems.

Chapters 10, 11 and 12 will help employers make proper nutrition a reality. Chapter 10 lists the many factors that employers need to consider when developing meal options for their employees, such as budget, space, number of employees, nutritional needs and food safety. This is followed by a checklist of specific items and concerns for each food solution presented in this book. Chapter 11 provides a description of useful documents on international standards, policies and programmes. Chapter 12, the conclusion, ties it all together.

In short, this publication demonstrates how good nutrition is good business and a sound investment. Proper nutrition leads to gains in productivity and worker morale, prevention of accidents and premature deaths, and reductions in health-care costs. For the government, employers and workers, proper nutrition at the workplace is a win-win-win proposition.
PART I

NUTRITION AND THE WORKPLACE
Key issues

The price of poor nutrition

- Nearly a billion people are undernourished while over one billion are obese or overweight.

- The cost of cardiovascular disease for the United States in 2002 was US$329.2 billion.¹

- In India, the cost of lost productivity, illness and death due to malnutrition is US$10–28 billion, or 3–9 per cent of gross domestic product (GDP).

- Iron deficiency accounts for up to a 30 per cent impairment of physical work capacity and performance.

Nutrition as an element of a healthy workplace

- In 1956, the International Labour Conference and various International Labour Organization (ILO) committees adopted the Welfare Facilities Recommendation (No. 102), which specified guidelines for the establishment of canteens, cafeterias, mess rooms and other food facilities.

¹ Unless otherwise stated, all currency exchange rates in this book were converted into United States dollars on 5 December 2004, using mid-market rates posted online (consult: http://www.xe.com/ucc/convert.cgi).
Food at work: Workplace solutions for malnutrition, obesity and chronic diseases

- The workplace, where many adults spend a third of their day, or half their waking hours, is a logical place for health intervention.

- Providing nourishing food to workers, even for a fee, can improve quality of life and work.

**The rationale for government**

- Governments gain from a well-nourished population through revenue from increased work productivity and reductions in health costs for adults and, by feeding children, through securing future generations of healthy workers.

- In 2001, non-communicable (diet-related) diseases contributed to about 46 per cent of the global disease burden and 60 per cent of all deaths worldwide, with cardiovascular disease alone amounting to 30 per cent of deaths.

- The global burden from non-communicable diseases is expected to climb to 57 per cent by 2020.

- Obesity accounts for 2–7 per cent of total health costs in industrialized countries.

- In Australia, diabetes costs the government health system AUS$1 billion (US$0.78 billion) and may reach AUS$2.3 billion (US$1.8 billion) by 2010.

- Micronutrient deficiencies account for a 2–3 per cent loss in GDP in low-income countries; and in South Asia, iron deficiency accounts for a loss of US$5 billion in productivity.

- Increasing the average daily energy supply to 2,770 kcal per person per day with adequate nutrients in a sample of countries could have increased the average annual GDP growth rate by nearly 1 per cent each year between 1960 and 1990.

**The rationale for employers**

- Obesity and iron deficiency both result in fatigue and loss in dexterity.

- A 1 per cent kcal increase results in a 2.27 per cent increase in general labour productivity.

- In the United States the annual economic costs of obesity to business for insurance, paid sick leave and other payments are US$12.7 billion.

- In Canada, the cost-effectiveness of workplace health promotion programmes is estimated to be CAN$1.75–6.85 (US$1.50–5.75) for every corporate dollar invested.
The great houses of the Chaco were architectural marvels. Built over a thousand years ago by the indigenous people of what is now New Mexico in the United States, these impressive structures were often five storeys tall with hundreds of rooms, vast open public areas and sophisticated astronomical markers. Unlike other extended earthen buildings around the world, with rooms and units added as needed over the years, the Chaco’s great houses were carefully planned from the beginning. They were constructed in the high desert, surrounded by sacred mountains and mesas and often at least 50 kilometres from fertile lands. It is thought that they were used only periodically, for religious and ceremonial purposes. An extensive network of roads connected each site.

Construction of such magnitude required extraordinary coordination of supplies and labour, similar to large projects today. This was no simple feat. The great houses, which took years to complete, were situated in the desert where conditions were not favourable for growing corn, a staple for the Chaco. So how did the workers eat? A recent archaeological excavation of the great houses at Pueblo Bonito, the largest of the sites in the Chaco Canyon, revealed that corn was hauled great distances to feed the workers (Benson et al., 2003). It seems that a thousand years ago, the leaders of Chaco society understood that workers’ nutrition was paramount in producing high-quality work.

