

Global nutrition policy review:

*What does it take
to scale up nutrition action?*

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Preface



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The double burden of undernutrition and obesity is one of the leading causes of death and disability globally. In 2011, 165 million children under the age of 5 years were stunted and 52 million had acute malnutrition, while 43 million were overweight or obese. Among adults, 500 million women were anaemic, and 500 million people were obese. Childhood malnutrition is the underlying cause of more than one in three deaths among children under the age of 5 years, and negatively affects cognitive development, school performance and productivity. Approximately 200 million children are unable to attain their full development potential because of stunting and micronutrient deficiency.

Improving nutrition is central to achieving the Millennium Development Goals (MDGs) and to the agenda for sustainable development. World leaders at the G8 and G20 summits acknowledged the importance of addressing nutrition in order to achieve development goals, and recognized that food security and nutrition are key for sustainable development. A healthy diet is an important means for preventing and controlling noncommunicable diseases (NCDs), as stated in the High-level Political Declaration on the prevention and control of NCDs.

WHO conducted a review of the presence and implementation of nutrition policies in countries in order to identify gaps. This report summarizes the outcome of the analysis, conducted in 123 countries and territories. The review was undertaken as part of the preparation of the Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition, which was endorsed by the 65th session of the World Health Assembly in May, 2012.

More than 90% of the responding countries in each region have policies and programmes that cover issues such as undernutrition, obesity and diet-related NCDs, infant and young child nutrition, and vitamins and minerals. Nevertheless, major gaps were identified in the design and content of some policies and programmes, in nutrition governance, in policy implementation, and in monitoring and evaluation. Furthermore, maternal undernutrition has received inadequate attention.

The Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition includes a set of recommended actions which, when implemented collectively by the health, agriculture, education, social support and trade sectors, will address the growing public health burden of malnutrition. The plan also includes global targets to be achieved by 2025:

1. 40% reduction in childhood stunting;
2. 50% reduction in anaemia in women of reproductive age;
3. 30% decrease in low birth weight;

4. 0% increase in childhood overweight;
5. an increase in the rate of exclusive breastfeeding in the first 6 months to at least 50%;
6. a reduction in childhood wasting to less than 5%.

These targets will guide global action in nutrition in the next decade, to accompany those that Member States are discussing for reducing NCDs.

The commitment of the World Health Assembly to global nutrition issues enhances the political impact of the Scaling-up Nutrition (SUN) Movement, which brings together high-level political leaders in governments, the United Nations (UN) system, civil society and the private sector. Nutrition is a priority of WHO's 12th General Programme of Work. Within WHO, the Department of Nutrition for Health and Development, in the cluster of Noncommunicable Diseases and Mental Health, will lead efforts in various parts of the organization. It will prepare guidance for reducing undernutrition, obesity and diet-related NCDs, monitor nutritional conditions and policy response, advocate for implementation of effective nutrition programmes, and assist Member States in adopting and adapting effective actions.

I would like to end with a statement made by Dr Margaret Chan, the Director-General of WHO, in a speech that she delivered at a high-level meeting on nutrition on the occasion of the UN High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases (New York, 20 September 2011): "We know what to do. We can reduce maternal anaemia, low birth weight and child stunting and bring down the risk of noncommunicable diseases within a generation. We can achieve this by giving nutrition the attention it deserves."

Acronyms

BFCI	Baby Friendly Community Initiative
BFHI	Baby-friendly Hospital Initiative
BFI	Baby Friendly Initiative
BMI	body mass index
CAADP	Comprehensive Africa Agriculture Development Programme
CAP	Common Agricultural Policy
CDC	Centres for Disease Control and Prevention
CESCR	Covenant on Economic, Social and Cultural Rights
CI	confidence interval
CIP	Comprehensive Implementation Plan
CSDH	Commission on Social Determinants of Health
CSOs	civil society organizations
FAO	Food and Agriculture Organization of the United Nations
GINA	Global database on the Implementation of Nutrition Action
HIV/AIDS	human immunodeficiency virus/acquired immunodeficiency syndrome
IBRD	International Bank for Reconstruction and Development
ICN	International Conference of Nutrition
ILO	International Labour Organization
MDGs	Millennium Development Goals
NCD	noncommunicable disease
NEPAD	New Partnership for Africa's Development
NGOs	nongovernmental organizations
OR	odds ratio
PAHO	Pan American Health Organization
REACH	Renewed Efforts Against Child Hunger and Undernutrition
SPSS	Statistical Package for Social Science
SUN	Scaling-up Nutrition
UN	United Nations
UNICEF	United Nations Children's Fund
UNSCN	United Nations Standing Committee on Nutrition
WHA	World Health Assembly
WHO	World Health Organization

Glossary

Adult underweight and overweight: defined by the body mass index (BMI): a simple index of weight-to-height. BMI is age-independent for adult populations and is the same for both genders. It is defined as the weight in kilograms divided by the square of the height in metres (kg/m²). A BMI of < 17.0 indicates moderate and severe thinness, < 18.5 indicates underweight, 18.5–24.9 indicates normal weight, ≥ 25.0 indicates overweight and ≥ 30.0 indicates obesity.

Anaemia: a condition in which the number of red blood cells or their oxygen-carrying capacity is insufficient to meet physiological needs, which vary by age, altitude, gender, pregnancy status and smoking status. The most common cause of anaemia globally is iron deficiency, but other causes include deficiencies in folic acid, vitamin B₁₂ and vitamin A; chronic inflammation; parasitic infections; and inherited disorders. Severe anaemia is associated with fatigue, weakness, dizziness and drowsiness. Pregnant women and children are particularly vulnerable to anaemia. In children aged 6–59 months and in pregnant women, anaemia is defined by a haemoglobin concentration of < 110 g/l at sea level.

Breastfeeding indicators

Early initiation of breastfeeding: proportion of children born in the past 24 months who were put to the breast within 1 hour of birth.

Exclusive breastfeeding under 6 months: proportion of infants aged 0–5 months who are fed exclusively with breast milk.

Continued breastfeeding at 1 year: proportion of children aged 12–15 months who are fed breast milk.

Child obesity: weight-for-height > +3 standard deviations above the WHO child growth standard median for children aged under 5 years. In some countries, overweight and obesity in children are measured as BMI centiles for age.

Child overweight: weight-for-height > +2 standard deviations above the WHO child growth standard median for children aged under 5 years.

Child stunting: height-for-age < -2 standard deviations below the WHO child growth standard median for children aged under 5 years. Stunting becomes a public health problem when ≥ 20% of the population is affected.

Child underweight: weight-for-age < -2 standard deviations below the WHO child growth standard median for children aged under 5 years. Underweight becomes a public health problem when ≥ 10% of the population is affected.

Child wasting: weight-for-height < -2 standard deviations below the WHO child growth standard median for children aged under 5 years. Wasting becomes a public health problem when ≥ 5% of the population is affected.

Food and nutrition security: the situation in which all people at all times have physical, social and economic access to food that is safe, consumed in sufficient quantity and quality to meet their dietary needs and food preferences, and supported by an environment of adequate sanitation, health services and care, allowing for a healthy and active life.

Food security: the situation in which all people at all times have physical, social and economic access to sufficient safe, nutritious food to meet their dietary needs and food preferences for an active and healthy life. The four pillars of food security are availability, access, utilization and stability.

Iodine deficiency: the most frequent cause of preventable brain damage in childhood (this situation being the primary motivation behind the current worldwide drive to eliminate iodine deficiency). Caused mainly by a low dietary supply of iodine, the deficiency is considered to be a public health problem in populations of school-age children when the median urinary iodine concentration is $< 100 \mu\text{g/l}$, or the prevalence of goitre is $> 5\%$. The median urinary iodine concentration used to categorize insufficient iodine intake by pregnant women is $< 150 \mu\text{g/l}$.

Low birth weight: weight at birth $< 2500 \text{ g}$.

Malnutrition: nutritional disorders in all their forms (including imbalances in energy, specific macronutrients and micronutrients, and dietary patterns). Conventionally, the emphasis has been on inadequacy, but malnutrition also applies to excess and imbalanced intakes. It occurs when the intake of essential macronutrients and micronutrients does not meet or exceeds the metabolic demands for those nutrients. Metabolic demands vary with age and other physiological conditions, they are also affected by environmental conditions, including poor hygiene and sanitation, which lead to diarrhoea, both foodborne and waterborne.

Nutrition security: a situation in which food security is combined with a clean environment, adequate health services, and appropriate care and feeding practices, to ensure a healthy life for all household members.

Nutrition surveillance: continual monitoring – in a community, region or country – of factors or conditions that indicate, relate to or impinge on the nutritional status of individuals or groups of people. Direct or indirect indicators of nutrition that are systematically collected, analysed, interpreted and disseminated may be used to assess changes in nutritional status; they can also be used in planning, implementing and evaluating nutrition policies and programmes.

Policy, strategy, action plan, programme and project

A **policy** is a written statement of commitment (generally in broad terms) by a nation state. A **strategy** may be similar to a policy.

An **action plan** (e.g. a national plan of action on nutrition) arises from policy; it contains detailed operational plans, including budgets, and goals and targets that are specific, measurable, attainable, relevant and time-bound.

A **programme** provides details for implementation of the action plan; specific **projects** are defined within a programme.

Severe acute malnutrition: severe wasting (weight-for-height < -3 standard deviations) or the presence of bilateral pitting oedema. In children aged 6–59 months, an arm circumference of < 115 mm is indicative of severe acute malnutrition.

Undernutrition: a situation in which the body's requirements are not met, due to under-consumption, or to impaired absorption and use of nutrients. Undernutrition commonly refers to a deficit in energy intake, but can also refer to deficiencies of specific nutrients, and can be either acute or chronic.

Vitamin A deficiency: can be clinical or subclinical. The prevalence of serum retinol < 0.70 $\mu\text{mol/l}$ in a population can be used to assess the severity of vitamin A deficiency in most age groups. This deficiency is a public health problem that requires intervention when at least one of two specifications is met: (1) the prevalence of low serum retinol is within the range specified *and* widespread deficiency is indicated by another biological indicator of vitamin A status (including night blindness, breast milk retinol, relative dose–response, modified dose–response or conjunctival impression cytology); (2) the prevalence of low serum retinol indicates widespread deficiency, and the presence of certain demographic and ecological risk factors.

Executive summary

Today, there is a renewed, strong international commitment to address malnutrition. Recent examples include the Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition endorsed by the 65th World Health Assembly in May 2012, the political declaration adopted at the UN High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases in September 2011, and two movements – Scaling-up Nutrition and Thousand Days – adopted by a range of stakeholders and donors since 2010. These developments reinforce previous commitments, such as the World Declaration and Plan of Action on Survival, Protection and Development of Children adopted by the World Summit for Children in 1990, the World Declaration and Plan of Action for Nutrition adopted by the International Conference on Nutrition in 1992 and the Rome Declaration and Plan of Action on World Food Security adopted by the World Food Summit in 1996.

Malnutrition is found worldwide and is linked, either directly or indirectly, to major causes of death and disability. More than one third of all child deaths are attributable to undernutrition. Many low- and middle-income countries, particularly in Africa, have not achieved significant reductions in underweight, stunting or vitamin and mineral malnutrition. Wasting is still widespread, and essential infant and young child feeding practices are not improving in those low- and middle-income countries. At the same time, the rates of overweight and obesity are rising. The differences in rates of change of these indicators over time and by region indicate wide variation in the factors that are causing malnutrition in all its forms. Regional and subregional data show that a rise in child overweight is not necessarily associated with a fall in underweight or stunting. Nutrition policies and strategies must therefore be strengthened to address the growing double burden of malnutrition, that is, undernutrition, and obesity and diet-related NCDs, and to guide the scaling-up of effective nutrition actions to address this burden.

This Global Nutrition Policy Review is based on a questionnaire survey conducted during 2009–2010, in which 119 WHO Member States and 4 territories participated. The Review provided information on whether the countries have nutrition policies and programmes, how they are being implemented, what the implementation coverage is, who the stakeholders are, what the coordination mechanism is, and how the monitoring and evaluation are being implemented. The results are presented in this report according to the regions of the World Health Organization (WHO). For the 54 countries that responded to all seven modules of the questionnaire, further analyses were conducted, and the results are presented based on whether countries have nutrition problems, such as stunting, maternal undernutrition, obesity, and the double burden of undernutrition, and obesity and diet-related NCDs. The analyses presented in this report are also complemented by the results of the in-depth country assessments conducted as part of the project on *Landscape Analysis on countries' readiness to accelerate action in nutrition* which was initiated by WHO in close collaboration with partner agencies in 2008. Selected case studies illustrate the reasons for successes and the gaps in the implementation of policies and programmes in some countries.

Much progress has been made since the 1992 International Conference on Nutrition in the design and implementation of national nutrition policies and plans of action. Most countries that responded to the survey had policies and programmes that are addressing key nutrition issues, such as undernutrition, obesity and diet-related NCDs, infant and

young child feeding, and vitamin and mineral malnutrition. The Review nevertheless identified a number of gaps in the design, content and implementation of these policies and programmes.

Design and content of existing policies and programmes

- ***Nutrition policies do not adequately respond to the challenges that countries and regions are facing today; in particular, the double burden of malnutrition (i.e. undernutrition, and obesity and diet-related NCDs).*** Obesity and diet-related NCDs were the issues most frequently mentioned by all countries, whereas improving infant and young child feeding was most frequently mentioned by all countries within a particular region. Countries in the African Region and the South-East Asia Region most frequently addressed undernutrition rather than obesity and diet-related NCDs in their national policies, whereas countries in the Eastern Mediterranean Region, the European Region and the Western Pacific Region more often included issues related to obesity and diet-related NCDs. Most countries in four regions (Africa, the Americas, South-East Asia and the Western Pacific) reported broad policies that covered all aspects of the double burden of malnutrition, rather than individual policies and strategies to address specific problems.
- ***Nutrition policies often do not include evidence-informed interventions in a comprehensive manner.*** Although the vast majority of countries had nutrition policies, many of those did not include important interventions such as complementary feeding, iron and folic acid supplementation and food fortification, or those addressing adult obesity.
- ***Many nutrition policies do not adequately consider or address the underlying and basic causes of malnutrition (e.g. food insecurity, inadequate health service and inadequate care for women and children).*** Inclusion of underlying causes of malnutrition in nutrition policies varied by region. Countries in the African Region and the Region of the Americas most commonly addressed these issues in their policies, whereas those in the Eastern Mediterranean Region and the European Region rarely addressed them. In countries with a high burden of stunting, those that had scaled up a majority of key interventions for improving maternal, infant and young child nutrition more often had comprehensive policies to address both immediate and underlying causes than those that had not scaled up these key interventions. In all countries, the most common health-sector intervention was a promotion of hand-washing. Deworming and malaria prevention or treatment were most often mentioned as part of nutrition programmes by countries in the African Region and the South-East Asia Region, followed by those in the Western Pacific Region. Most countries with high rates of maternal undernutrition had relevant policies that included direct interventions, but those policies often did not address underlying issues, such as gender inequality.
- ***Nutrition policies are often not officially adopted.*** Political support can be secured more easily if policies are officially adopted. Most of the policies reported had been adopted, but with variation by region: policies in countries in the Eastern Mediterranean Region were most often officially adopted, and those in the Region of the Americas were least often officially adopted.

- **Food security strategies do not comprehensively address malnutrition in all its forms, including the vicious circle of malnutrition and foodborne and other infectious diseases.** Food security was mentioned as part of nutrition-relevant policies in most countries in many regions. But many food security strategies did not include any nutrition goals or actions to address nutrition issues.
- **National development plans and poverty reduction strategy papers are seldom considered as important policy documents for improving nutrition.** Only a few countries reported such plans and strategies among their main nutrition policy documents. Poverty reduction strategies have been shown to be weak in addressing nutrition, in particular in countries with a high burden of stunting where development and poverty alleviation should be closely linked to the need for improving nutrition, particularly in the most vulnerable.
- **Policies do not clearly state operational plans and programmes of work; do not have clear goals, targets, timelines or deliverables; do not specify roles and responsibilities; do not identify the capacity and areas of competence required of the workforce; do not include process and outcome evaluation with appropriate indicators; and do not have the necessary or adequate budget for implementation.**

Nutrition governance

- **Countries have inadequate coordination mechanisms to address existing nutrition challenges.** Most countries reported that they had mechanisms for coordinating nutrition activities; however, these mechanisms are not always effective. Less than half the countries with high rates of maternal undernutrition or women's obesity had relevant coordination mechanisms, and about one quarter of those with a double burden of child stunting and women's obesity had coordination mechanisms for activities to address both undernutrition and obesity. The Review showed that having such coordination mechanisms is important; for example, in some countries with a high burden of stunting, those that had scaled up the key interventions were more likely to have relevant coordination mechanisms.
- **There is inadequate or ineffective coordination within and between ministries, and with UN agencies and other development partners.** Adequate coordination is essential to ensure a multisectoral response to malnutrition. In all the regions, coordination and administration of policy implementation were usually done within the ministry of health, with variable input from ministries or departments of education, agriculture, food, trade and social welfare; the finance ministry or department was seldom mentioned. Among the external partners, those most often involved in nutrition policy development and implementation were nongovernmental and civil society organizations, and UN agencies.
- **Coordination mechanisms are seldom included in high-level policy-making frameworks or structures, such as a prime minister's or president's office, or a planning commission, in which all relevant sectors could be involved.** Few countries outside the South-East Asia Region reported that their coordination mechanisms for nutrition were established under the prime minister's or president's office, suggesting that nutrition is not given the highest priority. Moreover, the authority of those responsible for coordination was usually limited to allocation of responsibilities; it rarely covered control of budgets.

- ***There are often inconsistencies between policies at the national level and programmes being implemented at the provincial or district level.*** The existence of a policy at the national level does not ensure that action is taken and relevant programmes are implemented at the provincial or district level. For example, although obesity and diet-related NCDs were often part of national policies, related programmes were less often implemented at the provincial or district level. The Review also identified that some interventions are being implemented even though they are not mentioned in the national policies. For example, zinc supplementation was given in more countries than those that had policies to address zinc deficiencies. Another example relates to the management of severe acute malnutrition, in that not all countries where the management of severe acute malnutrition is being implemented had an appropriate protocol for this intervention.

Implementation

- ***A comprehensive set of interventions addressing the life-course is not being implemented.*** Of many interventions investigated in the Review, the only ones implemented in most countries in all regions were breastfeeding promotion, behaviour-change communication or counselling for complementary feeding, iron supplementation for pregnant women, salt iodization and certain school interventions.
- ***Nutrition interventions – including many of the key interventions for maternal, infant and young child nutrition – are seldom implemented at scale.*** Apart from breastfeeding promotion, behaviour-change communication or counselling for complementary feeding and iron supplementation for pregnant women, most nutrition interventions were not implemented at national scale in most countries. Most countries with high levels of stunting had scaled up most of the relevant interventions, but few countries with high levels of maternal undernutrition or low birth weight had scaled up relevant maternal nutrition interventions.
- ***The International Code of Marketing of Breast-milk Substitutes, subsequent World Health Assembly resolutions and the Global Strategy on Infant and Young Child Feeding are not being implemented adequately.*** Although interventions such as breastfeeding promotion and counselling for complementary feeding were implemented at national scale in most countries, there were gaps in implementation of the full set of actions recommended in the Global Strategy on Infant and Young Child Feeding. Most countries in the Eastern Mediterranean Region reported extensive implementation of the Baby-friendly Hospital Initiative. Infant feeding in emergencies was addressed in national policies in less than a third of the countries.
- ***Vitamin and mineral supplementation and fortification programmes are inconsistent and generally inadequate in countries in all regions in terms of nutrient mix, target groups and coverage. Women are not reached with important interventions before they become pregnant.*** The most common interventions were iron or iron and folic acid supplementation for women, vitamin A supplementation for children, salt iodization and wheat flour fortification. Other important interventions, such as zinc supplementation for children, were less frequent or had inadequate coverage. Folic acid supplementation for all women was not widely implemented, despite the fact that it could help to ensure adequate nutrition before the start of pregnancy.

- **Implementation of programmes to address obesity and diet-related NCDs varies widely by region, with low implementation in regions where the double burden of malnutrition is an increasing concern.** Most countries had policies to reduce obesity and diet-related NCDs, but the interventions were not always comprehensive. The most commonly mentioned interventions related to providing information, such as food-based dietary guidelines, nutrition counselling in primary health care, food labelling and promotion of healthy dietary practices through the media. Only one third of countries regulated the marketing of foods and non-alcoholic beverages to children, and only a few countries had taken measures to reduce salt/sodium or trans-fatty acids in the diet. More and more countries are experiencing the double burden of malnutrition, but countries that have high rates of both child stunting and women's obesity inconsistently addressed both aspects of malnutrition in their policies, and rarely implemented comprehensive interventions.
- **Settings such as schools and workplaces are not sufficiently used to reach and deliver nutrition interventions. In addition, when nutrition interventions are being implemented in schools, they do not cover the entire spectrum of nutrition problems.** School health and nutrition programmes may improve the nutrition of adolescent girls, thereby preventing the intergenerational effects and causes of the double burden of undernutrition, and obesity and diet-related NCDs. Most countries in all regions reported activities in pre-, primary and secondary schools but those activities are not comprehensive programmes to improve all aspects of the school environment that affect nutrition of school-age children. Less than one third of countries mentioned workplace-based intervention programmes to reduce obesity and diet-related NCDs.
- **National capacity for public health nutrition is limited, especially among nurses and other community health workers who are primarily responsible for delivering nutrition programmes. But the limited capacities and a lack of human resources for implementing nutrition programmes are also observed at all levels, including in the UN agencies working in the countries.** There is a lack of awareness and understanding of the importance of fetal and infant nutrition for growth, development and long-term health. Preventive programmes to combat maternal undernutrition are often weak.
- **Financial resources for nutrition are lacking, resulting in reliance on external development assistance and thus jeopardizing the sustainability of nutrition programmes. Those responsible for improving nutrition usually do not have control over budgets.** Most intervention programmes in this Review, except for food fortification programmes, were funded by governments.

Monitoring and evaluation

- **National surveys do not adequately include nutrition indicators, or disaggregate data sufficiently to make it possible to understand and analyse issues related to inequities. Relevant indicators related to determinants of nutritional status used by other sectors should also be investigated, to ensure intersectoral understanding and coherence in monitoring and evaluating nutrition-related indicators and determinants.** Most countries had conducted national surveys, and monitored and evaluated programmes being implemented; however, the indicators used did not always provide the information necessary for monitoring and assessing the progress in nutrition, and the uptake and effects of the intervention programmes being implemented.
- **National nutrition surveys are not conducted routinely in a timely manner.** Only a few countries reported recent national surveys, or that surveys were conducted frequently to assess trends in nutrition over time.
- **Most policies included monitoring and evaluation components; however, routine data reporting was insufficient, policy-makers were not well informed and the information required, in particular at the community level, is not available.** Although information was collected on nutritional outcome indicators or measures, it was not used effectively to inform policy-makers about the effectiveness of interventions. Moreover, the data that were collected were rarely communicated to the staff implementing programmes.

