

# Integrating Poverty and Gender into Health Programmes

*A Sourcebook for Health Professionals*



## Module on Nutrition



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## ABBREVIATIONS

ADB	Asian Development Bank
BFHI	Baby-Friendly Hospital Initiative
BMI	Body mass index
CEDAW	Convention on the Elimination of All Forms of Discrimination against Women
CCT	Conditional cash transfer
DHS	Demographic and Health Survey
EPI	Expanded Programme on Immunization
FRESH	Focusing Resources on Effective School Health
FAO	Food and Agriculture Organization of the United Nations
FFT	Food for training
FFW	Food for work
ICCIDD	International Council for the Control of Iodine Deficiency Disorders
IDD	Iodine deficiency disorder
IMCI	Integrated management of childhood illness
LBW	Low birth weight
MDG	Millennium Development Goal
MUAC	Mid-upper arm circumference
NCD	Noncommunicable disease
NGO	Nongovernmental organization
PRSP	Poverty Reduction Strategy Paper
UN	United Nations
UNDP	United Nations Development Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNICEF	United Nations Children's Fund
WFP	World Food Programme
WHO	World Health Organization

## PREFACE

Over the past two to three decades, our understanding of poverty has broadened from a narrow focus on income and consumption to a multidimensional notion of education, health, social and political participation, personal security and freedom and environmental quality.<sup>1</sup> Thus, it encompasses not only low income, but also lack of access to services, resources and skills; vulnerability; insecurity; and voicelessness and powerlessness. Multidimensional poverty is a determinant of health risks, health-seeking behaviour, health care access and health outcomes.

As analysis of health outcomes becomes more refined, it is increasingly apparent that the impressive gains in health experienced over recent decades are unevenly distributed. Aggregate indicators, whether at the global, regional or national level, often tend to mask striking variations in health outcomes between men and women, rich and poor, both across and within countries.

It is estimated that about 70% of the world's poor are women.<sup>2</sup> Similarly, in the Western Pacific Region, poverty often wears a woman's face. Indicators of human poverty, including health indicators, often reflect severe gender-based disparities. In this way, gender inequality is a significant determinant of health outcomes in the Region, with women and girls often at a severe societal disadvantage.

Although poverty and gender significantly influence health and socioeconomic development, health professionals are not always adequately prepared to address such issues in their work. This publication aims to improve the awareness, knowledge and skills of health professionals in the Region on poverty and gender concerns.

The set of modules that comprise this Sourcebook are intended for use in pre-service and in-service training of health professionals. It is expected that this publication will also be of use to health policy-makers and programme managers, either as a reference document or in conjunction with in-service training.

All modules in the series are linked, but each one can be used on a stand-alone basis if required. There are two foundational modules that set out the conceptual framework for the analysis of poverty and gender issues in health. Each of the other modules is intended for use in conjunction with these two foundational modules. The Sourcebook also contains a module on curricular integration to support health professional educational institutions in the process of integration of poverty and gender concerns into existing curricula.

All modules in the Sourcebook are designed for use through participatory learning methods that involve the learner, taking advantage of his or her experience and knowledge. Each module contains facilitators' notes and suggested exercises to assist in this process.

It is hoped that the Sourcebook will prove useful in bringing greater attention to poverty and gender concerns in the design, implementation and monitoring and evaluation of health policies, programmes and interventions.

# Introduction



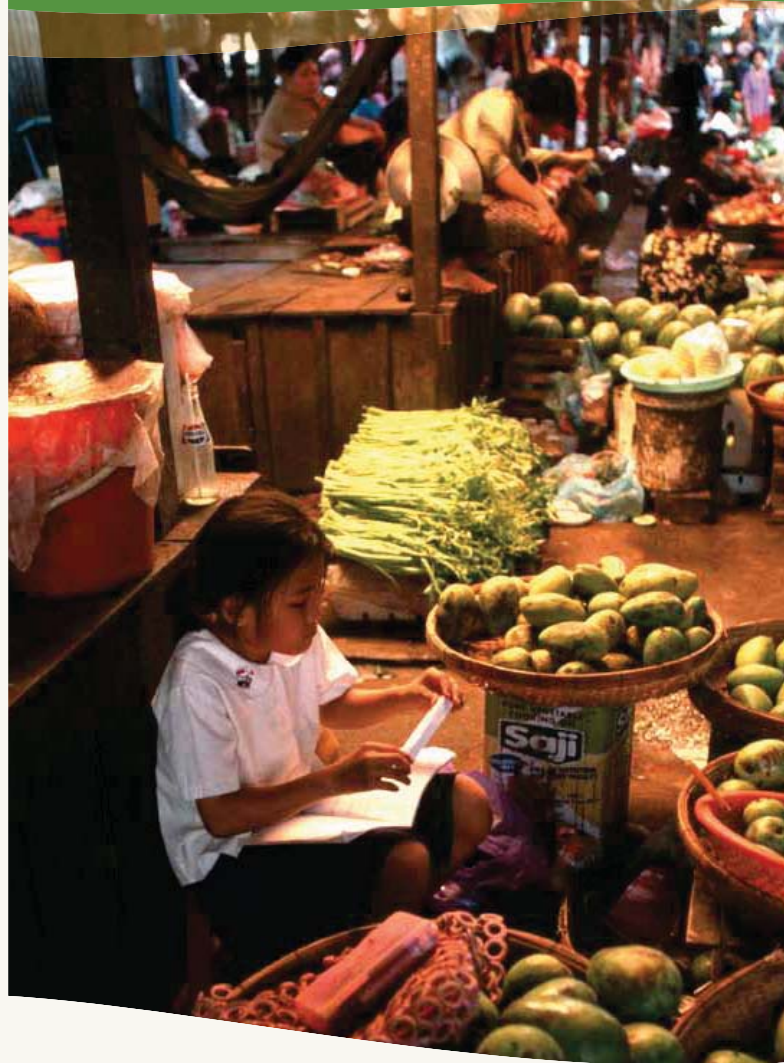
## Introduction

It is widely understood that good nutrition is a key component of a healthy and active life for men and women, boys and girls. The Western Pacific Region has made great strides in reducing the prevalence of undernutrition among children, adolescents and adults. Overall, the Region is making significant progress towards the Millennium Development Goal for hunger. However, data that measure the progress in reducing undernutrition at national level tend to mask striking inequalities among populations in the Region. At the same time, the risk factors for overweight and obesity are rising in the Region, resulting in a growing burden of overweight in some countries. Furthermore, a growing body of evidence shows that poor men and women, boys and girls suffer disproportionately from malnutrition. Although data on nutritional outcomes among men and women in the Region are limited, evidence also suggests that the nutrition of men differs from that of women. The knowledge and tools to address malnutrition in the Region largely exist. Mobilizing support for these interventions in developing countries will improve the health of millions, thereby contributing to poverty reduction and gender equality.

The module is designed to improve the awareness, knowledge and skills of health professionals on poverty and gender concerns in the field of nutrition. It is divided into six sections.

- **Section 1** explores key factors that contribute to nutritional health, how nutritional status is measured and key nutritional needs through the life cycle.
- **Section 2** examines WHAT the links are between poverty and gender and nutrition.
- **Section 3** discusses WHY it is important for health professionals to address poverty and gender concerns in nutrition, from efficiency, equity and human rights perspectives.
- **Section 4** discusses HOW health professionals can improve nutritional health and illustrates pro-poor and gender-responsive interventions to promote and improve nutritional outcomes.
- **Section 5** provides notes for training facilitators.
- **Section 6** is a collection of additional resources and references to support health professionals in their work in this field.

# 1. What is nutrition?



## 1. What is nutrition?

Nutrition refers to the “way the body absorbs and uses food.”<sup>3</sup> Similar to breathing air and drinking water, eating sufficient amounts of food and ensuring adequate nutrition are necessary for human life. A variety of nutrients found in food are needed to protect the body from disease, maintain health and promote physical and mental growth and well-being. At a biological level, nutritional needs are commonly explained and described in terms of the body’s requirements for **essential nutrients** that are made up of macronutrients and micronutrients.

Commonly eaten foods can be divided into three categories:

- energy-giving foods that fuel our activity (carbohydrates, fats) such as cereals, fats and oil, starchy vegetables and sugar;
- growth-promoting foods that help the body grow and maintain function (proteins) such as most foods of animal origin (milk, eggs, fish and meat) and some foods of vegetable origin (pulses, peas, beans and nuts); and
- protective foods that defend the body against disease (containing vitamins and minerals, collectively known as micronutrients) such as vegetables and fruit, especially green leafy vegetables and fruit and vegetables that are orange or yellow in colour.

In reality, the vast majority of the foods we eat contain a mixture of macronutrients, although one macronutrient usually predominates. The association of foods with their dominant macronutrient allows the use of food type categories. For example, rice contains elements of all three categories, but energy-giving nutrients predominate. In order to maintain strong immune systems and good health, people need to eat a combination of foods from the three categories.

On average, the minimum daily calorific requirement of the adult human body is roughly 1800 kilocalories.<sup>4</sup> This amount ensures that optimal health, physiological functioning and well-being are attained and maintained.<sup>5</sup> This minimum requirement varies over stages of the life cycle and across different types of work

performed. For example, pregnant or breastfeeding women and young children have higher than average nutritional requirements (expressed as per kilogram [kg] body weight), as do manual labourers.

### What is malnutrition?

Deficiencies, excesses or imbalances in energy, protein or other nutrients are described as malnutrition. This can result from a range of factors that lead to insufficient or poorly balanced food intake, defective digestion or assimilation of food. Malnutrition can lead to numerous health problems, poor cognitive development, restricted growth, and even death.<sup>6</sup>

Concern with malnutrition has traditionally focused on various forms of nutritional deficiency or undernutrition and the associated morbidity and mortality in infants, young children and mothers. However, the shifting of lifestyles across the globe towards more sedentary and urban living has led to a dramatic rise in other forms of malnutrition associated with overnutrition and obesity and the longer-term implications of unbalanced diets. These forms of malnutrition tend to result in chronic diseases.

Hunger and undernutrition are often the more striking examples of malnutrition. Hunger commonly describes the “subjective feeling of discomfort that follows a period without eating.”<sup>7</sup> Hunger can be acute, chronic or hidden. Acute hunger is most dramatically illustrated by starvation. Chronic hunger is much more common, however, and is caused by a lack of access to food of sufficient quantity or quality, good health care, clean water and adequate sanitation, and necessary caring practices.<sup>8</sup> Hidden hunger is associated with a lack of essential micronutrients (vitamins and minerals), even though sufficient quantities of protein and calories are consumed. Hidden hunger affects roughly 2 billion people worldwide.<sup>9</sup>

Undernutrition refers to “insufficient food intake to continuously meet dietary energy

requirements.”<sup>10</sup> Like hunger, undernutrition encompasses not just protein-energy malnutrition but also deficiencies in micronutrients, which are essential for the health and development of children.<sup>11</sup> Protein-energy malnutrition is caused by an insufficient intake of protein- and energy-giving foods.

Although the body requires only very small amounts of micronutrients, they are critical since they enable the body to produce enzymes, hormones and other substances that are essential for growth and development. As such, the absence or limited availability of micronutrients can have significant adverse health consequences, particularly for children and pregnant women. Iodine, vitamin A and iron are the three micronutrients whose deficiencies are of persistent and widespread regional public health significance (Box 1).

At the other end of the nutrition spectrum, overweight and obesity are defined as “abnormal or excessive fat accumulation that may impair health.”<sup>12</sup> The World Health Organization (WHO), defines “overweight” as having a body mass index (BMI, please see definition below) equal to or greater than 25, and “obesity” as having

a BMI equal to or greater than 30. Overweight and obesity are caused by consuming more calories than are expended, through physical activity, for example. Overweight and obesity affect all age groups and are increasingly found among all socioeconomic groups.<sup>13</sup> This phenomenon is driven by a global shift towards energy-dense foods that are high in fat and sugars and lower levels of physical activity. These and other factors are explored in more detail below.

### Undernutrition across the life cycle

Although the risk of undernutrition is present across all stages of the life cycle, malnutrition in infancy and early childhood are of special concern, as the effects of undernutrition on human development accumulate over the stages of the life cycle.

Undernutrition begins *in utero* for many children from low-income or otherwise disadvantaged households, often leading to low weight at birth. Low birth weight (LBW) is commonly attributed to short gestation and/or intrauterine growth retardation. LBW babies face a higher risk of disease and a greater probability of dying in the

#### Box 1: Micronutrient disorders

Iodine deficiency disorders (IDD), which can start before birth, jeopardize children’s mental health and often their very survival. Serious iodine deficiency during pregnancy can result in stillbirth, spontaneous abortion, and congenital abnormalities such as cretinism, which is a grave, irreversible form of mental retardation that affects people living in iodine-deficient areas of Africa and Asia. However, of far greater significance is the less visible, yet pervasive, mental impairment that reduces intellectual capacity at home, in school and at work.

Vitamin A deficiency is the leading cause of preventable blindness in children and increases the risk of disease and death from severe infections. In pregnant women, vitamin A deficiency causes night blindness and may increase the risk of maternal mortality. Vitamin A deficiency is a public health problem in more than half of all countries, especially in Africa and South-East Asia, hitting young children and pregnant women in low-income countries the hardest.

Iron deficiency is the most common and widespread nutritional disorder in the world. As well as affecting a large number of children and women in developing countries, it is the only nutrient deficiency that is also significantly prevalent in industrialized countries. Iron deficiency and anaemia reduce the work capacity of individuals and entire populations, with serious economic consequences and obstacles to national development.

Sources: World Health Organization 2008a; World Health Organization 2008b; World Health Organization 2008c.

neonatal period or in infancy than their healthier counterparts.<sup>14</sup> On reaching childhood, they are more likely than their peers to experience cognitive impairments, which may never be fully redressed later in life.<sup>15</sup> They also tend to be smaller (stunted) and suffer a higher burden of disease throughout childhood and into adulthood.<sup>16</sup> Even when better nutrition is achieved later in life, the effects of undernutrition in childhood may never be overcome and may be transmitted across generations. An underweight girl will likely grow into a stunted adolescent and woman and be more likely to have LBW babies (Figure 1). Recent evidence from South Asia also suggests a link between intrauterine growth retardation (leading to LBW) and chronic diseases in adulthood.<sup>17</sup>

### Food security

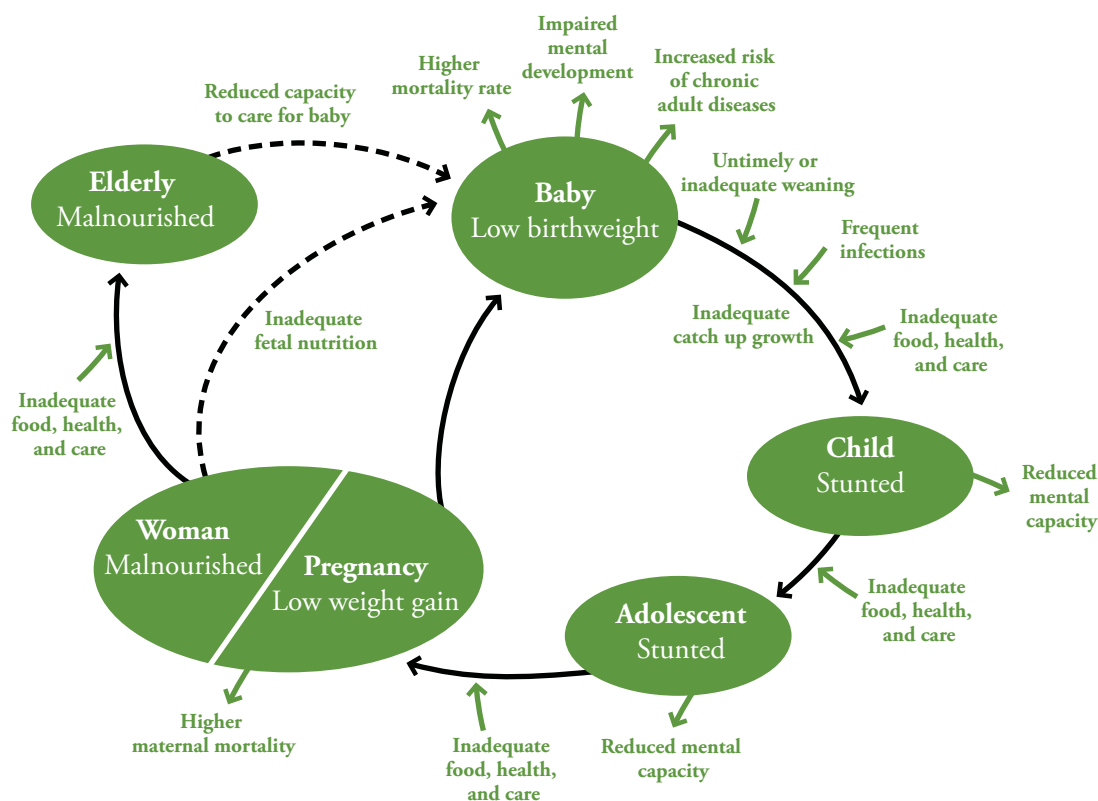
Food security is defined as “the access by all people at all times to enough food for an active, healthy

life.”<sup>18</sup> Food insecurity is a situation in which people do not have access to sufficient amounts of safe, nutritious and culturally acceptable food for normal growth and development and for an active and healthy life. It may be caused by:

- unavailability of food through own production (i.e. farming);
- not having enough money to buy food (i.e. to purchase on the market);
- inappropriate distribution of food within societies or households; and/or
- inadequate use of food at the household level.

Food insecurity may be chronic, seasonal or transitory. Households facing chronic food insecurity are consistently unable to meet their food needs, while those with acute or transitory food insecurity are unable to meet their food needs in the short term. The determinants of chronic and acute food insecurity tend to differ: the first is

Figure 1: The intergenerational cycle of malnutrition



Source: UNACC/SCN 2000. In: UN Millennium Project 2005.



often a manifestation of poverty, while the latter tends to be related to short-term phenomena such as droughts, floods or conflict.

Notably, there may not be a direct relationship between food availability at national level and food security among households. For example, most countries in Asia produce or import enough food to feed their entire populations. However, the unequal distribution of food through poorly functioning markets and high food prices can limit the access of poor households to sufficient amounts of food for a healthy and active life. Market failure, that is, when markets are unable to ensure a sufficient supply of food at affordable prices, such as when the cost of transporting food to a particular area is high or roads are inaccessible, is a particularly critical cause of food insecurity for poor households.<sup>19</sup>

### How is nutritional status measured?

The Millennium Declaration signed in 2000 committed United Nations Member States to a series of time-bound and measurable targets known as the Millennium Development Goals (MDGs). The first MDG aims to eradicate extreme poverty and hunger. The target for this goal is “to halve, between 1990 and 2015, the proportion of people who suffer from hunger.” Progress towards this goal is measured through the following indicators:

- prevalence of underweight children under 5; and
- proportion of population below minimum level of dietary energy consumption.

These indicators are one way to measure nutritional status at the population level. Other widely used nutritional measures tend to capture different aspects of nutritional outcomes. Box 2 presents definitions of several key terms used in measuring nutritional status.

The nutritional status of an individual is generally assessed by measuring weight and/or height (length), and sometimes subcutaneous fat, and comparing these results to an average based on the

measurements of healthy and nutritionally sound people of the same age group. Sometimes, a cut-off point or a normal range of weight for women and men of a certain age and a certain height are specified. A specified cut-off point indicates the level at which the nutritional status of an individual switches from one category to the next. In the case of birth weight, an infant weighing below the cut-off point of 2500 grams has LBW and above is considered healthy.

For children, the predominant indicators are birth weight, weight-for-age, height-for-age, weight-for-height, and mid-upper arm circumference (see Box 2). These indicators determine the nutritional status of the child, compared to other children or an international reference population. Whether assessing their weight-for-age or height-for-age, children can be classified as mildly, moderately or severely malnourished.

While nutritional status indicates whether a child is smaller or larger than other children, it does not indicate if the child, regardless of size, is growing adequately. To know this, one has to monitor growth. Growth is monitored most commonly by weighing a child at monthly intervals, plotting the weight on a graph based on the child’s age, and then assessing whether the child is gaining adequate weight each month. Growth promotion is the process of monitoring growth and providing counselling and other assistance to families based on the needs of the individual child.

When determining a child’s nutritional status, the child’s weight is plotted according to his/her age on the growth chart, and compared to the upper and lower limits. In this way, degrees of undernutrition or overnutrition (if present) can be assessed. However, when using the chart for growth promotion, the key point is whether there is adequate weight gain each month – regardless of where the child falls in terms of the reference curves.

For adults, BMI is used in addition to weight/height tables. The WHO Expert Committee on Nutrition recommends using BMI for identifying

### Box 2: Measures of nutritional status

**Low birth weight:** Newborn infants who weigh less than 2.5 kilograms at birth.

**Overweight and obesity:** Body weights that are above normal as a result of an excessive accumulation of fat, usually a manifestation of overnourishment. Overweight is defined as a body mass index between 25 and 30; obesity as a body mass index greater than 30.

**Stunting:** Low height-for-age, reflecting a sustained past episode or episodes of undernutrition.

**Undernourishment:** Inadequate consumption of food. Individuals in households consuming less than about 1800 kilocalories per capita, depending on age, sex and height, are considered undernourished, using the Food and Agriculture Organization's (FAO) measure based on distribution of household consumption and availability of dietary energy.

**Undernutrition:** The result of undernourishment, poor absorption or poor biological use of nutrients consumed.

**Underweight:** Low weight-for-age in children, and body mass index below 18.5 in adults, reflecting a current condition resulting from inadequate food intake, past episodes of undernutrition, or poor health conditions.

**Wasting:** Low weight-for-height, generally the result of weight loss associated with a recent period of starvation or disease.

Source: UN Millennium Project 2005.

the risks of undernutrition among pregnant women. This measurement should be taken in the first trimester (first 13 weeks) of pregnancy.

Another way to measure an individual's nutritional status is by assessing the level of various micronutrients in the person's body. Important micronutrients are iron, iodine, vitamin A, calcium and zinc, although the first three are given most attention. Micronutrient levels for iron and iodine can be easily measured by blood tests. Deficiencies can be documented by clinical findings, e.g. goitre as a sign of iodine deficiency, and night blindness, Bitot spots or xerophthalmia from vitamin A deficiency.