Workers need nutritious foods to remain healthy and productive. This basic need has remained unchanged through the millennia. Yet with what we now understand about nutritional deficiencies, obesity and non-communicable diseases associated with nutrition, such as cancer and anaemia, the need for proper nourishment is all the more pressing to ensure a healthy population. The workplace, where workers gather day after day, is the logical locale to provide nutritious foods to curb hunger and lower the risk of disease.

This publication is intended to raise awareness of the importance of workers’ rest and nutrition, and their potential contribution to workplace initiatives to improve health, safety and productivity. The following pages present a multitude of “food solutions” applicable to a variety of workplaces around the globe and demonstrate that providing nutritious foods to workers is not only economically viable but a profitable business practice. The rationale, summarized in this chapter but expanded in later chapters, is delivered in terms of gains in productivity and worker morale, prevention of accidents and premature deaths, and reductions in health-care costs. Governments gain from a healthy workforce too by virtue of attracting and maintaining businesses, increasing tax revenue and reducing the health and opportunity costs of non-communicable and communicable diseases. For the employer, employee and government, proper nutrition at the workplace is a win-win-win proposition.
1.1 The price of poor nutrition

The world has become increasingly divided between those who are undernourished and those who are overfed. Nearly a billion people are undernourished while over one billion are overweight or obese – a stark contrast of haves and have-nots (WHO, 2004a). In the first group we find the chronically malnourished, often in poor and developing nations but also in rural and urban pockets of wealthy, industrialized nations. Through a lack of consistent access to food, such people suffer from nutritional deficiencies. The second group has easy access to food, but of the high-calorie, fatty, sugary and salty kind. These people are often in wealthier nations and pockets of poorer, developing nations. Both groups are at risk of non-communicable and communicable diseases. Both groups suffer as a result of lower productivity. And the costs are staggering.

Consider the epidemic of obesity in the United States, where over two-thirds of the adult population are overweight, including over 30 per cent who are obese, according to the United States National Health and Nutrition Examination Survey (NHANES) 1999–2000 (Flegal et al., 2002). In one of several studies, the total cost attributable to obesity calculated for 1995 amounted to US$99.2 billion (Wolf and Colditz, 1998). Direct medical costs accounted for approximately US$51.6 billion and lost productivity approximately US$3.9 billion – reflected in 39.2 million lost work-days, 239 million restricted-activity days, 89.5 million bed-days and 62.6 million physician visits. Conditions attributed to obesity in this analysis include diabetes, coronary heart disease, hypertension, gallbladder disease, several cancers and osteoarthritis. Obese workers were twice as likely to miss work as non-obese workers (Wolf and Colditz, 1998). Other studies have found similar costs. If no action is taken, the problem won’t go away. Obesity is largely viewed as an emerging pandemic. Over 15 per cent of American children are overweight, a rate that has risen consistently each year of the last decade, according to the NHANES data referred to earlier (Ogden et al., 2002). Populations in other developed nations, adopting a diet of fatty and sugary processed foods and an increasing level of physical inactivity, are also growing obese. Those in developing countries may be particularly susceptible to obesity when faced with new food choices as a result of experiencing bouts of food shortages in years past that set their metabolisms to survive on minimal calories.

Consider too the cost of iron deficiency, the most common nutritional disorder in the world. As many as four to five billion people, 66–80 per cent of the world’s population, may have some level of iron deficiency (WHO, 2003a). Estimates of the extent of iron deficiency anaemia range from two billion (WHO, 2003a) to three billion people (Stoltzfus, 2001). Iron deficiency reduces the work capacity of entire populations, a serious hindrance to economic development.
Common symptoms in adults include sluggishness, low immunity, low endurance and a decrease in work productivity for mental and repetitive tasks. As much as a 30 per cent impairment of physical work capacity and performance is reported in iron-deficient men and women (WHO, 2001, p. 30). For children, iron deficiency can result in learning disabilities, stunted growth and death, thus hampering economic development efforts in future generations. The economic implications of iron deficiency and of the various intervention strategies to combat it suggest that food-based approaches and targeted supplementation are particularly cost-effective. The highest benefit-to-cost ratio comes through food fortification (WHO, 2001, pp. 52–55). Adequate nourishment can raise national productivity levels by 20 per cent (WHO, 2003a). Early ILO research found that a 1 per cent kcal increase resulted in a 2.27 per cent increase in general labour productivity (Galenson and Pyatt, 1964).