1. Background

Malnutrition in all its forms is closely linked, either directly or indirectly, to major causes of death worldwide. Maternal and child undernutrition has long-term consequences for intellectual ability, economic productivity, reproductive performance and susceptibility to metabolic and cardiovascular disease (Black et al., 2008; Victora et al., 2008). There are evidence-informed interventions that, when implemented effectively, can dramatically reduce the rate of malnutrition (WHO, 2013a). In Brazil and China, for example, child undernutrition has more than halved in less than two decades. Nevertheless, global progress has been too slow to meet the nutrition target of Millennium Development Goal 1 (MDG1). This will in turn jeopardize attainment of the other MDGs, such as MDG2 on education, MDG3 on gender equality, MDG4 on child mortality, MDG5 on maternal health, and MDG6 on human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) and malaria, to which nutrition is closely linked (UNSCN, 2004).

International commitment to eliminate malnutrition has dramatically increased in recent years. The United Nations (UN) Secretary-General, Mr Ban Ki-moon, has launched the Zero Hunger Challenge, which has five objectives:

1. 100% access to adequate food all year round;
2. zero stunted children under 2 years, and no more malnutrition in pregnancy and early childhood;
3. all food systems are sustainable;
4. 100% growth in smallholder productivity and income, particularly for women;
5. zero loss or waste of food, including responsible consumption (UN Secretary-General, 2012).

Other high-level UN initiatives that have focused on nutrition include the revised Comprehensive Framework for Action (High Level Task Force on the Global Food Security Crisis, 2011) and the Global Strategy for Women's and Children's Health (UN Secretary-General, 2010). The UN General Assembly also convened the High-level Meeting on the Prevention and Control of Noncommunicable Diseases (NCDs), and adopted a political declaration that included reducing NCD risk factors, such as unhealthy diets (UN, 2011a).

In May 2010, the World Health Assembly adopted a resolution (WHA 63.23) that included urging Member States to increase their political commitment to (WHO, 2010a):

- prevent and reduce malnutrition in all its forms;
- strengthen and expedite sustainable implementation of the global strategy for infant and young child feeding;
- develop or review current policy frameworks for addressing the double burden of malnutrition;
- scale up interventions to improve infant and young child nutrition;
- strengthen nutrition surveillance.

Two years later, in May 2012, the World Health Assembly adopted a resolution (WHA 65.6) that endorsed the Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition, which includes six global targets for 2025 (WHO, 2012):

1. 40% reduction in childhood stunting;
2. 50% reduction in anaemia in women of reproductive age;
3. 30% decrease in low birth weight;
4. 0% increase in childhood overweight;
5. an increase in the rate of exclusive breastfeeding in the first 6 months to at least 50%;
6. a reduction in childhood wasting to less than 5%.

The resolution also included “developing or, where necessary, strengthening nutrition policies so that they comprehensively address the double burden of malnutrition and include nutrition actions in overall country health and development policy, and establishing effective intersectoral governance mechanisms in order to expand the implementation of nutrition actions with particular emphasis on the framework of the Global Strategy on Infant and Young Child Feeding.”

The agriculture sector has also recently committed to nutrition; for example, through the 2009 reform of the Food and Agriculture Organization of the United Nations (FAO) Committee on World Food Security. The committee now constitutes an inclusive platform of stakeholders who can work together in support of country-led processes towards ensuring food security *and nutrition* for all (Committee on World Food Security, 2009).

After various preparatory phases in 2009, the Scaling-up Nutrition (SUN) Movement was launched in 2010, to establish commitment to scaling-up-nutrition within countries and among partner agencies. As of May 2013, the SUN Movement has been endorsed by more than 100 organizations and 35 countries. The UN Standing Committee on Nutrition (UNSCN) and the Renewed Efforts against Child Hunger and Undernutrition (REACH) initiative facilitate the UN network within the SUN Movement. This will help to ensure that all relevant UN agencies are working together within their respective mandates to scale up action on nutrition.

Developed country governments have also given attention to nutrition at the highest level. For instance, the 1000 Days: Change a Life, Change the Future movement was launched in September 2010 by the United States (US) Secretary of State Mrs Hillary Clinton and the Irish Foreign Minister Mr Michael Martin (USDS, 2010). The life-course approach to nutrition promotes application of interventions when they are likely to have a long-term effect; that is, the “window of opportunity”, which is the period from before pregnancy to 24 months after birth. Both the SUN Movement and the 1000 Days campaign promote action during this critical period.

In 2011, G20 leaders committed to sustainably increase agricultural production and productivity (paragraph 43 of the Cannes Declaration) (G20, 2011). Early in 2012, Mexico, as G20 President, invited international organizations to examine practical actions that could be undertaken to sustainably improve agricultural productivity growth, in particular

on small family farms. The Los Cabos G20 Leaders Declaration, in paragraph 55, supports the SUN Movement and encourages wider involvement of G20 members (G20, 2012). In 2012, the G8 also launched the New Alliance for Food Security and Nutrition, which is a shared commitment to achieve sustained and inclusive agricultural growth, and to lift 50 million people out of poverty over the next 10 years. This will be achieved by aligning the commitments of Africa's leadership to drive effective country plans and policies for food security, by scaling up investments in food security (Feed the Future, 2012). The Prime Minister of the United Kingdom of Great Britain and Northern Ireland (UK), Mr David Cameron, has committed to reducing child malnutrition rates in poor countries as Britain takes over the presidency of the G8 group of leading industrialized countries in 2013. A "hunger summit" held at Number 10 Downing Street in August 2012 announced measures to reduce the number of children left stunted by malnutrition worldwide by as much as 25 million by 2016, when Rio de Janeiro stages the next Olympics (British Prime Minister's Office, 2012). The initiative will contribute to a UN target to reduce the number of stunted children by 70 million by 2025, in line with the targets established by the World Health Assembly.

In addition to these various global and country initiatives, there are a number of recent regional nutrition initiatives, such as the regional nutrition strategies and plans of action described in Box 1 (page 51), as well as the New Partnership for Africa's Development (NEPAD) of 2001, the Comprehensive Africa Agriculture Development Programme (CAADP) of 2003, and the 2009 Commonwealth Heads of Governments' *Statement on Commonwealth Action to Combat Non-Communicable Diseases* (CHOGM, 2009).

National policies represent a commitment to act. To be effective, they should address the causes of all forms of malnutrition in the particular country. The United Nations Children's Fund (UNICEF) conceptual framework is often used in identifying and analysing the causes of malnutrition (UNICEF, 1990). The framework states that the underlying causes of malnutrition at household or community level are household food insecurity; inadequate care for women and children; and an unhealthy environment, including poor sanitation and hygiene and lack of services for health. The causes of malnutrition at national and international level include poverty, inequity, civil unrest, poor governance, inadequate global structures and lack of natural resources. For example, in some communities, malnutrition may be linked to alienation from the land, or an obligation to grow cash crops because of trade policies. Similarly, trade policies may encourage the production of foods high in fats and sugars, to the detriment of fruit and vegetable production, and may have a negative effect on local markets for fresh produce.

Nutrition policies must also focus on vulnerable groups, and reduce structural factors that create health and nutritional inequities. The Commission on Social Determinants of Health (CSDH, 2008) found that the basic and underlying causes of ill-health are not evenly spread among all members of a community or between communities. Social stratification by income, education, gender and ethnicity leads to differential living and working conditions, and food availability, and creates barriers to adopting healthy behaviour. Ultimately, all of these factors affect health and nutritional status.

Virtually all countries in the world have ratified the 1989 Convention on the Rights of the Child, and have therefore committed themselves to upholding children's right to the highest attainable standard of health, including adequate nutritious food and the benefits of breastfeeding. The rights to food and to health are spelt out in General Comments 12 and 14 to the International Covenant on Economic, Social and Cultural Rights (CESCR,

1999, 2000). These rights, like any other human right, place three types of obligation on governments: respect existing practices whereby people enjoy their rights to food and health for good nutrition; protect individuals or groups from being deprived of access to adequate food (e.g. by enacting food safety legislation or national codes of marketing of breast-milk substitutes); and fulfil as necessary the rights to food and health by promotion, facilitation or provision. "Promotion" entails creating, maintaining and restoring the health of a population; for example, by disseminating appropriate information on healthy lifestyles and nutrition. "Facilitation" entails proactively strengthening people's access to and use of resources, to ensure their livelihood, including food security and healthy behaviour. "Provision" implies that, when people are unable to enjoy their right to food or to health for reasons beyond their control, such as in natural or other disasters, the government has an obligation to provide, for example, food or medical care.

Thus, nutrition policies are by nature intersectoral. Therefore, the health sector and government must have the necessary capacities and institutional support to work with other sectors that have different interests to negotiate different goals, and to agree on areas of responsibility (and hence accountability). Lack of such support creates barriers to effective implementation of nutrition activities in countries.

The Global Nutrition Policy Review was undertaken during 2009–2010, to:

- assess the extent to which countries have policies and programmes for key nutrition activities;
- determine how those programmes were being implemented in terms of scale and coverage, who was implementing them, and how they were monitored and evaluated.

Responses were received from 119 Member States (62% of the 193 Member States at that time)¹ and 4 territories to a questionnaire sent to all World Health Organization (WHO) Member States. The responses from countries were complemented by a number of qualitative and quantitative studies. In particular, the experience and outcomes of in-depth country assessments undertaken as part of the *Landscape analysis on countries' readiness to accelerate action in nutrition* (Nishida, Shrimpton & Darnton-Hill, 2009)² in 18 countries with a high burden of stunting in 2008–2012 provided insights on countries' readiness for scaling up actions and identifying constraints to effective implementation of nutrition policies and programmes. WHO regional offices and some countries provided examples of good policy and programme practices, and successful outcomes.

The Global Nutrition Policy Review is one of a series of WHO initiatives to monitor countries' progress in developing and implementing national nutrition policies and strategies. The WHO Global Database on National Nutrition Policies and Programmes was developed in 1993 as a tool to monitor the implementation of the World Declaration and Plan of Action on Nutrition, which was adopted by the 1992 International Conference on Nutrition (FAO

¹ There are now 194 WHO Member States, since the Republic of South Sudan officially became a Member State in late September 2011.

² The Landscape Analysis was a review of the "readiness" of the 36 countries with a high burden of stunting to accelerate action in nutrition. "Readiness" was assessed as a function of both "commitment" (willingness to act) and "capacity" (ability to act). It also included a review of "meta-indicators" of general conditions and contextual factors that can influence the effectiveness of nutrition activities. The Landscape Analysis involved three parallel activities: classification of countries according to "readiness to act" on the basis of a review of secondary data; in-depth country assessments, so far undertaken in 18 countries (Burkina Faso, Comoros, Côte d'Ivoire, Egypt, Ethiopia, Ghana, Guatemala, Guinea, Indonesia, Mali, Madagascar, Mozambique, Namibia, Peru, South Africa, Sri Lanka, Timor-Leste and the United Republic of Tanzania) (http://apps.who.int/nutrition/landscape_analysis/country_assessments/en/index.html); and setting up the Nutrition Landscape Information System, in which all the WHO global nutrition databases are dynamically linked to provide an integrated information system on nutrition (<http://www.who.int/nutrition/nlis/en/index.html>).

& WHO, 1992). That database has now been further elaborated, incorporated and was launched as the Global database on the Implementation of Nutrition Action (GINA)³ on 28 November 2012. Summaries of selected policy and programme indicators will also be made available on the WHO Nutrition Landscape Information System.⁴

This report presents the current global nutrition challenges, drawing on data from various sources including existing WHO Global Nutrition Databases being managed by the Department of Nutrition for Health and Development (Section 2), the methods and main outcomes of the Global Nutrition Policy Review, showing the extent of policy and programme implementation and nutrition governance in 119 WHO Member States and 4 territories which provided responses (Section 3), the summary conclusions (Section 4) and the way forward (Section 5). Although countries have different nutrition concerns, some interventions are relevant globally; for example, those that address the “window of opportunity” from pregnancy until 2 years of age, such as optimal breastfeeding and appropriate complementary feeding practices. Because many countries within a region have similar nutrition problems, data are disaggregated by region in most parts of the report. The report also includes an assessment of how well current nutrition-related policies and programmes meet nutrition problems being faced by countries, and of policy and governance for the scaling-up of nutrition activities.

The international community must understand the challenges in implementing nutrition policies and programmes in order to provide support for the areas of greatest need and the areas where they will be most effective. Understanding “the nutrition landscape” and its “architecture” in countries, and identifying ways to overcome the challenges, will ensure effective use of resources. This report is intended for stakeholders who are working with countries to implement nutrition policies and programmes; including international and bilateral agencies, nongovernmental organizations (NGOs), civil society and the private sector.

³ <http://www.who.int/nutrition/gina/en/>

⁴ <http://www.who.int/nutrition/nlis/en/index.html>

2.

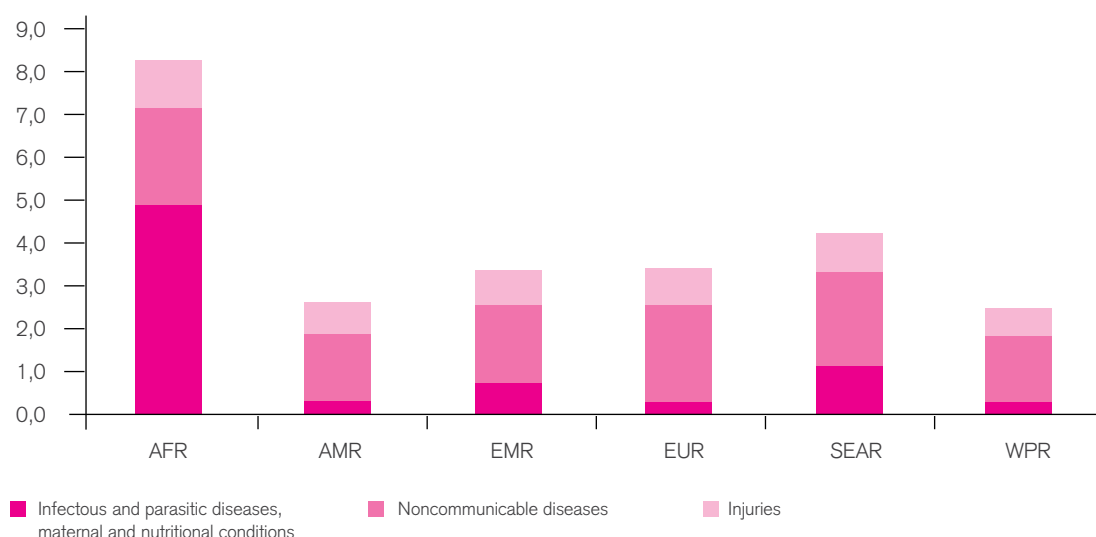
Current global
nutrition
challenges

Since 1990, life expectancy at birth has increased in all regions, largely due to reductions in infant and child mortality. However, the gain in life expectancy has not been even in all regions, with Africa having the shortest life expectancy. Wide variations are also seen within countries, with rates of child mortality and stunting generally higher among those in the lowest wealth quintile and those whose mothers have the least education (WHO, 2013b). In Latin America, the Caribbean and parts of Asia, the disparity in rates of child underweight between rural and urban areas increased between 1990 and 2008 (UN, 2010a). In South Asia, 60% of children in the poorest quintile are underweight, compared with 26% of those in the richest quintile; also, the reduction in underweight is much slower among children in poorer households (UN, 2011b). Throughout the developing world, socioeconomic inequality in childhood malnutrition is independent of the average rates of malnutrition, especially for stunting (Van de Poel et al., 2008). At the same time, the largest increase in overweight among preschool-age children has been seen in the lower middle-income group (WHO, 2011a).

2.1. Malnutrition and causes of death and disability

In 2008, cardiovascular diseases (ischaemic heart and cerebrovascular diseases) were the leading causes of death worldwide, followed by respiratory conditions and cancers (WHO, 2011b). A study by Lozano et al. (2012) identified these same causes as the top causes in 2010. Nutrition and diet are closely linked to these leading causes of death. For example, obesity increases the risk for ischaemic heart disease, high salt/sodium intake increases the risk of cerebrovascular disease, and intake of fruit and vegetables helps to prevent the development of cancer. Infectious diseases, including foodborne or waterborne diarrhoea, also affect mortality and disability. The vicious cycle of malnutrition and infectious disease is well recognized; that is, foodborne and other infectious disease can cause malnutrition, and malnutrition exacerbates infection. The overall death rate of adults (aged 15-59 years) in Africa is nearly twice as high as that in any other region of the world (Figure 1).

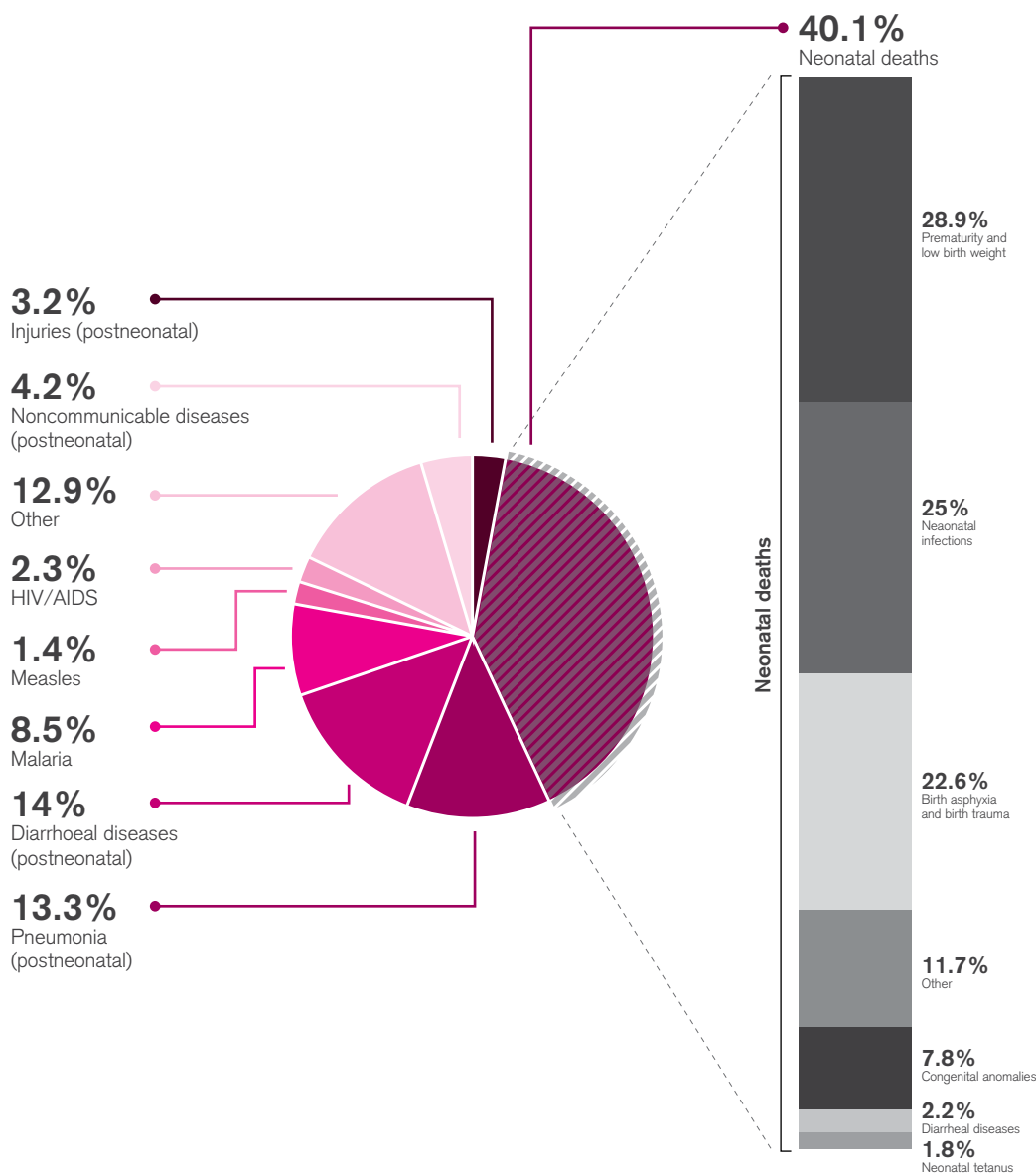
Figure 1. Mortality rates from major causes by WHO region, 2008.
From WHO (2011a)



AFR, African Region; AMR, Region of the Americas; EMR, Eastern Mediterranean Region; EUR, European Region; SEAR, South-East Asia Region; WPR, Western Pacific Region

In 2011, 6.9 million children under 5 years of age died, mainly from preventable causes such as pneumonia, diarrhoea, malaria and neonatal conditions (WHO, 2013b). Figure 2 shows the causes of death among children under 5 years of age in 2010. It has been estimated that undernutrition is an underlying cause in 35% of child deaths⁴ (MDG4) (Black et al., 2008); and that maternal short stature and iron deficiency anaemia is a cause of 20% of maternal deaths (MDG5) (UN, 2010b). Although substantial progress has been made in meeting these two MDGs, no region is on track to achieve the required reductions of 67% in child mortality under MDG4 and 75% in maternal mortality under MDG5 by 2015 (UN, 2012). The greatest progress has been made in northern Africa, and in eastern and western Asia, where the child and maternal mortality rates have been more than halved. The lowest reduction rates have been in sub-Saharan Africa and Oceania, areas that have some of the highest rates of child and maternal mortality.

Figure 2. Causes of deaths among children under the age of 5 years, 2010. From WHO (2013b)



⁴ This estimate is currently being updated with recent data and revised methodology, and will be published in the forthcoming *Lancet* series on nutrition (2013).

2.2. Child malnutrition

Worldwide, in 2011, one in four children (26%, 165 million) was estimated to be stunted, whereas one in six (16%, 101 million) was underweight, and one in 12 (8%, 52 million) was wasted (UNICEF, WHO & World Bank, 2012). These prevalence rates are highly significant for public health.⁶ Nearly 20 million children suffer from severe acute malnutrition, which is a life-threatening condition requiring urgent treatment (WHO et al., 2007).

Figure 3 shows the trends in child stunting, underweight, wasting and overweight in the period 1990-2010. Because of the large population in Asia, most of the children affected by stunting, underweight or wasting live in that region. In all regions, the rates of stunting are higher than those of underweight, although there are variations, with rates being about 1.4 times higher in Asia, two times higher in Africa, and four times higher in Latin America and the Caribbean. Stunting rates are falling in all regions, but at a much slower rate in Africa than elsewhere. In 1990, the highest rates were in Asia (48.4%), particularly in south-central Asia (59.3%). By contrast, in 2010, they were highest in Africa (35.9%), particularly in eastern Africa (42.5%). In Asia, Latin America and the Caribbean, the overall rates have almost halved between 1990 and 2010, and some subregions have seen even greater decreases, the most notable being eastern Asia, where rates have been reduced by 75%. In Latin America and the Caribbean, and in eastern and western Asia, the reductions have brought the subregional estimates to below 20%, which is the cut-off for public health concern (UNICEF, WHO & World Bank, 2012).