### What is the distribution of malnutrition?

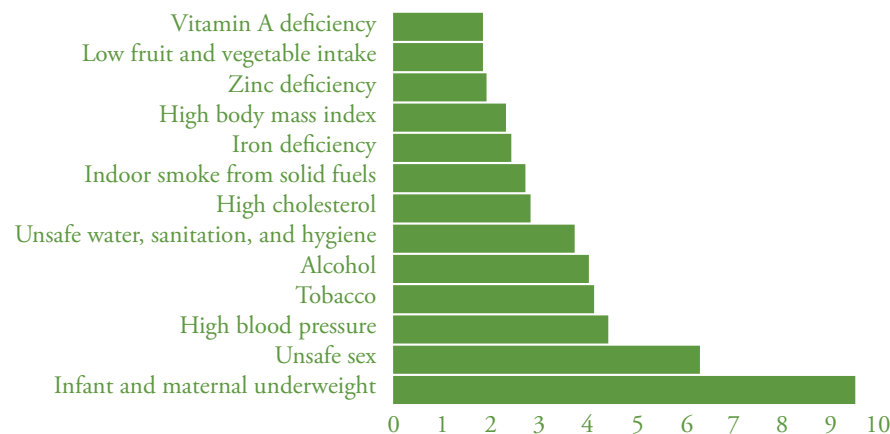
The global extent of malnutrition is sobering. Estimates reveal that, despite much progress in improving nutritional outcomes worldwide, the prevalence of undernutrition remains pervasive, particularly among infants and children in many

developing countries. Simultaneously, evidence shows that rates of overweight and obesity are growing rapidly in developing countries. This suggests the rise of a double burden of undernutrition and overweight in developing countries.

Malnutrition, including micronutrient deficiencies, is among the leading risk factors contributing to the global burden of disease, as measured by the share of world disability adjusted life years (Figure 2). The global burden of undernutrition and overweight/obesity are considered separately below.

### Global burden of undernutrition

An estimated 852 million people lack sufficient food to lead healthy and productive lives.<sup>20</sup> According to FAO, an estimated 1.02 billion people were undernourished in 2009, which amounts to the greatest number of people suffering from hunger at any time since the 1970s.

**Figure 2: Leading risk factors contributing to the global burden of disease (DALYs)**

Source: Ezzati et al. 2002. In: UN Millennium Project 2005.

This increase was largely driven by the economic crisis in 2008 and 2009, which saw soaring food prices and an increase in unemployment. Before 2009, the world was experiencing a slow decline in the percentage of people suffering from undernutrition worldwide, with 13% of the world population undernourished in 2004–2006, as compared with 14% in the mid-1990s. However, because of population growth, the absolute number of undernourished people in the developing world increased during this period from 825 to 873 million.<sup>21</sup> In addition, estimates suggest that maternal undernutrition, that is, a BMI of less than 18.5 among mothers, ranges from 10% to 19% in most countries.<sup>22</sup>

Similarly, roughly 30% of the population in developing countries suffers from micronutrient deficiencies. At the same time, estimates show that 35% of the global population lacks adequate iodine, 40% of the population in developing countries suffer from iron deficiency, and over 40% of children are vitamin A deficient.<sup>23</sup> Micronutrient deficiencies can be particularly acute among women. For example, an estimated 42% of pregnant women globally suffer from anaemia.<sup>24</sup>

The Western Pacific Region has made progress in reducing the proportion of the undernourished population. In China, for example, an estimated

16% of the population was undernourished in 1990–1992, as compared with 12% in 1995–1997 and 9% in the period 2003–2005. During the same periods, the proportions went from 38% to 41% and then to 26% in Cambodia, from 27% to 26% to 19% in the Lao People's Democratic Republic, and from 21% to 18% to 16% in the Philippines.<sup>25</sup>

Based on the most recent available data, the situation in Pacific island countries is slightly more complex. A reduction in the proportion of undernourished population has been seen in Fiji, Kiribati, Solomon Islands and Vanuatu, although the rate of change in some countries is beginning to stagnate (Figure 3). Other data suggest that there has been no decline in the prevalence of undernutrition from 1990 to 2002 in French Polynesia and New Caledonia and only a slight decline from 15% to 13% in Papua New Guinea.<sup>26</sup>

### *Children under 5 years of age*

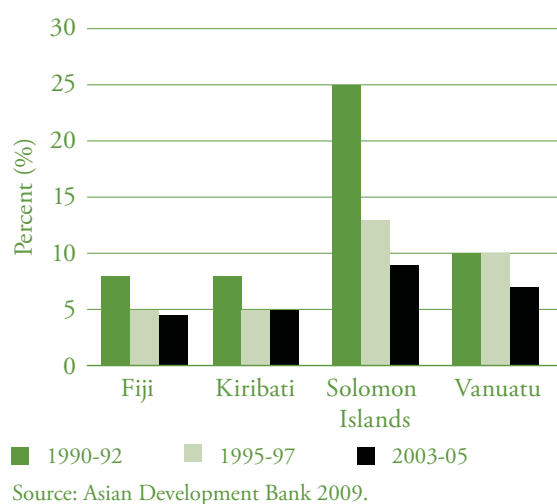
Over the past 20 years, there has been a steady decline in undernutrition among children under 5 years in all regions of the world, except in parts of Africa. In Asia, the prevalence of stunting decreased from 52% in 1980 to 34% in 2000. Figure 4 presents progress towards reducing the prevalence of underweight among children under 5 years in selected regions and for all developing countries.

While the prevalence of undernutrition is declining, it remains a major problem globally. In 2005, stunting, severe wasting and LBW, which result from undernutrition, were found to be responsible for a large proportion of morbidity and mortality among children under 5 years of age. More specifically, estimates suggest that undernutrition caused 2.1 million deaths and 91.0 million disability-adjusted life years (DALYs) among children under 5 years of age.<sup>27</sup>

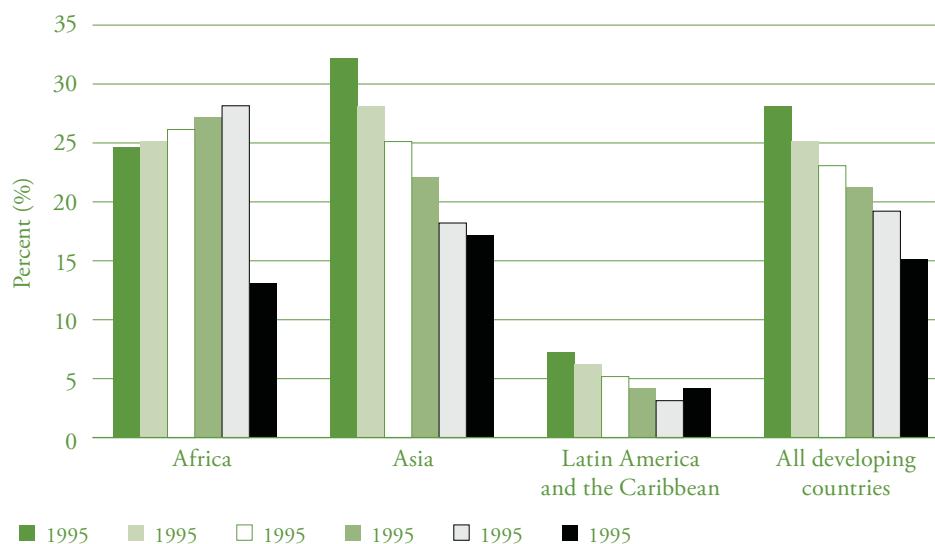
LBW is estimated to affect 10.8% of live births in developing countries annually. Among children under 5 years of age in low- and middle-income countries, an estimated 20% were underweight, 32% were stunted and 10% were wasted in 2005.<sup>28</sup> This same analysis concluded that the prevalence of underweight was highest in south-central Asia (33%) and eastern Africa (28%), and the prevalence of stunting was highest in eastern Africa (50%) and middle Africa (42%). However, the largest number of stunted children was found to be in south-central Asia (74 million). Only 36 countries account for an estimated 90% of all children affected by stunting. The prevalence of wasting was found to be highest in south-central Asia.

In the Western Pacific Region, a number of countries have made significant progress towards meeting the MDG for hunger, as measured by reductions in the prevalence of underweight among children under 5 years. Recent reports from China suggest that the country has already

**Figure 3: Percentage change in the proportion of undernourished population, 1990-92, 1995-97 and 2003-05 for selected countries in the Pacific**



**Figure 4: Prevalence of underweight children under age 5, actual and projected (%)**



met the hunger goal. In China, the prevalence of underweight among children decreased from 19.1% in 1990 to 7% in 2005.<sup>29</sup> Rapid progress has also been noted in Cambodia, the Lao People's Democratic Republic, the Philippines and Viet Nam, which together account for a substantial proportion of the Region's underweight preschool population, representing 4.4% of the world's underweight population. On average, however, this progress has not been rapid enough to meet the MDG target by 2015.<sup>30</sup>

### Global burden of overnutrition

Overweight and obesity are rapidly becoming commonplace in industrialized countries.<sup>31</sup> An estimated 1.6 billion individuals over the age of 15 worldwide were overweight in 2005. Of these, roughly 400 million were obese.<sup>32</sup> This is a rapid increase from 1995 figures, which estimated 200 million adults as being obese and 18 million children under 5 years of age as being overweight.<sup>33</sup>

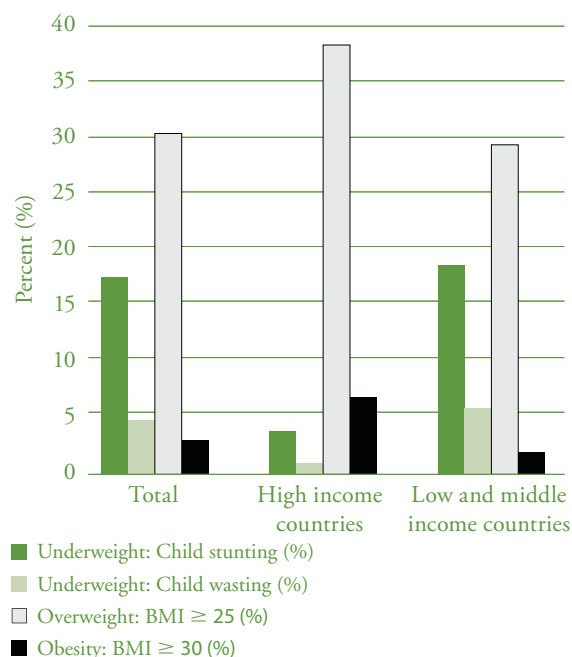
At the same time, the prevalence of obesity has been found to already have increased in developing countries to levels observed in industrialized countries at considerably later stages of development (Figure 5).<sup>34</sup> By 2000, 115 million people in developing countries were suffering from obesity-related problems.<sup>35</sup>

Similarly, throughout the Western Pacific Region, the BMI of adults has been rising and an estimated 33% of men and 31% of women are obese.<sup>36</sup> The rates of obesity have increased three-fold or more since 1980 in China and some Pacific island countries.<sup>37</sup> The prevalence of overweight is reported to be on the rise in Mongolia, having increased from 11% in 1993 to 21.8 in 2005.<sup>38</sup> In Viet Nam, the prevalence of overweight among women was found to have increased from 1.6% in 1994 to 4.0% in 2005.<sup>39</sup> In the Lao People's Democratic Republic, one of the least developed countries in the Region, an estimated 9.1% of adults were overweight or obese in 1994.<sup>40</sup> More recent data suggest that 32.10% of men and 45.60% of women are overweight in the Lao People's Democratic Republic.<sup>41</sup>

Obesity is becoming increasingly prevalent among Pacific island communities. Based on the results of a meta-analysis of BMI and ethnicity, the prevalence of obesity in the Pacific islands is the highest in the world.<sup>42</sup> For example, in 2002, a study undertaken in Rarotonga in Cook Islands showed that at least 80% of the study population was overweight or obese.<sup>43</sup>

The growing burden of overweight and obesity in the Region is further evidenced by the increasing prevalence of overweight and obesity among children and adolescents. In 1996, a survey in Arorangi School in Puaikura Vaka, Cook Islands, estimated that 12% of schoolchildren were overweight. By 2002, the proportion had increased to 15.7%.<sup>44</sup> An increasing trend in the prevalence of overweight among schoolchildren has likewise been documented in the Philippines. According to a study by the Food and Nutrition research Institute of the Department of Science and Technology, the prevalence of obesity among schoolchildren increased from 5.7% in 1989-1990 to 8.0% in 1993 and 8.8% in 1996.<sup>45</sup>

**Figure 5: Prevalence of selected risk factors by income group in the Western Pacific Region, 2004**



Source: World Health Organization 2009a.

## 2. What are the links between poverty and gender and nutrition?



## 2. What are the links between poverty and gender and nutrition?

### The links between poverty and nutrition

As the preceding section shows, countries in the Region have made impressive progress in reducing the prevalence of undernutrition, while at the same time, rates of overweight and obesity have begun to rise. While the causes of these differing types of malnutrition tend to vary, evidence shows that undernutrition is largely concentrated among poor populations in the Region. In addition, a growing number of studies show that the risk factors for overweight and obesity are increasingly common among developing countries and among poor communities in these countries. This suggests that, with time, the burden of overweight and obesity could increasingly be found among poor populations in the Region. This shifting trend in the burden of overweight and obesity onto poor populations mirrors a trend already witnessed in developed countries in the Region, where overweight and obesity are often more common among poor individuals and households than among those who are better-off.

Evidence shows that poverty and gender inequality are among the most significant

determinants of nutrition and nutritional status among populations, households and individuals. The fact that nutrition is the foundation for health and well-being is captured in the very notion of what it is to be poor. Undernutrition has been identified as a core element of poverty, while other dimensions of poverty, such as low household income, education and opportunities, are key determinants of malnutrition. In addition, gender roles and gender-based inequalities can lead to differential access by men and women, boys and girls to food and other determinants that enable them to enjoy good nutritional outcomes.

Box 3 discusses how poverty is conceptualized in this module. The sections that follow consider the relationship between poverty and nutrition and the influence of gender inequality on the nutrition of men and women, boys and girls.

### Determinants of malnutrition

#### *Undernutrition*

The causes of undernutrition are complex. While hunger can result from the scarcity of food, this is only part of the problem. Compared with more affluent households, people from low-income households tend to own less land, grow less food, have less money to buy food, be less educated, have less access to information on appropriate care and feeding practices and often live in areas with inadequate health and sanitation facilities. Thus, various aspects of a multidimensional understanding of poverty, such as low household income, low levels of education and poor living environments, can be understood as determinants of undernutrition. These factors influence people's access to an adequate range of nutritious foods to meet their nutritional requirements, their ability to protect themselves from diseases such as diarrhoea, respiratory illness and malaria that can have a direct impact upon nutritional outcomes. Figure 6 outlines a framework formulated by the United Nations Children's Fund (UNICEF) that focuses on the influence of poverty on maternal and childhood undernutrition.

#### Box 3: Defining poverty

Poverty is often described as a state in which the income or consumption of an individual or household falls below a given level. While this is a useful means of identifying the poor and measuring and comparing poverty levels across areas and countries, it glosses over the complexity of how poor individuals experience poverty. To capture these diverse aspects, poverty has come to be conceptualized as multidimensional. That is, poverty encompassing not only low income, but also lack of access to services, resources and skills, vulnerability, insecurity and voicelessness and powerlessness. It is this definition of poverty that is used in the text below. Importantly, the ways in which different members of a household experience poverty tends to differ. Men and women have particularly different experiences of poverty. This is because poverty overlaps with and reinforces prevailing social norms and gender inequalities.<sup>46</sup>

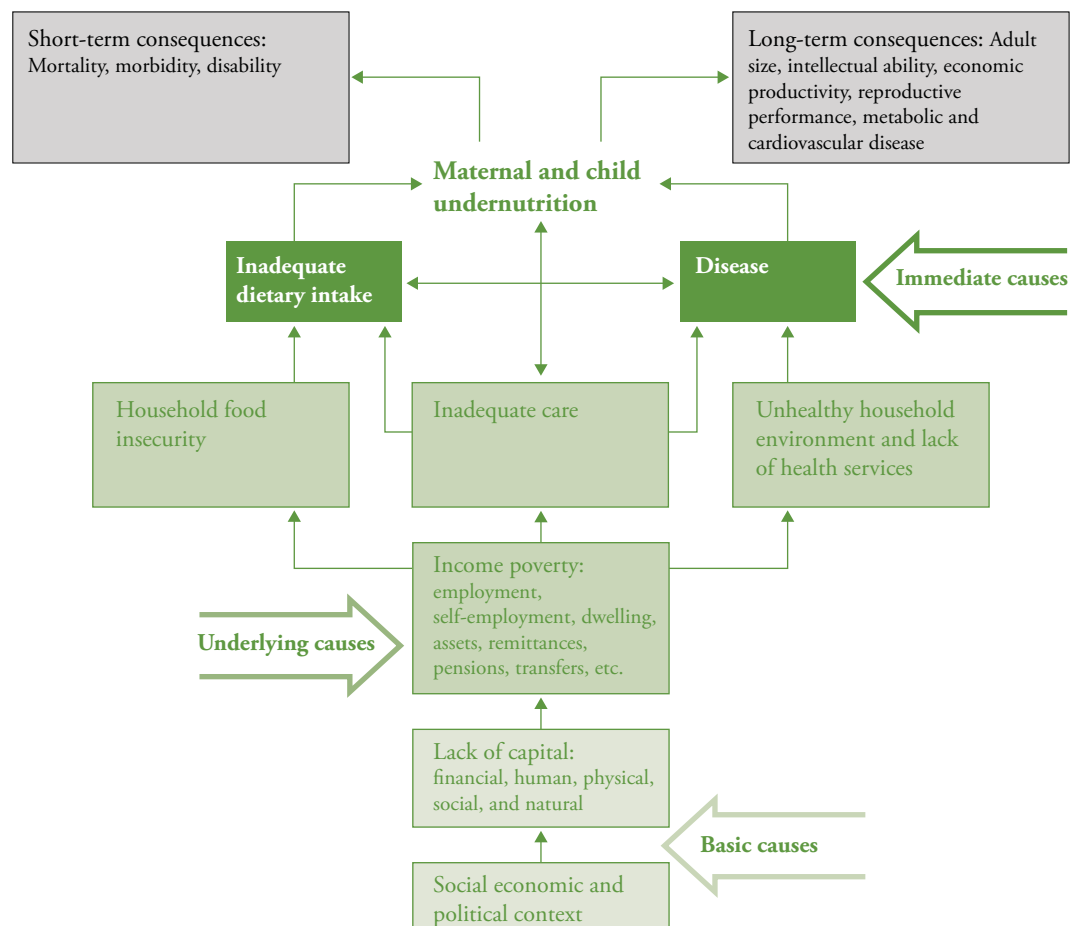
### Low household income

Numerous studies have shown that low household income, a core dimension of poverty, is associated with undernutrition, particularly in infants and children. Evidence shows that the risk of child underweight among households living on US\$ 1 or less per day is roughly two to three times higher than among those living on more than US\$ 2 per day.<sup>47</sup> Similarly, a survey of more than 50 developing countries revealed that, on average, stunting is over three times more likely in children from households in the poorest income quintile than in those from households in the wealthiest quintile.<sup>48</sup> This relationship between household income and child undernutrition was further substantiated by a meta-analysis that combined

the results of studies of infant and child mortality and child nutrition using household survey data.<sup>49</sup> Analysing the results of 38 studies on infant and child mortality and 35 studies on child nutrition from countries in Africa, Asia, Europe and Central and South America, the meta-analysis concluded that household income is a powerful determinant of child nutrition outcomes.<sup>50</sup>

Evidence from the Region reveals a similar positive association between low household income and undernutrition. In Viet Nam, the prevalence of undernutrition was calculated to be 160% higher in children from households in the poorest income quintile than in children from households in the richest quintile in 1997.<sup>51</sup> A second study that analysed Viet Nam Living Standards Survey

Figure 6: Causes of child undernutrition



Source: Arabi, Begin and Cavalli-Sforza 2009.



(VLSS) data from 1992-1993 and 1997-1998 largely attributes increasing inequalities in child undernutrition to rising inequalities in household consumption.<sup>52</sup> A spatial analyses of the Papua New Guinea 1982-1983 National Nutritional Survey dataset found that socioeconomic status (as measured by family assets) was one of the most important determinants of child growth within populations.<sup>53</sup> A study examining the nutritional status of children under 5 years of age attending an urban clinic in Lae, Morobe Province, Papua New Guinea, observed better weight-for-age among children whose fathers were in paid employment and whose families lived in professionally built housing than among children whose fathers were unemployed and whose families lived in self-built housing.<sup>54</sup> Adult undernutrition has also been found to decrease with rising income levels.<sup>55</sup>

However, the positive effect of higher household income on reducing child undernutrition appears to be magnified in households where women exert a greater degree of control over household income and participate more actively in household decision-making than in those where women's decision-making power is weak. Women's income has been found to have a larger impact than men's income on child survival and nutrition.<sup>56</sup> This point is explored in more detail in the section on gender inequality.

The positive association between low household income and nutritional outcomes operates through a number of pathways. Most simply, limited income and food insecurity typically deprive the poor of a regular and adequate diet. Higher income is also associated with improved dietary and child-feeding practices, better sanitation practices and more frequent and intense use of modern health services (see sections below).<sup>57</sup> The following sections explore this association for developing countries, especially those in the Region.

### **Low education**

Education—and more specifically, health-related knowledge and awareness—has been shown to contribute to better nutrition and child-feeding

practices, along with better sanitary practices and increased use of maternal and child health services.<sup>58</sup> Education outcomes in the Region are, in turn, closely associated with poverty.

In particular, a mother's education seems to be a strong determinant of nutritional outcomes in her children. In Viet Nam, children whose mothers are illiterate have been found to suffer higher rates of underweight (40%) than children whose mothers have completed higher education (10%).<sup>59</sup> In Cambodia, a household survey estimated that in 2000, 51% of children of mothers with no education were stunted, compared with 36% of children of mothers with a secondary education or higher.<sup>60</sup> A cross-sectional survey conducted in 1996-1997 in the Gulf Province of Papua New Guinea, an area characterized by limited cash income and low literacy levels, revealed a strong association between maternal education and child nutrition status.<sup>61</sup>

The impact of women's education on the nutrition of children is further substantiated by a study of 63 countries, including China, the Lao People's Democratic Republic, Malaysia, the Philippines and Viet Nam. Using nationally representative household survey data on underweight prevalence, the study concluded that improvements in women's education accounted for 44% of the total reduction in the prevalence of child malnutrition from 1970 to 1995.<sup>62</sup>

#### **Box 4: Inadequate living conditions, helminths and undernutrition**

Intestinal worms or helminths remain a key public health problem in the Western Pacific Region. Roughly 90% of children in poor communities with inadequate sanitation and hygiene are infected with at least one parasite. Stunting is at least four times more common among children infected with helminths than among those who are not. Infected children are also more likely to be underweight, be less physically active and suffer from learning disabilities than their counterparts.