1.2 Nutrition as an element of a healthy workplace

The importance of adequate nourishment for general health and work productivity hardly needs emphasis. Since its establishment, the International Labour Organization has been concerned with this topic. Scholarly articles on the subject began to appear in the 1930s, culminating in 1946 with ILO’s Nutrition in industry (ILO, 1946), a book about feeding workers in large enterprises in Great Britain, Canada, and the United States. In 1956, the International Labour Conference and various ILO committees adopted the Welfare Facilities Recommendation (No. 102), which specified guidelines for the establishment of canteens, cafeterias, mess rooms and other food facilities. The focus has changed somewhat in developed countries since 1956, when the concern was to ensure that workers had enough food, to today where obesity is a major problem in some areas; and there is also greater attention to food safety and education. The guidelines remain especially significant in developing countries where, whether at local- or foreign-owned enterprises, workers too often have poor diets. The workplace is a logical place for health intervention, for workers are usually there most days. Providing nourishing food to workers, even for a fee, can improve quality of life and work, and have positive “trickle down” effects for the family as well. In many cultures where food is in short supply, the adult male in the family is the first to eat and either the children or mothers are last. Food at work or provided by work can increase food availability at home.

The ILO strives for decent work and equates decent work with human dignity. Through its Workers’ Health Promotion and Well-being at Work programmes, part of the In Focus Programme on Safety and Health at Work and the Environment, the ILO endeavours to “further among the nations of the world programmes which will achieve ... adequate protection for the life and health of
workers in all occupations”, as stated in the 1944 Declaration of Philadelphia, Annex to the ILO Constitution, Article III. Moreover, the World Health Organization (WHO) and the ILO share a common definition of occupational health. Occupational health should aim at the promotion and maintenance of the highest degree of physical, mental and social wellbeing of workers in all occupations. It is in this context that the ILO includes nutrition as an element of a healthy workplace, alongside physical exercise, mental health, HIV/AIDS protection and programmes to reduce violence, stress and substance abuse.

1.3 The rationale for government

Governments gain from a well-nourished population through revenue from increased work productivity, through reductions in health costs for adults, and, by feeding its children, through the security of future generations of healthy workers. Of the ten leading risk factors of morbidity – underweight, unsafe sex, high blood pressure, tobacco, alcohol, unsafe water and hygiene, iron deficiency, indoor smoke from fuels, high cholesterol and obesity – five are diet related. Let us first discuss the rationale for addressing non-communicable diseases associated with diet and physical inactivity: obesity, diabetes, cardiovascular disease, stroke, hypertension and certain cancers. The following summary of the cost of chronic diseases is based on an unpublished literature review by Alexandra Cameron for the World Health Organization (WHO), along with other sources.

1.3.1 Obesity and the non-communicable disease epidemic

Non-communicable diseases are on the rise globally, with the greatest increases in incidence rates in developing and transitional countries. In 2001, non-communicable diseases contributed 46 per cent of the global disease burden and 60 per cent of all deaths worldwide, with cardiovascular disease alone amounting to 30 per cent of deaths (WHO, 2002a, p. 188). The global disease burden from non-communicable diseases is expected to climb to 57 per cent by 2020 (WHO/FAO, 2002, p. 4). Of deaths from non-communicable diseases, 79 per cent occur in the developing world; and by 2020, the WHO estimates that 70 per cent of diabetes deaths, 71 per cent of ischaemic heart disease deaths and 75 per cent of stroke deaths will occur in developing countries (WHO/FAO, 2002, p. 5).