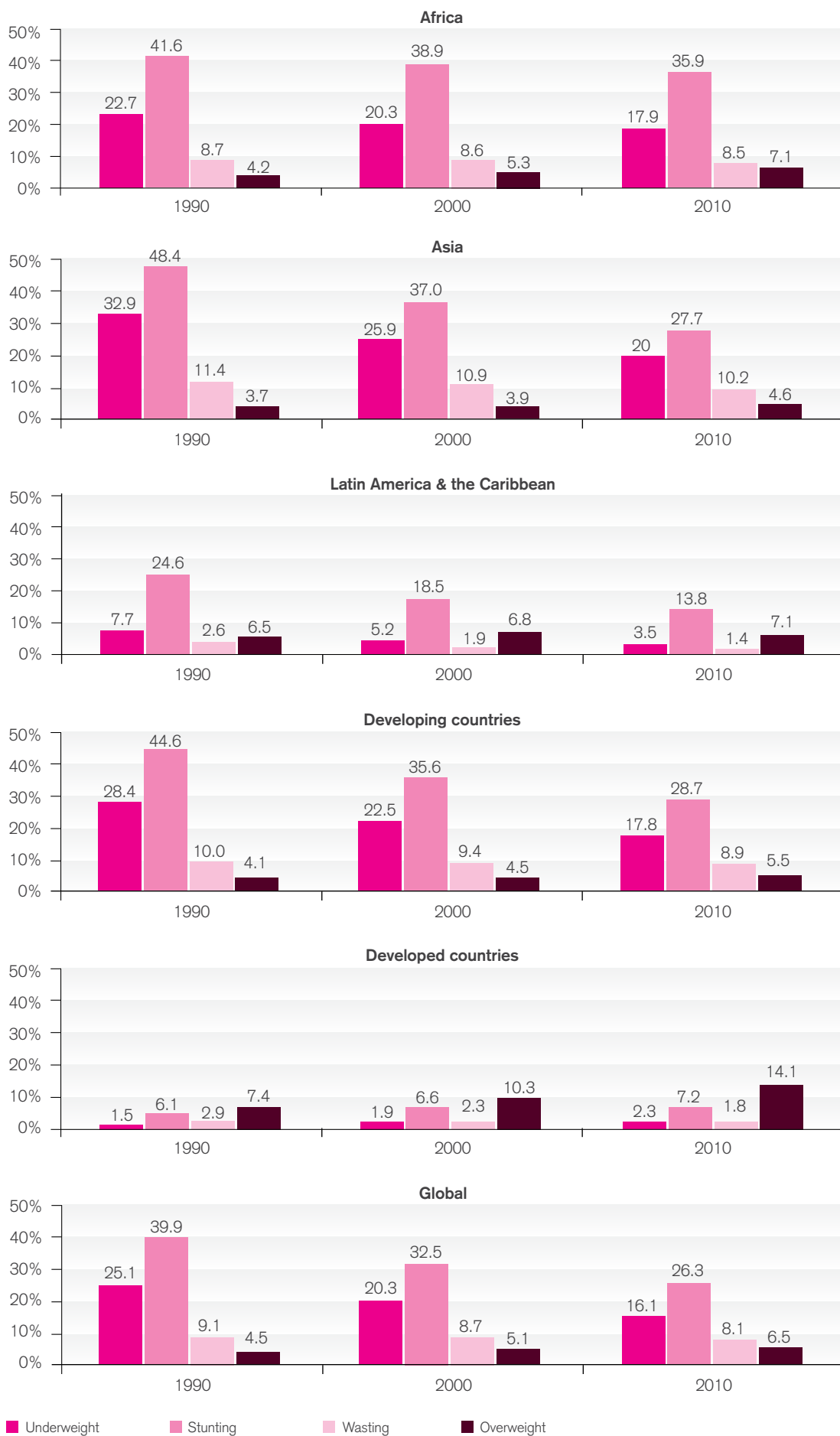
In 2011, overweight affected 7% of preschool children (43 million). Figure 3 shows that unlike the prevalences of stunting and underweight, the prevalence of child overweight in 2010 was highest in developed countries (14.1%), followed by countries in Africa, and in Latin America and the Caribbean (both at 7.1%). The rate of increase over the past 20 years has been similar in developed and developing countries, although some subregions had dramatic increases. For example, the prevalence of child overweight more than doubled between 1990 and 2010 in southern Africa (from 6.1% to 15.6%), western Africa (from 1.9% to 6.2%), south-eastern Asia (from 1.8% to 5.8%), and western Asia (from 4.4% to 10.8%) (UNICEF, WHO & World Bank, 2012).

The rapid changes and subregional differences in child growth and malnutrition between 1990 and 2010 indicate important variations in the distribution of the determinants. Notable was the fact that a fall in underweight or stunting was not necessarily associated with a rise in overweight. For example, in eastern Asia underweight fell dramatically from 15.0% to 3.4% and stunting from 36.8% to 9.2%, yet at the same time the rate of overweight decreased from 6.8% to 5.6%. Also, in Latin America and the Caribbean underweight halved from 7.7% to 3.5% and stunting from 24.6% to 13.8%, while the rates of overweight slightly increased from 6.5% to 7.1%. However, in western Africa underweight fell only slightly from 25.9% to 22.0% and stunting from 39.1% to 36.5%, but the rates of overweight rose sharply from 1.9% to 6.2%.

Many children are born at a disadvantage, with a birth weight of less than 2.5 kg. Low birth weight is a marker of suboptimal intrauterine growth and poor maternal nutrition; it increases the risks for poorer outcomes in growth, development and health in both the short and the long term. Although the estimates of low birth weight have some shortcomings, the global rates appear to have fallen from 18.0% in the 1980s to 15.5% in the 2000s; nevertheless, the rates in some subregions appear to have stagnated or even increased

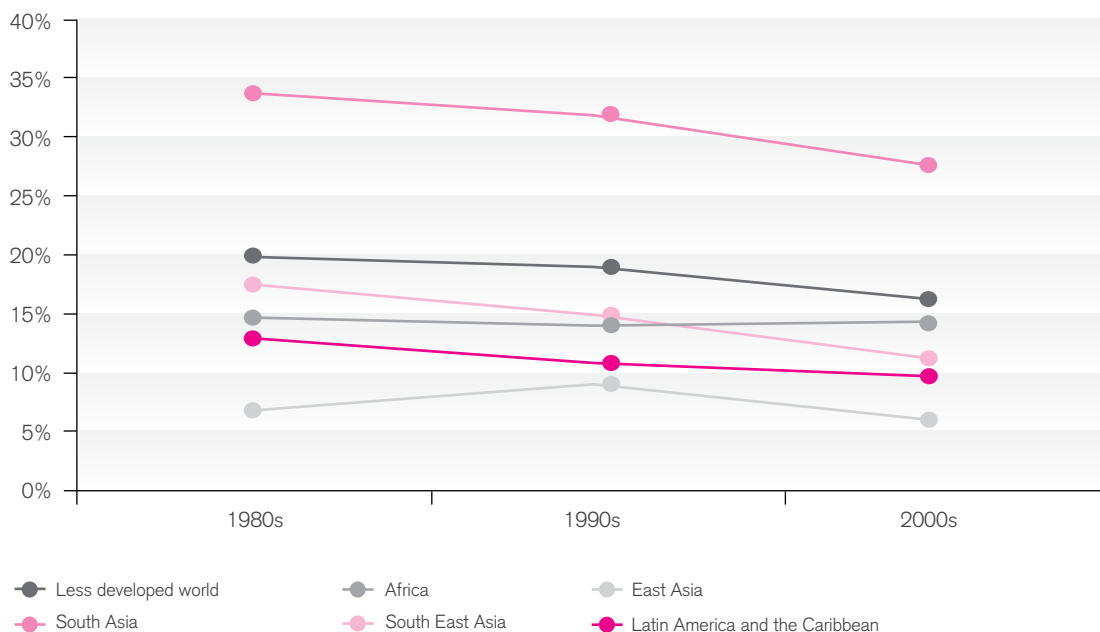
⁶ The cut-off values for a prevalence that is considered to be of public health significance are $\geq 20\%$ for stunting, $\geq 10\%$ for underweight and $\geq 5\%$ for wasting (WHO, 1995).

Figure 3. Global and regional prevalences of stunting, underweight, wasting and overweight based on the WHO standards for 1990, 2000 and 2010 by UN region. From UNICEF, WHO & World Bank (2012)



over the same period (Figure 4). The largest relative reduction in low birth weight was seen in South-East Asia, where it dropped from 18.0% to 11.6%. In Africa as a whole, the rate declined only slightly, from 15.0% to 14.3%, with little variation across the continent. The South Asia subregion still has the highest rates of any subregion, despite a steep reduction in the rate of low birth weight, from 34.0% to 27.0%. Recent analyses conducted by UNICEF (2012a) show that the global rates remains unchanged at 15%, and that progress is slow in regions for which sufficient data are available to estimate trends.

Figure 4. Trends in low birth weight by UN region, 1980–2000.
From UNSCN (2010)



2.3. Adult overweight and obesity

Globally, in 2008, one in three adults (34% of men, 35% of women) was overweight; that is, they had a body mass index (BMI) equal to or greater than 25 kg/m² (WHO, 2011a). Also, one in 10 men (10%) and more than one in 10 women (14%) were obese; that is, they had a BMI equal to or greater than 30 kg/m². The prevalence of overweight and obesity in adults varied considerably among regions and income groups. The highest rates were found in the Region of the Americas, followed by the European Region, where more than 50% of the adult population were overweight and more than 20% were obese (Figure 5). Similar rates were found among women in the Eastern Mediterranean Region, whereas the rates in the African Region, the South-East Asia Region and the Western Pacific Region were generally lower. Adult overweight and obesity was much more prevalent in upper middle-income and high-income groups than in lower middle-income and low-income groups. Obesity was more common in women than in men. The worldwide prevalence of obesity among women nearly doubled between 1980 and 2008, from 8% in 1980 to 14% (297 million women over the age of 20) in 2008 (Finucane et al., 2011).

Figure 5. Age-standardized prevalence of overweight and obesity in adults aged 20+ years of age by WHO Region, 2008. From WHO (2013b)



■ Obesity, BMI ≥ 30

■ Pre-obesity, BMI = 25.0 - 29.9

AFR, African Region; AMR, Region of the Americas; EMR, Eastern Mediterranean Region; EUR, European Region;

SEAR, South-East Asia Region; WPR, Western Pacific Region

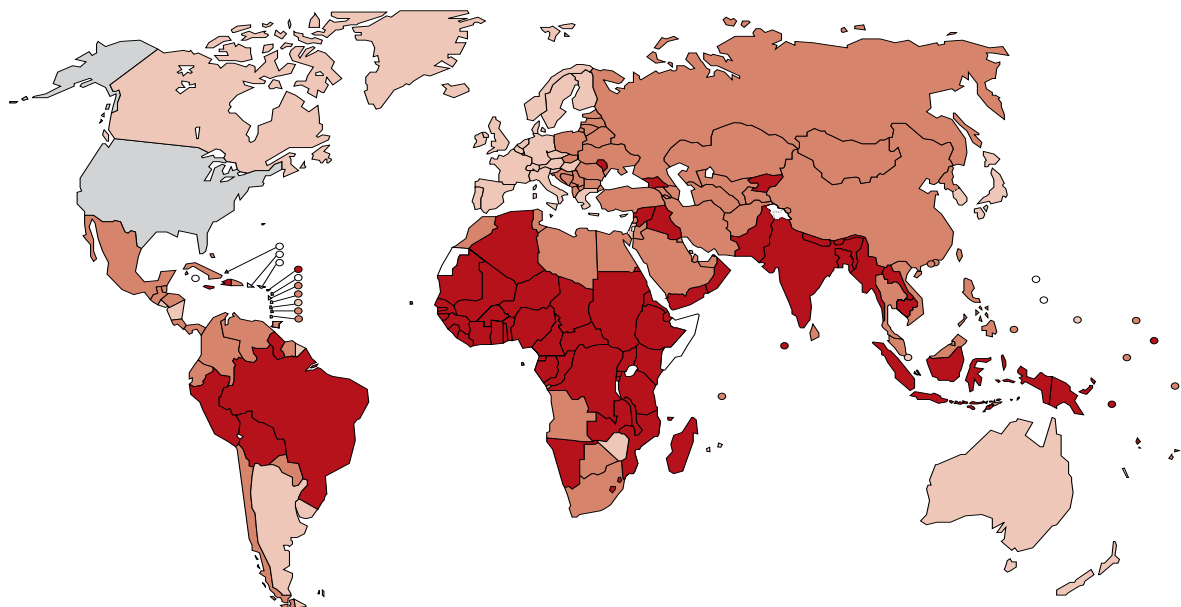
2.4. Vitamin and mineral malnutrition

2.4.1 Iron deficiency and anaemia

Iron deficiency is the most common nutritional deficiency, with more than 2 billion people affected worldwide (WHO, 2001). Globally, anaemia affects 1.62 billion people, or 24.8% of the world's population. Anaemia in preschool-age children and in women is a severe public health problem, with a prevalence of at least 40%, in most countries in the African Region and the South-East Asia Region, and in parts of Latin America (WHO & CDC, 2008)⁷ (Figures 6–8). In all countries, anaemia is at least a mild public health problem in at least one age group, especially among pregnant women; and in most countries it is a moderate or severe public health problem.

The highest prevalence of anaemia is found among preschool-age children (47.4%), and the lowest prevalence is among men (12.7%). The population group in which the largest number of individuals affected is non-pregnant women (468.4 million). The African Region has the highest rates of all the regions, with anaemia affecting two out of three preschool-age children (67.6%), and about every second pregnant (57.1%) and non-pregnant (47.5%) woman. The largest numbers are in the South-East Asia Region, where 315 million individuals in these three population groups are affected (WHO & CDC, 2008). The rates of anaemia in non-pregnant women have not changed significantly in Africa or in south-central Asia since 1990, whereas they have declined in east Asia and Central America (UNSCN, 2010).

Figure 6. Prevalence of anaemia in preschool-aged children, 1993–2005.
From WHO & CDC (2008)



Category of public health significance (anaemia prevalence)

■ Normal (<5.0%) ■ Mild (5.0-19.9%) ■ Moderate (20.0-39.9%) ■ Severe (≥40.0%) □ No data

⁷ WHO is currently updating anaemia estimates, to be published later in 2013

Figure 7. Prevalence of anaemia in pregnant women, 1993–2005.
From WHO & CDC (2008)

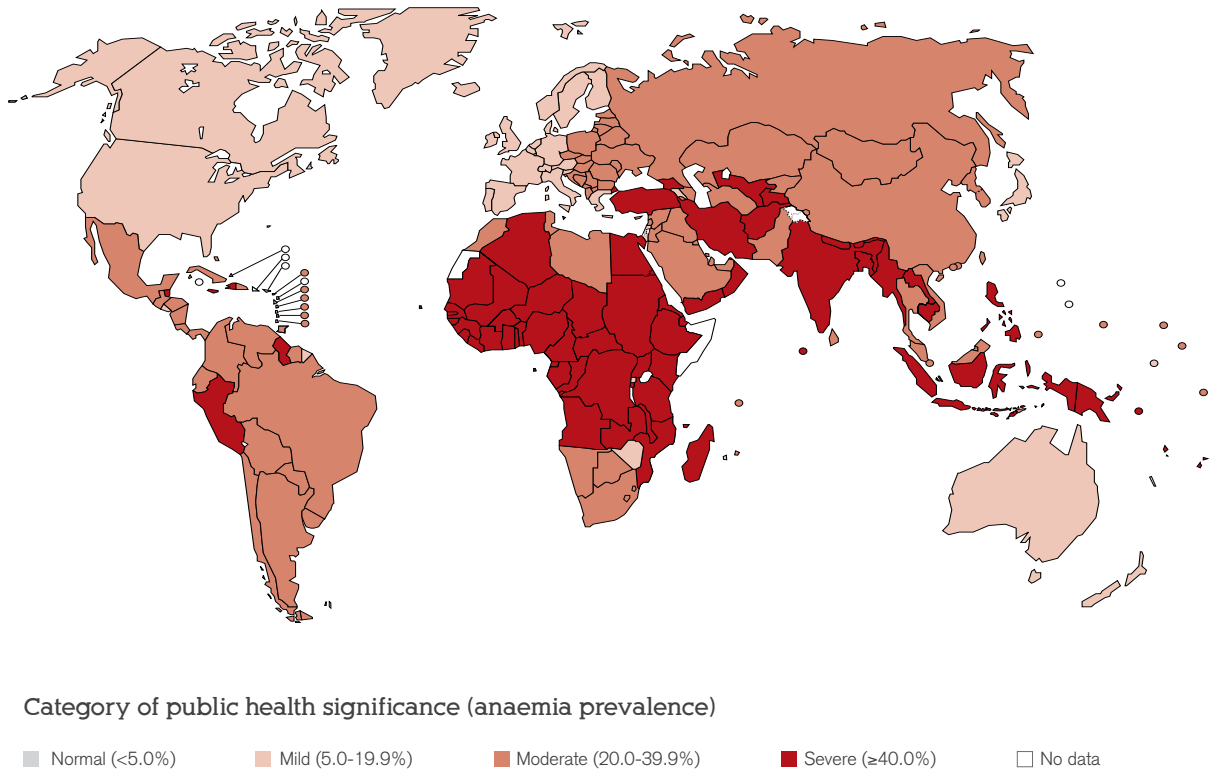
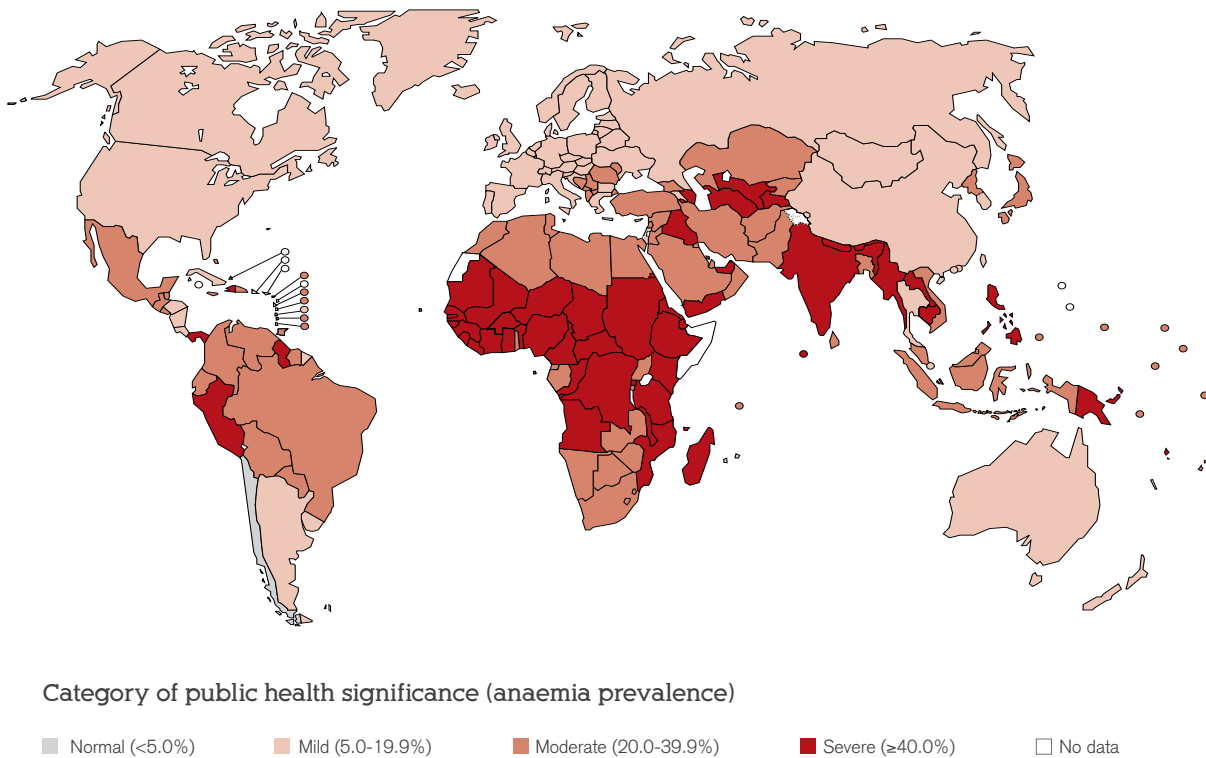


Figure 8. Prevalence of anaemia in non-pregnant women, 1993–2005.
From WHO & CDC (2008)

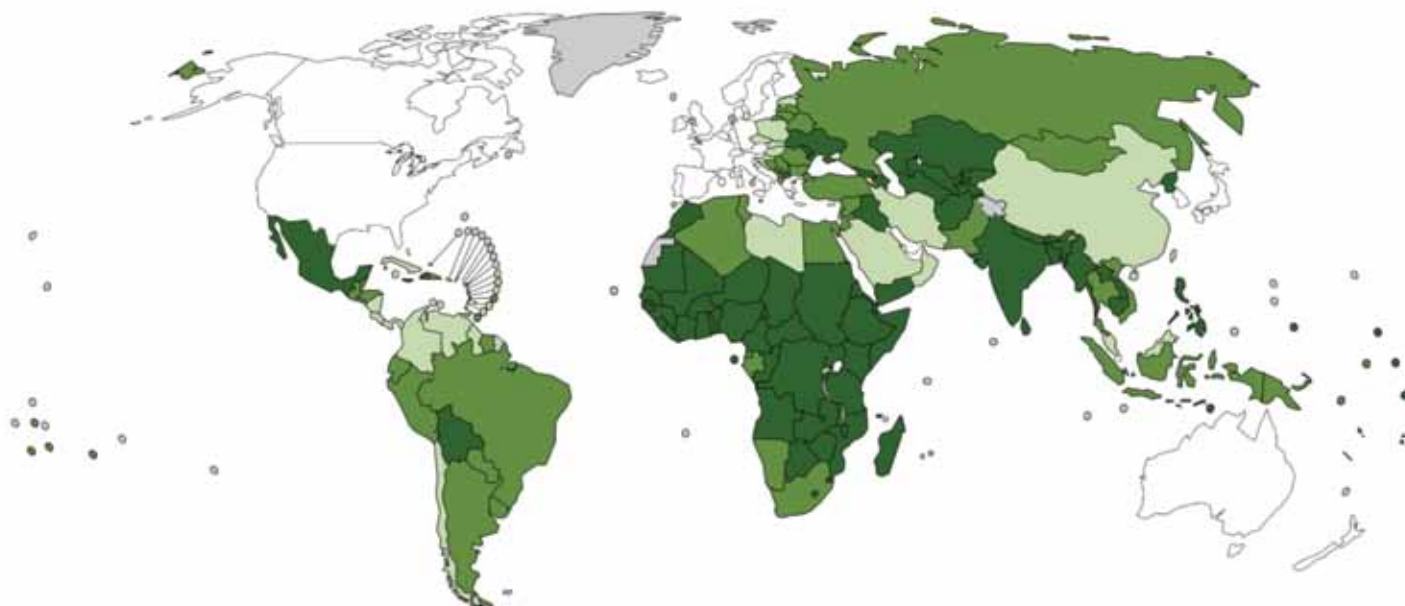


2.4.2 Vitamin A deficiency

Worldwide, subclinical vitamin A deficiency (serum retinol < 0.70 $\mu\text{mol/l}$) affects 33% of preschool-age children (190 million) and 15.3% of pregnant women (19.1 million). The highest regional rates among preschool-age children are found in the South-East Asia Region (49.9%) and the African Region (44.4%), and among pregnant women in the Western Pacific Region (21.5%) (WHO, 2009). Subclinical vitamin A deficiency is a severe public health problem ($\geq 20\%$ prevalence) among preschool-age children in most countries of Africa and in large parts of Asia; it is also a moderate public health problem (prevalence $\geq 10\%$ to < 20%) in most countries of Latin America and eastern Europe (Figure 9). Prevalence rates among preschool-age children have declined since 1990 in most areas except east, central and west Africa, although the extent of the problem still varies widely (UNSCN, 2010). Vitamin A deficiency is a severe public health problem among pregnant women in most countries in northern Africa, and in west and central Asia; it is also a moderate public health problem in most other countries of Africa, and in south and south-east Asia (Figure 10).