Source: World Health Organization Regional Office for the Western Pacific 2009a.

### *Inadequate living conditions*

For the poor, living conditions are often characterized by inadequate housing, overcrowding and unsafe and unhygienic environments that may be prone to flooding and pollution. Many of the aspects of inadequate living conditions have a negative effect on nutritional outcomes, especially among children. For example, studies have also observed an association between indoor air pollution and an increased risk of maternal death and low birth weight.<sup>63</sup> Parasitic intestinal worms that severely affect the physical and intellectual growth of children are more commonly found in poor communities with inadequate sanitation and hygiene facilities (see Box 4).

Of particular concern is the association between nutrition and inadequate access to improved water and sanitation. Diarrhoea, a common water-related disease, is associated with the malabsorption of nutrients.<sup>64</sup> In addition, waterborne parasites can consume nutrients, thereby aggravating undernutrition and slowing development.<sup>65</sup> Figure 7 presents the coverage of improved water for

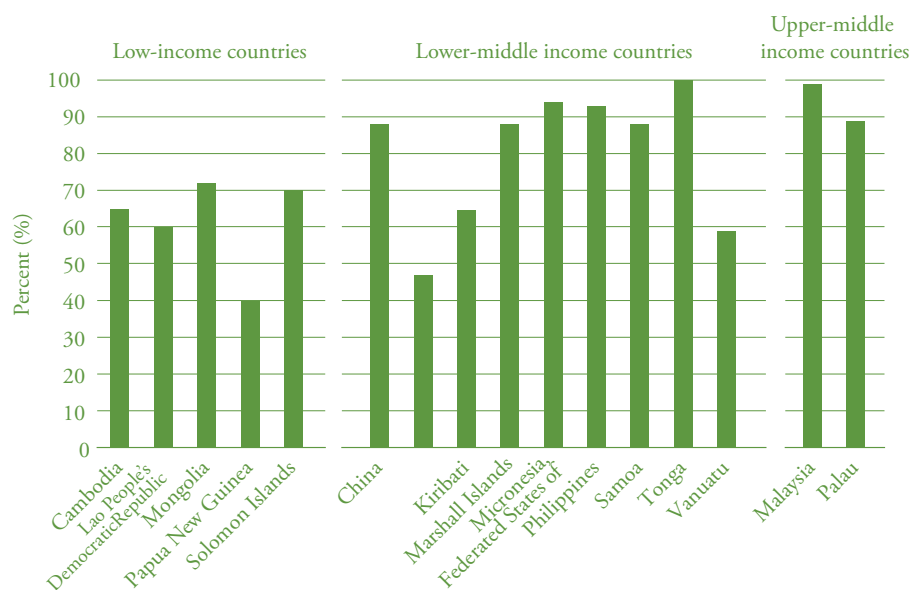
selected countries in the Region; Figure 8 shows that of improved sanitation.

Within countries, poor populations are typically at greater risk of waterborne disease than non-poor populations. This is because they are less likely to have access to clean water and sanitation than those who are better-off. The percentage of households with piped water or a protected well in the Lao People's Democratic Republic ranges from 77% in urban areas to 45% in rural areas.<sup>66</sup> In 2002, the majority (66%) of the rural population in Mongolia used water from unprotected sources. In contrast, only 9% of the urban population relied on unprotected sources of water. Moreover, in urban areas of Mongolia, access to piped water from a central source is associated with higher income: 25% of the poor and 50% of the non-poor have access to piped water. This is a particular problem among urban *ger* settlements.<sup>67</sup>

### *Inadequate caring practices*

Caring practices and eating patterns can influence nutritional outcomes. An inadequate intake of

**Figure 7: Percentage of population using improved drinking water sources for selected countries in the Region by level of development, 2006**



Note: Data for the Marshall Islands and Vanuatu are from 2000.  
Source: Asian Development Bank 2009.

a range of nutritious foods can be a key cause of undernutrition. For example, anaemia is often caused by limited consumption of meat, fish or poultry.<sup>68</sup>

Among children, undernutrition can be caused by inappropriate feeding practices. For example, evidence suggests that breastfeeding offers a protective effect against undernutrition that is strongest in the first year of life and has been observed to be especially successful among the poor.<sup>69</sup> Yet, breastfeeding is far from being universally practised in the Region. For example, in Pacific island countries, the proportion of infants under 4 months of age who are exclusively breastfed ranges from 19% in Cook Islands to 65% in Solomon Islands. Among children 4–5 months old in Cambodia, only 5% are exclusively breastfed.<sup>70</sup>

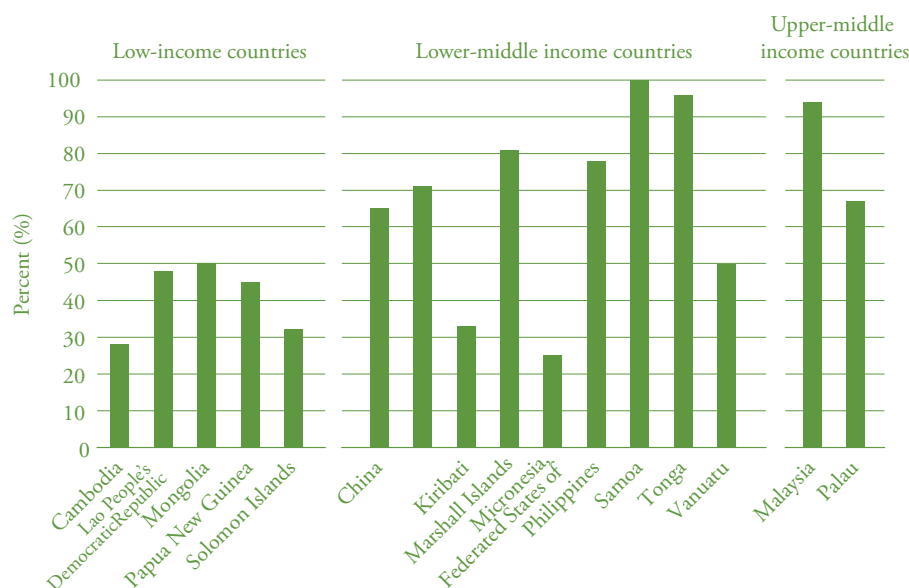
After 6 months of age, infants should receive nutritious foods of appropriate consistency and sufficient quality to meet their nutritional needs for growth. UNICEF reports that infant and feeding practices in East Asia and the Pacific are often inadequate.<sup>71</sup> A National Institute of Nutrition Sector Review in Viet Nam likewise concluded that infant feeding practices are not optimal.

Specifically, the study cited early weaning practices and the early introduction of complementary foods, which are generally customary foods with limited nutritional value.<sup>72</sup> Similarly, growth faltering among children in Papua New Guinea has been attributed to inadequate weaning practices, the late introduction of solid foods, and the inadequacy of supplementary foods.<sup>73</sup> Further evidence suggests that complementary feeding varies with socioeconomic status, the availability of proper foods, and mothers' knowledge of how, what and when to feed their children.<sup>74</sup>

### *Inequalities in health service delivery*

Although the determinants of undernutrition are concentrated among poor populations, experience has shown that the poor generally benefit less from government spending on health than the non-poor. In developing countries, the poorest 20% of the population typically receives less than 20% of the benefits from public health spending, although there are notable exceptions (Table 1).<sup>75</sup> The lower access to health services by poorer households is known as the inverse care law, which states: "The availability of good

**Figure 8: Percentage of population using improved sanitation facilities for selected countries in the Region by level of development, 2006**



Note: Data for the Marshall Islands and Vanuatu are from 2000.  
Source: Asian Development Bank 2009.

**Table 1: Share of public health spending received by households in the poorest and richest income quintiles**

Country	Poorest income quintile	Richest income quintile
Malaysia, 1989	29	11
Viet Nam, 1992	12	29

Source: Hsiao, Liu. In: Evans *et al.* eds. 2001

medical care tends to vary inversely with the need for it in the population served.<sup>76</sup>

This skewed distribution of health resources tends to disadvantage poor populations and often results in substandard health services in the areas where they live. In Cambodia, only 13% of government staff is located in rural areas, where 85% of the Cambodian population lives.<sup>77</sup> People in rural areas in Mongolia visit health facilities only half as often as the urban population.<sup>78</sup> This situation may arise in part because the distribution of health staff disproportionately benefits urban areas. In 2002, the ratio of physicians to population ranged from 1:206 in Ulaanbaatar to 1:794 in Zavhan.<sup>79</sup> Similarly, health workers in the Philippines are largely concentrated in urban areas.<sup>80</sup> In China, in 2005, roughly 25% of public health resources were allocated to rural areas even though an estimated 60% of the population reside in these areas.<sup>81</sup>

Such inequalities in the distribution of health resources have important implications for the prevalence of infectious diseases among poor populations, as these are important determinants of undernutrition. They can also result in inequalities in access to nutrition-related information and interventions to address undernutrition among children. For example, a study involving 40 countries revealed that child health interventions that are widely considered to be pro-poor, such as oral rehydration therapy, have generally achieved higher rates of coverage among wealthier children than among poor children.<sup>82</sup> In Cambodia, the distribution of domestically produced iodized salt is high in main provincial towns but remains low in rural areas and smaller towns in many provinces.<sup>83</sup> Within countries, the poorest children are generally the

least likely to receive vitamin A supplements.<sup>84</sup> In addition, studies show that sick children from poor families are less likely than children from non-poor families to be taken to an appropriate health service provider.<sup>85</sup>

### Determinants of overweight

The determinants of undernutrition discussed above, such as low household income, low education and limited access to services and information, are also increasingly found to be key determinants of overweight and obesity. These factors, together with rapid lifestyle changes caused by the epidemiological transition in developing countries in the Region, are resulting in an increasing burden of overweight and obesity among poor populations. However, because of the fundamental changes in lifestyle associated with overweight and obesity, these factors are considered separately from those associated with underweight. Box 5 discusses the epidemiological transition in more detail.

### *Unhealthy diets – a growing concern in the Region*

The prevalence of diets high in fat is a growing concern throughout the Region, even in countries with low levels of economic development. For example, in Viet Nam, the population is consuming fewer carbohydrates and greater amounts of protein from animal sources (pork, poultry and beef), leading to diets that are higher in fat.<sup>87</sup> From 1990 to 1999, per capita meat consumption in Viet Nam increased by 4.4% per annum.<sup>88</sup> A similar shift towards a diet high in energy-dense food and rich in fats, at the expense of complex carbohydrates, has been observed in Malaysia.<sup>89</sup> In Mongolia, animal fats constitute 75% of total fat intake.<sup>90</sup> An analysis of recent

### Box 5: The epidemiological transition, nutrition and poverty

The shift of overweight and obesity from affluent societies to low-income settings is part of a larger process known as the epidemiological transition. The theory of the epidemiological transition was conceptualized to provide an overall framework for considering how changes in population fertility and mortality (demographic change) are related to disease patterns, and how these, in turn, link to broader economic, social and technological changes.

Notably, the socioeconomic, cultural and environmental determinants of the epidemiological transition tend to interact with, and may reinforce, existing inequalities. This is reflected in the differentiated impact these processes have on the nutritional status of those from poor and marginalized groups, such as ethnic minorities, landless labourers and the urban poor, who may be especially vulnerable to the adverse effects of social and economic change, including the risk of obesity. The impact of social and economic change on nutrition among marginalized communities can be mediated by the capacity of these communities to respond to the risk factors for malnutrition and their ability to access effective health services for acute and chronic malnutrition. Yet, in many cases, poverty or social exclusion may limit their capacity to take the actions necessary to reduce their exposure to the risk factors for overweight and obesity.<sup>86</sup>

National Nutrition Surveys in the Philippines concluded that Filipinos are consuming more energy overall and that food from animal sources is contributing increasingly to total food, fat and protein intake.<sup>91</sup> Consuming more calories from animal fats points to a growth in unhealthy diets that could lead to higher rates of overweight and obesity.

The nutritional transition is especially marked in the Pacific, where imported energy-rich foods have largely replaced traditional diets (Box 6). In Micronesia, vegetables and fruits were found to be almost nonexistent in the diet of women aged 15 to 49 years of age.<sup>92</sup> Instead, consumption of imported foods high in fat, sugar and salt was common.<sup>93</sup> The consumption of major nutrients by the majority of the population in French Polynesia exceeded the WHO recommendations: for energy (62.2% of the population), fat (71.6%), protein (72.6%) and cholesterol (83%). Lower than optimal intake of carbohydrates was recorded among 84% of the population.<sup>94</sup>

Children and adolescents in the Region are also increasingly consuming diets rich in energy-dense food. A study of eating habits of children in Cebu, the Philippines, noted that snack foods, especially *pan de sal* (rounded sweet bread) and soft drinks, constitute 40% of total calorie intake among

children in the study population.<sup>95</sup> Adolescents in Malaysia are consuming more energy-dense food and refined carbohydrates.<sup>96</sup>

#### *Urban-rural differentials in the pattern of unhealthy diets*

Evidence from a number of countries in the Region shows that urban populations in particular are adopting diets that are high in sugar, fats, salt and refined foods and low in dietary fibre and micronutrients. They are also becoming less physically active than their rural counterparts, who appear to have maintained more traditional diets. Various studies have found that women residing in rural areas or outer islands consumed less fat than those dwelling in urban areas in Fiji, Kiribati and Vanuatu.<sup>97</sup> Although the mean energy intake of urban and rural women in Malaysia was found to be similar, fat contributed 30% of the total calorie intake for urban women and 20% for rural women.<sup>98</sup>

While such urban-rural differences in diets are found throughout the Region, evidence suggests that this pattern is slowly changing, as rural communities also adopt increasingly unhealthy diets. Using data from the China Health and Nutrition Survey (CHNS), a study from China

### Box 6: Globalization and the importation of food in Tonga

Globalization, the process through which the world is becoming increasingly interconnected and interdependent, is associated with economic growth and social change. Evidence suggests, however, that globalization may be an important factor contributing to the worldwide spread of the risk factors of noncommunicable diseases. In many developing countries, the average daily fat intake has increased. This has been linked to aggressive marketing and increased availability of fast foods and food high in fats. In particular, the globalization of the food trade has seen large shifts towards diets that are high in sugar, fats, salt and refined foods but low in dietary fibre and micronutrients.

Imported foods—including high-fat meats, especially corned beef, mutton flaps and chicken parts, and dense simple carbohydrates, such as refined sugar and flour—constitute a growing proportion of household diets in Tonga. To examine why people in Tonga choose to consume imported foods that are less healthy than locally available foods, a study examined the dietary habits of 430 Tongans in six villages throughout the three main regions of Tonga. The villages represented rural and urban communities as well as those that were remote and those that were better served. The study showed that the foods rated as “most preferred” were eaten less frequently than those rated as “less preferred.” Bread, mutton flaps and imported chicken parts were rated among the least preferred foods and yet they were found to be among those most frequently consumed. The study population’s knowledge of the nutritional values of the locally produced and imported foods they consumed was found to be quite high. For example, imported simple carbohydrates and fatty meats were rated as having low nutritional value.

The study concluded that the cost and availability of imported food, rather than their food preferences, motivated the food habits of Tongans. Locally available low-fat sources of protein, such as fish, were calculated to cost 15% to 50% more than either mutton flaps or imported chicken parts.

Source: Thang, Popkin 2004; Popkin, Gordon-Larsen 2004; Evans *et al.*

found that from 1991 to 1997 the consumption of animal source foods increased by 23% in urban areas and 27% in rural areas. During this period, consumption of edible oil increased more in rural areas compared to urban areas (19% vs. 11%). Although the proportion of adults consuming a diet high in fat (defined as more than 30% of calories coming from fat) remained higher in urban than in rural areas, the prevalence of diets high in fat appeared to be rising faster in rural than in urban areas.<sup>99</sup> A second study from China noted that simple urban-rural divisions mask important variations within areas. Again, using data from the CHNS, the study showed that rural areas with high urbanization rates had dietary patterns (high intakes of animal fats and oil) that were very similar to those in formally designated urban areas. Diets low in animal fats and edible oils were observed only in rural areas with very low levels of urbanization.<sup>100</sup> This suggests that the gap in urban-rural consumption patterns is slowly narrowing.

### *Socioeconomic differentials in unhealthy diets*

Studies from the Region suggest that, while unhealthy diets continue to be more prevalent among more affluent groups in society than among those who are poor and marginalized, the income disparity in the consumption of unhealthy diets has narrowed considerably over time. This trend may be partially attributed to rising income levels across all households in countries experiencing high levels of economic growth, such as China. For example, while farmers in China are still poorer than their urban counterparts, as their household incomes rise, their diets have begun to contain more animal products in the same way as diets in urban areas have changed.<sup>101</sup> More importantly, perhaps, poor communities appear to be adopting the dietary patterns previously observed among more affluent communities. Recent studies in China and Viet Nam showed that consumption of animal fats and edible oils is increasing at a faster rate among low-income groups than among

high-income groups.<sup>102</sup> In China, adults in the lowest third of the income distribution increased their consumption of animal fats by 44% in both urban and rural areas. In comparison, consumption of animal fats increased by 20%–25% among those in the highest third of the income distribution. Data from Viet Nam show that, in the 1990s, consumption of foods rich in proteins and fats increased for both poor and non-poor households, reflecting a positive relationship between economic improvement and improved nutrition. Although the nutrient intake from protein and lipid-rich foods was less for those from poor and rural households as compared with those from non-poor or urban households, rural residents decreased their consumption of calories from carbohydrates and increased those from protein and lipids significantly more than urban residents, reflecting a more rapid rate of change.<sup>103</sup> Thus, although higher-income households have maintained a higher level of animal fats intake, the income disparity in the intake of animal fats has narrowed considerably.

### ***Physical inactivity***

People in the Region are leading less physically active lives than ever before. This inactivity is largely attributed to growing access to modern tools, the rise of more sedentary occupations, motorized transport and increased urbanization. According to a study in China, the proportion of urban adults working in occupations where they participate rigorously in physical activity is decreasing. In contrast, evidence points to a shift among adults working in rural areas towards increased physical activity. Increased physical activity may be related more to work among the poor and to leisure among the rich. In general, rural residents hold multiple jobs and exert more intense effort while at work. This pattern is, however, ambiguous among rural women: while a larger proportion of rural women are engaged in more energy-intensive work, an increasing number of rural women are engaged in light work, reflecting a feminization of light work. In contrast, the proportion of rural men engaged in light work has decreased.<sup>104</sup> A study undertaken

from 1994 to 1995 compared the level of physical activity undertaken by Huli-speaking villagers in the rural Highlands of Papua New Guinea and among Huli-speaking migrants residing in urban settlements in Port Moresby. The study found that urban men and women were less physically active than their rural counterparts, although this finding was not statistically significant for men. More specifically, among urban residents, sedentary time was longer and active time was shorter. However, urban men spent less time sleeping than did their rural counterparts.<sup>105</sup>

The transition to urban living is likewise affecting adolescents in the Region, who are leading increasingly sedentary lives. This phenomenon has been documented in Malaysia, although there is a general lack of data on physical activity patterns among youth in the developing world.<sup>106</sup> A study examined physical activity patterns among Chinese youth aged 6–18 years who were attending school. Significant age differences for boys and girls were observed. Also, while older children were more likely to walk to school, fewer of them engaged in moderate to vigorous physical activity during school hours. Overall, few children engaged in moderate to vigorous physical activity outside of school hours.<sup>107</sup> In China, although 90% of households own a television, only 8% of youth watch more than two hours of television per day. This is in contrast to the Philippines, where television ownership ranges from 73% to 80% and 48% of youth watch two or more hours of television per day.<sup>108</sup> Among children attending private and public schools in Manila, the Philippines, a study revealed that children from private schools appeared to be less physically active than children from public schools. Children attending private schools were more likely to go to school by motorized vehicles, watch more television and play more computer games than children from public schools, who tended to walk to school and engage in outdoor games.<sup>109</sup>

### **Inequalities in the prevalence of malnutrition**

The determinants of malnutrition discussed above, in conjunction with inequalities in

the distribution of health services in the Region, result in a disproportionate burden of undernutrition, and a growing concentration of overweight and obesity, among poor households and communities.

### *Inequalities in the prevalence of undernutrition*

#### **Children under 5 years of age**

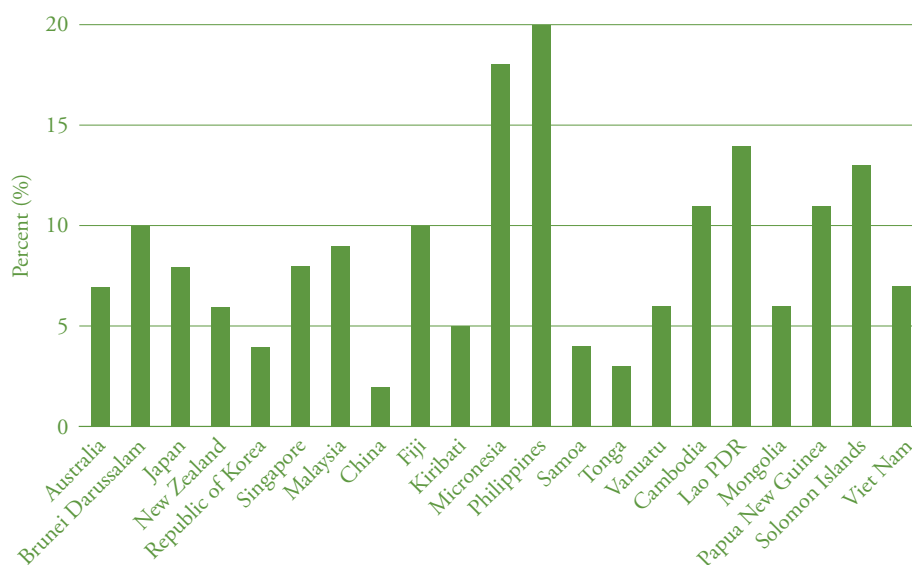
As discussed above, for many children, undernutrition begins in utero, arising from the intergenerational transmission of undernutrition through their poorly nourished mothers. The causes of LBW are complex and largely linked to poverty in developing countries. Studies on maternal nutrition in India and Viet Nam demonstrated that infant birth weight is always lower with low maternal BMI (less than 18.5) whatever the weight gain of the mother during pregnancy.<sup>110</sup> Evidence shows that women living in rural areas of Mongolia are more likely to give birth to underweight children than women in urban areas. This circumstance has been attributed to the relatively more difficult living and working conditions in rural areas.<sup>111</sup> Figure 9 presents the

proportion of infants with low birth weight in selected countries in the Region.