The WHO describes the cost of non-communicable diseases in terms of direct, indirect or intangible costs. Governments are sharply affected by direct costs: medical expenditures for hospitalization, medication, laboratory testing and welfare payments. Indirect costs are spread across government and business: lost productivity from sickness, disability, absenteeism or premature death.
Intangible costs refer to quality of life issues. The costs of diet-related diseases, although not an exact science, have been reported in numerous studies. Obesity accounts for 2–7 per cent of total health costs in industrialized countries (Kumanyika, 2002). Throughout the 1990s, the British health-care system was burdened with an estimated 525 million to 2.6 billion ECU s (US$700 million to US$3.5 billion) per year as a result of obesity (Eurodiet Project, 2003). This estimate (in the pre-euro currency) includes direct medical costs but not the indirect costs of lost productivity, and thus it is considered an underestimate of true costs. The United States has a much larger problem with obesity. Similar to that estimated in the Wolf and Colditz 1998 analysis, referenced earlier, another study in 2001 found that the direct costs were US$45.8 billion and indirect costs were an additional US$22 billion (Eurodiet Project, 2003). In 2004, the Centers for Disease Control and Prevention (CDC) in the United States co-published a report that found that obesity-attributable medical expenditures in the United States were US$75 billion, and approximately half of these expenditures were financed by Medicare and Medicaid, systems of welfare for senior citizens and low-income people, respectively (Finkelstein, Fiebelkorn and Wang, 2004). In California, which declared a fiscal emergency in December 2003, Medicare costs were US$1.7 billion (out of total costs of US$7.7 billion). In the state of New York, Medicaid costs were US$3.5 billion. The 2001 estimate for annual hospital costs for obese children in the United States was US$127 million, up from US$35 million in 1980 (Wang and Dietz, 2002).

Cardiovascular disease is associated with obesity, and some costs intermingle. The total economic cost of cardiovascular disease for the United States in 2002 was US$329.2 billion, with US$199.5 billion in direct costs, US$30.9 billion for morbidity and US$98.8 billion for mortality (NHLBI, 2002, p. 29). In the United Kingdom the annual cost of heart disease is £7 billion (US$13.6 billion), which includes £2.5 billion in informal care costs and £1.73 billion to the British health-care system for coronary bypass operations, heart transplants and coronary angioplasties (Liu, 2002). Indirect costs of coronary heart disease were twice the direct costs in South Africa and four times the direct costs in Canada and Switzerland (Leeder, 2003).

Diabetes, also associated with overweight and obesity and, more broadly, with diet, accounts for 2.5–15 per cent of national health-care budgets (WHO, 2002b). As reported by the United States Congressional Diabetes Caucus, the cost of diabetes in the United States in 2002 was US$132 billion (Hogan, Dall and Nikolov, 2003). Direct medical expenditures totalled US$91.8 billion and comprised US$23.2 billion for diabetes care, US$24.6 billion for chronic complications attributable to diabetes and US$44.1 billion for excess prevalence of general medical conditions (Hogan, Dall and Nikolov, 2003).
In Australia, diabetes was costing the health system AUS$681 million (US$520 million) (Australian IHW, 2002, p. 108) in the mid-1990s; today it is estimated at AUS$1 billion and may reach AUS$2.3 billion by 2010 (Australian DHA, 2004). In Brazil and Argentina the annual direct costs are estimated at US$3.9 billion and US$800 million, respectively (WHO, 2002b). The diabetes epidemic is particularly acute in the South Pacific, where the percentage of total health-care resources allocated for the disease is 6 per cent in Fiji, 10 per cent in the Federated States of Micronesia, 14 per cent in the Marshall Islands and 14 per cent in the Cook Islands (WHO ROWP, 2003). Health promotion and prevention account for only a small part of the total expenditure.

The governments of developing countries, often consumed by the prevention and treatment of infectious and parasitic diseases, face a serious challenge regarding non-communicable diseases, which are more costly to treat. These diseases are appearing in increasingly younger age groups, in particular in middle-aged men. Deaths from cardiovascular disease among working-age men, aged 35–64, are three to four times more likely in Brazil, China, India, South Africa and Tatarstan (southwest Azerbaijan) compared with the United States (Leeder, 2003). In many emerging economies, a transition is seen from communicable to non-communicable diseases. Diet-related non-communicable diseases in the mid-1990s accounted for 22.6 per cent of health care costs in China and 13.9 per cent in India (Popkin et al., 2001). In Brazil, cardiovascular disease accounts for 20 per cent of health-care costs. One theory states that the reason the problem is particularly acute in emerging economies is due to the fact that the population cannot handle the swift change in diet. The shift to high-fat, high-protein diets that occurred in the West over 200 years is occurring in developing countries in just over two decades.