Clinical vitamin A deficiency, or night blindness, is common among pregnant women in developing countries, with a prevalence of 9.8% in the African Region and 9.9% in the South-East Asia Region. In each of those regions, more than 3 million pregnant women are estimated to be affected, equivalent to one third of all those affected in the world (WHO, 2009).

Figure 9. Prevalence of subclinical vitamin A deficiency in preschool-aged children, 1995-2005. From WHO (2009)



Category of public health significance (prevalence of serum retinol <0.70 $\mu\text{mol/l}$)

- Mild ($\geq 2\%$ - <10%)
- Moderate ($\geq 10\%$ - <20%)
- Severe ($\geq 20\%$)
- GDP per capita \geq US\$ 15000 (countries assumed to be free of vitamin A deficiency of public health significance)
- No data

Figure 10. Prevalence of subclinical vitamin A deficiency in pregnant women, 1995-2005. From WHO (2009)



Category of public health significance (prevalence of serum retinol $<0.70 \mu\text{mol/l}$)

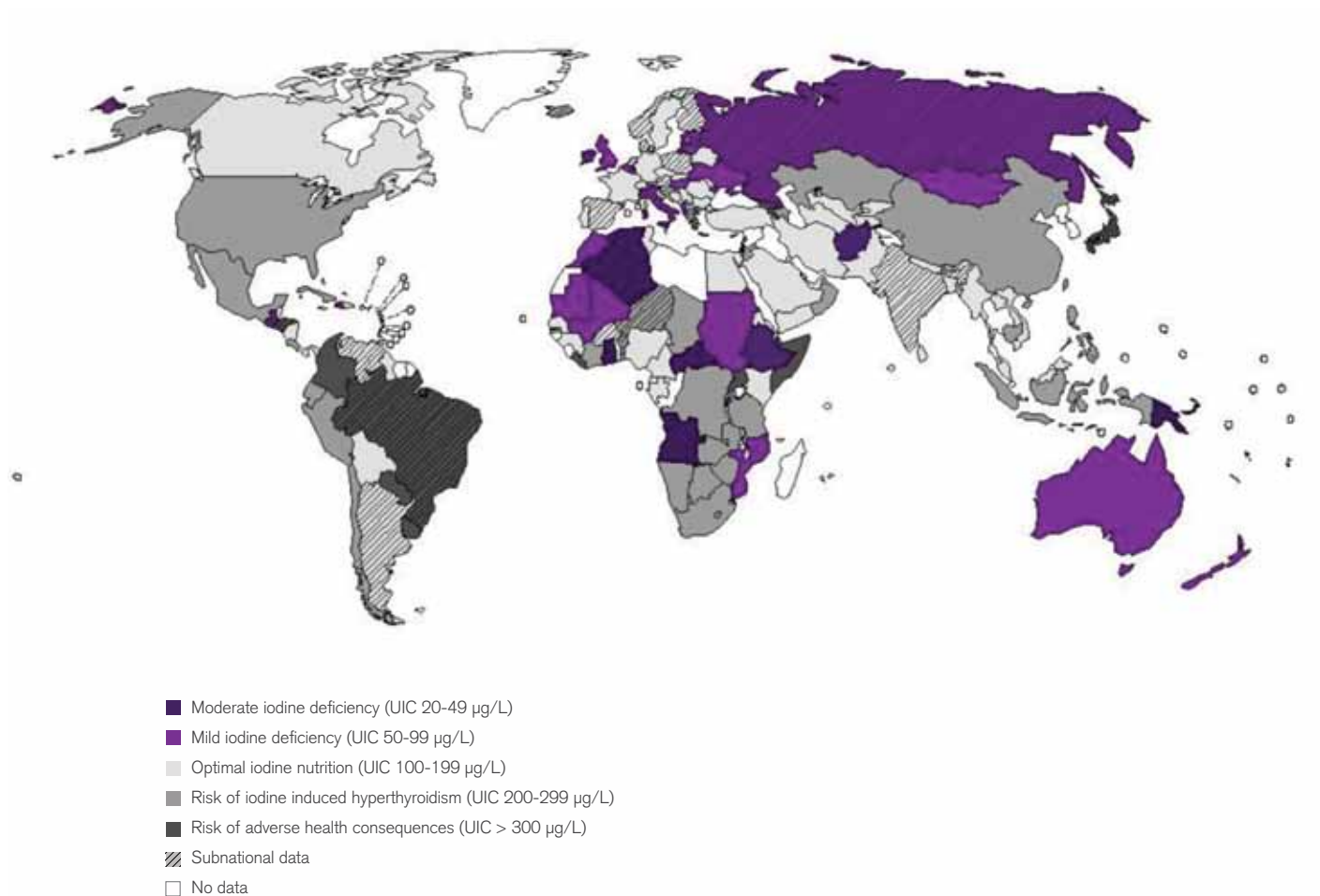
- None (<2%)
- Mild ($\geq 2\%$ - <10%)
- Moderate (≥ 10 - <20%)
- Severe ($\geq 20\%$)
- GDP per capita \geq US\$ 15000 (countries assumed to be free of vitamin A deficiency of public health significance)
- No data

2.4.3 Iodine deficiency

It has been estimated that 29.8% of school-age children and 28.5% of the general population have insufficient iodine intake (defined as a urinary iodine concentration $< 100 \mu\text{g/l}$), representing 1.88 billion people (Andersson, Karumbunathan & Zimmermann, 2012). The highest rates are found in the European Region (43.9% of school-age children, 44.2% of the general population), followed by the African Region (39.3% of school-age children, 40.0% of the general population) and the Eastern Mediterranean Region (38.6% of school-age children, 37.4% of the general population). The prevalence of iodine deficiency decreased between 2003 and 2011, due to strengthening of salt iodization programmes and better monitoring, however it is still a public health problem in 32 countries.

In a number of countries, the iodine intake is considered to be too high, putting susceptible people at risk for iodine-induced hyperthyroidism. Both deficiency and excess are present in the same regions, often in neighbouring countries. Moderate or mild deficiency is most common in Europe and Africa, and more than adequate intake or excess is most common in the Americas (Figure 11).

Figure 11. Prevalence of iodine deficiency or excess, 1993–2011



Reproduced with permission from Andersson, Karumbunathan & Zimmermann (2012)

UIC, urinary iodine concentration

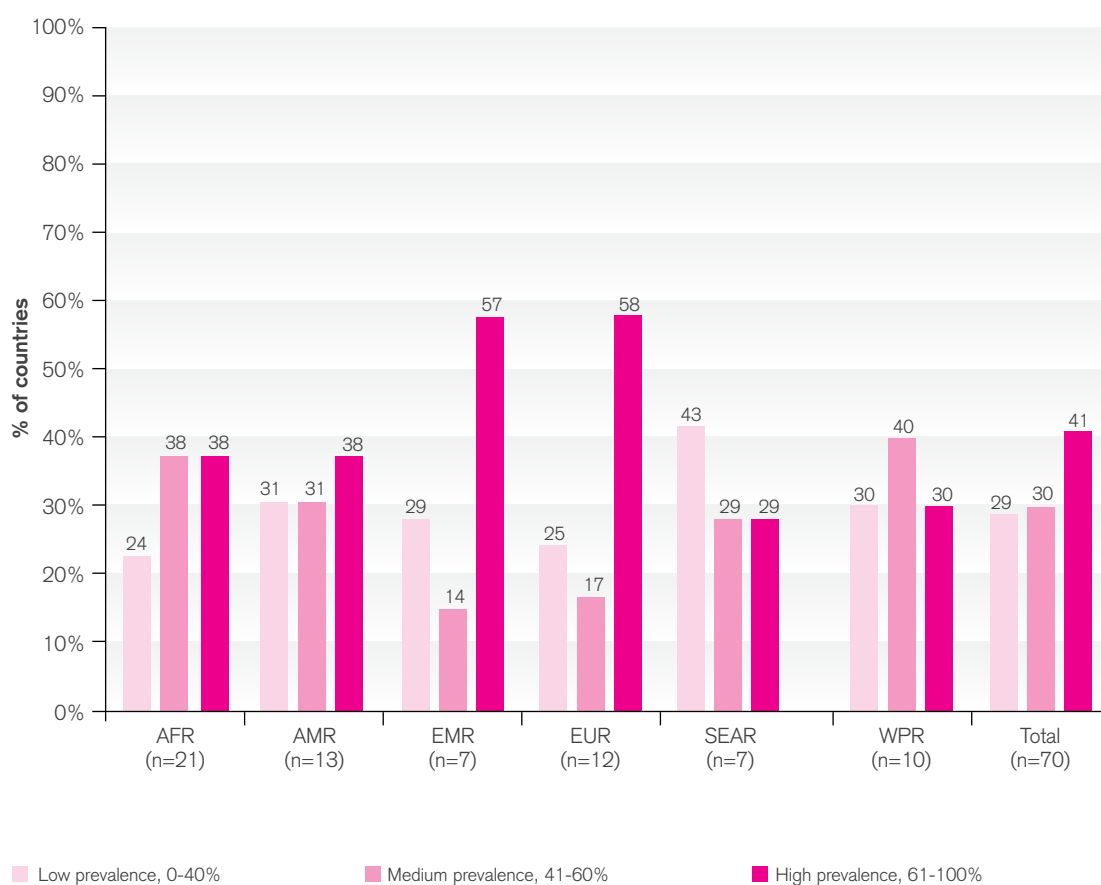
The estimates for the countries shown with cross-hatching are based on subnational data, as national coverage with iodized salt in these countries is incomplete, iodine intake varies widely, and the populations of some regions are probably iodine-deficient.

2.5. Infant and young child feeding

About 40% of the countries that responded to the questionnaire reported high rates of early initiation of breastfeeding. High rates were most common in countries in the Eastern Mediterranean Region and the European Region, whereas low rates of early initiation were common among countries in the South-East Asia Region (Figure 12). Globally, only 38% of children under 6 months of age are exclusively breastfed, ranging from 47% in the South-East Asia Region to 25% in the European Region (WHO, 2013b). More than 60% of countries reported low rates of exclusive breastfeeding. Only in the South-East Asia Region did the majority of countries report medium rates; by contrast, all the countries in the Eastern Mediterranean Region reported low rates (Figure 13). More than half the countries reported high rates of continued breastfeeding at 1 year of age. This was most common in countries in the African Region, and least common in countries in the European Region (Figure 14).

More than 60% of countries reported that complementary foods were introduced in a timely manner (i.e. at 6–8 months⁸) (Figure 15). In 2010, WHO and partners reviewed information on infant and young child feeding practices in 46 countries in relation to a composite indicator of a minimum acceptable diet for breastfed children⁹ and found that the rates were variable, ranging from 2.9% to 65.7% (WHO, 2010b).

Figure 12. Prevalence of early initiation of breastfeeding (within 1 h of birth), by WHO region

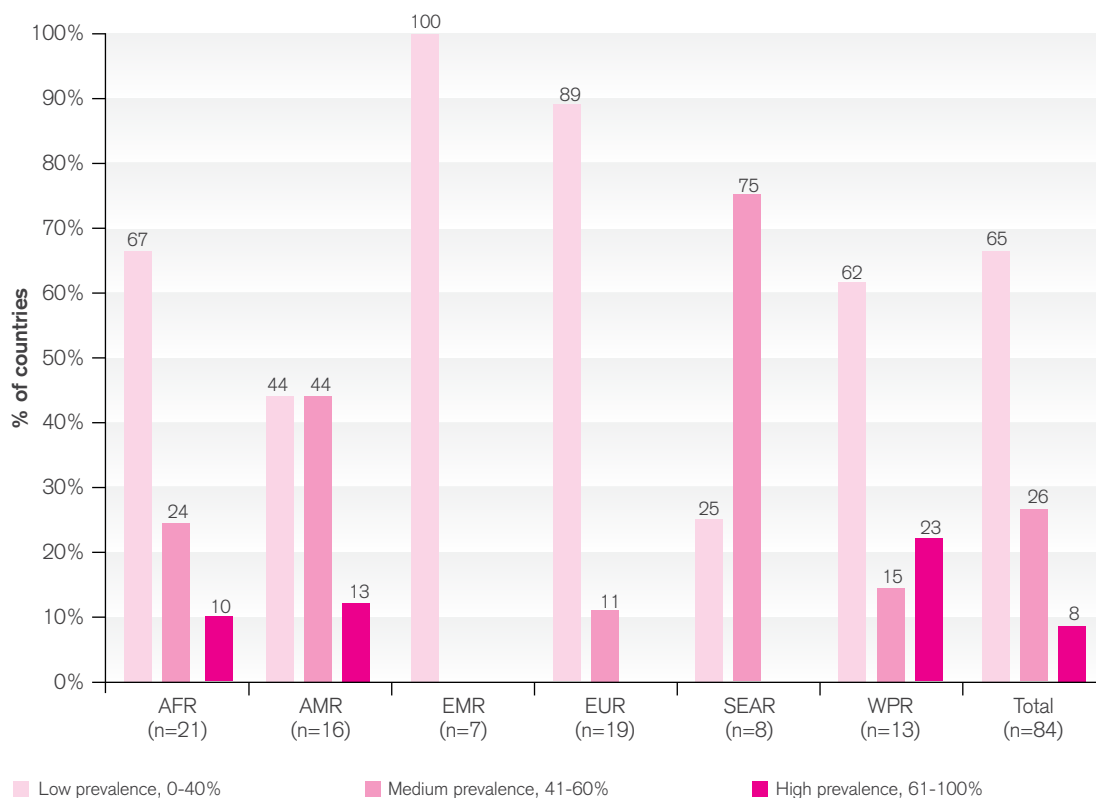


AFR, African Region; AMR, Region of the Americas; EMR, Eastern Mediterranean Region; EUR, European Region; SEAR, South-East Asia Region; WPR, Western Pacific Region

⁸ Until 2008, this indicator was 6–9 months, but when updated indicators for infant and young child feeding were published in 2008, it was changed to 6–8 months (WHO et al., 2008). Figure 15 shows introduction of complementary foods within either interval because not all countries had recalculated their data.

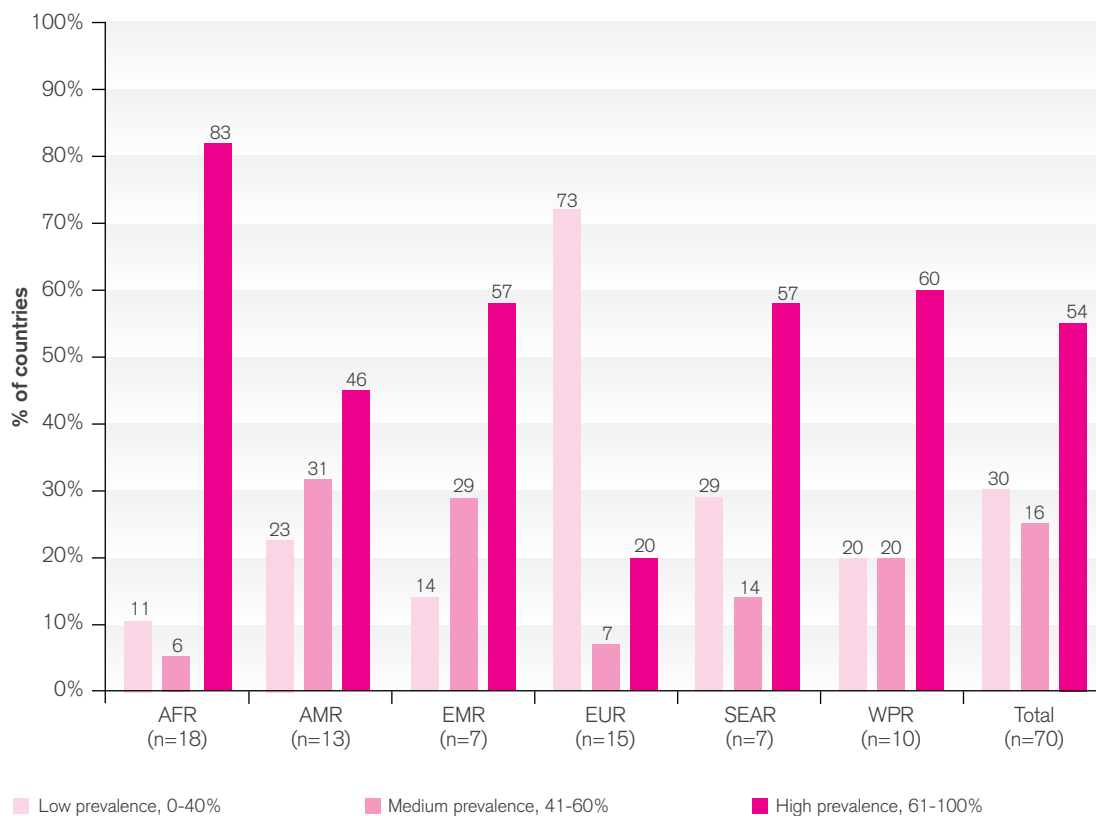
⁹ The indicator “minimum acceptable diet” for breastfed children is defined as proportion of children aged 6–23 months who had at least minimum dietary diversity and minimum meal frequency the previous day (WHO et al., 2008).

Figure 13. Prevalence of exclusive breastfeeding of infants < 6 months, by WHO region



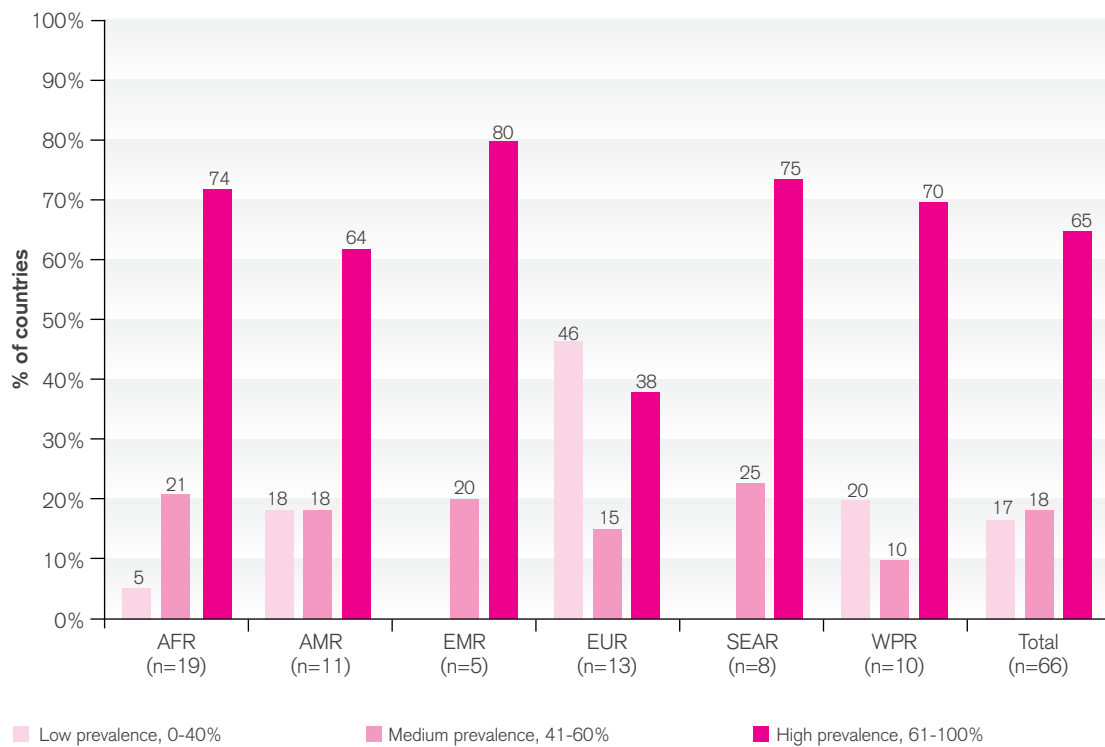
AFR, African Region; AMR, Region of the Americas; EMR, Eastern Mediterranean Region; EUR, European Region; SEAR, South-East Asia Region; WPR, Western Pacific Region

Figure 14. Prevalence of continued breastfeeding at 1 year, by WHO region



AFR, African Region; AMR, Region of the Americas; EMR, Eastern Mediterranean Region; EUR, European Region; SEAR, South-East Asia Region; WPR, Western Pacific Region

Figure 15. Prevalence of timely introduction of complementary foods (6–9 and 6–8 months), by WHO region



AFR, African Region; AMR, Region of the Americas; EMR, Eastern Mediterranean Region; EUR, European Region; SEAR, South-East Asia Region; WPR, Western Pacific Region

2.6. Undernourishment

Few countries have food consumption data that can be used to estimate the adequacy of dietary intake of all essential nutrients including energy. Data on global and regional per capita food supply in the “food balance sheets” of the FAO show that, overall, per-capita energy consumption rose between 1990–1992 and 2010–2012 in all regions. At the same time, diets became more diverse, with a decrease in the proportion of cereals, roots and tubers, and increases in the proportions of fruit, vegetables and animal products (FAO, 2012). However, the regional trends mask important differences; some countries, especially in Africa where the food supply per capita was already very low, saw a decrease in per-capita energy consumption between 1990–1992 and 2010–2012 (FAO, 2013).