In the Region, some of the poorest countries face the highest rate of underweight, both moderate and severe, among children under 5 years, as seen in Figure 10. In Cambodia, for example, compared to an international scale, 45% of children were stunted, 45% underweight and 15% too thin for their height in 2000.<sup>112</sup> Similarly high rates of stunting have been observed in Papua New Guinea, where more than 40% of children under 5 years of age are stunted.<sup>113</sup>

Deficiencies in micronutrients are likewise common among young children in developing countries in the Region. Analyses of household surveys in Cambodia and the Lao People's Democratic Republic show that the rates of anaemia among children younger than 5 years are 63% and 46%, respectively.<sup>114</sup> High rates of micronutrient deficiencies have also been found among children in some Pacific island countries. For example, a community-based survey conducted in 1994-1995 involving children 1-5 years old from 10

**Figure 9: Proportion of newborn infants with birth weight less than 2.5 kg in selected countries in the Region ranked according to World Bank income groupings**



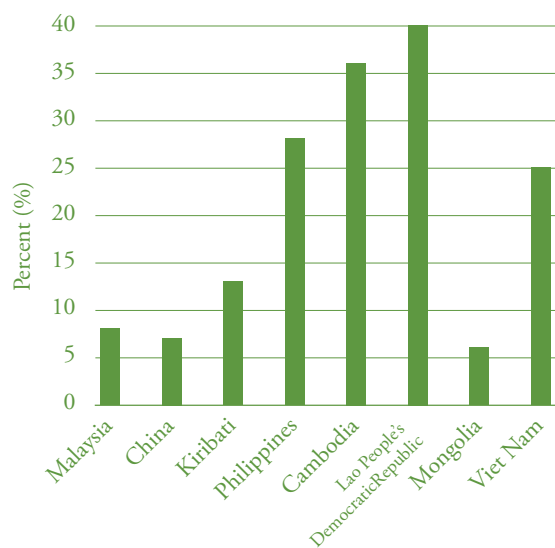
Note: The most recent data are from 2003-2008. The countries are ranked by income from highest on the left to lowest on the right.  
Source: United Nations Children's Fund 2009.



atolls in the Marshall Islands found that 59.9% of children were vitamin A deficient and 36.4% had anaemia (defined as having haemoglobin levels of <110g/L) and 53.5% were iron deficient (defined as having serum ferritin levels of <12 microg/L).<sup>115</sup> In the Federated States of Micronesia, an analysis of the 1994 Pohnpei Child Health Study data concluded that 33% of children 24–47 months of age were anaemic.<sup>116</sup>

Inequalities in childhood undernutrition also have been observed between urban and rural areas in many countries in the Region. A study from the Philippines found that by 12 months of age, the prevalence of stunting among the study population was 37.7% in rural areas and 35.1% in urban areas. By 24 months of age, the rate of stunting among children had increased, and the rural–urban gap had widened, to 68.8% in rural areas and 61.9% in urban areas.<sup>117</sup> Inequalities between the eastern (wealthier) and western (poorer) provinces of China have also been observed. In 1999, for example, the rate of underweight among children ranged from an average of 2.1% in the eastern provinces to an average of 8.0% in the western provinces.<sup>118</sup>

**Figure 10: Proportion of underweight under-5 children in selected countries in the Region ranked according to World Bank income groupings**



Note: Underweight is defined as < -2 standard deviations weight/age. The most recent data are from 2003–2008. Source: United Nations Children's Fund 2009.

Higher rates of undernutrition have also been observed among ethnic minority groups relative to majority population groups in the Region. In Viet Nam, for example, ethnic minority groups experience a rate of undernutrition that is 15% greater than that of the Kinh majority.<sup>119</sup> A study seeking to estimate the prevalence of protein-energy malnutrition among children under 7 years of age in four economically disadvantaged rural minority communities in south-eastern Yunnan Province of China reported rates of underweight and stunting above the national average.<sup>120</sup> This study also observed an increased risk of stunting among children belonging to the Miao, Yi and Hani ethnic minority groups as compared with the Han majority population group.

Growing inequalities in undernutrition are evident in the Region. Surveys undertaken in 1992 and 1993 in nine provinces in China found that the rate of stunting among children in rural areas had increased.<sup>121</sup> This finding is supported by the results of a study on growth in Chinese children between 2 and 5 years of age, which found that the net increase in the height of rural children from 1987 to 1992 was only one-fifth of the increase observed in urban children.<sup>122</sup> In Viet Nam, the decline in child undernutrition from 1992 to 1997 was reported to be greatest among children from households in the richest income quintile.<sup>123</sup> Using data from the 1992–1993 and 1997–1998 Viet Nam Living Standards Surveys, a second study suggested not only that the rate of stunting and underweight was higher among children from poor households, but also that children living in poor households had experienced a smaller rate of reduction of stunting and underweight between 1992–1993 and 1997–1998 than children from households above or at the poverty line. Similar inequalities were reported for children from households in rural areas and for those from ethnic minority households.<sup>124</sup>

## Adults

Children affected by underweight or micronutrient deficiencies often grow into adults of small stature and low body mass index. Because of

concern about the intergenerational transmission of undernutrition, much of the evidence on undernutrition in adulthood relates to women.

Available evidence shows a strong positive association between low household income, or other indicators of poverty, and poor nutritional outcomes among women. A survey carried out in over 50 developing countries found that women from households in the poorest income quintile are almost twice as likely to be undernourished as women from households in the richest income quintile.<sup>125</sup>

This association is found among countries in the Region as well. In Cambodia, an estimated 20.7% of women suffer from chronic energy deficiencies (BMI less than 18.5). However, the share of women suffering from chronic energy deficiencies ranges from 21.6% in rural areas to 16.1% in urban areas.<sup>126</sup> The prevalence of anaemia among pregnant women is estimated at 40% in the Region, reaching over 50% in Cambodia, the Philippines and Viet Nam.<sup>127</sup> The incidence of anaemia among women living in rural areas of Mongolia is remarkably higher than among women living in urban areas, standing at 71% and 45%, respectively.<sup>128</sup> A similar trend is seen in Cambodia, where the prevalence of anaemia among women is 59.1% in rural areas and 51.2% in urban areas. Furthermore, women with no education in Cambodia are more likely to suffer from anaemia than their educated counterparts. The prevalence of anaemia was found to be 62.1% among women with no education, 57.8% among women with primary education and 49.9% among women with secondary education or higher.<sup>129</sup>

### ***Inequalities in the prevalence of overweight and obesity***

The changing pattern in diets and physical activity underlies the growing burden of overweight and obesity in developing countries in the Region. For example, in Cebu, the Philippines, the prevalence of overweight had increased five-fold from 1984 to 2000. The study explained that this rise in overweight mirrors the rapid growth in household

income and a shift towards diets that are higher in fat, more sedentary jobs and reduced domestic work burdens during this period.<sup>130</sup>

Urban–rural variations in the prevalence of unhealthy diets and physical inactivity observed among developing countries in the Region are reflected in the higher rates of overweight and obesity observed among men and women in urban areas as compared with those in rural areas. In urban areas of Malaysia, an estimated 5.6% of men and 8.8% of women were found to be obese, while in rural areas, 1.8% of men and 2.6% of women were obese. Overall, 15.1% of men and 17.9% of women were overweight; no significant urban–rural differences were noted.<sup>131</sup> The prevalence of obesity is higher in urban than in rural areas of Fiji, Kiribati, Micronesia, Papua New Guinea, Vanuatu and Western Samoa.<sup>132</sup>

Evidence suggests that, as the epidemiological transition in developing countries in the Region progresses, the prevalence of overweight and obesity will shift to poorer communities. A review of literature undertaken in 1989 found a positive association between socioeconomic status and obesity in developing countries. However, a second review, which focused on 14 studies published after 1989, reported that the association between socioeconomic status and obesity appeared to be shifting and to differ substantially by sex. A significantly positive association between socioeconomic status and obesity among men was found in seven studies; however, the absence of an association was noted in the remaining seven studies. Among women, an inverse association between socioeconomic status and obesity was clearer: 10 studies reported a statistically significant inverse relationship, two studies reported no association and two studies reported a positive association. The literature review concluded that obesity is no longer a disease of the affluent. As national income rises, the burden of obesity seems to shift towards groups with lower socioeconomic status and this phenomenon seems to occur at an earlier stage of economic development among women than among men.<sup>133</sup>

A meta-analysis of national data sets from surveys carried out between 1992 and 2000 in 37 developing countries provides further evidence of the association between socioeconomic status, as measured by level of formal education, and obesity among women aged 20–49 years of age. The meta-analysis shows a strong positive association between obesity among women and socioeconomic status in low-income countries. This association shifts as national income rises. Among lower-middle-income countries, there is an ambiguous pattern between obesity and socioeconomic status, while in upper-middle-income countries, there is a significantly negative association between obesity and socioeconomic status.<sup>134</sup>

A few studies suggest that a similar pattern in the burden of obesity is beginning to emerge in developing countries in the Region. In Fiji, average BMI was reported to be significantly lower among women with some secondary education (27.1 kg/m<sup>2</sup>) in comparison with those who had only primary education (30 kg/m<sup>2</sup>).<sup>135</sup> In China, the prevalence of obesity is 19.6% among high-income and 10.9% among low-income groups. Over an eight-year period, however, the average prevalence of obesity increased by 50%, yet the prevalence increased by 70% among low-income groups.<sup>136</sup> An analysis of a cross-sectional population survey carried out in Tiajian City, China, found that among women, BMI was inversely associated with educational attainment and occupation. Among men, the study revealed that blue-collared workers were 2.89 times more likely to be obese than were white-collared workers.<sup>137</sup>

### The effect of malnutrition on poverty

While malnutrition is an important outcome of poverty, it can also lead to poverty or further impoverish already poor households. The relationship between malnutrition and poverty operates through a number of complex pathways. First, malnutrition is an important determinant of health outcomes. Second, malnutrition can negatively affect the accumulation of educational outcomes and labour productivity. These pathways are considered separately below.

### *The effect of malnutrition on health*

LBW babies face a higher risk of disease and a greater probability of dying in the neonatal period or in infancy than babies with normal birth weights.<sup>138</sup> Once in childhood, LBW babies tend to be smaller (stunted) and suffer a higher burden of disease throughout childhood and into adulthood.<sup>139</sup> Further, studies show an association between nutritional status and mortality from diarrhoea, with undernourished children experiencing more severe and prolonged diarrhoea, and an increased risk of dying from acute lower respiratory infections and pneumonia.<sup>140</sup> Among children, vitamin A deficiency has been found to increase the risk of dying from diarrhoea, measles and malaria by 20%–24%.<sup>141</sup> Data from a longitudinal study of children conducted in 1988–1991 in Cebu, the Philippines, reveal that nutritional status (measured by weight-for-age) is a significant risk factor for both acute lower respiratory infections and diarrhoea mortality in the first two years of life.<sup>142</sup> Worldwide, underweight remains the leading cause of the disease burden among the poorest.<sup>143</sup>

As noted above, women's nutritional status is an important predictor of pregnancy outcomes. Maternal short stature has been found to be a risk factor for caesarean delivery.<sup>144</sup> At the very least, caesarean sections can raise the costs of deliveries, but more seriously, they can place the life of the mother and child at risk. Iron deficiency anaemia is associated with an increased risk of dying from blood loss during delivery.<sup>145</sup>

The double burden of undernutrition and obesity in developing countries is of special concern because of the growing body of evidence on the links between undernutrition *in utero* and greater likelihood of noncommunicable diseases (NCDs) during adulthood. Fetal growth has been found to be adversely affected by both maternal undernutrition and overnutrition. Maternal undernutrition has been shown to result in *in utero* growth retardation and low birth weight. LBW has, in turn, been linked to an increased risk of noncommunicable diseases later in life.<sup>146</sup> For example, many studies have shown that

characteristics at birth, such as low birth weight and low abdominal girth, are associated with an increased risk of diabetes and hypertension as an adult.<sup>147</sup> Poor weight gain during the first year of life has been associated with an increased risk of heart disease as an adult. A review of evidence concluded that low infant weight is associated with an increased risk of cardiovascular disease among men.<sup>148</sup> For babies who were small, increased weight gain after one year was also associated with an increased risk of cardiovascular disease.<sup>149</sup> A study in Beijing observed an association between LBW and raised triglycerides and reduced high-density lipoprotein cholesterol, among people aged 45 years and above, after adjusting for sex and adult BMI.<sup>150</sup>

In turn, the consequences of ill health are increasingly understood to be an important cause of impoverishment for many poor households.<sup>151</sup> Evidence from various countries in the Region illustrates the impoverishing impact ill health has upon households. In Mongolia, serious disease forced an estimated 15% of households to the brink of poverty or into poverty in 2000.<sup>152</sup> A lack of labour employment was found to be the major source of impoverishment for poor rural households in China. As a lack of labour may arise from illness or injury, ill health may, in fact, be the major reason for impoverishment among rural household in China.<sup>153</sup> Estimates from Viet Nam suggest that overall spending on health care added approximately 4.4% to the head count under the food-based poverty line in 1993 and 3.4% in 1998.<sup>154</sup>

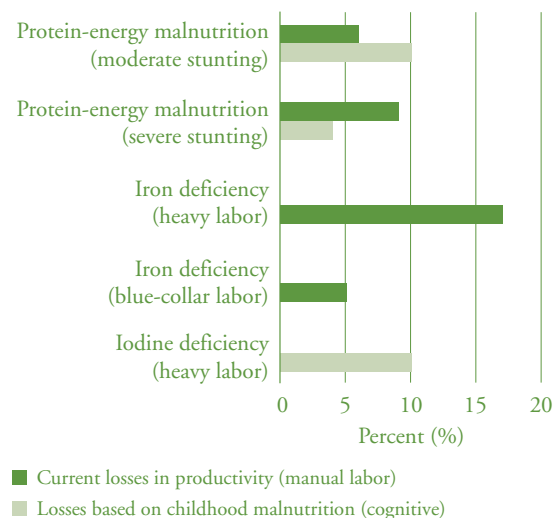
### The effect of malnutrition on educational outcomes and labour productivity

Undernutrition is associated with lower productivity in the long term. LBW babies are more likely than their peers to experience cognitive impairment, which may never be fully redressed later in life.<sup>155</sup> Undernutrition, micronutrient deficiencies and illness in childhood have been found to impair cognitive development, school attendance and learning capabilities.<sup>156</sup> Evidence also suggests that

children most likely to drop out of school have poorer nutritional status (low height-for-age) compared to relatively healthier and taller children who are likelier to remain in school.<sup>157</sup> In Cebu, the Philippines, children who were stunted by age 2 were observed to have significantly lower school test scores than their peers. Within the study population, stunted children tended to start school later. By age 11, they were three times more likely to have dropped out of school, 1.8 times more likely to have repeated a grade and 1.2 time more likely to have been absent in the month before the interview than their peers.<sup>158</sup> Poorer health outcomes and limited educational attainment together result in lower levels of human capital, which has been shown to be the basis of an individual's economic productivity.<sup>159</sup>

Adults who survive undernutrition and illness during childhood are less physically and intellectually productive than adults who were well nourished as children (Figure 11). Across developing countries, studies have shown that adult height is strongly and positively correlated with adult earnings.<sup>160</sup> In the Philippines, studies of agricultural workers report that adults who were stunted through poor childhood nutrition were less productive and earned lower wages than

**Figure 11: Productivity loss associated with undernutrition (%)**



Source: Horton 1999. In: UN Millennium Project 2005.

adults of average height.<sup>161</sup> Further, adults who were undernourished as children are more likely to suffer higher levels of chronic illness and disability than their counterparts.<sup>162</sup> Reduced productivity and fewer hours spent working thus result in lower individual labour income.<sup>163</sup> At the national level, poor population health depresses the returns on investments in business and infrastructure. For example, absenteeism and high turnover in the labour force result in increased hiring.<sup>164</sup>

The combined effect of these pathways suggests that the economic costs of malnutrition are substantial. The World Bank has estimated that productivity losses to individuals from malnutrition are more than 10% of lifetime earnings. At the national level, a loss of 2%–3% of GDP to malnutrition has been estimated.<sup>165</sup>

### The links between gender and nutrition

As the body of available sex disaggregated data grows, it is becoming increasingly clear that the experience of malnutrition among men and women, boys and girls tends to differ. These differences can be attributed to differences in biology (male and female sex) as well as those based on the socially constructed category of gender. Box 7 defines gender.

As discussed in section 1, a person's nutritional requirements vary over the life cycle. In particular, during their reproductive years, women's nutritional requirements reflect the demands of menstruation, pregnancy and lactation on their bodies. In populations where the prevalence

of iron deficiency anaemia (and in some cases other micronutrient deficiencies) is high, where teenage and closely spaced pregnancies are common occurrences and a high total number of pregnancies per woman is commonplace, these factors place additional nutritional demands on women's bodies and accumulate the health risks for women and their infants. Insufficient dietary iron and folate, along with the health consequences of malaria and intestinal helminths infestations, contribute to a high incidence of maternal anaemia. In many communities, these differential biological requirements for nutrition interact with gender inequality in a manner that places girls and women at a greater risk of malnutrition than boys and men.<sup>166</sup> For example, women's greater nutritional requirements during pregnancy may not be met because of a lack of food or disparities in food allocation that favour men and boys in the household, food taboos during pregnancy, traditional beliefs limiting the quantity of food during pregnancy, and the perception of red meat consumption as masculine, among other gender-related factors. Together, these biological and gender-related factors increase the likelihood of pregnant women being undernourished.

### *Biological determinants of malnutrition*

Women have special nutritional needs because of their role in childbearing. Due to the monthly loss of iron during menstruation, women need more iron than men. Pregnant women need on average an extra 300 calories each day and four times the amount of iron. While breastfeeding, women need 500 more calories each day.<sup>167</sup> A small mother

#### Box 7: Defining gender

Gender refers to the differences and inequalities in the situations and needs of men and women that are based, not on biological differences, but on societal understanding of being male or female. Gender dynamics are understood as the different roles, expectations, identities, needs, opportunities and obstacles that society assigns to women and men based on sex. While sex is biologically determined, gender is socially ascribed. Girls and boys, women and men, have the same rights, potential and capacities, but discrimination against girls and women based on sociocultural norms often relegates them to lower status and value. This often places them at a considerable disadvantage in terms of access to resources and goods, decision-making power, choices and opportunities across all spheres of life. It determines how individuals and society perceive what it means to be male or female and influences how roles, attitudes, behaviours and relationships are enacted.

will have a hard time gaining enough weight even if she eats sufficient quantities during pregnancy; the result will be a LBW baby, born malnourished, with six times the risk of dying in the first year compared to a normal size newborn.<sup>168</sup>

One study from India demonstrated this clearly: men ate 3270 calories a day when their caloric need based on energy expenditure was 2473; women ate 2410 calories a day when their caloric expenditure was 2505.<sup>169</sup> Similar findings have been observed in sub-Saharan Africa, where women have heavier workloads, yet they eat fewer calories because of cultural practices that favour men.<sup>170</sup>

### *Gender-related determinants of malnutrition*

**Gender roles:** Gender roles are learnt behaviours conditioned by social norms that dictate which activities, tasks and responsibilities are defined as male and female. In many societies, men are primarily responsible for productive work, while women are assigned reproduction-related tasks. Reproductive work consists of all household responsibilities, care-giving and nutrition-related work required to keep people alive. These tasks include breastfeeding, raising children, domestic tasks such as cleaning and cooking, feeding household members, among many others. In poorer communities, much of reproductive work is labour intensive and time consuming.

Women are often responsible for ensuring that household members consume adequate amounts of nutritious foods. This responsibility can extend from producing or purchasing food to preparing and serving food. As such, women play a crucial role in selecting and preparing healthy, nutritious food for family consumption. As discussed above, choices of foods for consumption by family members are of particular concern during infancy, when children substitute breastfeeding for solid foods. At the same time, women play a crucial role in teaching children about proper food and health habits. Thus, an important factor affecting nutrition, especially that of children, is women's educational status.

Although women are often responsible for growing or purchasing adequate amounts of food for the household, this responsibility is not always supported through their adequate access to household income and/or assets, including land, or income-earning opportunities outside the household. That is, as compared with men, women often have less access to and control over household, community and societal resources. For example, in many societies, land titles are issued in the names of heads of households, who are usually defined as men. Thus, the women may be able to access or farm the land, but they do not have the right to sell or mortgage it (see Box 8). In addition, agricultural extension interventions to improve the productivity of farming have often by-passed women farmers.<sup>171</sup>

**Gender inequalities in education:** As discussed in the section above, education is a key determinant of malnutrition. Disaggregating literacy rates by sex reveals that women are often disadvantaged in education (Table 2). Lack of education has ramifications throughout their lives, leading to fewer employment opportunities, higher rates of illiteracy and less access to information, such as basic family health guidelines, that could have significant effects on their lives. Evidence suggests women with higher levels of education are more

#### **Box 8: Gendered land ownership in China**

In China, women enjoy equal rights to land under the formal legal system. Moreover, the law specifically states that, should a woman relocate to her husband's village, her land holdings in her natal village may not be revoked until she is given a new allocation of land in her husband's village. The law also protects a woman's rights to land in the case of divorce or the death of her husband. However, patrilocal inheritance and household-contracting of land tend to negate these formal rights in practice, thereby creating gender inequality in the rights to land and discrimination against women in land redistribution. Further legal and policy measures can help ensure women's land rights in practice.

Source: Rural Development Institute 2006.

likely to seek care during pregnancy and childbirth than women with lower levels of education. The positive influence of education on pregnancy appears to extend to improved nutrition.<sup>172</sup>

Women's typically lower levels of literacy may place many forms of nutrition-related information, such as print media, beyond their reach, while restrictions on their mobility may limit their exposure to new health-related ideas and practices. This may be especially true for ethnic minorities, who often live in rural and remote areas and face unique cultural and linguistic barriers.