1.3.2 The lingering malnutrition problem

The economic impact of malnutrition has been studied for many years and is characterized in detail in presentations from the Food and Agriculture Organization World Food Summit of 1996 and subsequent publications. According to the WHO, malnutrition (literally, bad nourishment) concerns not enough as well as too much food, the wrong types of food, and the body’s response to a wide range of infections that result in malabsorption of nutrients or the inability to use nutrients properly to maintain health. Clinically, malnutrition is characterized by inadequate or excess intake of protein, energy, and micronutrients such as vitamins, and the frequent infections and disorders that result. For governments, malnutrition represents a double burden. Macro- and micronutrient deficiencies have an immediate impact on workforce productivity and the health of the nation. These deficiencies also
stunt the physical and mental development of children, which plunges nations into a cycle of disease, early mortality and poverty that hinders economic development for generations. Although this book focuses on the adult worker, programmes aimed at feeding workers do affect children in that well-nourished adults are better equipped to feed their children.

Micronutrient deficiencies account for a 2–3 per cent loss in GDP in low-income countries; and in South Asia, iron deficiency alone accounts for a loss of US$5 billion in productivity (Ross and Horton, 1998, p. 38). Iron deficiency is responsible for a 5 per cent loss in productivity for light blue-collar work and a 17 per cent loss for heavy manual labour (Ross and Horton, 1998, p. 26). In Asia, adults moderately stunted from childhood micronutrient deficiencies are 2–6 per cent less productive; and severely stunted adults are 2–9 per cent less productive (Horton, 1999). The WHO has demonstrated that higher rates of stuntedness are intricately tied to lower GDP (WHO, 2000a). In Bangladesh, the estimated annual cost of malnutrition is US$1 billion; the country spends about US$246 million fighting malnutrition and could lose US$22 billion in productivity costs over the next ten years without adequate health investment (World Bank, 2000). In India, the World Bank estimates that the cost of lost productivity, illness and death due to malnutrition is US$10–28 billion, or 3–9 per cent of GDP (Measham and Chatterjee, 1999). Concern about malnutrition is not limited to developing countries. A 2003 report from the Malnutrition Advisory Group found that two million Britons (60 per cent of hospital patients) were malnourished, costing the Government £226 million (US$439 million).

Yet there are economic solutions. One study found that increasing the average daily energy supply to 2,770 kcal per person per day with adequate nutrients in a sample of countries could have increased the average annual GDP growth rate by nearly 1 per cent each year between 1960 and 1990 (Arcand, 2001). Numerous programmes exist around the world, such as food fortification and food distribution initiatives, which have met with moderate success. Over the past 15 years, the Bangladesh Integrated Nutrition Project has reduced the proportion of underweight children by 20 per cent and stunting in children under age 5 by 25 per cent. Workplace initiatives to prevent malnutrition, as the following chapters will detail, are relatively new in comparison.

1.3.3 Savings through diet and exercise

Seemingly small behavioural changes can yield large results. In the United States, researchers have estimated that US$5.6 billion in direct and indirect costs could be saved annually if only 10 per cent of the adult population aged 35 to 74 engaged in walking programmes (Jones and Eaton, 1994). A 1995
study from Ontario found that a 1 per cent increase in physical activity participation rates in this province would result in direct government health savings of CAN$31 million (US$26 million) (Saskatchewan DOH, 2001, p. 68). Similarly, the Conference Board of Canada calculated that treatment costs for heart disease, diabetes and colon cancer would drop by CAN$11.5 million (US$9.6 million) annually if the number of physically active Canadians increased by just 1 per cent (Saskatchewan DOH, 2001, p. 68). In Australia, researchers estimated that a 5 per cent increase in the number of physically active adults would save AU$36 million (US$28 million) annually in direct health-care costs (Stephenson et al., 2000, p. 41).

Few studies have measured the potential cost savings of a healthy diet, although there is reason to believe the savings would be substantial. A report prepared for the American Dietetic Association estimated that if the Medicaid system in the United States provided coverage for nutritional therapy (services provided by a dietician) for patients with diabetes and cardiovascular disease, the system could save US$65 million over six years (American Dietetic Association, 1997). The North Karelia Study in Finland aims to control cardiovascular disease through diet: changing the type of fats used, lowering sodium intake and increasing vegetable and fruit consumption. The programme has witnessed a dramatic decrease in cardiovascular death between 1972 and 1997 with a saving greater than the cost of implementing the programme (Pietinen et al., 2001). The WHO World Health Report 2002 (WHO, 2002a) reported that population-based intervention programmes to reduce the risk of non-communicable diseases through diet and changes in behaviour are largely cost-effective.