These food supply data provide the only consistently collected global information on food consumption, estimated from food availability. Hence, they are a valuable resource for deriving trends over time and by region, despite the acknowledged limitations. Data on actual dietary intake of different individuals and population groups would be more helpful in understanding dietary adequacy. However, actual food consumption data are sparse, especially at national level. Although food balance sheets can indicate the national availability of macronutrients and micronutrients, the distribution of such nutrients within countries and among population groups is often uneven, resulting in undernutrition on one side and obesity on the other, especially in low- and middle-income countries.

Undernourishment or hunger is defined by FAO as an estimated dietary energy supply below the minimum dietary energy requirement. The number and proportion of people in a country who are undernourished is calculated from the average amount of food available for human consumption per person, the degree of inequality in access to that food, and the minimum number of calories required for an average person. In 2011–2012, FAO improved the method used to estimate the prevalence of undernourishment, through a comprehensive revision of data

on food availability (including better estimation of food losses), an improved basis for dietary energy requirement, updated measures of food access, and a new, functional form of the distributions used to estimate the prevalence of undernourishment (FAO, 2012).

According to FAO, 868 million people were undernourished in 2010–2012 (12.5%), down from 1 billion people in 1990–1992 (18.6%) (Figures 16 and 17). Trends show a reduction in almost all regions during this period, although at slower rates since 2007–2008, and not sufficient to meet the MDG1 target of halving hunger between 1990 and 2015 (FAO, 2012). One notable exception is Africa, where the number of undernourished people increased steadily over the period. The global financial, economic and food price crises in 2008 drove many people into hunger, with women and children being particularly affected (UNSCN, 2009). The spike in food prices prevented millions of people from escaping poverty, because the poor spend a large proportion of their income on food, and because many poor farmers are net buyers of food. Higher food prices have two main effects on net buyers of food: on income (due to a reduction in the purchasing power of poor households), and on substitution (with shifts to less nutritious food) (IBRD & World Bank, 2012). Civil unrest and conflicts around the world have drawn the attention of the general public to the injustice of malnutrition.

Figure 16. Trends in numbers of undernourished people, by FAO region.
From FAO (2013)

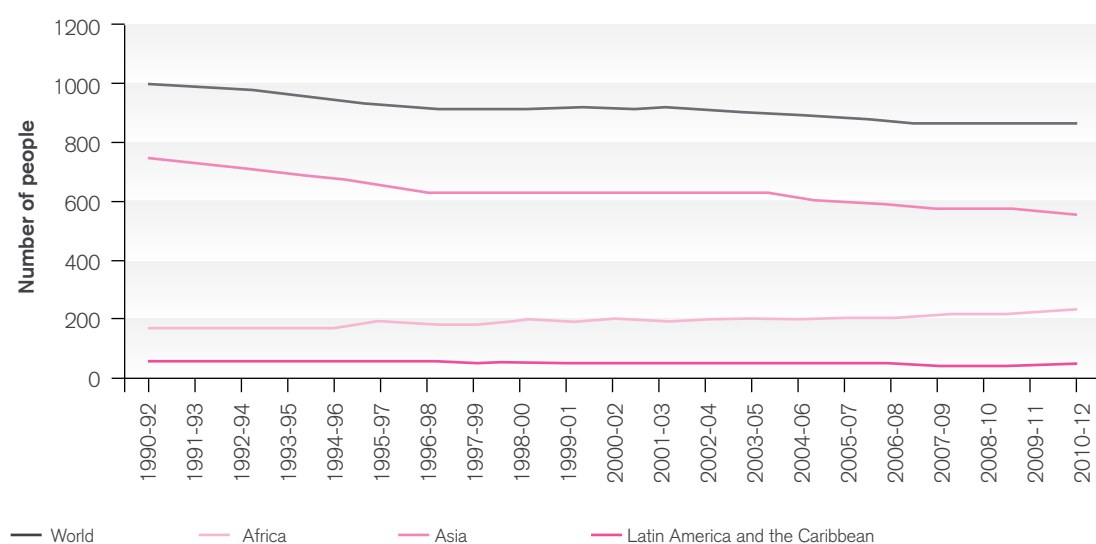
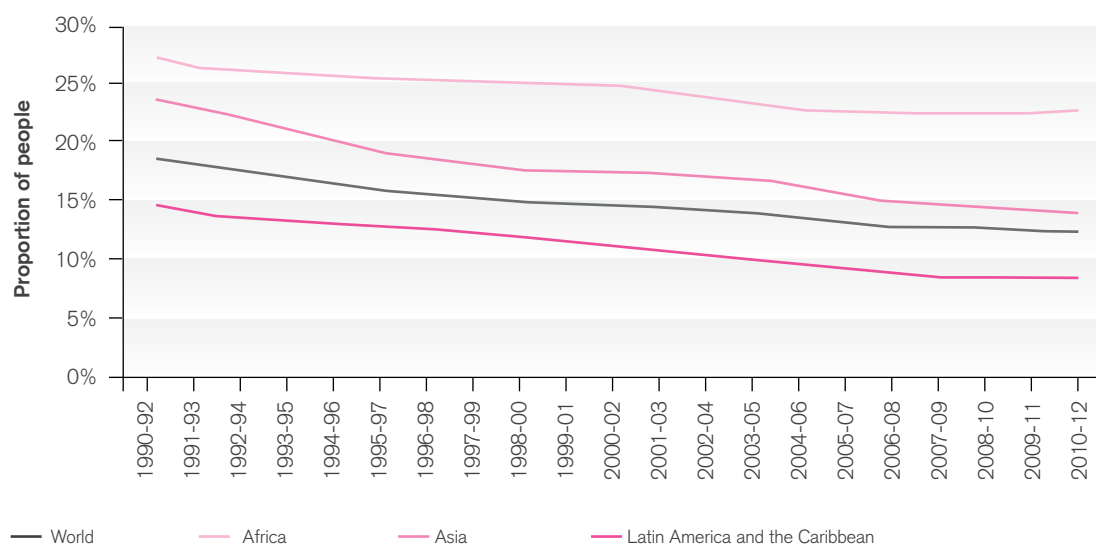


Figure 17. Trends in the proportions of undernourished people, by FAO region.
From FAO (2013)



3.

Methods and
findings of the
Global Nutrition
Policy Review

3.1. Methods

A comprehensive seven-module questionnaire¹⁰ was prepared by the WHO Department of Nutrition for Health and Development, with input from other departments, in particular those of Maternal, Newborn, Child and Adolescent Health, and Ethics, Equity, Trade and Human Rights.

The purpose of Module 1 was to obtain an overview of existing national policies and institutional environments related to nutrition. It included detailed tables for summarizing existing policy documents, stakeholders, national surveys, coordination mechanisms and capacity for addressing each country's main nutrition-related problems (i.e. undernutrition, obesity and diet-related NCDs, infant and young child feeding practices, vitamin and mineral malnutrition, and their underlying factors). The other modules covered programme implementation issues related to specific nutrition issues, as follows:

- Module 2 focused on policies, strategies and interventions to address maternal, infant and young child undernutrition, and on existing breastfeeding and complementary feeding practices;
- Module 3 covered regulatory and voluntary initiatives for implementing the International Code of Marketing of Breast-milk Substitutes and subsequent World Health Assembly resolutions;
- Module 4 focused on school programmes, including the Nutrition Friendly Schools Initiative;
- Module 5 elicited information on vitamin and mineral nutrition, and the scale of implementation and policy basis for supplementation and fortification programmes;
- Module 6 covered the scale of implementation and policy basis for obesity and diet-related NCDs, and relevant trade-related strategies;
- Module 7 covered food security and agriculture strategies.

The questionnaire was designed to be both comprehensive and as concise as possible, in order to capture all relevant information yet avoid giving countries too much work. Respondents were invited to provide additional information at the end of each module if they wished to do so. The questionnaire was translated into Arabic,¹¹ French, Spanish¹² and Russian¹³ and was pilot-tested in selected countries before finalization.

The questionnaire was disseminated to Member States through the WHO regional and country offices, and information was compiled between July 2009 and November 2010. Countries were asked to select a responsible national focal point, and ensure that all parts of the questionnaire were completed and sent back to respective WHO Regional Nutrition Advisers. Each module or section within a module was completed by the person responsible for the relevant issues and programmes, with the support and coordination of the national focal point. The affiliation and contact

¹⁰ The questionnaire can be obtained from NPUinfo@who.int.

¹¹ Translated by the WHO Eastern Mediterranean Regional Office.

¹² Translated by the WHO Regional Office for the Americas.

¹³ Translated by the WHO European Regional Office.

information of the person who provided the responses for each module was requested, to facilitate follow-up and verification of the information, if required. In relation to the questions in Module 3 concerning the International Code of Marketing of Breast-milk Substitutes, respondents were strongly encouraged to ask their legal department, other relevant unit of the ministry of health, or office within the government structure to provide the responses, in collaboration with other relevant departments or offices (e.g. nutrition, maternal and child health, and family health).

Data were cleaned and interpreted in several steps. For example, documents not clearly identified as a policy, strategy, action plan or regulation were excluded. Thus, implementation protocols and survey reports were not included. Each response was carefully reviewed, and clarifications and verification of information were sought from respondents, to obtain missing information. Countries that had been unable to provide a response during the survey period were contacted to determine whether they could provide information before the data analyses were completed.

Data were compiled in an ACCESS database and analysed with ACCESS, SPSS and Excel. Data obtained from this Review were also incorporated into the WHO Global Database on National Nutrition Policies and Programmes, which was further developed and elaborated as GINA, officially launched in November 2012.

Other existing relevant qualitative and quantitative data were also reviewed, to complement the information obtained from each country through the current Review. For example, the in-depth country assessments undertaken in 18 countries with a high burden of stunting¹⁴ between 2008 and 2012 (as part of the project on the *Landscape analysis on countries' readiness to accelerate action in nutrition*) provided information about the constraints to effective implementation of nutrition policies and programmes (Nishida, Shrimpton & Darnton-Hill, 2009). WHO regional and country offices provided the country case studies presented in this report.

Data on implementation of the International Code of Marketing of Breast-milk Substitutes and subsequent World Health Assembly resolutions were drawn from a recent report (WHO, 2013c), which is largely based on information received from the countries that responded to Module 3 of the questionnaire plus some further updates undertaken after the data collection period of the Review. Data on nutrition policy and coordination mechanisms in Europe were drawn from the WHO European database on nutrition, obesity and physical activity, and other references (Elmadfa, 2009; WHO, 2010c).

Section 3.2 provides analyses of overall nutrition policy environments based on the responses received from 123 countries. Section 3.3 presents the results of an analysis of data from a subset of 54 countries that completed all seven modules of the questionnaire. This analysis focused on four nutrition challenges: stunting, maternal undernutrition, obesity and the double burden of malnutrition. It also compared differences in policies, coordination, stakeholders, interventions and surveillance in countries with high and low burden of challenges, and focused particularly on the overall implementation of interventions to improve maternal, infant and young child nutrition. Implementation was considered "high" if more than half the interventions were reported as having been implemented at national scale, and "low" if half or fewer were either not implemented or not scaled up. Another subset analysis (of 27 countries with high stunting rates out of the 54 countries) examined policy differences between countries whose maternal and child undernutrition programmes had been scaled up, and those whose programmes were not scaled up.

¹⁴ Burkina Faso, Comoros, Côte d'Ivoire, Egypt, Ethiopia, Ghana, Guatemala, Guinea, Indonesia, Madagascar, Mali, Mozambique, Namibia, Peru, South Africa, Sri Lanka, Timor-Leste and the United Republic of Tanzania

3.2. Respondents

By November 2010, a total of 123 countries –119 WHO Member States and 4 territories¹⁵ had responded to one or more modules, and 54 countries had responded to all seven modules. Although 119 (62%) of the then 193 WHO Member States¹⁶ responded, the response rate was highest in the European Region (83%) and the South-East Asia Region (73%) (Table 1). In total, the responses covered more than 81% of the world's population. In the analysis, the responses of territories were treated as country responses within their respective regions, because all had specific nutrition policies or programmes, and considered the questionnaire relevant to their situation. Unless otherwise indicated, all the analyses were of the *proportion of responding countries* by region, not the *proportion of all countries in the region*.

Table 1. Numbers of countries that responded to the Global Nutrition Policy Review questionnaire by module and by WHO region

Region	AFR	AMR	EMR	EUR	SEAR	WPR	Total
Total responses	22	24	8	44	8	17	123
Member States	22	21	8	44	8	16	119
Response rate by region	48%	60%	38%	83%	73%	59%	62%
Territories		3				1	4
Responses by module							
Module 1	20	23	8	43	8	17	119
Module 2	22	24	8	25	8	17	104
Module 3	22	24	5	24	8	16	99
Module 4	16	21	8	19	8	11	83
Module 5	18	23	8	16	7	14	86
Module 6	17	23	8	38	7	12	105
Module 7	15	21	7	8	7	8	66

AFR, African Region; AMR, Region of the Americas; EMR, Eastern Mediterranean Region; EUR, European Region; SEAR, South-East Asia Region; WPR, Western Pacific Region

¹⁵ The respondents were: 22 of 46 Member States at the time in the African Region (Burundi, Cameroon, Congo, Côte d'Ivoire, Ethiopia, Ghana, Guinea-Bissau, Kenya, Liberia, Madagascar, Mali, Mauritania, Mauritius, Mozambique, Niger, Nigeria, Seychelles, South Africa, Togo, Uganda, Zambia and Zimbabwe); 21 of 35 Member States in the Region of the Americas (Antigua and Barbuda, Argentina, Barbados, Brazil, Chile, Colombia, Costa Rica, Dominica, Ecuador, El Salvador, Grenada, Guatemala, Honduras, Mexico, Peru, Plurinational State of Bolivia, Saint Lucia, Saint Vincent and the Grenadines, Suriname, United States of America and Uruguay) and 3 territories (Anguilla, British Virgin Islands and Montserrat); 8 of 21 Member States in the Eastern Mediterranean Region (Bahrain, Iraq, Islamic Republic of Iran, Kuwait, Lebanon, Oman, Sudan and Tunisia); 44 of 53 Member States in the European Region (Albania, Armenia, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Georgia, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, Norway, Poland, Portugal, Republic of Moldova, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, The former Yugoslav Republic of Macedonia, Turkey, Turkmenistan, Ukraine, United Kingdom and Northern Ireland and Uzbekistan); 8 of 11 Member States in the South-East Asia Region (Bangladesh, India, Maldives, Myanmar, Nepal, Sri Lanka, Thailand and Timor-Leste); and 16 of 27 Member States in the Western Pacific Region (Brunei Darussalam, Cambodia, China, Fiji, Japan, Kiribati, Lao People's Democratic Republic, Malaysia, Mongolia, Papua New Guinea, Philippines, Republic of Korea, Singapore, Solomon Islands, Tuvalu and Viet Nam) and 1 territory (French Polynesia).

¹⁶ There are now 194 WHO Member States, since the Republic of South Sudan officially became a Member State in late September 2011.

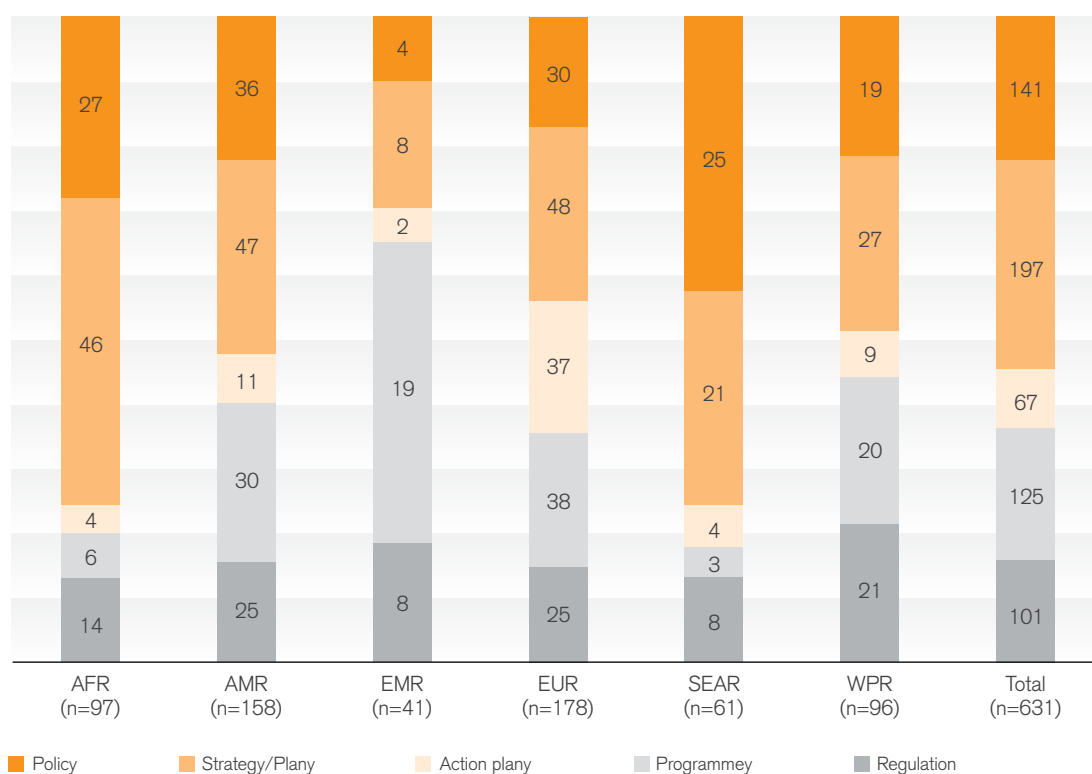
The respondents were affiliated with the government in 80–100% of cases. For Modules 1 and 6, the responses of countries in the European Region were provided by the WHO Regional Office for Europe, which had recently conducted a policy survey on nutrition, obesity and physical activity for its Member States, and had validated the information with respective countries to obtain any missing data. The other respondents included UN agencies – notably the country offices of WHO, UNICEF and the World Food Programme – when they had been designated by the relevant government to provide information.

3.3. Analysis of policy environment and governance

3.3.1 National policy and institutional environment

All but one¹⁷ of the countries that responded indicated that they had policies, strategies, action plans, programmes or regulations that were relevant to nutrition (Figure 18); a total of 631 such documents were reported from the responding countries.¹⁸ The proportion of officially adopted policy documents by region varied from 56% in the Region of the Americas to 81% in the Eastern Mediterranean Region (Figure 19).

Figure 18. Distribution and numbers of different types of policy documents reported, by WHO region

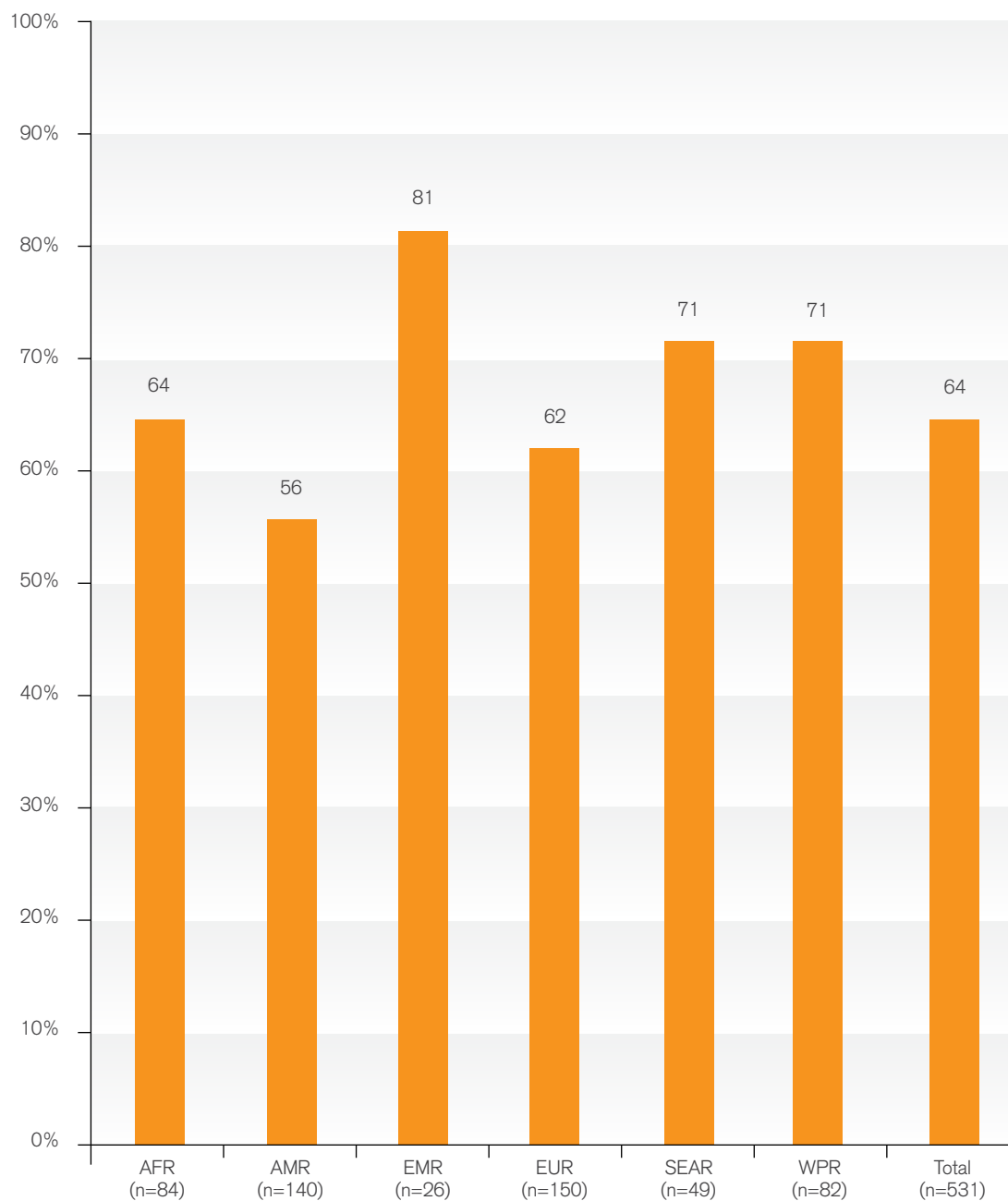


AFR, African Region; AMR, Region of the Americas; EMR, Eastern Mediterranean Region; EUR, European Region; SEAR, South-East Asia Region; WPR, Western Pacific Region

¹⁷ One country responded only to Modules 2 and 3, which did not elicit named policies.

¹⁸ A total of 282 reported documents were excluded because they were not policy documents (e.g. reports or dietary guidelines) (95), were duplications (69) or could not be identified as a policy document from the title or an Internet search, and an electronic copy had not been received (118).