#### **Gender inequalities in access to health services:**

A number of studies from the Region have observed that access to health services may not be equally distributed among men and women, boys and girls. Limited access to health care can perpetuate morbidity, which can adversely affect the absorption of nutrients.<sup>173</sup>

For example, a study from 2000 in Cambodia found that an estimated 36.1% of boys suffering from fever were seen by a health service provider, while only 32.0% of girls were seen. Evidence from the Philippines shows that, in 2002, girls were slightly more likely than boys to be taken to a health service provider when they were sick with fever, while boys were more likely than

girls to receive medical attention when suffering from acute respiratory infections.<sup>174</sup> In 2002, the proportion of Vietnamese children with acute respiratory infections who were seen by a health service provider was 76.0% among boys and 64.8% among girls.<sup>175</sup> A study from Papua New Guinea found that mothers took their sons to health centres more often and travelled farther with them than with their daughters.<sup>176</sup>

Such inequalities in access to health services may extend into later life. For example, a study in rural Thailand carried out in 1989 found that while the prevalence of malaria (measured by parasitaemia rates) within communities was equal, men were six times more likely than women to seek care at a health clinic.<sup>177</sup> This suggests that women's generally lower access to and control over economic resources, including income, productive assets and health insurance, constrain their access to preventive and curative health care services. Similarly, in China, 64.8% of women reported that financial difficulties prevented them from accessing hospital services when referred by a doctor, in comparison with 55.6% of men.<sup>178</sup>

**Decision-making power:** Gender inequality is often reflected in the unequal bargaining power of men and women within the household and wider society. That is, men often have more influence and ability to make decisions than women. Evidence from Viet Nam shows how a woman's ability to make decisions on how to spend her own income appears to vary with her level of education (see Figure 12). In some societies, decisions concerning health and health seeking are not made by a single individual, either male or female, or by a couple alone, but rather in the extended family or community.<sup>179</sup> In such settings, a woman's voice may be even weaker than a man's, despite her primary responsibilities in providing household nutrition.

The typically unequal bargaining power of women is associated with their lower access to, and control over, household resources, which might constrain their ability to protect their health and the health

**Table 2: Adult literacy rate for selected countries in the Region, 2007**

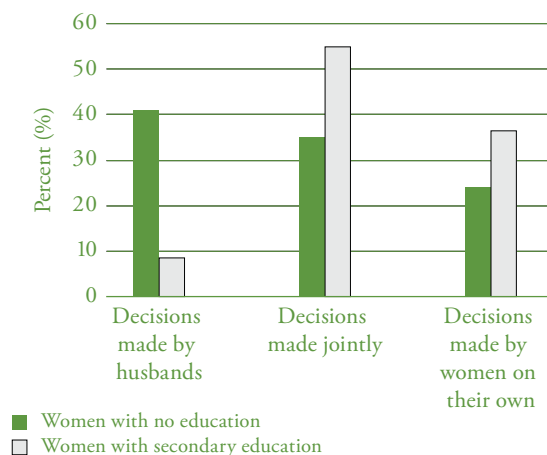
Country	Adult literacy rate	
	Male	Female
Cambodia	89.6	82.7
China	99.1	99.4
Lao People's Democratic Republic	78.7	89.2
Malaysia	98.4	98.2
Mongolia	97.3	93.7
Papua New Guinea	65.4	62.8
Philippines	95.3	93.6
Singapore	99.8	99.7
Tonga	99.6	99.5

Note: Data refer to the most recent year available during the period indicated.

Source: Asian Development Bank 2009.

of their family members.<sup>180</sup> For example, a study conducted in 1983-1984 in three rural provinces in the Philippines shows that, as the value of a woman's time (measured by an estimated wage) increases, her own nutritional status and that of her preschool children (13-83 months) improves, mainly due to improved intrahousehold allocation of calories to women and children.<sup>181</sup> This positive association is corroborated by a recent study that explored the relationship between women's status and the nutritional status of children under 3 years of age using Demographic and Health Survey (DHS) data from 36 developing countries in South Asia, sub-Saharan Africa, Latin American and the Caribbean. Two measures of women's status, defined as their power relative to men, were used in the study, namely: (1) women's decision-making power relative to that of their men partners, and (2) the degree of equality between men and women in their community. The study clearly demonstrates that improvements in these two measures of women's status are significantly correlated with improved nutritional status in children under 3 years of age. This is because women with higher status have better nutrition, are better cared for and, thus, are better able to care for their children relative to women with lower status.<sup>182</sup>

**Figure 12: Who decides how married women spend their own income in Viet Nam (percentage of women respondents)?**



Source: CPFC/PFHP 2003. In: Mohdeen 2002 (unpublished report).

**Gender inequalities in food allocation:** Studies from India have documented that newborn girls are breastfed less frequently and for shorter periods than newborn boys and that young girls receive less food than boys even in landed (that is, not poor) households. Although women work harder than men, they receive less food and food of inferior quality. During times of food insecurity, women are affected disproportionately, since their already inadequate diet is curtailed even more.<sup>183</sup> Although much of the research on gender inequalities in nutritional status originates from South Asia, there is some evidence to suggest that gender inequalities occur in the Western Pacific Region as well. For example, a study from the Philippines reported differences in the diet of boys and girls. More specifically, boys were reported to have a higher intake of protein-rich foods than girls, who were given more vegetables.<sup>184</sup> The results of a survey in three rural provinces in the Philippines observed that in 1983-1984 among children aged 1-17 years, boys did better in the intrahousehold allocation of calories than girls.<sup>185</sup> In Papua New Guinea, women typically eat after the male members of the household have eaten.<sup>186</sup>

**Food taboos:** Food taboos exist in many parts of the world. They especially affect women during menstruation, pregnancy and lactation, the times when they typically need to eat more food to maintain growth and ensure health. Food taboos are often based on the theory that some foods possess 'hot' or 'cold' qualities and should not be eaten while the body is 'hot' or 'cold' due to various conditions such as pregnancy and/or lactation. These taboos tend to limit protein and iron intake as well as overall calories. Some women deliberately take less food during pregnancy under the belief that labour and delivery will be easier. In one province of the Lao People's Democratic Republic, it was reported that women ate only salt and galangal for 15 days postpartum.<sup>187</sup> In Nepal, certain nutritious foods such as soybeans, green leafy vegetables and fish were not given to women at all, probably because of food beliefs and women's low status.<sup>188</sup>



### ***Gender inequalities in the prevalence of malnutrition***

There is some evidence to suggest that the rates of malnutrition vary between boys and girls in the Region, although efforts to elucidate a clear pattern are hampered by a general lack of sex-disaggregated data on malnutrition. Data from 2000 show that the prevalence of moderate stunting in Cambodia was the same among boys and girls under 5 years of age, both 24%, while severe stunting was higher among girls (21.8%) than among boys (18.6%).<sup>189</sup> The evidence from Viet Nam is mixed. Estimates from the 1997 Viet Nam Living Standards Survey (VLSS) suggest that the prevalence of malnutrition among boys and girls is the same and there is no evidence to suggest systematic gender discrimination.<sup>190</sup> A second study exploring inequalities in malnutrition in Viet Nam, using the 1993 and 1998 VLSS, found that the risk of stunting was higher among boys than girls and that the gender gap in stunting appeared to have widened from 1993 to 1998. The mixed influence of gender on malnutrition is supported by a meta-analysis that combined the results of studies on infant and child mortality and child nutrition utilizing household survey data. Analysing data from 35 studies on child nutrition from countries in Africa, Asia, Europe and Central and South America, the meta-analysis found that the sex of the child was a largely insignificant determinant of malnutrition.<sup>191</sup> However, evidence from South Asia documents

the significant association between gender and malnutrition. While the nutritional status of boy and girl infants at birth was broadly similar, gender inequality resulted in the severe nutritional disadvantage of girls over time.<sup>192</sup>

As discussed in the section on poverty above, malnutrition in infancy and childhood often affects the health of adult men and women, although women appear to be particularly affected. The prevalence of anaemia among women of reproductive age in Viet Nam is estimated to be 30%–45%.<sup>193</sup> In 1998, the prevalence of anaemia among pregnant and lactating women in the Philippines was 50.7% and 45.6%, respectively.<sup>194</sup> The adverse effects of malnutrition are harmful to women's productivity and their own health risks during pregnancy and childbirth, and are also transmitted to the next generation.

Further, the rising levels of obesity reported in developing countries in the Region appear to differ among men and women. Among Pacific island communities, obesity is beginning to pose a significant health burden. Among women, the prevalence of obesity has been found to be 84% in Tonga, 63% in Fiji and 56%–74% in various areas in Western Samoa.<sup>195</sup> A case study from Cebu, the Philippines, observed a similar trend among adult women.<sup>196</sup> Overall, obesity levels tend to be higher among women than among men, especially those from low-income households.<sup>197</sup>

#### **Box 9: Eating disorders**

Eating disorders involve serious disturbances in eating behaviour: extreme and unhealthy reduction of food intake (anorexia), severe overeating and purging (bulimia) and severe overeating (binge eating). Eating disorders tend to be more common among women and girls than among men and boys. Only an estimated 5% to 15% of people with anorexia or bulimia and an estimated 35% of those with binge-eating disorder are male.

Eating disorders are associated with prevailing gender norms that promote false ideals of thinness for girls and women. In these societies, beauty is associated with being thin and the pressure to achieve these unrealistic ideals, particularly among young girls, can result in eating disorders. These behaviours are often accompanied by feelings of distress or extreme concern about body shape or weight. Eating disorders are psychological in origin, but they affect a person's nutritional intake and nutritional status.

Source: World Bank 2009. National Institute for Mental Health 2001.

### 3. Why is it important for health professionals to address poverty and gender concerns in nutrition?



### 3. Why is it important for health professionals to address poverty and gender concerns in nutrition?

#### Efficiency

Important gains in improving nutritional outcomes have been made in countries in the Region. The burden of undernutrition among developing countries in the Region is firmly concentrated among poor and marginalized populations. In addition, obesity and overweight are becoming an increasing burden among poor populations in some areas. Differences in biology, coupled with prevailing gender norms in the Region, may result in a greater burden of malnutrition among women than among men. The persistent and widening inequalities in the health sector suggest that investments in nutrition have not proportionately benefited the poor.

Yet good nutrition is critical to human well-being, and has been recognized as a prerequisite for meeting many of the Millennium Development Goals (MDGs).<sup>198</sup> As such, innovative strategies are required to address poverty- and gender-related concerns in nutrition, to better ensure that the nutritional needs of poor and marginalized men and women are met throughout their life cycle. This, in turn, can contribute significantly towards efforts to meet international health goals, including the MDGs. Incorporating a gender-sensitive response can likewise ensure that men and women benefit equitably from such efforts. Together, these approaches can enhance the overall efficiency of interventions to improve the nutrition of poor men and women, boys and girls.

The efficiency gains from better targeting of poor men and women of all ages with nutrition-related interventions are even more significant when considering the central role improved nutrition can play in poverty reduction efforts. Improving the nutrition of poor men and women can advance their overall health and well-being. Good nutrition throughout the life cycle provides the opportunity for human beings to reach their full potential, both physical and mental. Strategies that better meet the needs of poor men and women can protect poor households from

the impoverishing effects of ill health. Improved nutrition in the first two years of life can lead to improved educational outcomes and enhanced productivity. Such gains, when aggregated at the national level, can contribute towards improved economic growth and poverty reduction in the longer-term.

#### Equity

Inequities refer to inequalities that are seen as unfair, unjust and avoidable (see Box 10).<sup>199</sup> Pursuing equity in nutrition is a commitment to increasing the opportunities for improved nutritional outcomes among groups within societies who have suffered discrimination and marginalization.<sup>200</sup> Although experience shows that some variation in health status is unavoidable—due to biological differences between men and women, for example—inequalities in nutrition between the poor and non-poor and between men and women at least partially mirror social disadvantage, such as that based on income, ethnicity or geographical location. That is, as the discussion above highlighted, many poor and marginalized individuals and households in countries in the Region suffer a disproportionate burden of malnutrition.

Access to nutrition-related interventions for all people in need, regardless of their socioeconomic status, is a matter of social justice, fairness and equity. Equity involves the distribution of well-being across social groups, enabling vulnerable, poor and marginalized subpopulations to access nutritional services and programmes. However, given the complex nature of nutritional status and outcomes, promoting equity extends beyond

#### Box 10: Defining equity in health

Equity in health may be defined as the “absence of systematic disparities in health (or major social determinants) between groups with different levels of underlying social advantage or disadvantage, such as different positions in the social hierarchy.”

Source: Braveman, Gruskin 2003.

ensuring access to nutrition-related services through the health system to addressing other social determinants of nutrition, particularly access to education and improved living conditions.

Gender-based inequities interact with inequities by social class, race, caste or ethnicity, so that women may face additional disadvantages compared to men from the same social group. Social justice and equity must therefore address inequities between men and women, the rich and poor, and disparities in nutritional outcomes between the developing and industrialized nations of the world.

### Human rights

Human rights refer to an internationally agreed-upon set of principles and norms that are contained in treaties, conventions, declarations, resolutions and guidelines at the international and regional levels. The right to the highest attainable standard of physical and mental health, or the right to health, is rooted in the Universal Declaration of Human Rights. International laws make governments accountable for their actions in planning and implementing public health policies and programmes. Active, free and meaningful participation of individuals is a key component of a rights-based approach.

Freedom from hunger is a basic human right.<sup>201</sup> Since its inception, the United Nations has identified access to adequate food as both an

individual right and a collective responsibility. The 1948 Universal Declaration of Human Rights proclaimed that “everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food.” Nearly 20 years later, the International Covenant on Economic, Social and Cultural Rights (1966) developed these concepts more fully, stressing “the right of everyone to ... adequate food” and specifying “the fundamental right of everyone to be free from hunger” (Box 11).

The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), adopted in 1979 by the United Nations General Assembly, was the first international treaty to identify gender discrimination as a breach of human rights, and as an obstacle for women having access to adequate nutrition and health care. In 1995, the Fourth World Conference on Women adopted the Beijing Declaration and Platform of Action, which goes even further in identifying how gender discrimination affects human rights more specifically.

At the 1996 World Food Summit in Italy, leaders from 185 countries and the European Community reaffirmed in the Rome Declaration on World Food Security, “the right of everyone to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right of everyone to be free from hunger.” They further pledged to cut the number of the world’s hungry people in half by 2015. In 2002, world

#### Box 11: Right to be free from hunger vs. right to adequate food?

What is the distinction between the right to be free from hunger and the right to adequate food? The right to freedom from hunger is fundamental. This means that the state has an obligation to ensure, at the very least, that people do not starve. As such, this right is intrinsically linked to the right to life. In addition, states should do everything possible to ensure that people have physical and economic access at all times to food that is adequate in quantity and quality for a healthy and active life. For food to be considered adequate it must also be culturally acceptable and must be produced in a manner that is environmentally and socially sustainable. Finally, its provision should not interfere with the enjoyment of other human rights. For example, the acquisition of sufficient food should not be so costly as to threaten the satisfaction of other socioeconomic rights.

Source: UN Millennium Project 2005.

leaders met to assess progress since the 1996 Rome Declaration and reaffirmed the need to address poverty and gender issues in efforts to reduce malnutrition. They met again in 2009 to pledge their renewed commitment to eradicating hunger from the world. (Box 12).

Nondiscrimination is a key concept within the right to health. This concept forbids “any discrimination in access to health care and the underlying determinants, as well as to means and entitlements for their procurement, on the grounds of race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth, physical or mental disability, health status (including HIV/AIDS), sexual orientation, civil, political, social or other status, which has the intention or effect of nullifying or impairing the equal enjoyment or exercise of the right to health.”<sup>202</sup> Yet, as discussed above, many poor and marginalized men and women, boys and girls, suffer from malnutrition.

The concept of nondiscrimination in conjunction with other human rights, such as the rights to information and privacy, should guide the interaction of individuals with the health system. Further, the notion of inclusiveness encompasses the right to health services and the right to the underlying determinants of health, such as education and food. However, marginalized populations are often denied multiple human rights.

Member States are responsible for the progressive realization of human rights, including the rights to health and food. Therefore, governments must put in place policies and plans that tackle malnutrition among those populations most in need, and promote the realization of other human rights as efficiently as possible. This includes regulating the actions of non-state actors to ensure the right to health is realized. Box 13 outlines an approach to hunger reduction that is based on human rights.

#### **Box 12: Excerpts from the Declaration of the World Summit on Food Security (2009)**

“... We are alarmed that the number of people suffering from hunger and poverty now exceeds 1 billion. This is an unacceptable blight on the lives, livelihoods and dignity of one-sixth of the world’s population.

“... To feed a world population expected to surpass 9 billion in 2050, it is estimated that agricultural output will have to increase by 70 percent between now and then. Concomitantly, measures have to be taken to ensure access – physical, social and economic – by all people to sufficient, safe and nutritious food with particular attention to full access by women and children.

“... We affirm the right of everyone to have access to safe, sufficient and nutritious food, consistent with the progressive realization of the right to adequate food in the context of national food security.

“... We support rural development, creation of employment and more equitable income generation and distribution to overcome poverty and increase access to food.

“... We will strive to ensure that our populations, in particular vulnerable groups, have access to safe, adequate, nutritious and affordable food. We will work to strengthen social protection measures and programmes, to enable communities and households to access economic and social benefits and contribute to social stability. These include safety nets that protect food consumption, such as cash/vouchers and mother and child nutrition.

“... We continue to be committed to the provision of, and the unhindered access to, safe emergency food and humanitarian assistance and support for the most vulnerable populations...”

Source: Declaration of the World Summit on Food Security 2009.

**Box 13: Eleven steps in applying a human rights approach to hunger reduction**

1. Identify groups vulnerable to food insecurity and review national legislation to determine how much these groups are protected.
2. Analyse the steps the government has taken to comply with its obligations.
3. Assess political action for access to food—and to productive resources, since they are a prerequisite to the long-term enjoyment of the right to food by the rural poor.
4. Assess the political marginalization of vulnerable groups and ensure that there is no discrimination on the grounds of ethnicity, gender, religion or any other criterion.
5. Examine national action plans to determine whether they comply with General Comment 12 of the United Nation's Committee on Economic, Social and Cultural Rights.
6. Consult the Voluntary Guidelines to Support the Progressive Realization of the Right to Adequate Food in the Context of National Food Security.
7. Determine whether the right to food has been made justifiable and, if not, take steps to secure it.
8. Empower judicial institutions to enforce the right to food not only on the government but also on private parties, including transnational corporations.
9. Lobby to strengthen international rules and enforcement mechanisms for transnational corporations to ensure that they do not violate the right to food.
10. Lobby to review and reform international trade rules to ensure their compatibility with the right to food.
11. Put pressure on financial bodies and developmental agencies, such as the International Monetary Fund and the World Bank, to ensure that they adopt a rights-based approach to their policies and programmes.

Source: Ziegler 2002. In: UN Millennium Project 2005.

## 4. How to address poverty and gender in nutrition programmes



## 4. How to address poverty and gender in nutrition programmes

As analysis in the sections above show, the burden of undernutrition is concentrated among developing countries in the Region. Within these countries, poor communities suffer the largest burden of undernutrition. In turn, overweight and obesity are increasingly found among developing countries in the Region. At the same time, the risk factors for overweight and obesity are slowly shifting onto poor communities in developing countries. This trend suggests that, with time, poor communities in the Region may face a double burden of undernutrition and overnutrition.

Although data on nutritional outcomes among men and women in the Region are limited, a growing body of evidence also suggests that the nutritional status and health of men and women tend to differ. As discussed in preceding sections, these differences are caused by both biological and gender-related factors.

Despite these trends, the technical solutions necessary to address undernutrition largely exist. In general, studies have concluded that the information and methods required to expand the coverage of interventions to improve nutritional outcomes among disadvantaged populations are known.<sup>203</sup> The inequalities in nutritional outcomes are not, therefore, the result of a lack of technological capability or scientific knowledge. The problem is, rather, that these proven interventions do not reach those most in need. A recent review of evidence concluded that scaling up effective interventions to universal coverage in those countries where 90% of the world's stunted children live could reduce this burden by roughly 25%.<sup>204</sup> Similarly, the knowledge of how to prevent and control much of the burden of overweight and obesity largely exists. The growing burden of overweight and obesity among developing countries draws attention to the limited coverage of effective nutrition-related interventions in the Region.

The sections below discuss strategies to tackle the burden of undernutrition and overnutrition among poor individuals and communities in

the Region and approaches that can effectively respond to the differences in the nutrition of men and women. While acknowledging the importance of broad-based economic growth, strengthening the education sector, reforming agricultural systems, and broad social change for improving nutritional outcomes among societies, this section generally focuses on interventions that can be delivered by the health sector, either by itself or in partnership with other sectors, organizations and communities.

Economic growth has historically been a powerful instrument for reducing the prevalence of undernutrition. However, experience shows that public policy can be an equally powerful tool. The prevalence of overweight and obesity in countries experiencing high economic growth reinforces the need for sound public policies that effectively address issues of malnutrition in the Region.

### Policy level

#### *International policies*

The importance of nutrition for health and development is well articulated in international treaties and agreements. In 2000, world leaders committed themselves to reaching the Millennium Development Goals by 2015. The first of these goals is to reduce hunger by half by 2015. Meeting the MDG for hunger demands political commitment and leadership from international and national institutions, backed by dedicated resources at an appropriate scale. This requires a comprehensive international policy environment to guide strategic action.

The international policy framework to achieve the MDGs is clearly found in the World Declaration and Plan of Action for Nutrition, together with the Global Strategies on Infant and Young Child Feeding and Diet, Physical Activity and Health.

The World Declaration and Plan for Action for Nutrition emerged from the International Conference on Nutrition, held in 1992. The Declaration committed the international



community to eliminate hunger and to reduce all forms of malnutrition. This commitment is based on the right to an adequate standard of living, including the right to food, for all. The Declaration recognizes that the knowledge and resources to end human hunger exist and that globally there are sufficient food resources. It identifies poverty and gender discrimination as primary causes of hunger and undernutrition. The Declaration thus emphasizes the need to ensure that policies and programmes are directed to those most in need. To this end, nutrition-related initiatives need to be focused on people and aim to increase the access to and control of resources by the urban and rural poor. The Declaration highlights the need for poor people to participate in decisions that affect their lives. The Declaration also devotes attention to how gender discrimination results in hunger and malnutrition among women and

girls. Realizing the rights of women and girls, and enhancing their participation in decision-making, along with access to and control over resources, is identified as a core strategy.

These global agreements provide a general framework for the global Plan of Action and national nutrition plans. The Plan of Action outlines policies, programmes and activities to realize the objectives of the Declaration. The Plan of Action argues that each government must make social, economic and political commitments to reach these objectives. Such commitment should be demonstrated through sound nutritional policies and the integration of nutrition-related objectives into the policies and programmes of relevant sectors, such as agriculture, with particular attention to national development policies and programmes. Together with a sound

#### Box 14: Global Strategy for Infant and Young Child Feeding

The Global Strategy for Infant and Young Child Feeding aims to “improve—through optimal feeding—the nutritional status, growth and development, health, and thus the survival of infants and young children.”

The Strategy’s specific objectives are:

- to raise awareness of the main problems affecting infant and young child feeding, identifying approaches to their solution, and providing a framework of essential interventions;
- to increase the commitment of governments, international organizations and other concerned parties for optimal feeding practices for infants and young children; and
- to create an environment that will enable mothers, families and other caregivers in all circumstances to make—and implement—informed choices about optimal feeding practices for infants and young children.