### 1.3.4 Underestimated cost of poor occupational safety and health

It remains difficult to estimate the impact that poor nutrition has on occupational accidents, injuries and fatalities, but this is clearly a concern for employers as well as governments. Worldwide, workers suffer approximately 270 million occupational accidents per year, of which 355,000 are fatal (ILO, 2003, p. 9). The annual global cost is upwards of US$1,250 billion in losses in global GDP (ILO, 2003, p. 15). These statistics, however, underestimate the true rate and cost of accidents. The connection between nutrition and fatigue and drowsiness is well known. Fatigue, or lack of energy, often reflects overwork or a nutritional deficiency, most commonly iron but also B vitamins. Drowsiness can accompany a lack of access to food. While it is true that we become sleepy after a big meal, smaller midday meals such as lunch keep us awake. Hypoglycaemia, or low blood sugar, which can occur when one skips a
meal, can shorten attention span and slow the speed at which individuals process information (McAulay et al., 2001). Snacking on sugary foods and drinks, which the body quickly digests, causes a short surge in energy but ultimately leaves the body more tired.

Divorcing nutrition from long working hours as the cause of fatigue and a particular accident is difficult. Such analysis may not be needed. A more appropriate approach, discussed further in Chapter 3, is for governments and employers to view the meal break as an opportunity for workers' nutrition, rest and refuelling, and in relation to workers' welfare, occupational health and safety, and productivity. Indirectly, particularly in developing countries, a dedication to workers' food services ultimately benefits family health when it ensures workers' health (and continued employment) and leaves more food at home for the family.

Information for this section was provided by Alexandra Cameron.

1.4 The rationale for employers

Employers absorb the indirect costs of poor nutrition, yet it is difficult to dissociate the costs attributed to lost national productivity mentioned above. Concerning obesity, the annual economic costs – including insurance, paid sick leave and other payments – to American business in a 1998 study was US$12.7 billion, with US$10.1 billion the result of moderate to severe obesity and US$2.6 billion attributed to mild obesity (Thompson et al., 1998). Also in the United States, diabetes has cost businesses US$39.8 billion annually in lost work-days, restricted activity and permanent disability (Hogan, Dall and Nikolov, 2003). In Latin America, the cost of lost production due to diabetes exceeds direct health-care costs by 500 per cent (WHO, 2002b). In China and India, lost productivity due to diet-related non-communicable diseases amounted to 0.5 per cent and 0.7 per cent of their GDPs, respectively (Popkin et al., 2001).

The United States based Lewin Group, a health policy research firm, prepared a report for the United States Department of Defense that estimated annual net savings of US$3.1 million if nutrition therapy was a covered health-care benefit (Lewin Group, 1998). Nutrition promotion offers numerous benefits for a company, including decrease in absenteeism, decrease in staff recruitment and training costs through reduced staff turnover, reduction in the number of worker compensation claims and gains in productivity through improved health and morale (United States DHHS, 1996). In Canada, the cost-effectiveness of workplace health promotion programmes is estimated to be CAN$1.75–6.85 for every corporate dollar invested, based on reduced
employee turnover, greater productivity and decreased medical claims by participating employees (Cowan, 1998). In a two-year study of 40,000 blue-collar workers, United States based Dupont found that its workplace health promotion programme, which included nutrition, led to a 14 per cent decline in disability days and a return of US$2.05 for every dollar invested (United States DHHS, 1996, p. 35). Similarly, the United States based Travelers’ Insurance estimated that it saved US$3.40 for every dollar invested in its Taking Care programme, with absenteeism declining an average of 1.2 days per participant (United States DHHS, 1996, p. 35).

Many employers and employers’ organizations recognize the importance of the nutrition issue and are actively engaged. For example, in the Manaus region of Brazil, the Finnish company Nokia provides full-time employees with subsidized meals, a social benefit not guaranteed in the collective agreement. Multi-country economic unions are not that far behind. The “Social Protocol and Agreement” to the Maastricht Treaty on European Union in 1992 set conditions for adopting Europe-wide legislation on labour rights. These included the right to health and safety in the workplace. In South America, the Southern Cone Central Labor Coordination, comprising unions from four countries, convinced the Common Market of the Southern Cone (MERCOSUR) to ratify 34 ILO Conventions, creating a platform to discuss basic worker nutrition issues.