Figure 19. Proportion of policy documents officially adopted, by WHO region



AFR, African Region; AMR, Region of the Americas; EMR, Eastern Mediterranean Region; EUR, European Region; SEAR, South-East Asia Region; WPR, Western Pacific Region

Based on pooled data from modules 1 and 7

3.3.2 Policy content

Policies covered various forms of nutrition problems, including undernutrition, obesity and diet-related NCDs, as well as some programmatic issues related to infant and young child feeding, vitamin and mineral supplementation, and food fortification. They also covered some underlying factors, such as food security, conditional cash transfers, infection, trade, gender and focus on vulnerable groups (Figure 20).

Figure 20. Proportions of countries reporting the content of policies, by WHO region



AFR, African Region;
 AMR, Region of the Americas;
 EMR, Eastern Mediterranean Region;
 EUR, European Region;
 SEAR, South-East Asia Region;
 WPR, Western Pacific Region

AFR (n=22)	AMR (n=24)	EMR (n=8)	EUR (n=44)	SEAR (n=8)	WPR (n=17)	Total (n=123)
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Vitamins and minerals

Vitamin A supplementation for children

Vitamin A supplementation for women

Iron and folic acid supplementation for children

Iron and folic acid supplementation for women

Zinc supplementation for children

Food fortification

Underlying causes and indirect actions

Food security

Food aid

Conditional cash transfers

Nutrition and infection*

Trade

Gender

Vulnerable groups

The topics most commonly covered in the national policies were obesity and diet-related NCDs, followed by infant and young child feeding, undernutrition, and vitamin and mineral malnutrition. Policies that covered all these four areas were reported by 46% of the responding countries.

Policies for obesity and diet-related NCDs were most often reported in the Western Pacific Region (100%), the Region of the Americas (92%) and the European Region (91%). More countries focused on obesity than on diet-related NCDs.

Infant and young child feeding was addressed in the policies of all responding countries in the African Region, the Region of the Americas, the Eastern Mediterranean Region and the South-East Asia Region. Breastfeeding was more often addressed in these policies than complementary feeding. Furthermore, many of the reported documents on infant and young child feeding were national codes of marketing of breast-milk substitutes. The lower response rate in the European Region might be due to the use of a slightly different questionnaire focusing on nutrition, obesity and physical activity.

Undernutrition was most often covered in policy documents in the African Region (90%) and the Region of the Americas (92%), and least often in the European Region (27%). Underweight and low birth weight were the most frequently mentioned topics in undernutrition.

Half the countries (50%) had policies that included iron and folic acid supplementation for women, whereas only some countries (22%) included zinc supplementation for children. Countries in the African Region and the South-East Asia Region most often mentioned vitamin and mineral supplementation programmes. The very low response rate from the European Region may indicate underreporting of policies and programmes addressing vitamin and mineral malnutrition.

Of the indirect or underlying factors in nutrition, food security was most often mentioned (60%), followed by a focus on vulnerable groups (50%) and infectious disease (46%). There was wide variation among the regions in whether these issues were addressed in policy documents relevant to nutrition. For example, most countries in the African Region, the Region of the Americas, the South-East Asia Region and the Western Pacific Region had policies that addressed food security or vulnerable groups.

Box 1 outlines existing regional nutrition strategies; Boxes 2 and 3 provide examples of high-level commitment to nutrition in a regional alliance in the Americas and a regional summit in the Pacific; and Box 4 summarizes the development and implementation of Slovenia's national food and nutrition policy.



Box 1. Regional strategies and plans of action on nutrition

Most regions now have regional plans of action on nutrition, including strategies to address regional challenges, and a framework or blueprint to help countries to identify, design, prioritize and adopt interventions. All the regional strategies emphasize the importance of multisectoral policies and coordination.

The first region to develop a nutrition strategy was the African Region, which presented its Regional Nutrition Strategy 1993–2003 (OAU, 1993) at the International Conference of Nutrition (ICN) in 1992. The strategy was used by most Member States in Africa to draft their national plans of action on nutrition shortly after the ICN; however, there was no significant fall in malnutrition rates despite the efforts made by the countries. The second and current version – the African Union Regional Nutrition Strategy 2005–2015 (African Union, 2005) – takes into account recent global initiatives. It also takes into account the main reasons for failure to implement the previous strategy, including lack of resources, dependence on donors, lack of a multisectoral approach, inadequate technical capacity, compromised community capacity and an imbalance between curative and preventive strategies. The new strategy urges countries to prepare or strengthen their nutrition policies, establish coordination mechanisms and institutional frameworks, facilitate community participation, create an enabling environment, allocate reasonable resources for nutrition programming, establish national surveillance systems for nutrition, and establish capacity development and strategies to retain nutrition professionals. Other regional nutrition strategies in Africa include the Pan African Nutrition Initiative of 2008. Prepared under the umbrella of the New Partnership for African Development, this is a robust tool for nutrition in the Comprehensive Africa Agriculture Development Programme. The Initiative recognizes that, although there may be general awareness of nutritional programmes, they are not integrated into development planning and investment. It therefore proposes a “nutrition lens” for analysis, planning and programme delivery.

The European Region prepared the WHO European Action Plan for Food and Nutrition Policy 2000–2005 (WHO Regional Office for Europe, 2001) and another for 2007–2012 (WHO Regional Office for Europe, 2007). A third version is currently under preparation. At the time when the second action plan was published, one third of Member States in the region had prepared policies on food and nutrition. Since then, a recent survey of the 27 European Union (EU) member states showed that most had food and nutrition action plans, obesity policies or public health strategies for obesity risk factors (WHO, 2010c). However, the survey also showed that nutrition and food-safety goals were often not met, because of a lack of resources, expertise, political commitment and intersectoral coordination. The second action plan addresses the main public health challenges in the areas of nutrition, food safety and food security, diet-related NCDs (particularly obesity), vitamin and mineral deficiencies, and foodborne diseases. It incorporates international agreements and strategies that were agreed after adoption of the first action plan. The second plan recommends a stepwise approach for implementation in countries, which should:

- establish or strengthen multisectoral government mechanism on food and nutrition;
- revise current action plans and sectoral policies as necessary;
- prioritize implementation of specific actions;
- operationalize the strategies in the action plan through legislative measures and policies;
- establish dialogue and partnerships, allocate resources, and monitor implementation and accountability.

In the Region of the Americas, a main objective of the Regional Strategy on Nutrition in Health and Development 2006–2015 (PAHO, 2006) is to promote integration of nutrition into social and economic policies and plans. In this region, which has problems of both undernutrition and obesity, there is great inequity in nutrition outcomes, owing to factors in non-health

sectors or linked to globalization. The regional strategy therefore emphasizes the inclusion of nutrition in sectoral policies, in order to improve access to food, food safety, education and information on nutrition and physical activity, and to reduce inequality in access to health services. One target of the more recent Strategy and Plan of Action for the Reduction of Chronic Malnutrition 2010–2015 (PAHO, 2010) is to “double the number of countries that have approved policies, plans, and interministerial programs, with resources allocated at the national, municipal, and local levels, to address the determinants of nutrition and health, emphasizing: education for girls and women; food security; household income and purchasing power; adolescent, female, and mother and child health; and access to healthy housing (air quality, clean water, basic sanitation, and hygiene).” The multisectoral approach with inclusion of social determinants is also seen in the Pan American Alliance for Nutrition and Development constituted by the regional directors of 15 UN agencies (see Box 3).

The Eastern Mediterranean Regional Strategy on Nutrition 2010–2019 (WHO Regional Office for the Eastern Mediterranean, 2010) was the first nutrition strategy in the region, which is characterized by a diversity of nutrition challenges. The region has countries in both advanced and early nutrition transition, countries with significant undernutrition and countries with complex emergencies. Although many countries in the region have nutrition policies or action plans, most have not been fully implemented, and do not have a clear strategic path for implementation. The regional strategy identifies a number of challenges, such as:

- the absence of political commitment, a policy framework and institutional capacity;
- chronic conflicts and natural disasters;
- disproportionate allocation of health budgets to curative strategies;
- abandonment of traditional diets in favour of “fast food”;
- lack of nutrition expertise.

One target of the strategy is for all countries to have a national nutrition strategy and plan of action.

The South-East Asia Regional Nutrition Strategy 2011–2015 (WHO Regional Office for South-East Asia, 2012) is intended to assist Member States in designing a multisectoral approach, and in identifying and prioritizing activities for nutrition in all relevant sectors. The region is not only home to 70% of malnourished people in the world, but also faces other challenges, including vitamin and mineral deficiencies, low birth weight, and rapid increases in the numbers of cases of overweight and diet-related NCDs among adults. The goal of the strategy is “by 2015 all Member States of the Region will have established comprehensive national nutrition policies and plans of action in place to ensure optimum nutrition for their populations. These will be nested in the national development plans so that there is multisectoral involvement.”

In the Western Pacific Region, “Towards a Food Secure Pacific. Framework for Action on Food Security in the Pacific” was adopted at the Pacific Food Summit in 2010 (Pacific Food Summit, 2010; Box 2). This document provides a regional and national policy guide for determining relevant, specific activities for the Pacific islands, and for integrating food security into national and regional agendas. The framework is “a living document” and therefore has no timeframe, but it will be reviewed after 5 years. Its guiding principles are committing to a coordinated multisectoral approach, recognizing food security as a human right and as a critical development issue, adopting sustainable solutions that build self-reliance and empowerment, and respecting and valuing indigenous systems and cultures.



Box 2.

We are what we eat: communication for political consensus and improved food security in the Pacific

At the inaugural Pacific Food Summit in Port Vila, Vanuatu, 21–23 April 2010, 170 high-level representatives from 21 Pacific countries – representing governments, the private sector, NGOs, faith-based groups and development agencies – endorsed the region’s ambitious first multisectoral Framework for Action for food security (Pacific Food Summit, 2010). The summit was first proposed at the 7th Pacific Health Ministers meeting in 2007. Other regional ministerial meetings subsequently endorsed the concept, and six countries held national food summits.

The endorsement of the framework is significant, because Pacific island countries and territories are particularly prone to food insecurity. Global influences are leading to increasing food prices, exacerbating an already heavy reliance on imported and processed foods; this situation is creating uncertainty in the food supply. Pacific populations are thus at greater risk for malnutrition, foodborne diseases and NCDs. More than 50% of adults in most Pacific countries are overweight; diabetes rates are over 40% in some countries; and up to 80% of adults in the Pacific consume fewer than the recommended five or more servings of fruit and vegetables each day.

The framework is comprehensive and is based on principles and ideas for action from previous meetings that were shared, discussed and endorsed by all sectors. The participatory approach engendered at the summit demonstrated to delegates the considerable roles in food security of some less traditional sectors – transport, energy, information and communication technology, and education – and a notable theme of the framework is to address the cross-cutting function and enabling roles of these sectors.

For more information on the Food Secure Pacific initiative and the Pacific Food Summit, see <http://www.foodsecurepacific.org/>.



Box 3.

Pan American Alliance for Nutrition and Development

The purpose of the Pan American Alliance for Nutrition and Development is to implement comprehensive and sustainable intersectoral programmes, coordinated within the framework of an intercultural, rights-based, gender-sensitive approach to accelerating achievement of the MDGs. The initiative recognizes that malnutrition and health result from interactions among many factors, some originating in the individual, but many others linked to the social and economic conditions in which individuals live. The inclusion of social determinants represents recognition of these interactions, and the importance of the underlying determinants of health.

Traditional approaches to the problem of malnutrition have targeted individuals in vertical food or health programmes, with little or no attention to the social determinants. Such determinants include food security, the physical and social environment, education, access to information, maternal health, family planning, access to health services, the exercise of human rights and fundamental freedoms, household income and working conditions. Rectifying this traditional but reductionist approach will require simultaneous, coordinated, complementary technical cooperation with all UN agencies and other stakeholders committed to the development and well-being of the population.

The alliance facilitates coordination of international cooperation and resources to promote, agree on, implement, monitor and evaluate interventions that are effective, evidence informed, multicultural and interprogramme, and that address the multiple causes of malnutrition.

The conceptual aims of the alliance are to:

- design approaches to modifying determinants, rather than averting their impact;
- target activities to individuals and to highly vulnerable geodemographic areas;
- replace the unisectoral approach with a multisectoral one based on social determinants and inequalities;
- build an adequate institutional framework for coordinating efforts at local, national, transnational and regional levels;
- identify sustainable, integrated interventions based on evidence from various sectors, and design, monitor and evaluate them in a uniform rather than a fragmented way;
- identify geodemographic scenarios and opportunities for implementing the interventions.

Progress has been made since official approval of the alliance in July 2008:

- The rationale for the alliance has been communicated to the team of the UN Regional Director, and the conceptual aims have been endorsed.
- Specific evidence-informed instruments, interventions and good practices for meeting the alliance's objectives have been identified and debated.
- The main features of the interventions to be prepared and encouraged in an approach based on the causality of social determinants have been outlined.
- The main criteria for identifying opportunities for national and transnational interventions have been discussed and agreed upon.
- The countries in the region with the most critical problems have been identified: Bolivia, El Salvador, Guatemala, Nicaragua, Paraguay and Peru.



Box 4. **Developments in food and nutrition policy in Slovenia**

The first exclusively national food and nutrition policy was prepared for the period 2005–2010. It has three pillars: food supply, food security and nutrition. This policy followed the Slovenian National Action Plan 2000–2004, which included public health elements and a comprehensive action plan on nutrition, with basic directions for food supply, food safety and nutrition. The plan targeted both the general population and specific vulnerable groups.

The preparation of the national food and nutrition policy was an inclusive process involving multiple sectors and international forums, such as the WHO European Member States Action Networks. All relevant stakeholders participated in numerous debates during preparation of the plan by the Food and Nutrition Council. Slovenia was at the time acceding to the EU, with obligations to harmonize its policies with EU legislation, such as the Common Agricultural Policy (CAP). The government conducted a “health impact assessment” of food and agriculture policies, and of their potential effects on accession to the EU; it then issued recommendations, which were considered during preparation of the national food and nutrition policy. The health impact assessment initiated new communication between ministries dealing with food and nutrition. Different stakeholders viewed the assessment of

food and agriculture policies differently. For example, medical experts believed that broader socioeconomic determinants of health had been included in the health impact assessment, whereas agricultural experts considered that the assessment was based on a relatively narrow medical concept. Lack of multidisciplinary competence was identified as an obstacle. Thus, a particularly interesting outcome of the planning was a better understanding of the positions and arguments of experts in health and agriculture, and identification of common interests.

The other sector that was active in preparing and implementing the National Food and Nutrition Policy 2005–2010 was education, a sector with which the health sector has cooperated well for decades. Nutrition topics are now systematically included in school curricula and in home economics, and health topics associated with nutrition are included in cross-curricular activities in primary schools. A school nutrition programme starting in kindergarten was expanded to secondary schools in 2008; it enables all children aged 1–18 years to eat up to four cooked meals a day in the public education system. Up to one third of meals are distributed free, and the rest are subsidized by the state. School meals meet the guidelines for school nutrition that were adopted by the Slovenian Ministry of Health in 2005. The CAP Fruit School Scheme was implemented in Slovenia in school year 2009–2010 in 75% of participating primary schools. The scheme was one of the most successful elements of the “health in all policies” approach, and involved the agriculture, education and health sectors working together, with harmonized goals. In addition, standards for the quality of food procurements were set in 2007, and a manual of menus was prepared in 2008. Numerous nutritional guidelines and manuals for implementation have been prepared for other subpopulations, such as hospital patients, the active working population and students. Health-education activities encourage individual healthy choices in nutrition, starting with future parents. Cooperation between schools and primary health centres is exemplary in some regions, and best practices will be transferred to the national level.

Cooperation with other sectors has been less close. The Ministry of Health is pursuing closer relations with the finance sector (differential taxation of various foods), the culture sector (to reduce marketing pressure on children) and the social affairs sector (nutrition for less well-off and other vulnerable groups). One of the most challenging future activities is development of harmonized activities with the private sector, including public health. Reformulation of food products, triggered and supported by international activities, is a primary challenge at national level. NGOs have only recently begun to be active in Slovenia, but have been valuable in creating opportunities for nutrition, health and related fields such as tobacco. Recently, such organizations have received support for activities in nutrition and prevention of obesity.

Participation in international activities and sharing best practice helped Slovenia to become more active in nutrition. For example, the country participated in action networks for obesity surveillance, salt intake, reducing marketing pressure on children, and nutrition for lower socioeconomic groups. These networks were set up by the WHO Regional Office for Europe to facilitate implementation of the second European Action Plan for Food and Nutrition. Participation in these networks allowed Slovenia to follow strategic developments, and to elaborate national nutrition tasks and activities more competently. Similar stimulus was provided by collaboration with the WHO Venice Office for investment for health. Through this collaboration, one Slovene region, Pomurje, designed a model for identifying, designing, implementing and supporting best practices in socioeconomic and environmental development to achieve better health and quality of life. This model highlighted the developmental potential of health and of tackling of inequalities through activation of communities. Participation in EU activities and institutions also created momentum for common work and capacity building, specifically within the High Level Group on Nutrition and Physical Activity and EuroHealthNet, in which inequalities were highlighted. In the future, Slovenia – a small country with relatively low capacity – will explore and use such cooperation, and will extend it to other fields, including research. The World Food Days were also used to highlight the work done during the policy period, and to launch new ideas and concepts for the next policy period.

Preparation of the National Food and Nutrition Policy 2005–2010 started with intersectoral consultation, which included lively discussions on topics such as:

- the results of the health impact assessment;
- how to target the local food supply and the regional development strategy;
- definition of indicators to monitor progress;
- opportunities for cooperation with the agriculture, education and health sectors to improve school nutrition;
- the role of agriculture in climate change.

Much has been done in the field of nutrition and food supply, and links with food-safety activities are well developed. Nutrition policy is implemented with physical activity policy at the Ministry of Health, providing a broader understanding of the common roots of the obesity epidemic. In turn, this is creating a basis for action in curbing obesity trends in Slovenia through a range of activities. The National Food and Nutrition Policy 2005 – 2010 was evaluated, and the results used to design the National Food and Nutrition Policy 2012–2022, which is both implementation oriented and action oriented, emphasizing the importance of *structural influences* on choices that affect nutrition rather than *individual responsibility*. Social determinants of health and health inequalities were also better defined and more actively addressed in the current plan.

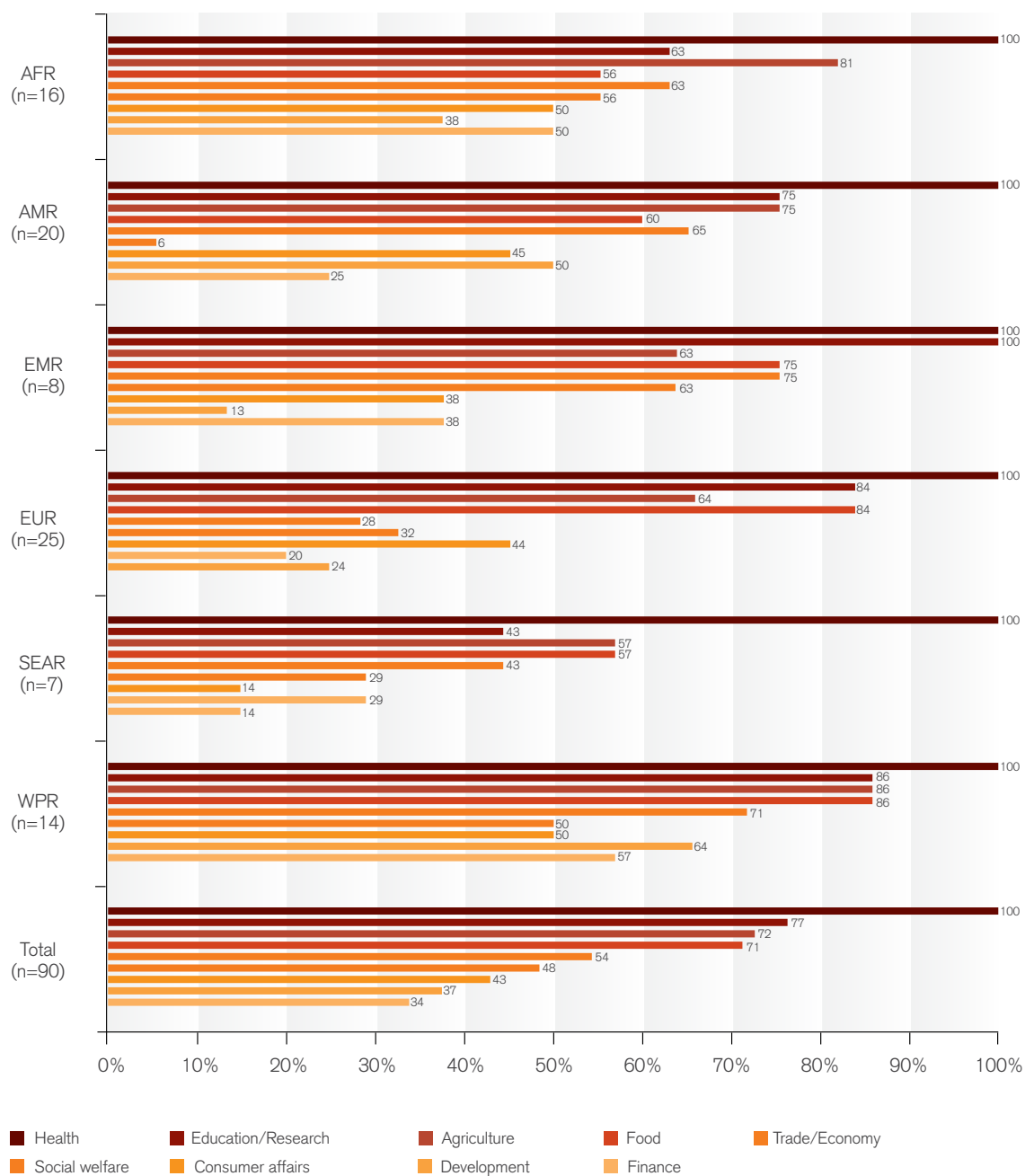
3.3.3 Policy coordination

Of the 119 countries that responded to Module 1 of the questionnaire, 90 indicated that they have coordination mechanisms in their countries (230 mechanisms in total), in the form of committees, councils, working groups or task forces.¹⁹ Health was the sector most often mentioned as being involved in the coordination of nutrition policies, followed by education or research, and agriculture and food. Although the trade sector was mentioned as being involved in nutrition coordination by at least half of respondents in all regions (except in the European Region and the South-East Asia Region), the finance sector was most often involved in the countries in the African Region and the Western Pacific Region. The social welfare sector was involved in nutrition coordination in less than one third of countries in the European Region and the South-East Asia Region (Figure 21).

NGOs, civil society and UN agencies were most often cited as partners in nutrition coordination, especially in the African Region, the South-East Asia Region, the Eastern Mediterranean Region and the Western Pacific Region. Partner involvement was lowest in the Region of the Americas and the European Region, but private sector involvement was common among countries in the European Region (Figure 22).

¹⁹ Single institutions (e.g. ministry departments, associations, organizations and institutes) were excluded, as were laws and specific programmes.