The Strategy is a guide for action at the national level; it is based on available scientific evidence that shows that exclusive breastfeeding and breastfeeding complemented with nutritionally adequate and safe food after six months of age are the best way to ensure the healthy growth and development of infants. For this to happen, parents require accurate information and skilled support from the family, community and health care system. The focus is on ensuring local foods are prepared and fed safely at home and that low-cost complementary foods are widely available.

To achieve these objectives, the Strategy emphasizes the need to formulate comprehensive national policies on infant and young child feeding, including for children in exceptionally difficult circumstances. It advocates for all health services to protect, promote and support exclusive breastfeeding and timely and adequate complementary feeding with continued breastfeeding. It also recognizes the roles that both mothers and fathers play in ensuring that their children receive nutritionally sound and safe foods. The Strategy highlights the need to provide children in special circumstances, such as those living marginalized communities, with extra attention. To this end, it advocates a multisectoral approach.

Source: World Health Organization and United Nations Children’s Fund 2003.

policy framework, governments should take actions that will improve household food security and protect consumers through improved food quality and safety. The health sector should be responsible for preventing and managing infectious diseases, promoting breastfeeding, preventing and controlling specific micronutrient deficiencies and promoting appropriate diets and healthy lifestyles. Within this broad range of interventions, initiatives and services should be targeted to marginalized communities and those

that are nutritionally vulnerable. Of particular importance is the need to eliminate all forms of discrimination against women.

Critical aspects of the Plan of Action have been elaborated upon in the form of Global Strategies on Infant and Young Child Feeding, 2003 (see Box 14) and Diet, Physical Activity and Health, 2004 (see Box 15). Together, these two strategies provide a comprehensive approach to improving nutrition throughout the life cycle. To this end,

### Box 15: Global Strategy on Diet, Physical Activity and Health

The goal of the Global Strategy on Diet, Physical Activity and Health is “to promote and protect health by guiding the development of an enabling environment for sustainable actions at individual, community, national and global levels that, when taken together, will lead to reduced disease and death rates related to unhealthy diet and physical inactivity.”

The Strategy has four main objectives:

1. to reduce the risk factors for noncommunicable diseases that stem from unhealthy diets and physical inactivity by means of essential public health action and health-promoting and disease preventing measures;
2. to increase the overall awareness and understanding of the influences of diet and physical activity on health and of the positive impact of preventive interventions;
3. to encourage the development, strengthening and implementation of global, regional, national and community policies and action plans to improve diets and increase physical activity that are sustainable, comprehensive, and actively engage all sectors, including civil society, the private sector and the media; and
4. to monitor scientific data and key influences on diet and physical activity; to support research in a broad spectrum of relevant areas, including evaluation of interventions; and to strengthen the human resources needed in this domain to enhance and sustain health.

The Strategy states that priority should be given to activities that have a positive impact on the poorest population groups and communities. To achieve this outcome, community-based strategies with strong government intervention and oversight are often required. In addition, the Global Strategy recognizes the need for approaches to be sensitive to the differences in the nutritional and physical activity needs of men and women.

The Strategy aims to foster the formulation and promotion of national policies, strategies and action plans to improve diet and encourage physical activity. These should build on and complement existing initiatives to address diet, nutrition and physical activity and ensure coherence of existing policies on agriculture, economics, education, among others, with the aim of the national policies on nutrition.

Governments have an essential role to play in implementing these policies, strategies and actions, which should be led by ministries of health with contributions from other government agencies, the private sector and NGOs. In addition, governments should provide accurate and balanced information to all citizens to enable them to make healthy choices.

Source: World Health Organization 2004.

both strategies employ a multisectoral approach led by government with collaborative action with the private sector, academic institutions, the media and national/international nongovernmental organizations (NGOs).

The World Declaration and Plan of Action for Nutrition and subsequent Global Strategies are based on human rights principles. Human rights are increasingly used to conceptualize entitlements to food and the right to be free from hunger. As noted above, nutrition is a universally recognized right for all children and adults. Children and adults have the right to adequate nutrition and access to safe and nutritious foods. Currently, countries are in the process of translating these rights into national legislation, thereby giving weight to international human rights treaties (see Box 16).

The role of non-state actors in realizing these rights, and supporting the implementation of the World Declaration and Plan of Action for Nutrition and Global Strategies, has been recognized in these and other international treaties. This has led to the formulation of a number of voluntary codes of conduct, such as the International Code of Marketing of Breast-

milk Substitutes and the Voluntary Guideline on the Right to Food. The Code aims to ensure that the marketing of breast-milk substitutes does not undermine national and international efforts to promote breastfeeding. The Code requests that manufacturers and distributors of a range of products, such as feeding bottles and teats, monitor their marketing practices to ensure compliance with the Code.<sup>205</sup> However, violations continue to occur highlighting the continued lack of mechanisms to promote accountability among relevant commercial entities.<sup>206</sup>

### *National policies*

Achieving the MDGs and implementing the World Declaration and Plan for Action for Nutrition and Global Strategies require broad and sustained political commitment for nutrition at the national level. Political commitment is required to ensure that nutrition programmes are priorities in the allocation of human, financial and organizational resources.<sup>207</sup> A lack of political commitment is often identified as a reason for weak nutritional policies and programmes.<sup>208</sup> Efforts are thus required to galvanize broad-based political support for commitment to nutrition expressed in international declarations.

#### **Box 16: The right to food in India**

A number of countries have made great strides in operationalizing the human rights codified in international human rights agreements by formalizing these rights into national law. Among the countries at the forefront of this process is India, where civil society organizations are engaged in realizing these rights.

The People's Union for Civil Liberties submitted a "writ petition" to the Supreme Court on 16 April 2001. This writ petition posed three questions:

- Does the right to life mean that people who are starving and too poor to buy food can get free access to government stockpiles?
- Does the right to life under Article 21 of the Constitution of India include the right to food?
- Does not the right to food, which has been upheld by the Supreme Court, imply that the State has a duty to provide food, especially in situations of drought, to people who are drought-affected and are not in a position to purchase food?

The Supreme Court ruled in favour of the People's Union. The legal debate over the right to food did not end with this ruling; state governments have taken this ruling to court to contest their obligations and ability to realize these rights.

Source: People's Union for Civil Liberties 2001. In: UN Millennium Project 2005.

Experience suggests that a champion for nutrition is crucial for building and sustaining political commitment.<sup>209</sup> In many countries, ministries of health are in a unique position to powerfully champion these issues. Ministries of health can lead efforts to mobilize political support and buy-in for nutrition from a range of stakeholders, including politicians, civil society organizations, academics, the private sector and diverse government ministries.

Actions designed to increase political commitment for nutrition need to deliver clear messages of the causes and implications of undernutrition and overnutrition for health and development. This is because lack of awareness of these issues, in conjunction with the cross-sectoral nature of nutrition, has been found to reduce political commitment for nutrition in some areas.<sup>210</sup> Delivering clear messages on how to address nutrition and the intended benefits from

nutrition-related interventions can mobilize broad-based support for them.

Advocacy efforts in the Region need to be holistic, in the sense that they incorporate a concern for both undernutrition and overnutrition. As the links between obesity, overweight and poverty are only now becoming known, the public health community has not traditionally identified these as conditions related to poverty. Hence, advocacy efforts will need to mobilize data on the emerging obesity epidemic in developing countries in the Region. This is especially important because ministries of health are often faced with limited resources that must be prioritised. Building consensus among decision-makers that obesity and overweight are emerging health concerns among poor populations that require immediate attention could help ensure that such scarce resources are priorities to such efforts.

#### Box 17: Legislating against obesity in the Pacific

Combating obesity is an important health goal among Pacific island countries. These countries are employing a range of interventions to address the risk factors for obesity. Experience, from within the Pacific and abroad, suggests that legislation can be used to coordinate sustainable efforts to improve the nutrition of citizens.

Five main types of legislative initiatives have been proposed or implemented to respond to obesity, namely:

1. price controls, such as domestic taxes, import duties and tariffs and subsidies for healthier food;
2. restrictions on the supply of particular foods, such as product bans and restricting supply to youth;
3. product information and labelling;
4. advertising restrictions; and
5. promoting balanced diets and physical activity.

Notably, Fiji has implemented a ban against cheap, fatty meats typically imported from New Zealand and Australia. Specifically, Fiji banned mutton flaps in 2000 through a prohibition order issued under the Fair Trading Decree of 1992. While the ban appears to prohibit the supply of mutton flaps, it is in effect an import ban since these products originate from abroad. In practice, the ban has proven to be only partially effective. Whole sheep carcasses are now imported into Fiji and then butchered into mutton flaps, thereby getting around the ban. In addition, other fatty meats that the ban does not address remain readily available.

Health Promoting Foundations have been introduced or proposed in several Pacific island countries and areas. French Polynesia has a comprehensive obesity prevention programme that is funded by EPAP (établissement pour la prevention), an interdepartmental government organization responsible for a range of public health programmes. Funds for the programme are resourced through domestic taxation on a range of unhealthy products, such as soft drinks, alcohol, chocolate and ice cream.

Source: Clark D *et al.* 2007.

Support for nutrition from poor and marginalized communities and groups, such as urban poor organizations and women's groups, can also be leveraged to sustain pressure on political leaders over time. Building alliances with and support among civil society organizations can augment efforts by the ministries of health to build broad-based support among decision-makers for nutrition-focused policies.

While national nutrition policies do not guarantee political commitment for their implementation, such policies can contribute to efforts to make nutrition a priority. National policies are documents endorsed by the government that specify what will be done to address nutrition. These policies are usually accompanied by a timeline, time-bound indicators and a budget. A nutrition policy should be technically sound and should clearly outline the causes and implications of undernutrition and overnutrition, in addition to identifying the most effective interventions that can be implemented at scale. Enacting legislation can protect policy and programmatic advances in nutrition from political and administrative changes (Box 17).

Most countries in the Region have enacted national plans of action for nutrition.<sup>211</sup> Such plans typically cover nine action areas:

1. incorporating nutrition objectives, consideration and components into development policies and programmes;
2. improving household food security;
3. protecting consumers through improved food quality and safety;
4. preventing and managing infectious diseases;
5. promoting breastfeeding;
6. caring for socioeconomically deprived and

7. nutritionally vulnerable people;
8. preventing and controlling specific micronutrient deficiencies;
9. promoting appropriate diets and healthy lifestyles; and
10. assessing, analysing and monitoring nutrition situations.

Currently, national nutrition policies often aim to maximize nutritional gains in the aggregate, across the population as a whole. The targets and indicators used to measure the progress of these policies are often expressed as national or population averages. For example, MDG 1 aims to “eradicate extreme poverty and hunger.” The two targets for this goal are specifically focused on improving the well-being of the poor. In contrast, MDG 4, which aims to reduce child mortality, can theoretically be achieved without improving child outcomes among the poorest because of the way the targets are designed (see Box 18).

Moreover, when nutritional interventions aim to achieve universal goals and targets, without explicit articulation of specific approaches to meet the needs of marginalized or vulnerable population groups, their benefits may be captured by the non-poor. This is because ensuring adequate coverage among non-poor populations tends to be easier and less costly than those ensuring similar services for poor populations. To avoid such pitfalls and ensure equitable flow of benefits to poor and marginalized groups, national nutritional policies need to articulate the needs of these groups and target effective nutritional interventions to them. National nutrition strategies should also specifically identify the advances in the nutrition of men and women, boys and girls that are to be achieved.

#### Box 18: Tailoring policy targets to promote equitable nutrition outcomes

**Goal 1:** Eradicate extreme poverty and hunger

**Target 1:** Halve, between 1990 and 2015, the proportion of people whose income is less than \$1 a day.

**Target 2:** Halve, between 1990 and 2015, the proportion of people who suffer from hunger

**Goal 4:** Reduce child mortality

**Target 1:** Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate.

One aim of a national nutrition policy is to prioritize and allocate limited resources effectively and equitably. To support this process, the goals and targets for national nutritional policies should build on the analysis of the distribution of determinants of undernutrition and overnutrition by socioeconomic status, sex and other indicators of disadvantage. This analysis should include an assessment of the differential access of these populations to existing nutritional interventions and health services, with specific attention to differences between men and women, boys and girls. These issues are discussed in more detail under the section on monitoring and evaluation.

### Cross-sectoral action

International policies on nutrition have long recognized the multiple determinants of nutrition. While some of these determinants fall within the responsibility of the health sector, such as breastfeeding promotion or micronutrient supplements, many more determinants fall under a range of other sectors, such as agriculture, education, urban planning and housing. This conceptualization of nutrition is seen in the World Declaration and Plan of Action for Nutrition, which involve a variety of interventions with a number of actors from across diverse sectors. This cross-sectoral approach is echoed in the Global Strategy on Infant and Young Child Feeding and

the Global Strategy on Diet, Physical Activity and Health. Box 19 describes the experience in China, where rapid declines in undernutrition have been attributed to large-scale poverty reduction.

More recently, WHO set up a Commission on the Social Determinants of Health to draw attention to the impact of social determinants on inequalities in health.<sup>212</sup> The Commission aimed to gather evidence and provide guidance on social determinants of health and ways to overcome health inequities. The Commission's report made three main recommendations: (1) improve daily living conditions; (2) tackle the inequitable distribution of power, money and resources; and (3) measure and understand the problem and assess the impact of action.<sup>213</sup> In line with the Commission's recommendations, the World Health Assembly, WHO's governing body, passed a resolution relating to reducing health inequities through action on the social determinants of health.<sup>214</sup> Actions recommended for the international community included: assessing the impacts of policies and programmes on health inequities and addressing the social determinants; enhancing health equity in all policies; developing indicators to monitor progress; and strengthening international collaboration in this area. Member States were urged to ensure political commitment for "closing the gap in a generation"; mainstream health equity in all policies; strengthen universal

#### Box 19: Poverty reduction, economic growth and reductions in undernutrition: the case of China

Broad economic reforms initiated by China in 1978 have resulted in impressive rates of economic growth, leading to structural transformations in the economy and society. During this period, rates of poverty in China fell rapidly: the number of poor people living on less than US\$ 1 a day dropped from 250 million in 1978 to 30 million in 2000. China is on track to achieve the MDGs, including a dramatic reduction in undernutrition. Between 1990-1992 and 2001-2003, the number of undernourished people fell from 194 million to 150 million.

China's impressive success in reducing poverty and undernutrition has been largely attributed to increased agricultural production, which was enabled through national strategies and policies on agriculture and rural development. Increased agricultural production has been further complemented by the commitment of the central and local governments to poverty reduction; policy and institutional reforms gave the rural poor access to social services and production assets, with significant public investments in education, agricultural research, extension, irrigation and other forms of infrastructure in rural areas.

Source: UN Millennium Project 2005; Bryce *et al.* 2008.

comprehensive social protection policies; increase awareness among health providers on how to address social determinants; and monitor and measure health inequities, with disaggregated data such as age, gender, ethnicity, race, caste, occupation, education, income and employment.

At the national level, Poverty Reduction Strategy Papers (PRSPs) or other multisectoral planning instruments can provide a framework for cross-sectoral action to tackle the social determinants of health. PRSPs can also be a mechanism to increase policy coherence, joint planning and effective resource allocation to address the determinants of nutrition.<sup>215</sup> However, one review concluded that few PRSPs articulate comprehensive and sustainable policies, plans and programmes to address undernutrition.<sup>216</sup>

Ministries of health therefore need to secure a central role in the PRSP formulation and review process and to advocate for the inclusion of

nutrition within such multisectoral planning instruments. These arguments can be premised on the economic benefits of investing in nutrition and international commitments to the right to an adequate standard of living, including the right to food.

To effectively integrate nutritional concerns into PRSPs and other multisectoral planning processes, decision-makers need to understand the complex linkages between nutrition and other aspects of economic growth and poverty reduction. Here, analysis and evaluation of how existing policies impact upon nutrition at the national and subnational levels is critical. Gender inequality can restrict the ability of women to take actions to improve their nutrition by limiting their access to and control over resources. Removing these barriers to access and promoting women's rights must therefore be core dimensions of efforts to improve women's nutritional status and outcomes, as well as that of the household members that they feed.

#### Box 20: Brazil's Zero Hunger Program

The Government of Brazil has developed and accorded high priority to the Zero Hunger Program, an integrated and comprehensive strategy for reducing hunger. The programme's strategy is to link five key actions:

- providing opportunities to excluded people through employment and agrarian reform;
- using the Government's increased commitment to hungry people to broaden awareness and political commitment within Brazilian society (e.g. mobilizing civil society and private sector participants);
- increasing the basic food supply through support to family agriculture;
- lowering food costs through agreements with popular restaurants and supermarket chains, alternative trade channels, equipment modernization and reduced taxes; and
- providing emergency interventions such as food coupons, free food in schools, food banks, food security stocks, and mother-child nutrition programmes.

Source: Brazil 2002. In: UN Millennium Project 2005.

Policies need to address food security in both urban and rural areas. In many countries, improving agricultural productivity can reduce the cost of production and has the potential to increase the income of farmers and the prices for consumers. However, investments in the agricultural sector have tended to be low historically. The recent rapid rise in food prices has galvanized political commitment to reverse such imbalances. Box 20 describes a multisectoral programme initiated in Brazil to eliminate hunger.

#### Health sector response

For sound nutritional policies and strong political commitment to result in improved nutritional outcomes among men and women, boys and girls, interventions and approaches need to reach those most in need.<sup>217</sup> This can be achieved through high levels of coverage that are sustained over time or targeting interventions to marginalized communities and those most vulnerable to malnutrition. In general, however, interventions and approaches to improve nutritional outcomes

need to be evidence-based. That is, there is a need for governments and their partners to adopt those interventions that have proven to be effective.

The sections below outline some strategies that health professionals can use to better ensure that nutritional interventions reach those most in need. These approaches can complement existing efforts to integrate nutrition into health sector development strategies and service deliver.

### *Scaling up geographic coverage*

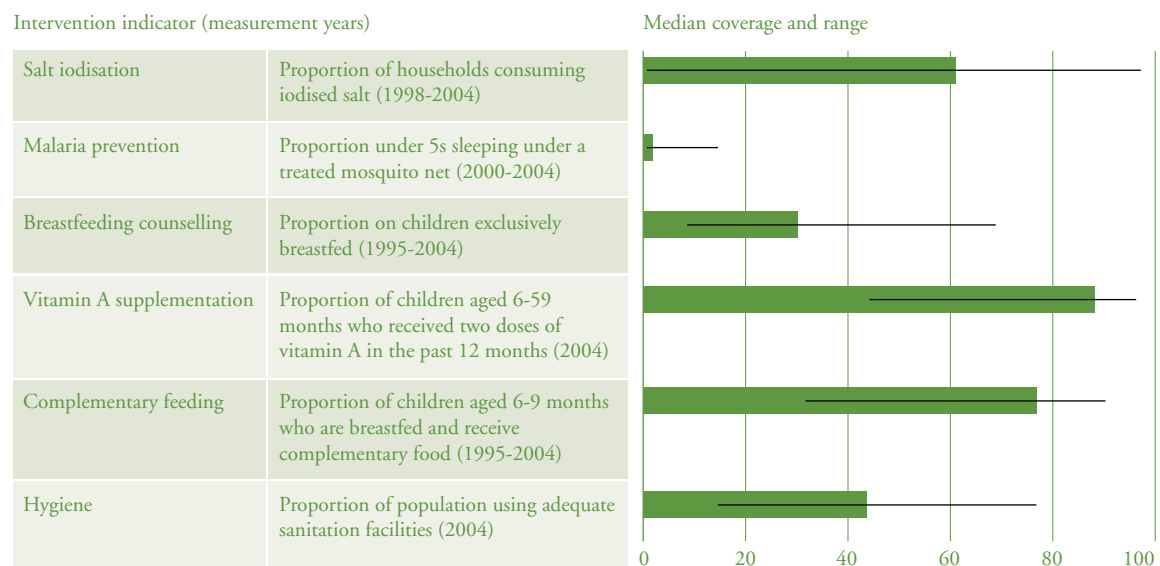
Global nutritional strategies advocate for the inclusion of nutritional interventions into existing health and inter-sectoral structures.<sup>218</sup> This approach can ensure the rational use of human and financial resources, avoid duplication and promote sustainability in the long run. However, the effectiveness of this approach depends on the quality and reach of the existing health system. The coverage of health services in many developing countries in the Region remains incomplete, often benefiting non-poor communities to a greater extent than those that are poor. Among countries in the Pacific, for example, health services may not effectively cover remote and

small island communities. Integrating nutritional interventions into health systems with such incomplete coverage can perpetuate inequalities.

In many countries in the Region, however, the network of primary health facilities tends to be more accessible for poor households than services at secondary or tertiary levels. Prioritizing the integration of nutrition-related interventions into primary health care may improve accessibility for poor men and women. Prioritizing the allocation of resources for the prevention and control for overweight and obesity, as well as for undernutrition, through primary health care facilities may be an effective means of increasing the coverage and quality of these prevention services among poor communities. Prevention measures such as supporting behavioural change may be effectively delivered through primary health facilities. To augment this strategy, underserved areas or those where the poor are concentrated—such as rural, urban poor and remote island communities—can be further prioritized in the allocation of resources for nutrition.

Financial incentives provided to local NGOs and private providers to extend their portfolio of

**Figure 13: Estimates of coverage with effective interventions in the 20 countries with the highest burden of undernutrition**



Source: Bryce J *et al.* 2008.



services to include nutrition interventions can help in reaching areas that may be underserved by the primary health care system. Financial incentives may also mobilize these alternative providers to enter into underserved areas. Cambodia, for example, successfully employed a strategy of contracting with NGOs to provide health services in several districts. This arrangement increased the accessibility of health services, often to the benefit of the poor.<sup>219</sup> Integrating the provision of nutritional interventions into such arrangements may likewise improve the accessibility for poor individuals. Extending such arrangements to private providers might be considered in areas where poor individuals consult private practitioners, such as among urban poor communities. Box 21 describes the successful

partnership with the private sector to scale up the coverage of vitamin A supplementation and universal salt iodization.

Efforts to extend the coverage of nutritional interventions are increasingly coordinated across various settings, such as workplaces and schools. School-based interventions have been found to be a cost-effective strategy for reducing risk factors for obesity among children. Targeting schools located in poor areas and extending this approach to cover children who are unable to attend school, such as working children, can ensure that poor children benefit from such integrated approaches. Such tailored approach may likewise be necessary to reach girls in countries where they are less likely to attend school and leave school earlier than boys.