1.5 The rationale for employees and unions

Food is central to our lives. The word “companion” is derived from the Latin words for “with bread”. Aside from providing “fuel” for work, eating together with co-workers provides a sense of camaraderie, increases morale and reduces stress. Excuse the non-scientific television reference, but even Fred Flintstone jumped for joy at the sound of the noontime whistle.

Nutrition and food safety are as important a right as occupational health and safety. Many workers spend at least a third of their day or half of their waking hours at work. Whether workers work during “business hours”, after hours, weekends or seasonally, eight hours or more (not including the commute to and from work) is a long time to go without eating, particularly when the task is arduous. The availability of healthy food choices in cafeterias or from vending machines, through the distribution of vouchers, or through the provision of mess rooms, kitchenettes or safe local food can support a healthy workplace. This is especially important when workers do not eat well outside work. Surveys have shown that over 70 per cent of employees support employer involvement in workplace health promotion programmes and 85 per cent believe that workplace programmes can increase health and
lower health costs (Nutrition Resource Centre, 2002, p. 8). Also when
surveyed, employees report that the workplace is an appropriate place to

Although a proper meal is valued, it is not always expected. This is
particularly true for workers in the vast informal sector of developing and
emerging economies, as well as for workers in industrialized nations who face
the threat of redundancy, outsourcing and other cutbacks. In the 1980s and
1990s in the United Kingdom, for example, widespread redundancies
adversely affected workers’ entitlements. Cost-cutting and market pressures
lowered the quality of food provided in workplaces, especially in the public
sector. Collective bargaining strategies at the time sought to consolidate
benefits into basic wages, as this affected the calculation of other entitlements
such as pay for holidays, sick days, maternity, redundancy and pensions. Meal
programmes, so important in building a strong workforce during the late
1940s and 1950s, were seen more as an expendable perk than a basic right and
necessity. Workers are treated as adults, and the assumption is that they will
find somewhere and something to eat themselves. This devaluation of meal
programmes among employers and unions is an alarming trend.

The Canadian Auto Workers (CAW) union, featured in Chapter 4,
countered this trend when it secured a better meal programme for Chrysler
The programme was a popular CAW victory, increasing the union’s visibility
among Canadian workers. Chrysler, in turn, won the 2004 National Quality
Institute Award for Excellence, a well-respected business award that recognizes
efforts to make the workplace safer and healthier. Other unions are following
suit. Trade unions in Austria are pushing for better workplace food and dining
areas for many reasons: for health, for solidarity with food growers, to establish
food safety and food ethics standards, and to ensure at least one quality meal a
day, now that evening meals often are not home-made. Although in their
infancy, Cambodian labour unions have fought for basic provision for nutrition
during working hours. The United Kingdom’s Public and Commercial Services
Union is rallying support for the enforcement of the 30-minute meal break.
Companies with the economic means are revamping canteens to offer more
healthy foods, at the request of their workers. Other companies that struggle
to remain profitable are seeing basic meal programmes, requested by their
workers, as a wise investment. We may be witnessing a meal programme revival.

Opportunities abound. Mess rooms and kitchenettes enable workers to
bring their own lunch, which can be a healthy and inexpensive alternative to
eating out. Canteens can provide nourishing food at a discount. This can
provide workers with the opportunity to eat healthy foods, such as vegetables,
which they may not buy for home or may not know how to cook properly.
Vending machines these days can provide a variety of nourishing foods, even hot soups, yet occupy little space and cost far less for businesses too small to operate a canteen. Vending machines can serve shiftworkers and night workers after hours. Vouchers give employees a choice of foods and restaurants and can be an attractive perk in a benefits package. Vouchers are ideal for mobile workers as well as urban workers. Providing food options in general that are at or near the workplace facility also enables the worker to rest properly. In many situations, particularly in the developing world, a meal at work might be the most nourishing meal of the day – and make the difference between life and death.

The importance of adequate nutrition is clear. The next chapter provides an overview of the scientific consensus on what constitutes good nutrition.