Figure 21. Proportions of countries reporting involvement of different government sectors in coordinating nutrition activities, by WHO region

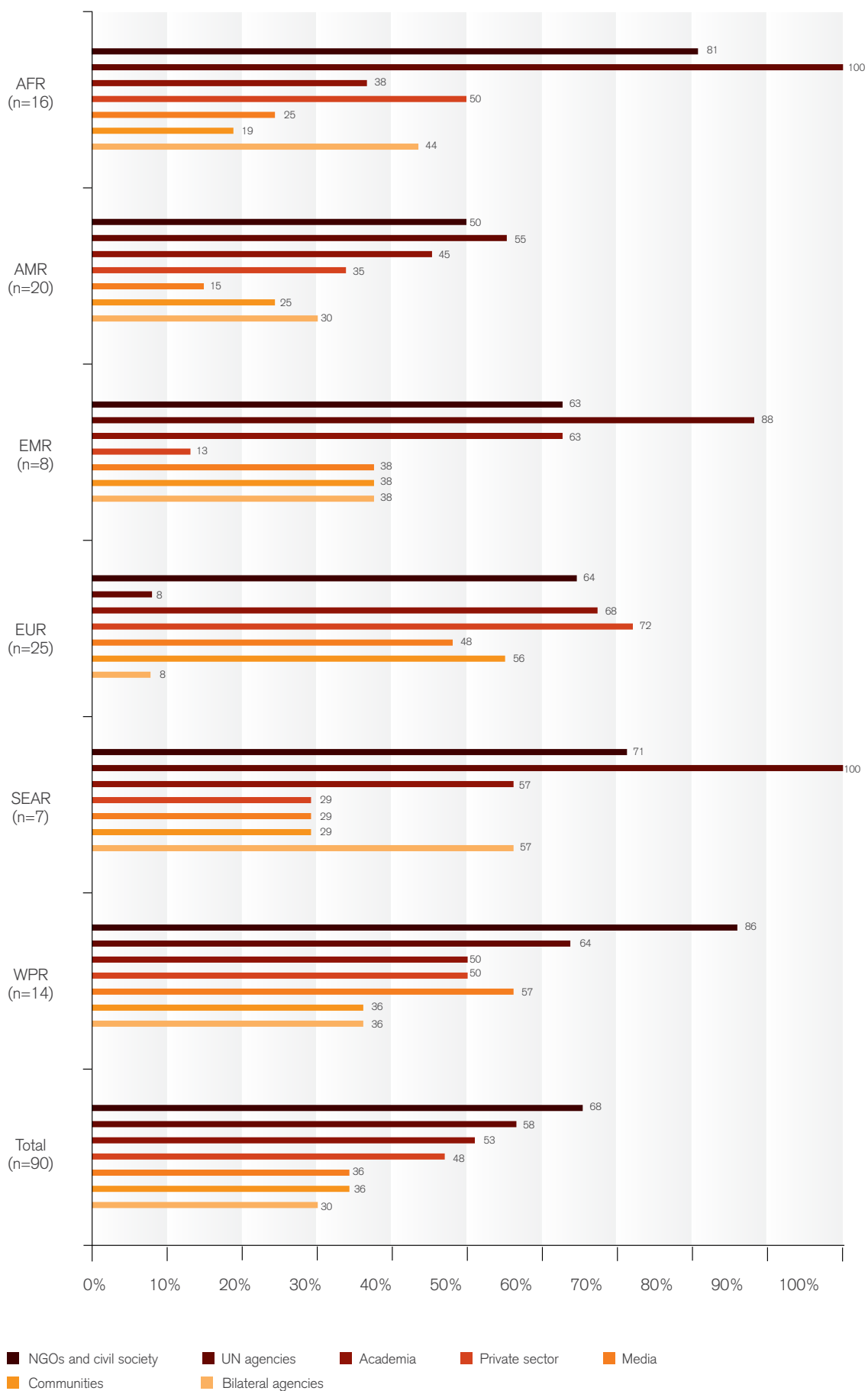


AFR, African Region; AMR, Region of the Americas; EMR, Eastern Mediterranean Region; EUR, European Region; SEAR, South-East Asia Region; WPR, Western Pacific Region

Coordination mechanisms for nutrition were located in the ministry of health in most countries, and in the president's or prime minister's office most often in countries in the South-East Asia Region (Figure 23).

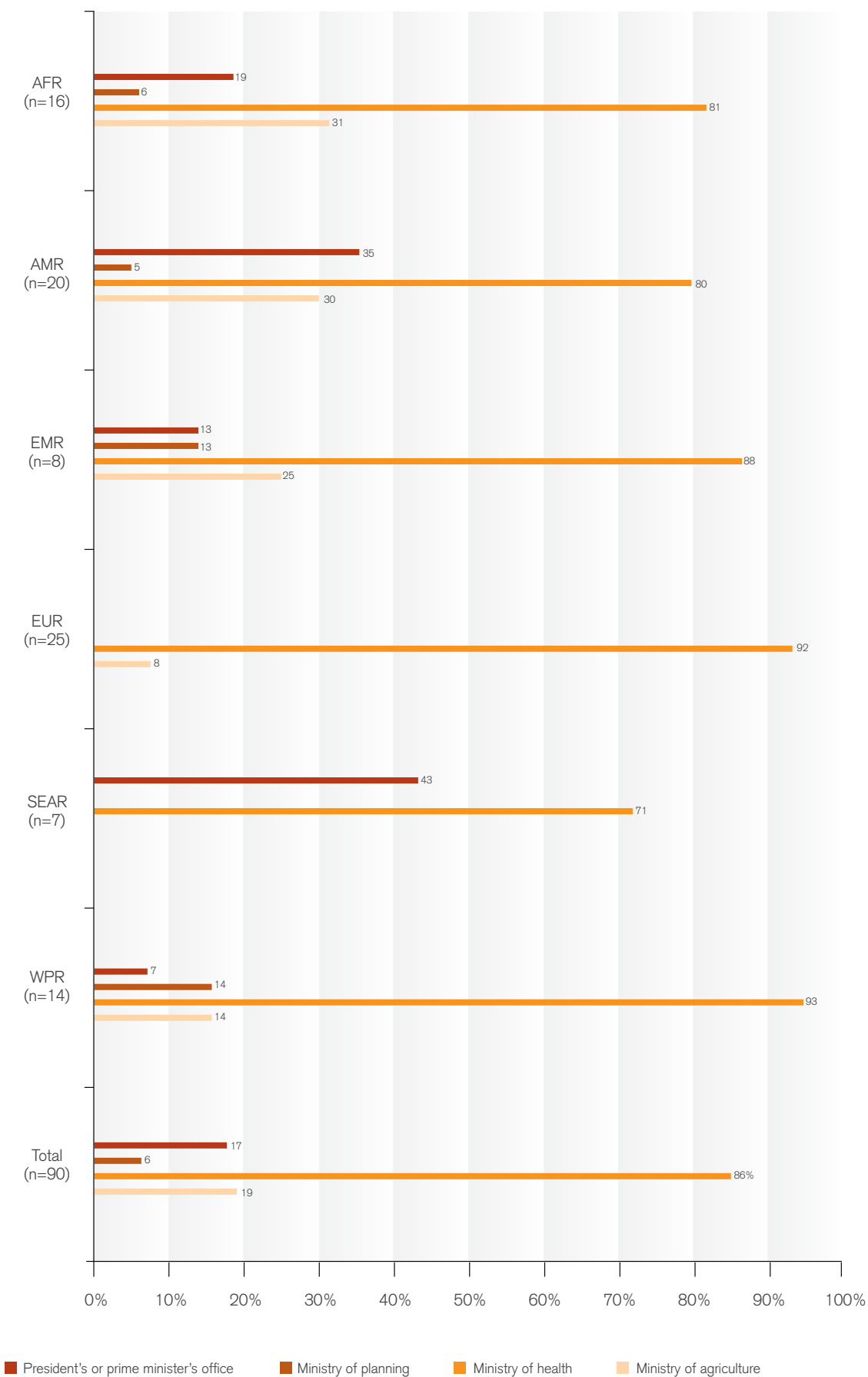
More than half the countries (58%) reported having a national breastfeeding or infant feeding coordinator, particularly in the Eastern Mediterranean Region (88%) and least often in the Region of the Americas (46%) and the European Region (44%).

Figure 22. Proportions of countries reporting involvement of nongovernment partners in coordinating nutrition activities, by WHO region



AFR, African Region; AMR, Region of the Americas; EMR, Eastern Mediterranean Region; EUR, European Region; SEAR, South-East Asia Region; WPR, Western Pacific Region

Figure 23. Proportions of countries reporting location of nutrition coordination mechanisms, by WHO region



AFR, African Region; AMR, Region of the Americas; EMR, Eastern Mediterranean Region; EUR, European Region; SEAR, South-East Asia Region; WPR, Western Pacific Region

3.3.4 Nutrition in national development plans

Regions varied markedly with regard to mention of national development plans in their policy documents for nutrition, ranging from 50% in the South-East Asia Region down to 9% in the European Region (Figure 24). Box 5 summarizes the multisectoral approach adopted to reduce stunting in Brazil, where food and nutrition security are embedded in national law and multisectoral plans, and are therefore coordinated by the Office of the President.



Box 5. Reductions in stunting and in inequalities in stunting in Brazil

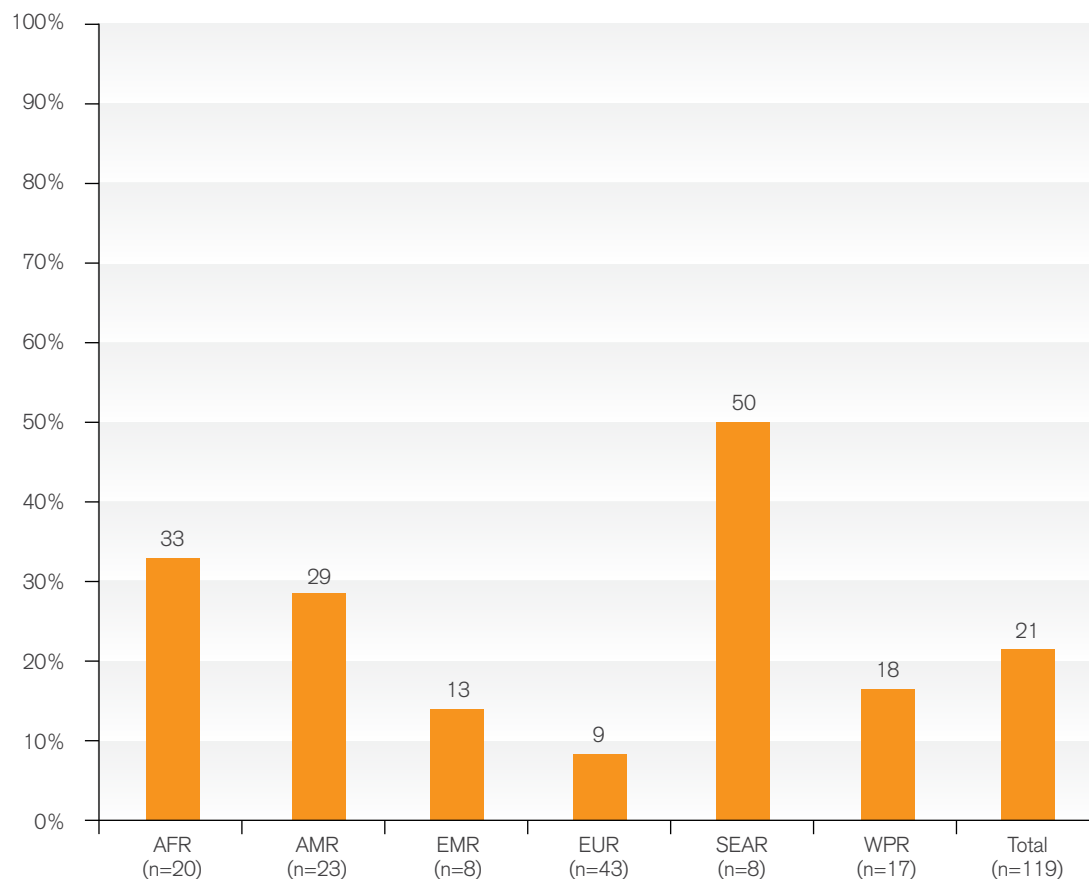
Remarkable reductions in child undernutrition can be achieved through political leadership and investment, as shown in the spectacular decline in child stunting in Brazil. Over the 18-year period between 1989 and 2007, the prevalence of stunting fell from 20% to 7% (Monteiro et al., 2009a). Two-thirds of the reduction (from 13% to 7% between 1996 and 2007) was explained by four factors: 25.7% to more maternal schooling, 21.7% to increased purchasing power of families, 11.6% to expansion of health care and 4.3% to improvements in sanitation (Monteiro et al., 2009b). Importantly, the reductions were greatest in the poorest areas of Brazil, thus reducing disparities in stunting, and its consequences for individual and national development. For example, the prevalence of stunting fell from 59% to 11.2% in the poorest quintile of the population, and from 12.1% to 3.3% in the wealthiest quintile.

Brazil achieved these results by addressing the underlying socioeconomic determinants of stunting, rather than focusing on interventions to improve diet and reduce illness (which can lower food intake and increase nutrient needs because of fever). Although interventions against the most prevalent underlying determinant – poverty – are sometimes seen as a “long route”, the achievement of the Government of Brazil within a relatively short time should lead to rethinking of this assumption.

How did Brazil achieve this remarkable decline in stunting and thus reduce long-standing inequities, particularly in the most impoverished region of the country? The Minister of Social Development and Fight against Hunger attributed the success to the following policies and strategies (Ananias, 2008):

- the “Zero Hunger Strategy”, which coordinates programmes focusing on the poorest of the poor in 11 ministries, and also works in partnership with civil society;
- a Federal law on food and nutrition security, introduced in 2006, that ensures the human right to adequate food;
- the Food and Nutrition Security Policy, which is monitored by the National Council on Food and Nutrition Security (comprising 18 state ministers and 36 representatives of civil society), which reports directly to the President of Brazil; the policy includes strategies for strengthening family agriculture, local initiatives for food banks and community kitchens, and strategies to improve school meals and promote healthy-eating habits;
- the *Bolsa Familia* programme, which gives conditional cash transfers to 11 million poor families; to participate in the programme, families must comply with basic health monitoring (prenatal care, vaccination and nutrition of young children) and keep their children in school; the goal is to break the intergenerational cycle of poverty;
- other initiatives, such as the Family Health Strategy (providing high-quality health care to over half the population through primary health care) as well as the food and nutrition surveillance system (monitoring the nutritional status of the population and its determinants).

Figure 24. Proportions of countries reporting development plans among their nutrition policy documents, by WHO region

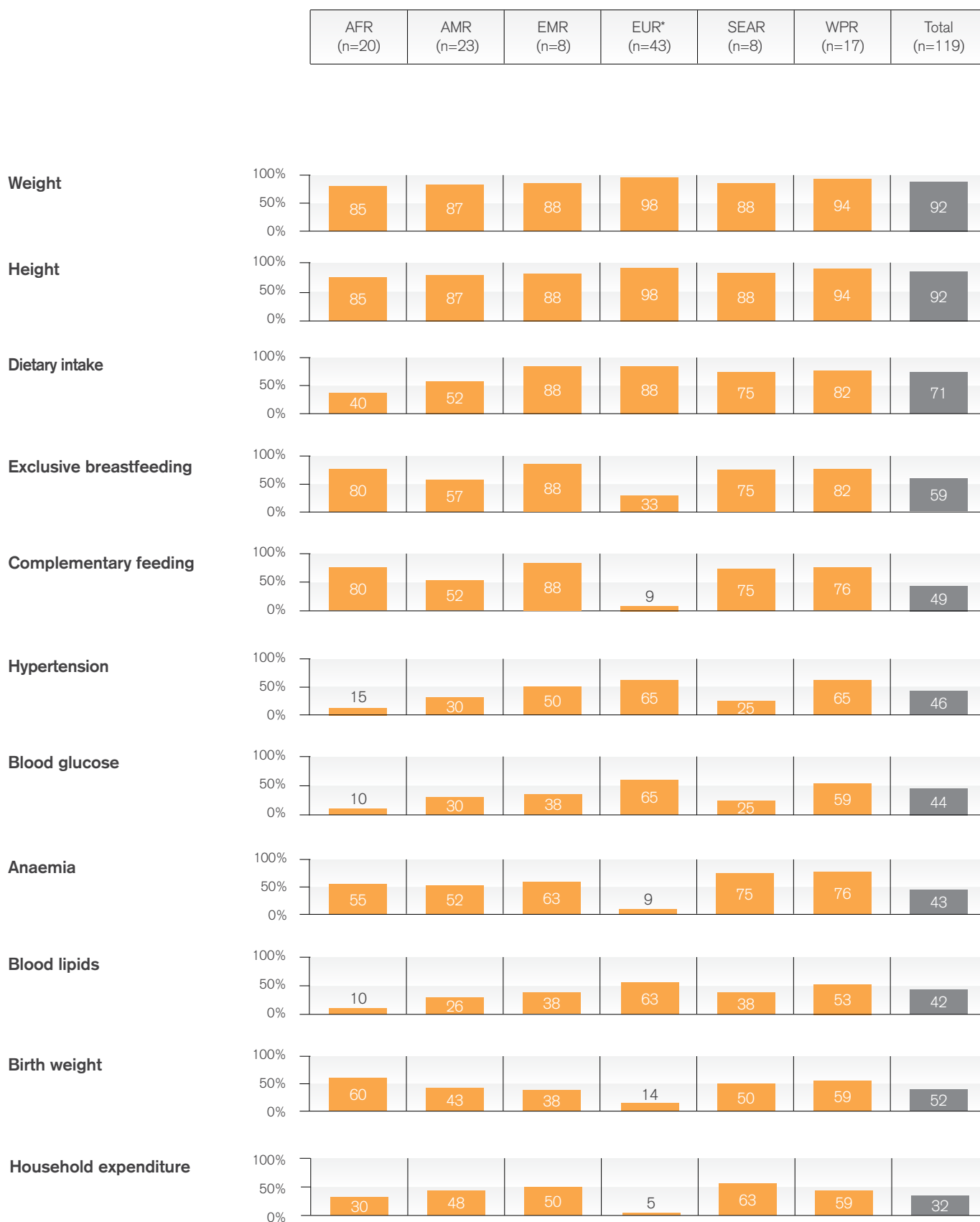


AFR, African Region; AMR, Region of the Americas; EMR, Eastern Mediterranean Region; EUR, European Region; SEAR, South-East Asia Region; WPR, Western Pacific Region

3.3.5 Nutrition surveillance

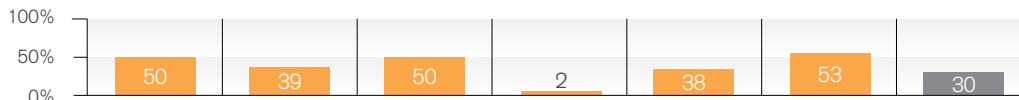
Most countries reported that national nutrition surveys had been conducted. The Review considered 426 surveys in 109 of the 119 countries that responded to Module 1 (Figure 25). Weight and height were measured in most countries. Dietary intake was measured in national surveys in at least 75% of countries in the Eastern Mediterranean Region, the European Region, the South-East Asia Region and the Western Pacific Region, but in about 50% or less of the countries in the African Region and the Region of the Americas. Exclusive breastfeeding and complementary feeding were assessed in national surveys in at least 75% of countries in the African Region, the Eastern Mediterranean Region, the South-East Asia Region and the Western Pacific Region. Anaemia was measured in at least 75% of countries in the South-East Asia Region and the Western Pacific Region. Blood pressure, blood lipids and blood glucose were most often measured in countries in the European Region and the Western Pacific Region. Anaemia and iron status were the indicators related to vitamin or mineral malnutrition status that were most commonly measured in national surveys; countries in the European Region were less likely to measure vitamin and mineral status indicators in national surveys, except for zinc.

Figure 25. Proportions of countries reporting that nutrition indicators were measured in national surveys, by WHO region

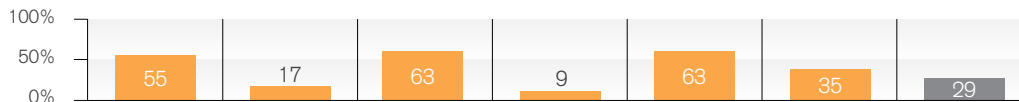


AFR (n=20)	AMR (n=23)	EMR (n=8)	EUR* (n=43)	SEAR (n=8)	WPR (n=17)	Total (n=119)
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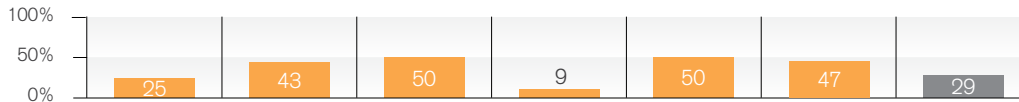
AFR, African Region;
 AMR, Region of the Americas;
 EMR, Eastern Mediterranean Region;
 EUR, European Region;
 SEAR, South-East Asia Region;
 WPR, Western Pacific Region



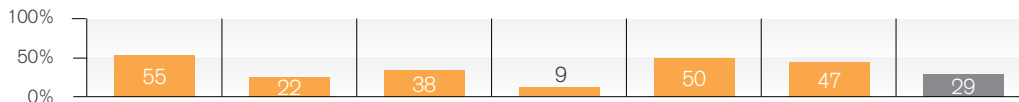
Iron status



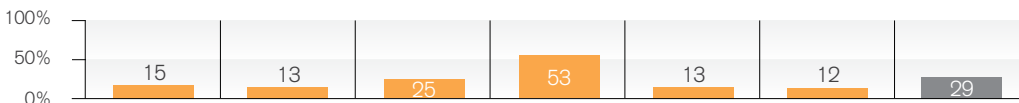
Iodine status



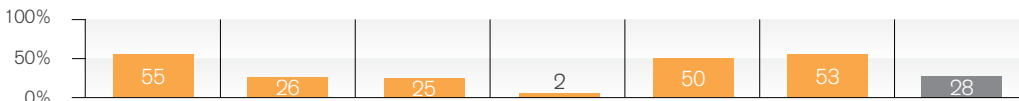
Food supply



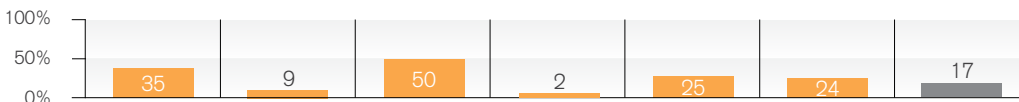
Vitamin A status



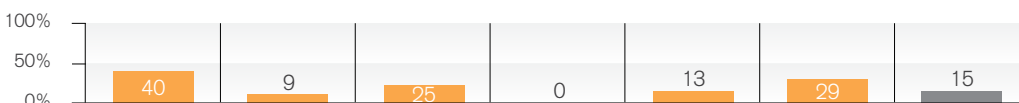
Zinc status



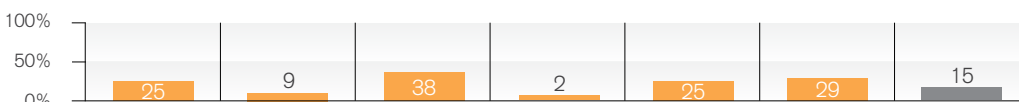
Supplementation practices



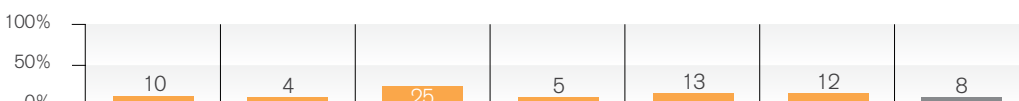
Fortification monitoring



Bilateral pitting oedema



Folic acid status



Vitamin D status

* Updated with information from the WHO European database on nutrition, obesity and physical activity and Elmadfa (2009).