#### **Box 21: Collaboration with the private sector to take nutrition interventions to scale**

Food fortification is an effective way to enhance the quality of food by adding necessary nutrients. Foods can be fortified with protein, energy and micronutrients. Food fortification is well established in industrialized countries and is one reason why micronutrient deficiencies are less prevalent. The fortification programme that has had the most dramatic impact is salt iodization to prevent iodine deficiency disorders (IDD). This intervention has largely been implemented at scale through collaboration with the private sector.

In the 1990s, the international community, led by WHO, UNICEF and the newly founded (1985) International Council for the Control of Iodine Deficiency Disorders (ICCIDD) in Kathmandu, Nepal, agreed that iodization of salt was the best strategy to control IDD globally. Close to 120 countries have documented IDD as a problem, and by 1998, 93 countries had started salt iodization programmes, with more than 80% adopting legislation governing iodized salt. In the interest of public health, some countries subsidize the production of iodized salt to make it more affordable.

In Ghana, Unilever forged a partnership with UNICEF and the Ghana Health Service to promote Annapurna iodized salt through advertising and education. Advertisements were needed to raise awareness of the importance of iodine in the diet, but did not refer to any specific brand of salt.

Teams then went into schools to educate children about the need to raise their iodine levels. Children were invited to bring salt in from home, which was then tested with a special kit to find out if it was iodized. Iodized salt consumption by Ghanaians now stands at 50%, up from just 28% in 1998.

The programme has been extended to cover consumption of vitamin A, zinc and protein as well. Unilever's fortified foods business in Ghana is being extended to Mozambique, Malawi and Kenya. The company has announced that it is at an advanced stage of negotiations with UNICEF on a global partnership to reduce child mortality.

The Ghana experience and the global partnership are examples of how the private sector can, through its own commercial programmes, deliver the kinds of food needed to improve nutrition.

Source: De Benoit, Clugston and Unilever Health Institute Symposium, 2003. In: UN Millennium Project 2005.

### *Community-based approaches*

Around the globe, experience has shown the value of involving poor men and women in the delivery of nutrition-related interventions.<sup>220</sup> Indeed, the World Declaration and Plan of Action for Nutrition stress the importance of people-focused nutritional policies. That is, nutritional interventions need to acknowledge that community participation is necessary for improving food production and sustaining access to food and adequate nutritional interventions.<sup>221</sup>

Participatory methods have been found to empower communities to decide on their own priorities and to plan, implement and evaluate various interventions. Such approaches create a sense of shared ownership and responsibility among all stakeholders and can also create interventions and approaches that are more suitable to local realities and expectations. Groups for women/mothers, men and citizens have been helpful at strengthening programmes by increasing their acceptability, spreading messages and modelling desired behaviours.

To be successful, community-based approaches need to build capacity to support the planning, management and implementation of nutrition-related interventions. This may require strategies that empower stakeholders and groups within communities to voice their concerns. Initiatives to better enable stakeholders to recognize and respond to malnutrition may also be necessary. For example, training and mentoring a network of community nutrition extension workers can improve the identification of and response to malnutrition in marginalized communities. Such approaches can be successfully supported through the health system. This approach was found to be successful in Thailand, which integrated community actions with national policies and programmes (Box 22).

Community-based interventions can also help create environments that better enable individuals, households and communities to make healthy choices. Involving a range of men and women

stakeholders in such community-based initiatives can change norms and values within a society to the benefit of women and children, for example. More specifically, community-based support, such as mother-to-mother support groups or peer counsellors, has been found to be effective in improving infant and young child feeding.<sup>222</sup> Box 23 describes an initiative in the Gambia to create mother- and baby-friendly communities.

Communities tend to be ridden with social hierarchies and conflicts. The differing interests within communities require recognition to ensure that better-off community members do

#### **Box 22: Community Volunteer Corps for Household Nutrition Security, Thailand**

Thailand has shown remarkable progress in reducing maternal mortality as well as the incidence of low birthweight through its Community Volunteer Corps for Household Nutrition Security. Key elements of this programme include the following:

- eliminating severe, moderate and mild protein-energy malnutrition;
- monitoring growth among all preschool children and providing food supplements where needed;
- mainstreaming nutrition in health, education and agricultural policies;
- retraining and retooling existing staff and mobilizing community volunteers (one volunteer chosen for every 10 households);
- encouraging breastfeeding and organizing school lunch programmes;
- promoting home gardening, consumption of fruits and vegetables, aquaculture and food safety standards; and
- introducing an integrated food safety net with emphasis on household food and nutrition.

The positive impact of the Nutrition Security Compact is evident from the decline of maternal mortality from 230 per 100 000 live births in 1992 to 17 in 1996.

Source: Philip 2000 and Swaminathan 2001. In: UN Millennium Project 2005.

not capture the benefits of community-based initiatives. Thus, care needs to be taken to ensure that the voices of all community members are heard. This requires strategies to ensure the inclusion and equal participation of men and women and those from low-income or ethnic minority or otherwise marginalized households. Where women are especially disempowered, they can be enabled to speak if meetings are held separately from men. Similarly, it may be better to seek the input of marginalized groups in forums where powerful members of the community are not present. In addition, meetings should be organized at times conducive for both men and women, as men and women often have different roles and responsibilities.

In many communities, women are responsible for the production and preparation of food: women living in rural areas may be responsible for vegetable gardens or farming plots, subsistence fishing or food processing; those in urban areas may be responsible to ensure sufficient and appropriate foods are purchased, in addition to what they can grow in and around the house. Because of these responsibilities, in conjunction with their responsibility for household reproductive tasks, such as breastfeeding infants and feeding children, the participation of women in the design and

management of nutrition-related interventions must be ensured. However, because of gender inequalities and unequal power dynamics within households and communities, both men and women need to participate in such intervention to ensure a common understanding and buy-in.

### ***Addressing gender inequality***

Participatory approaches that consider social relationships within communities often implicitly tackle gender norms and roles that negatively impact upon the nutritional status and outcomes of men and women, boys and girls. It is often necessary, however, to develop initiatives that directly challenge gender discrimination in a given community or society. Tackling gender norms in a society needs to be undertaken in manner that is sensitive to all actors and groups in a community and the differences, conflicts or hierarchies between them. Efforts to address gender inequality are, in effect, interventions to change social relations and power dynamics. Individuals or groups who feel threatened by the intervention may react negatively and hinder activities. As well, these types of interventions often need to be carried out in the long term, as short-term change may not be sustainable without ongoing interventions or community support. Participatory methods that

#### **Box 23: Mother- and baby-friendly communities in the Gambia**

Innovative activities in the Gambia show that building capacity, knowledge and motivation at the community level can result in significant and sustainable improvements in nutrition at minimal additional cost.

With a view to improving maternal well-being, pregnancy outcomes and infant feeding practices, the programme in the Gambia pursues an integrated approach that builds on widely known baby-friendly hospital initiatives, supported by UNICEF and WHO. The approach is to establish mother-to-mother support groups that become family self-help and support groups, including men.

Five women and two men are identified by each community to be trained as volunteers to implement and monitor the activity. Where available, traditional birth attendants are included in the group. Local problem analysis leads to a 10-step plan, which includes ensuring that families act on nutrition and health advice, that mothers are encouraged and given time and space to pursue exclusive breastfeeding for the first six months, that workplaces in the village and on farms provide shelter for small children accompanying mothers to work, and so on. When all 10 steps have been achieved, it falls to the government to recognize such efforts by awarding mother- and baby-friendly community status to successful villages.

Source: UNICEF 2004. In: UN Millennium Project 2005.

engage with and respond to the perceptions, views and needs of all community members are often more effective in creating social change than are top-down interventions initiated by organizations or individuals external to the community.

Along with gender inequalities in the household, community and society at large, women's biological vulnerabilities to malnutrition, particularly micronutrient deficiencies during their reproductive years, tend to exacerbate risks to their nutritional status and outcomes. Efforts to improve nutritional outcomes among women need to therefore target both biological and gender-related determinants of malnutrition. Similarly, initiatives to improve the nutrition of mothers and their infants will need to respond to the harmful impact of gender norms. This is illustrated with the promotion of exclusive breastfeeding in the Region (Box 24).

In addition to creating a policy environment that tackles gender inequality, efforts are needed to ensure that men and women have equal access to services and resources. For example, women require accessible reproductive health services

to promote good nutrition during pregnancy. Women likewise require access to and control over assets to ensure that they have the means to purchase and produce food. Innovative nutrition programmes, such as those supported by the World Food Programme, have found a way to provide direct nutritional interventions to women while simultaneously improving their entitlements to resources (Box 25).

### *Targeting those most in need*

Interventions to reduce undernutrition are often carefully targeted to vulnerable groups, such as children under the age of 2 years and women of reproductive age. This type of targeting has been found to be an effective use of resources. For example, a study in the Gambia targeted pregnant women with low body mass index with supplements amounting to more than 700 kcal per day.<sup>223</sup> This strategy reduced the risk of intrauterine growth restriction by 32% in the target population.

In addition to targeting on the basis of nutritional vulnerability, nutritional interventions can be targeted directly to poor and marginalized

#### **Box 24: Gender inequality and the promotion of exclusive breastfeeding in the Region**

Evidence shows that infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health. Countries in Asia have among the lowest rates (on average 15%) of women who initiate breastfeeding within one hour of birth. National nutrition policies in the Region aim to protect and promote breastfeeding through such interventions as the Baby-Friendly Hospital Initiative and adapting the International Code of Marketing of Breast-milk Substitutes to national settings.

However, as more and more women in the Region take up formal or informal employment, a range of supportive measures, including legislation, may be needed to enable mothers to successfully breastfeed their children. The International Labour Organization's Convention on Maternity Protection (No. 183) proposes a maternity leave of a minimum of 14 weeks. The aim is to provide such maternity leave to all women, including those in informal employment. The Convention also proposes a series of measures, such as a reduction of working hours or breaks during work, to enable women to breastfeed.

At present, very few countries in the Region offer 14 weeks of maternity leave to women workers. Some countries are promoting breastfeeding in the workplace by providing crèches or introducing mandatory breastfeeding breaks. In Mongolia, women with infants younger than six months are entitled to two breaks of one hour per day to breastfeed. Mothers of children aged six to 12 months are entitled to one hour break per day. Many enterprises in Viet Nam have crèches to facilitate breastfeeding among working mothers.

Source: WHO Western Pacific and South-East Asia Regional Offices 2008.

communities and households to ensure that they benefit. This type of targeting can be based on a given characteristic, such as geographic location, or membership in a vulnerable group, including ethnic minorities, street children or landless farming households. Given that inequalities in access persist between urban and rural areas, which are generally poorer than urban areas, expanding nutritional interventions into rural and remote areas will likely improve equity in nutritional outcomes.

Regular outreach services and deployment of health workers or volunteers in marginalized areas may also improve the coverage of nutritional interventions. The coverage of nutritional initiatives may also be expanded through networks of community health workers or local organizations. These strategies may be undertaken in collaboration with NGOs and private practitioners.

### ***Improving health information and education***

Advocacy or information and education strategies aim to communicate information strategically to change the perceptions of individuals and positively influence their decision-making. It may shape public perceptions by communicating information about the determinants of undernutrition and overnutrition. This can lead to increased motivation to change behaviours among citizens and enhanced demand for nutrition-related interventions.

Notably, such initiatives aimed at society in the aggregate may not reach poor households because of their generally lower levels of education. In addition, poor and marginalized households and communities may not have access to the standard modes of communication, such as television and radio. Numerous factors including geographic

#### **Box 25: Food for training – meeting women's and girls' practical and strategic gender needs**

The new (2009) gender policy of the World Food Programme (WFP) includes a range of strategies to promote positive gender relations and support sustainable livelihoods.

For example, the agency intends that food-for-work (FFW) and food-for-training (FFT) programmes will be designed to take into account the different needs of women, men, young people and the elderly. WFP will ensure: (1) that women and men participate equally in identifying FFW and FFT activities on the basis of their different needs and priorities; (2) that women and men have equal access to benefits through FFW and FFT programmes that are designed in a participatory process; support systems such as child care will be considered in the design to improve women's access to the benefits; and (3) that a monitoring system is put in place to ascertain whether women are empowered in terms of decision-making and of benefiting from WFP assistance to improve their livelihoods; the system should include qualitative data.

In addition, cash transfer, voucher and cash-for-work programmes will be designed to ensure that women benefit equally with men, without negative implications. WFP will ensure that: (1) cash transfer and voucher programmes take into account the needs of women and children, including food and nutrition security and the potential for domestic violence over the control of cash or vouchers; and (2) a monitoring system is put in place to ascertain whether women are empowered by cash transfer and voucher programmes through decision-making and improved livelihoods.

Similarly, purchase-for-progress projects will take into account the inequality of women and men in access to farming inputs, transports, markets and returns. WFP will ensure: (1) adequate representation of women farmers by establishing minimum targets for their participation in line with country contexts; this will include working with traders and farmers' associations to ensure that women are equitably represented in management positions and that women farmers benefit directly from cash payments for their produce; and (2) that a monitoring, evaluation and reporting system is in place at the country level to track women's participation.

Source: World Food Programme Gender Policy 2009.

distance, cultural and linguistic barriers, may prevent health education messages from reaching marginalized communities. Concerted efforts are thus required to ensure the health education strategies and messages are tailored to reach these groups, such as through illustrated messages for those with low literacy levels. When targeting minority groups, culturally appropriate messages delivered in local languages are required. Outreach strategies may likewise be undertaken by health staff or community-based health workers to increase knowledge and awareness among various hard-to-reach groups and low-income settings.

Women may similarly be excluded from mainstream health promotion efforts. Women tend to have lower levels of literacy than men and gender norms may restrict their access to mainstream media. Instead, women may rely on relatives and social networks for health-related information. Interpersonal modes of communication may be more effective in communicating health-related information to women than relying on print media, for example. Involving poor individuals and women in the design and implementation of information campaigns will ensure that local knowledge, priorities and needs are understood and subsequently

**Box 26: Targeting iron supplements to women: a new approach to prevent anaemia in women of reproductive age**

Weekly iron and folic acid supplementation is a new preventive public health approach to improve iron stores for women of reproductive age in regions where their dietary iron is inadequate. Weekly supplementation is an efficient and effective way of maintaining iron stores, as the intestinal cells absorbing iron are renewed every five to six days: weekly iron doses appear to be better absorbed and to cause fewer side-effects than daily iron doses, when used for the treatment of anaemia, thus leading to higher compliance in taking the supplements.

A review of all available evidence from studies and programmes using weekly supplementation for women of reproductive age was discussed during a WHO consultation in 2007, leading to a WHO position statement posted on the WHO website ([http://www.who.int/nutrition/publications/micronutrients/weekly\\_iron\\_folicacid.pdf](http://www.who.int/nutrition/publications/micronutrients/weekly_iron_folicacid.pdf), accessed 23 March 2010).

After several successful efficacy trials in various countries, the new approach was introduced through programmes aiming to reach about 30 000 women per country, in the Philippines and Viet Nam, and in smaller effectiveness trials in Cambodia and the Lao People's Democratic Republic, with very good results. All these countries have scaled up their programmes or included weekly supplementation in anaemia prevention guidelines and strategies. In Viet Nam, with support from the National Institute of Malariology, Parasitology and Entomology (NIMPE), the University of Melbourne and WHO, the programme was scaled up to a whole province, where weekly supplements are provided free of charge, together with albendazole tablets given twice a year to treat worm infestation, which is one of the main causes of anaemia in the region.

Two and a half years after the introduction of weekly iron and folic acid supplementation, anaemia prevalence was reduced from 37.5% to 18.0% and hook worm infestation prevalence dropped from 78.2% to 15.0%. Moreover, infant birth weight increased by 130 grams, on average. Women taking the supplements consistently report fewer headaches and less dizziness—common symptoms of iron deficiency and anaemia—and say they feel stronger and healthier, and have better appetite and sleep.

In Viet Nam, the National Institute of Nutrition has included this intervention in their national Plan of Action for Accelerating the Reduction of Stunting and plans to include it in the National Plan of Action for Nutrition (2011–2020). With the help of consultants, WHO has produced a guide for implementation of these programmes and a communication strategy to help introduce and scale up weekly supplementation in Viet Nam and other countries.

Source: Cavalli-Sforza *et al.* 2005.

addressed. These strategies may likewise ensure that the message and medium of health promotion campaigns are accessible for women.

However, health education and other initiatives that aim to change the behaviour of vulnerable men and women need to consider their ability to take action, including their command over resources. For example, a recent meta-analysis concluded that nutrition education strategies were most beneficial when targeted to populations that have access to appropriate food, either through their own production or the market. Among food-insecure populations, educational strategies produced comparable results only when combined with food supplements. Box 27 describes such an approach.

### ***Monitoring and evaluation***

Despite the growing recognition of ongoing and often increasing health inequities in developing

and developed countries alike, health information systems have been weak in yielding information needed to assess and address these inequities. The challenges are:

- to determine the information needs for addressing health inequities;
- to shape health information systems to meet those needs;
- to promote sensitization to equity issues; and
- to develop the skills required to use information for effective planning and policy-making.<sup>224</sup>

The Health Metrics Network (HMN) has begun work on constructing equity indicators and creating mechanisms to link records between data sources.<sup>225</sup> Complementary measures to the global HMN for malnutrition can be undertaken at the country level.

Health information systems generally collect information on undernutrition to monitor

#### **Box 27: Conditional cash transfers and nutritional education: improving nutritional outcomes among children**

Conditional cash transfers (CCTs) can have a positive impact on reducing the current poverty status and breaking the intergenerational transmission of poverty by promoting investments in the human capital of children. A growing body of evidence, particularly from countries in Latin America, shows that the combination of a conditional cash transfer programme with nutritional education and, in some cases, micronutrient-fortified food supplements can have a significantly positive impact on the nutritional status of children, particularly among the poorest segments of society.

CCTs provide a cash transfer or payment to families, often to the mother, in return for a set of specified actions, such as vaccinating children, sending children to school or visiting health centres. Overall, numerous evaluations have shown that these programmes can result in improved health and education outcomes and increased consumption of goods and services among targeted households.

With regards to nutrition, specifically, the strongest evidence of the potential impact of CCTs comes from Mexico, where *Oportunidades* combined a CCT with nutritional education and micronutrient-fortified food supplements. Children participating in these interventions during the first two years of life grew more than 1 centimetre higher than control populations. Evaluations found that this effect was found only among infants from lower socioeconomic status, which had the highest prevalence of stunting. At the same time, a reduction in the rates of anaemia by 20% was also documented. Decreases in the prevalence of stunting were also found in Colombia and Nicaragua.

In contrast, a review of the literature concluded that nutritional education alone was only beneficial among populations that had sufficient access to food. The combination of CCTs with nutritional education can be an effective strategy to overcome this constraint among the poorest populations.

Source: Bhutta Z *et al.* 2008.

progress towards the MDGs, while many countries in the Region are using the WHO stepwise approach to surveillance (STEPS) to collect information related to the risk factors for overnutrition (see Box 28). This information is rarely disaggregated by various indicators of social exclusion at the national and subnational levels. Thus, an important constraint in tackling inequalities in undernutrition and overnutrition among developing countries in the Region is the general lack of such data.

Disaggregated data are required to assess and analyse the extent of inequalities in the risk factors for over nutrition as well as to monitor changes in the pattern of undernutrition over time. Likewise, disaggregated data are required to identify priority

areas and interventions that will benefit poor individuals and how interventions may differently affect men as compared to women. In addition to data on the risk factors for overnutrition and information on undernutrition generated through surveillance initiatives, data collected routinely within the health system should be disaggregated and analyzed by socioeconomic status, gender, urban-rural location, by region or province, by level of educational, occupation, or other indicators of disadvantages identified through a poverty analysis. Monitoring and evaluation also should consider these variables. This might be supplemented with appropriate research, including qualitative data to assess unmet needs, perceived quality of healthcare services and behavioural change interventions.

#### Box 28: Data generated through STEPS in Fiji

The table below presents selected results from the Fiji STEPS survey. They reveal the extent of the NCD risk and disease burden in Fiji and were generated largely with local resources. Such data are becoming available systematically, as STEPS is adopted in a growing number of developing countries the Region. These data will be an invaluable resource for planning prevention and control activities for noncommunicable diseases.

#### Selected results from Fiji STEPS, all adult Fiji Islanders (15-64 years), 2002

NCD risk factor	Prevalence		
	Male	Female	Total
Daily smokers	26.0	3.9	15.6
Current alcohol consumers <sup>a</sup>	39.9	5.5	23.8
Low fruit and vegetable intake <sup>b</sup>	86.8	86.9	86.8
Physical inactivity <sup>c</sup>	16.0	31.3	26.4
Obesity <sup>d</sup>	9.8	26.4	17.6
Raised blood pressure <sup>e</sup>	19.8	18.3	19.1
Diabetes <sup>f</sup>	10.2	13.8	11.9
High blood lipids <sup>g</sup>	48.6	37.3	43.1

<sup>a</sup> People who had consumed alcohol during the previous 12 months.

<sup>b</sup> Average number of servings of fruits and vegetables <5.

<sup>c</sup> Inadequate physical activity at work, travel and leisure.

<sup>d</sup> BMI  $\geq 30$ .

<sup>e</sup> Classified as mean systolic pressure  $\geq 140$  mmHg, or a mean diastolic pressure  $\geq 90$  mmHg, or people who were currently receiving antihypertensive medication.

<sup>f</sup> Classified as a fasting blood glucose  $\geq 7.0$  mmol/L, or people who were currently receiving antidiabetes medication or were on a special diet prescribed by a health worker.

<sup>g</sup> Classified as fasting total cholesterol  $\geq 5.2$  mmol/L.

Note: Data collected 2002; survey analysis and publication completed in 2004.

Source: World Health Organization Regional Office for the Western Pacific 2004.



## 5. Facilitators' notes



## 5. Facilitator's notes

These notes are provided to support facilitators as they work with learners on integrating poverty and gender issues into specific health topics. Facilitators are recommended to refer to Section 5 of the foundational modules of this Sourcebook, dealing respectively with poverty and gender, which contain additional notes on the target audience, role of the facilitator and suggested methodologies for learning sessions and for evaluation.

The learning sessions and exercises that follow are practical and oriented toward active learning. They are designed to promote group discussion and presentation in analysing nutrition in terms of gender and poverty. The time required for all learning sessions is approximately 10 hours.

### Expected learning outcomes

Upon completion of this module, it is expected that participants will be able to:

- demonstrate an understanding of nutrition and malnutrition;
- demonstrate an understanding of WHAT the links are between poverty, gender and nutrition;
- explain WHY it is important for health professionals to address poverty and gender concerns in relation to nutrition;
- indicate HOW health professionals and the health system as a whole can address poverty and gender in nutrition-related interventions; and
- demonstrate familiarity with some tools, resources and references available to support health professionals in dealing with poverty and gender in nutrition initiatives.

### *Lesson plan 1: Nutritional health: how poverty and gender influence nutritional status*

**Time required:** 4 hours

#### **Preparation:**

1. Copy of the story outlined below
2. Section 1 of this module
3. Samples of growth charts.

4. Mid-upper arm circumference (MUAC) tape
5. Body mass index (BMI) table; Weight/height/age tables
6. Resource table

#### **Learning activities:**

**Resource table:** Set up a table in the back of the room. Place all the resources you have assembled: growth charts, MUAC tape, breastfeeding modules, IMCI training packages, etc. on the table and allow students to look them over for the duration of the workshop.

**Group discussion:** 60 minutes

Ask the participants to define “nutrition” and “malnutrition.” Write their answers on the blackboard or white paper. Through discussion, arrive at a common definition.

Ask participants to tell you how nutrition is measured. Write the answers on the blackboard or white paper.

Add any points that were missed.

Discuss each method, explaining how it is done, and for which age groups.

At the end of the discussion, the participants should be able to explain:

- weight-for-age, height-for-age, weight-for-height;
- the difference between assessing nutritional status and measuring adequate growth;
- growth charts and growth monitoring ;
- MUAC;
- BMI; and
- adult weight-for-age charts.

**Answer** questions and clarify any confusion.

**Presentation on the extent of malnutrition:** 60 minutes

Describe the global and regional distribution of undernutrition and overnutrition, while

emphasizing the correlation between undernutrition and indicators of poverty at the national, subnational and household level.

Ask the group to define food insecurity. Build the definition from what the group says. Use this module as a guide.

Ask for causes of food insecurity, including acute, seasonal and chronic categories.

Draw the intergenerational cycle of malnutrition in section 1 of this module on the wall and discuss this cycle.

Ask the group to describe the consequences of malnutrition, including:

- more susceptible to diseases, higher morbidity and mortality;
- slower growth leading to stunting;
- decreased energy/productivity; and
- decreased cognitive development leading to less education, etc.

**Short story + Poverty and gender:** 30 minutes

**Tell a short story** (10 minutes) (adapt the example given if needed) that reveals how important nutritional status is to health and how poverty and/or gender disparities can affect nutritional health.

*Chio had five children ranging from an infant boy, Tuy, 10 months old, to a 12-year-old girl who already had her menses. The family was poor. Some days, Chio didn't know how she was going to feed everyone. She herself never went to school. Her husband was a truck driver and they lived in two small rooms on the outskirts of the city. There were no sanitation facilities and she had to fetch water every day from the common well.*

*Chio felt very tired and went to the clinic. She took her infant boy, Tuy, as she was still breastfeeding. The doctor told her she was pregnant. Tuy, who was born small, was just starting to eat complementary food (besides*

*the breast milk); however, he was not eating much and she did not have the time to feed him. She decided to stop breastfeeding to keep her energy for the new baby.*

*Chio was unhappy being pregnant; they couldn't afford it and there was too much work to do already. When she made the evening meal, she gave her husband food first, and then divided the rest among the children, leaving a little for herself; she was too tired to eat anyway. Tuy got diarrhoea; they took him to the clinic; they said he was not growing well. Chio did not know what to do. When the new baby was born, it was very small, only 1.9 kg. She had to keep the oldest girl out of school to help with the chores.*

Discuss the story in the group. Ask how poverty and gender issues affected the nutrition and health status of the mother, Tuy, the oldest girl, the other children and the baby in the womb.

Write the answers on two pieces of white paper, one for "Poverty" and the other "Gender."

**Small group work:** 20 minutes to discuss + 40 minutes for presentations (10 minutes for each of four groups)

Break into four groups, each one discussing one of the four family members: (1) the pregnant mother, (2) the newborn, (3) the 10-month-old Tuy, and (4) the 12-year-old girl.

Have each group:

- identify the nutritional and/or health risks of the person at that age; and
- identify the key nutritional needs of the person at that age.

Have one member from each small group present their findings to the whole group.

**Summary:** 30 minutes

Review the extent and consequences of malnutrition.

Review the poverty and gender influences on nutrition.

**Home assignment:** Have participants read Section I of the module.

***Lesson plan 2: Poverty, gender and nutritional health: Why?***

**Time required:** 2.5 hours

**Preparation:**

- Copies of United Nations resolutions and covenants for the resource table
- Resource table

**Learning activities:**

**Resource table:**

Place copies of United Nations resolutions and covenants, World Food Summit reports, CEDAW, the Beijing Declaration, etc. on the resource table.

**Small group discussion:** 60 minutes

Divide the group into small groups of four or five people. The groups are free to use any resources on the resource table.

Ask each group to discuss the following questions:

- Is freedom from hunger a human right? If yes, why? If no, why?
- What is the responsibility of the government in preventing hunger in the following scenarios?
  - ♦ when there is national food insecurity due to drought and crop failure; and
  - ♦ when there is national food security but insecurity in certain households due to inability to grow enough food or purchase food;
- Should governments be responsible for providing food to people who have no food? If yes, how should food be provided?
- What is the role of the international community?
- Why should governments be concerned with hunger and nutrition?

Ask each group to come to a consensus and write down the main points.

**Group presentations:** 60 minutes (10–15 minutes for each group)

Ask one group to present their conclusions for question 1. Ask for other opinions. Discuss in the whole group.

Ask another group to present their answers to question 2. Continue for all four questions.

**Summary:** 30 min

Ask a participant to summarize:

- the reasons it is important to address nutrition issues; and
- the relevance of poverty and gender issues to nutritional health.

***Lesson plan 3: What can health professionals do?***

**Time required:** 3.5 hours

**Preparation:**

- Resource table with copies of the resources (see Section 6, Additional Resources) for participants to review
- Copies of national health and nutrition studies, e.g. Demographic and Health Surveys, UNICEF Situation Analysis
- Copies of ‘Counselling Story’

**Learning activities:**

**Resource table:** Set up the resource table in the back of the room. Place all the resources (see list) you have gathered on the table, plus copies of any national nutrition studies. Urge participants to look over the resources and studies while they are formulating approaches in their small groups.

**Group discussion** (45 minutes)

Ask participants to list the important nutrition issues in their country (or alternatively choose one country’s situation for the group to examine) and

then answer the following questions:

- Is there food insecurity? Is information available on the extent and prevalence of the problem?
- Has the food insecurity experience been, or is it currently acute, seasonal and/or chronic?
- What are the intra-household food allocation practices and/or feeding behaviours that could come to bear on health disparities?
- What family members are most advantaged/disadvantaged by food allocation and feeding behaviour practices?

Discuss the list. Use data from national studies to prioritize the top five problems. Discuss the basis on which ranking of priorities was made.

#### **Small group discussions** (1 hour)

Divide the participants into five groups (four or five per group). Give each group one of the five nutrition problems.

Tasks:

- Have each group identify what is currently being done in the country to address the problem.
- How does poverty or gender affect the problem? Illustrate this with a role play.
- Make recommendations on what can be done at national level, health institution level, community level, household level and health professional level?

- Does the current food system make a healthy diet less accessible to some vulnerable or marginal groups?
- Make recommendations for creating a more equitable food system.
- Discuss why community participation in problem definition and solution finding is highly desirable. Provide examples.

#### **Presentations in the large group** (1 hour, 15 minutes)

Request each group to present their work (15 minutes each group):

- What is the scope of the problem in the country?
- What is currently being done?
- What are your recommendations?
- Perform a role play showing a new approach.

Discuss each group's work and their ideas after each presentation.

#### **Summary** (30 minutes)

Lead a participatory discussion to summarize the main points:

- key nutrition problems in the country;
- how poverty and gender influence each of the problems;
- why it is crucial to address gender and poverty issues when programming; and
- how health professionals can help.

## 6. Tools, resources and references



## 6. Tools, resources and references

### Tools

Health and nutrition indicators. It is very important for programme planners to select appropriate indicators during the programme planning process.<sup>226</sup> To obtain a more complete picture of the nutritional situation in the country, and to identify the most vulnerable and at-risk groups, it is suggested that indicators, where possible and reasonable, be disaggregated by sex, income level, rural-urban residence, and ethnicity.

- Infant mortality rate
- Under-five mortality rate
- Percentage of newborn infants with LBW
- Percentage of mothers attending antenatal clinics who have gained at least 6 kg during pregnancy
- Percentage of children stunted (under 5 years old)
- Percentage of children severely underweight
- Percentage of children moderately underweight
- Percentage wasted
- Percentage of children in growth promotion programmes gaining sufficient weight (as per age) (over specified amount of time)
- Micronutrient indicators (specific cut-off and deficiency signs to be determined by each project)
- Percentage of targeted population with iron deficiency by age
- Percentage with signs of night blindness (or Bitot spots) vitamin A deficiency by age
- Percentage with signs of iodine deficiency by age
- Percentage of affected population receiving supplementation (as relevant, ferrous sulfate, vitamin A, iodine oil solution)
- Percentage of mothers with low BMI

- Percentage of mothers with low BMI receiving nutrition counselling and/or supplementary foods
- Percentage of 0–6 month olds exclusively breastfed
- Percentage of mothers who introduced complementary foods to their child before 9 months (out of all mothers interviewed with children 6 to 23 months old)
- Percentage of school-age children, adolescents and adults with overnutrition
- Percentage of households with food insecurity
- Number of meals received per child per school year
- Percentage of children who received a meal each day

#### **Methodological Toolbox on the Right to Food.**

Economic and Social Department, The Food and Agriculture Organization of the United Nations, 2009 (available at: [http://www.fao.org/righttofood/publi\\_02\\_en.htm](http://www.fao.org/righttofood/publi_02_en.htm), accessed 23 March 2010).

The purpose of the Methodological Toolbox is to provide a practical aid for the implementation of the Right to Food Guidelines. It contains a series of analytical, educational and normative tools that offer guidance and hands-on advice on the practical aspects of the right to food. It covers a wide range of topics such as assessment, legislation, education, budgeting and monitoring. It emphasizes the operational aspects of the right to food and contributes to strengthening in-country capacity to implement this right.

## Resources

### ***International declarations and covenants:***

- Universal Declaration of Human Rights, 1948 (available at: <http://www2.ohchr.org/english/law/>, accessed 23 March 2010)
- International Covenant on Economic, Social and Cultural Rights, 1966 (available at: <http://www2.ohchr.org/english/law/>, accessed 23 March 2010)
- Convention on the Elimination of All Forms of Discrimination against Women, 1979 (available at: <http://www2.ohchr.org/english/law/>, accessed 23 March 2010)
- International Code of Marketing of Breast-milk Substitutes, 1981 (available at: [http://www.who.int/nutrition/publications/code\\_english.pdf](http://www.who.int/nutrition/publications/code_english.pdf), accessed 23 March 2010)
- Convention on the Rights of the Child, United Nations, 1989 (available at: <http://www2.ohchr.org/english/law/>, accessed 23 March 2010)
- Rome Declaration on World Food Security, 1996 (available at: <http://www.foodjustice.net/international-standards>, accessed 23 March 2010)
- Millennium Development Goals (available at [www.un.org/millenniumgoals/](http://www.un.org/millenniumgoals/), accessed 23 March 2010)

### ***Relevant organizations***

World Health Organization: [www.who.int](http://www.who.int)

UNICEF: [www.unicef.org](http://www.unicef.org)

United Nations Population Fund: [www.unfpa.org](http://www.unfpa.org)

Food and Agricultural Organization of the United Nations: [www.fao.org](http://www.fao.org)

World Food Programme: [www.wfp.org](http://www.wfp.org)

United Nations Development Programme: [www.undp.org](http://www.undp.org)

World Bank: [www.worldbank.org](http://www.worldbank.org)

United States Centers for Disease Control and Prevention: on anaemia: [www.cdc.gov/nccdphp/dnpa/AnemIron.htm](http://www.cdc.gov/nccdphp/dnpa/AnemIron.htm)

### ***Nutrition resources***

Baby-Friendly Hospital Initiative (BFHI): 10 Steps and Programme Materials 18 hour BFHI Training Course.

Facts for Feeding: *Breastmilk: A critical source of vitamin A for infants and young children*. The Linkages Project, August 2000.

Facts for Feeding: *Guidelines for appropriate complementary feeding of breastfed children 6–24 months*. A joint publication of the Linkages Project and the SARA Project, November 1997.

FRESH (Focusing Resources on Effective School Health) materials. Available online at [http://portal.unesco.org/en/ev.php-URL\\_ID=22054&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201.html](http://portal.unesco.org/en/ev.php-URL_ID=22054&URL_DO=DO_TOPIC&URL_SECTION=201.html) (accessed 23 March 2010).

IBFAN: *Protecting infant health: A health workers guide to the International Code of Marketing of Breast-milk Substitutes*. Malaysia, 1993.



International Food Policy Research Institute: Copies of all IFPRI publications available online at [www.ifpri.org](http://www.ifpri.org) (accessed 23 March 2010).

International Nutrition Foundation (INF): for downloading pamphlets on preventing iron deficiency anaemia in women and children (WHO/UNICEF). Available online at [www.inffoundation.org](http://www.inffoundation.org) (accessed 23 March 2010).

Linkages Project Materials: Pamphlets on infant health, micronutrient status, etc. Available online at [www.linkagesproject.org/](http://www.linkagesproject.org/) (accessed 23 March 2010).

The Micronutrient Initiative: Articles and information available online at [www.micronutrient.org](http://www.micronutrient.org) (accessed 23 March 2010).

The Partnership for Child Development: An international collaboration to improve the health, nutrition and educational development of school-age children in developing countries. Articles and project descriptions available online at: [www.child-development.org](http://www.child-development.org) (accessed 23 March 2010).

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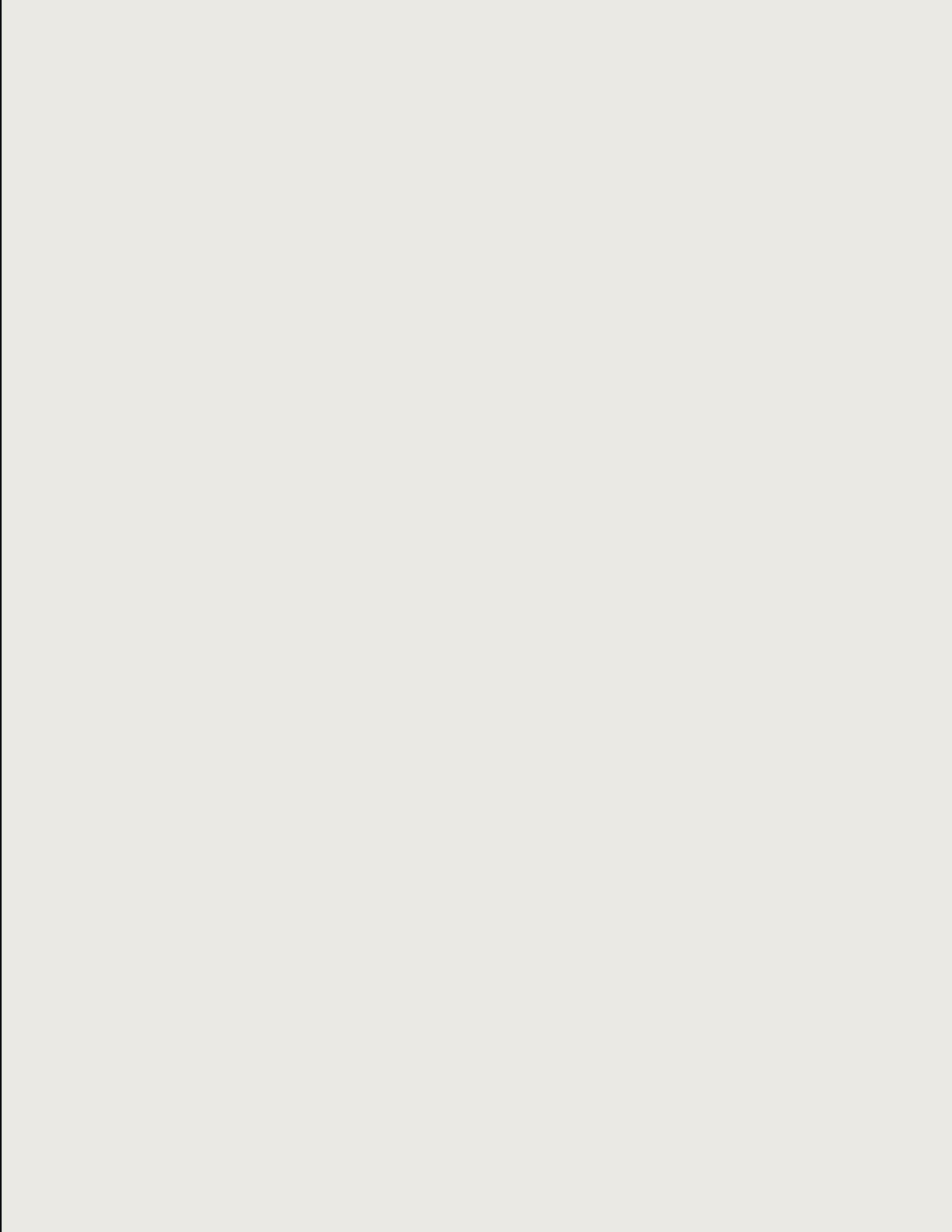
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- 48 Carr 2004.
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- and protein was up to 10 times more responsive to women's than men's income. Thomas 1997 in Filmer 2003.
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- <sup>61</sup> King, Mascie-Taylor 2002.
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- <sup>99</sup> For example, from 1991 to 1997, the proportion of adults consuming a high-fat diet in urban areas increased from 33.0% to 60.8%, while in rural areas the proportion increased from 13.5% to 29.3%. Mendez, Popkin 2004.
- <sup>100</sup> Mendez, Popkin 2004.
- <sup>101</sup> Du *et al.* 2002.
- <sup>102</sup> For example, from 1991 to 1997, the proportion of adults consuming a high-fat diet in urban areas increased from 33.0% to 60.8%, while in rural areas the proportion increased from 13.5% to 29.3%. Mendez, Popkin 2004.
- <sup>103</sup> Thang, Popkin 2004.
- <sup>104</sup> Du *et al.* 2002.
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- <sup>106</sup> Noor 2001; Tudor-Locke *et al.* 2003a.
- <sup>107</sup> Tudor-Locke *et al.* 2003a.
- <sup>108</sup> *Ibid.*
- <sup>109</sup> Florentino, Villavieja, Lana 2002.
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- <sup>125</sup> Malnutrition was defined as a body mass index (BMI) score less than 18.5 (based on weight in kilograms divided by height in metres squared). Carr 2004.
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- <sup>130</sup> Adair 2004.
- <sup>131</sup> The proportion of overweight adults in Malaysia was calculated using data from the National Health Morbidity Survey. Noor 2001.
- <sup>132</sup> Becker, Gilman, Burwell 2005.
- <sup>133</sup> Monteiro *et al.* 2004a.
- <sup>134</sup> Monteiro CA. *et al.* 2004b. Nineteen of the countries were in sub-Saharan Africa, seven in Latin America and the Caribbean (including Brazil and Mexico), six in Asia (including China and India), and four in North Africa and the Middle East.
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- <sup>138</sup> United Nations Administrative Committee on Coordination Sub-Committee on Nutrition 2000.
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- <sup>165</sup> World Bank 2006.
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- <sup>173</sup> Osmani, Sen 2003.
- <sup>174</sup> Gwatkin *et al.* 2007b. Among children who were sick with fever in 2002, 45.0% of boys and 47.7% of girls were seen medically, on average. When suffering from acute respiratory infection, 55.1% of boys and 54.4% of girls were seen medically.
- <sup>175</sup> Gwatkin *et al.* 2007c.
- <sup>176</sup> Muller *et al.* 1998.
- <sup>177</sup> Ettling *et al.* 1989.
- <sup>178</sup> Gao *et al.* 2001.
- <sup>179</sup> Vlassoff 1994.
- <sup>180</sup> Rashed *et al.* 1999.

- <sup>181</sup> Conversely, the authors find that stunting is more prevalent among preschool children whose fathers had a higher estimated wage. The survey was conducted by the National Nutritional Council and Department of Agriculture of the Philippines, with the assistance of the International Food Policy Research Institute. Senauer 1988.
- <sup>182</sup> Smith *et al.* 2003. For example, the authors explain that estimates suggest that if men and women in South Asia had the same status, the under-3 child underweight rate would drop by an estimated 13 percentage points.
- <sup>183</sup> Chatterjee, Lambert 1989.
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- <sup>185</sup> Senauer 1988. Children born earlier in the birth order are similarly observed to be favoured in the intra-household allocation of calories.
- <sup>186</sup> World Health Organization Regional Office for the Western Pacific 2009e.
- <sup>187</sup> Lao People's Democratic Republic and World Health Organization 2000.
- <sup>188</sup> Gittleson 1991.
- <sup>189</sup> Gwatkin *et al.* 2007a. Moderate stunting is defined as height-for-age between -2 and -3 standard deviation z-score, while severe stunting is defined as below -3 standard deviation z-score.
- <sup>190</sup> United Nations Country Team Viet Nam 2002.
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- <sup>209</sup> Heaver 2005. In: Bryce *et al.* 2008.
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- <sup>212</sup> For more information on the Commission on Social Determinants of Health, please see: [http://www.who.int/social\\_determinants/en/](http://www.who.int/social_determinants/en/).
- <sup>213</sup> World Health Organization 2008d.
- <sup>214</sup> World Health Assembly Resolution WHA62.14.
- <sup>215</sup> World Health Organization 2004b. A review of PRSPs undertaken by the World Health Organization found that, although the value of a cross-sectoral approach to health is often recognized in the health section of PRSPs, little evidence is available to show that this concern is translated into strategy.
- <sup>216</sup> Shekar, Lee 2006.
- <sup>217</sup> Bryce *et al.* 2008.
- <sup>218</sup> World Health Organization and United Nations Children's Fund 2003.
- <sup>219</sup> World Bank 2003b.
- <sup>220</sup> See, for example, Horton *et al.* 2008.
- <sup>221</sup> Food and Agriculture Organization of the United Nations and World Health Organization 1992.
- <sup>222</sup> World Health Organization and United Nations Children's Fund 2003.
- <sup>223</sup> Ceesay *et al.* 1997. In: Bhutta *et al.* 2008.
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- <sup>225</sup> *Ibid.*
- <sup>226</sup> For more information, see World Bank 2009.





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