Apart from countries in the Eastern Mediterranean Region, few countries mentioned monitoring of food fortification. Vitamin and mineral supplementation was most often monitored in countries in the African Region, the South-East Asia Region and the Western Pacific Region.

Box 6 summarizes, as an example, the Kuwaiti nutrition surveillance system and its contribution to effective action in nutrition. Box 7 and Figure 26 show the extent of adoption of the WHO Child Growth Standards, which provide the standard reference for monitoring children's growth and development.

Box 6. **Kuwaiti nutrition surveillance system**

Following a meeting in Kuwait with WHO and the United States Centers for Disease Control and Prevention (CDC) in 1994, about setting up a system for monitoring health and nutrition-related trends, Kuwait established a nutrition surveillance system under the Food and Nutrition Administration of the Ministry of Health. During the first year (1995), only the height and weight of preschool children were measured. With continued collaboration with WHO and the CDC, programme experience, training of more staff and support from the Ministry of Health, more measurements were included in further surveys. Thus, in 2001, all age groups were included annually; blood samples were taken for measuring haemoglobin, blood sugar and cholesterol; and physical activity, smoking habits, and fruit and vegetable intake by adults were recorded. Feeding practices for children under 2 years of age were also recorded.

The aim of the nutrition surveillance system is to monitor the health and nutritional status of the Kuwaiti population. The data will be used by the health professionals who manage public health programmes and by decision-makers. The objectives are to:

- determine the prevalence of nutrition-related health problems;
- identify high-risk groups;
- monitor trends;
- guide and direct decision-making and policy-making;
- target resources for programmes;
- evaluate the effectiveness of interventions.

The success of the system is due to support from the Kuwaiti Ministry of Health, the cooperation of primary health-care physicians and staff, and regular consultation with experts from WHO and CDC. The budget is sufficient to ensure implementation of the programme in primary health centres by trained, dedicated staff.

Various difficulties have been overcome, such as the logistics of obtaining permission to carry out duties, training staff and teams, identifying facilities, and dealing with budget restrictions and unmotivated staff or patients. Acquiring permission from school authorities to collect data at a particular time has also sometimes been a challenge.

The surveillance system is in place, and the data are being used to change activities or modify ineffective practices. For example, the results on anaemia reduction in 2001 were used to convince the Ministry of Health and industry to fortify flour with iron; they were also used in re-evaluating the impact of fortification on trends in anaemia. Thus, when no improvement was observed over 4 years (2001–2005), a decision was taken to assess the efficacy of the iron fortificants used; these were then replaced with encapsulated iron sulfate, a more effective compound. Four years later, there has been a slight drop in the prevalence of anaemia; however, it is too early to know whether this change can be attributed to the programme.

The prevalence of anaemia among preschool children, adolescent girls and women of child-bearing age is still high.

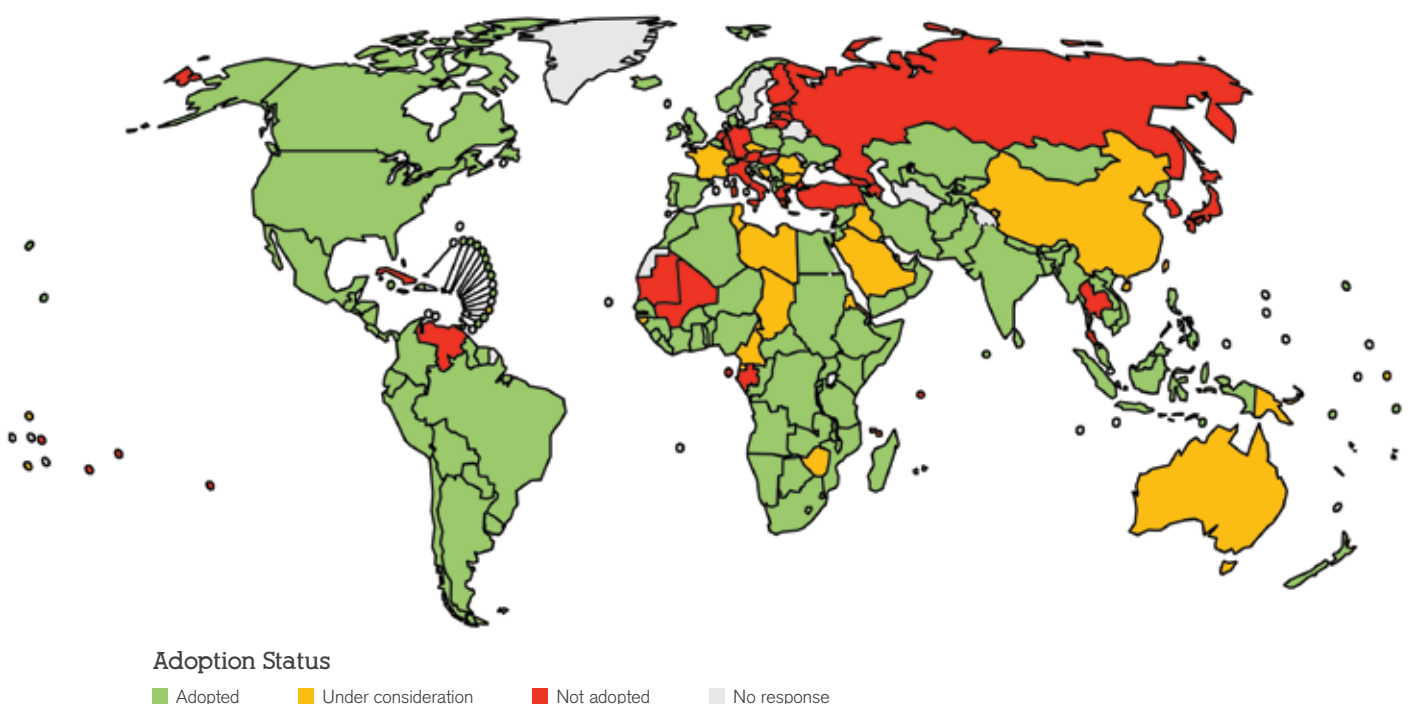
The nutrition surveillance system also helped to identify the prevalence of obesity in all age groups. A national programme for the prevention of overweight and obesity was initiated in 2004, but the results of this and other programmes are not yet available. From September 2010, a "healthy school snack" project was started for all children aged 6–11 years, prohibiting "junk food" and allowing only specific food items in school canteens. In November 2009, a book entitled *Facts of life* was distributed to pupils in the 9th grade in all government schools in Kuwait. A competition with a financial reward was organized for the 10 best healthy ideas to be implemented in the immediate environment (school, home or neighbourhood), and was well received, with 720 entries to the competition. Areas for multiple types of physical activity have been established in all elementary and intermediate government schools for girls, and football pitches in elementary schools for boys, both of which are open for community use after school hours.

The next plans include measuring serum ferritin when analysing haemoglobin, especially for vulnerable groups such as preschool children, adolescent girls and women of child-bearing age. Future measures will include blood pressure (to identify hypertensive patients), and further assessments of subclinical iodine and vitamin A deficiency.

▶ Box 7. Adoption of WHO Child Growth Standards

The anthropometric indicators weight for age, height for age, weight for height and body mass index for age, can be used to screen and monitor malnutrition in children, to detect underweight, stunting, wasting and overweight. World Health Assembly resolution WHA63.23 urged WHO Member States to implement the WHO Child Growth Standards, by fully integrating them into child health programmes. The standards were launched in April 2006 and, by April 2011, had been adopted by 125 countries (nationally, or subnationally in decentralized countries), and were at various stages of implementation (Figure 26).

Figure 26. Countries that have adopted the WHO standards for child growth (April 2011).
From de Onis et al. (2012)



3.4. Analysis of policy implementation in specific areas

3.4.1 Maternal, infant and young child nutrition

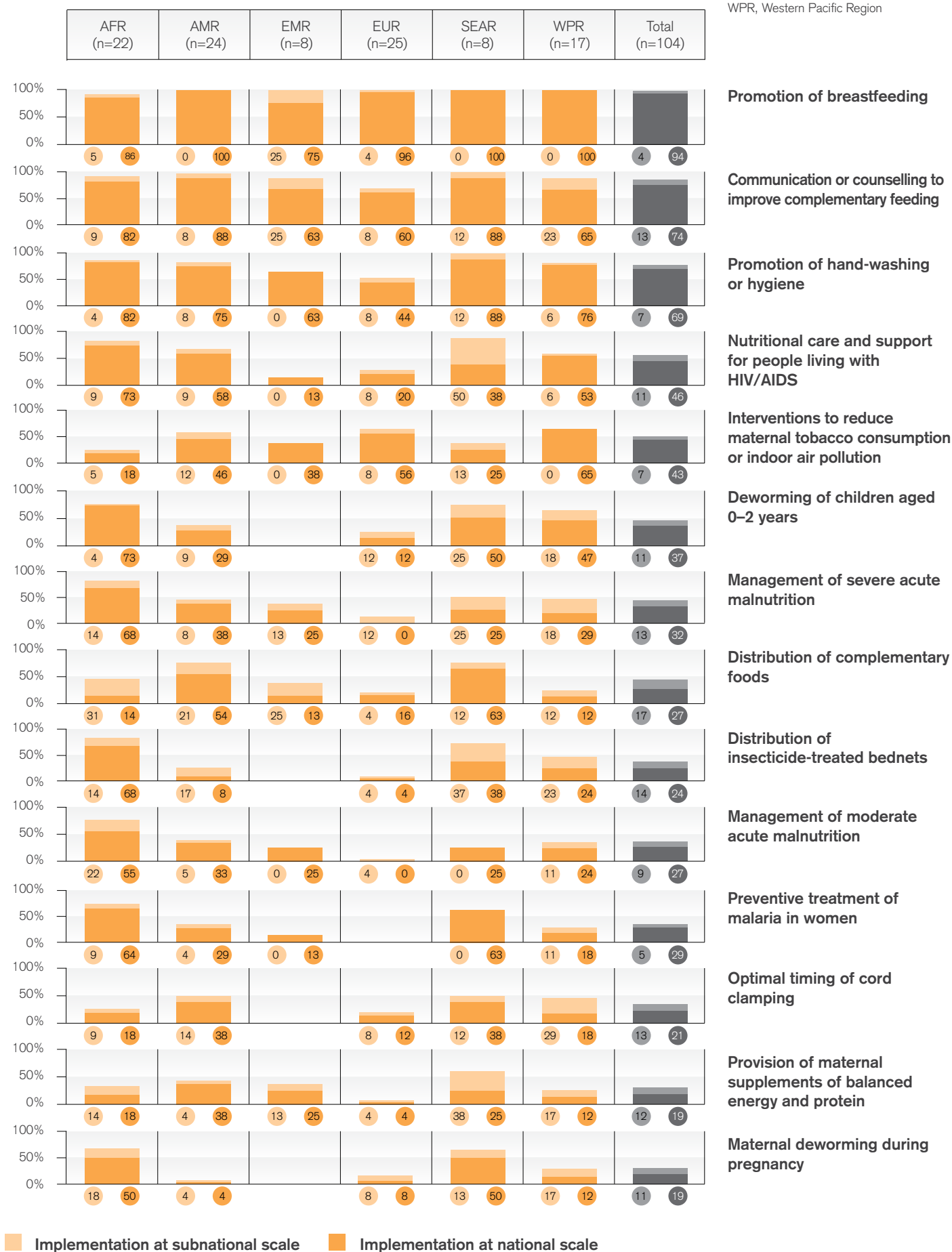
Most countries in all regions reported that they promoted breastfeeding and offered behaviour-change communication or counselling to improve complementary feeding (Figure 27). More than 90% of countries in the African Region, the Region of the Americas and the South-East Asia Region reported such programmes, most at national scale. Although all countries in the European Region promoted breastfeeding, fewer (68%) provided communication or counselling on complementary feeding. Distribution of complementary foods was common only in countries in the Region of the Americas (75%) and the South-East Asia Region (75%), usually at national scale. More than 80% of countries in all regions promoted hygiene, usually at national scale, except those in the Eastern Mediterranean Region and the European Region.

Greater regional variation was found for other interventions, partly due to differences in perceived health and nutritional needs. Nutritional care and support for people living with HIV/AIDS was most common in the African Region (82%) and the South-East Asia Region (88%), where the prevalence of HIV/AIDS is highest, followed by the Western Pacific Region (59%). Most countries in the African Region and the Western Pacific Region implemented such programmes at national scale. Interventions to reduce maternal tobacco consumption or indoor air pollution were most often reported by countries in the Region of the Americas (58%), the European Region (64%) and the Western Pacific Region (65%), usually at national scale. Deworming was most common among countries in the African Region (77% for children and 68% for pregnant women) and South-East Asia Region (75% for children and 63% for pregnant women). Specific programmes for management of severe acute malnutrition were implemented in 82% of countries in the African Region, and by about 50% of countries in the Region of the Americas, the South-East Asia Region and the Western Pacific Region. Most such programmes in the African Region and the Region of the Americas were implemented at national scale. Management of moderate acute malnutrition was common only among countries in the African Region (77%). Distribution of insecticide-treated bednets and preventive treatment for malaria were reported by two thirds of countries in the African Region and the South-East Asia Region.

Interventions involving counselling or promotion (of breastfeeding, hygiene and reduction of tobacco consumption) were generally implemented at national scale. By contrast, interventions that may require additional costs (e.g. for medication or food supplements) were less often implemented at national scale. Nevertheless, more than two thirds of programmes involving preventive treatment of malaria, nutritional care and support for people living with HIV/AIDS, deworming of children aged 0–2 years, and treatment of moderate and severe acute malnutrition were implemented at national scale. Most countries that were implementing programmes to manage severe acute or moderate acute malnutrition had appropriate protocols for both conditions. For severe acute malnutrition, inpatient and outpatient treatment, counselling and various therapeutic foods (e.g. Formula-75, Formula-100 and ready-to-use therapeutic foods) were usually available. These products were most often indicated by countries in the African Region, the Eastern Mediterranean Region, the European Region and the South-East Asia Region. For moderate acute malnutrition, the interventions included counselling and distribution of targeted food or fortified food blends.

Figure 27. Proportions of countries reporting implementation of interventions to improve maternal, infant and young child nutrition, by WHO region

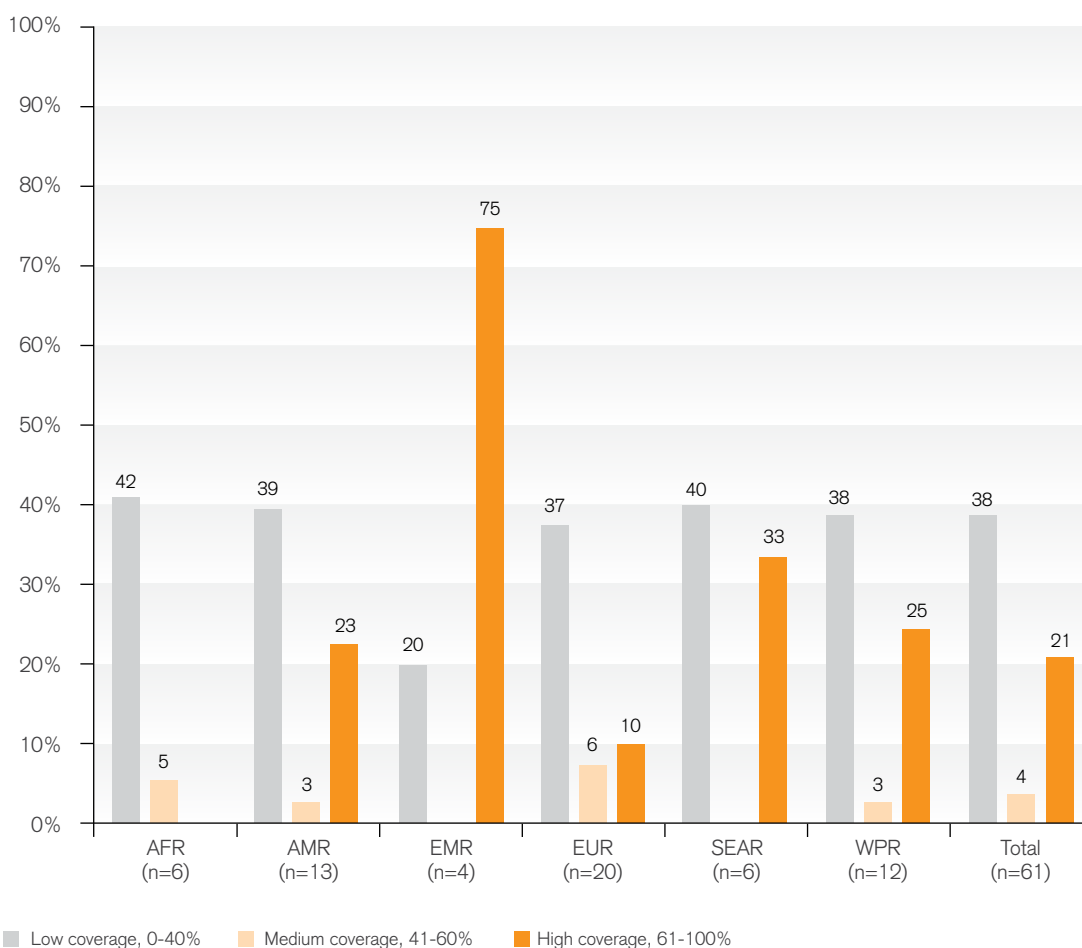
AFR, African Region;
 AMR, Region of the Americas;
 EMR, Eastern Mediterranean Region;
 EUR, European Region;
 SEAR, South-East Asia Region;
 WPR, Western Pacific Region



Few countries provided detailed information on implementation of the Baby-friendly Hospital Initiative, such as the number of births in accredited and other maternity services. The number of facilities providing maternity care accredited as “baby-friendly” and the proportions of births in such facilities varied considerably. Four countries reported that all maternity services were designated baby-friendly, whereas nine reported that none were so designated. Five countries reported that all births took place in baby-friendly services. Most responding countries in the Eastern Mediterranean Region (75%) reported that more than 60% of birthing facilities were baby-friendly (Figure 28).

Box 8 summarizes implementation of the priorities of the WHO Global Strategy for Infant and Young Child Feeding. Boxes 9 and 10 illustrate implementation of the Baby-friendly Hospital Initiative in Malaysia and in New Zealand, respectively. Box 11 presents the national infant and young child feeding programme in the Philippines.

Figure 28. Proportions of countries reporting high, medium and low coverage of the “Baby-friendly Hospital Initiative”, by WHO region



AFR, African Region; AMR, Region of the Americas; EMR, Eastern Mediterranean Region; EUR, European Region; SEAR, South-East Asia Region; WPR, Western Pacific Region



Box 8. Implementation of actions of high priority in the WHO Global Strategy for Infant and Young Child Feeding

The Global Strategy for Infant and Young Child Feeding, adopted by WHO Member States at the World Health Assembly in 2002, is a comprehensive approach to improving breastfeeding and complementary feeding practices (WHO, 2003). The main priorities outlined in the strategy include:

- a comprehensive infant and young child feeding policy;
- support for legislation such as a national code of marketing of breast-milk substitutes and protection of maternity;
- appointment of a national coordinator for infant and young child feeding;
- implementation of the Baby-friendly Hospital Initiative (BFHI);
- provision of support to mothers to establish and sustain optimal breastfeeding and complementary feeding;
- provision of additional support for breastfeeding for mothers in difficult circumstances.

The WHO Secretariat reports on implementation of the strategy to the World Health Assembly, and used Module 2 of the Global Nutrition Policy Review as one source of information from countries.

As shown in Figure 20, infant and young child feeding was reported to form part of the policies of all countries in the African Region, the Region of the Americas, the Eastern Mediterranean Region and the South-East Asia Region that responded to Modules 1 or 2. Breastfeeding was more commonly reported than complementary feeding.

Many countries have supporting legislation, such as a national code of marketing of breast-milk substitutes and for protection of maternity. As shown in Figure 26, from the answers to Module 3, it appeared that more than half of the countries in the world have legal measures to effectuate the Code (WHO, 2013c). The highest proportion of countries with legal measures was in the Eastern Mediterranean Region (64%). In all regions, some countries reported voluntary measures.

In a review by the International Labour Organization (ILO, 2010) on protection of maternity, 18 of the 23 countries that have ratified the Maternity Protection Convention 183 (ILO, 2000a) are in the WHO European Region. The countries of the UN Region of Europe were also those that most often met the requirement for duration of maternity leave of the ILO Convention (a minimum of 14 weeks) or of the ILO Maternity Protection Recommendation 191 (ILO, 2000b) (a minimum of 18 weeks) (ILO, 2010). The countries of the UN Region of the Middle East had the least maternity protection legislation.

Of the 104 countries that responded to Module 2, 58% had appointed a coordinator for national infant and young child feeding. This was most common in the Eastern Mediterranean Region (88%) and the Western Pacific Region (71%), and least common in the Region of the Americas (46%) and the European Region (44%) (data not shown).

Most of the 104 countries in all regions promoted breastfeeding, and provided communication or counselling to improve complementary feeding at national scale (Figure 27). Implementation of programmes such as the BFHI was, however, much less common. Although many countries had introduced the programme, only in the Eastern Mediterranean Region did most countries (75%) report high coverage (> 60% of birthing facilities) (Figure 25).

Almost a third of the 104 countries that responded to Module 2 (31%) reported policies on infant feeding in emergencies, ranging from none in the Eastern Mediterranean Region to 59% in the African Region. As shown in Table 2, 59% of the 123 countries that participated in the Review had policies to address low birth weight, and 46% had policies for nutrition and infection. A subset analysis showed that feeding of low-birth-weight infants and of infants with HIV infection was included in the policies of about half the countries in the African Region, the Region of the Americas, the South East Asia Region and the Western Pacific Region (data not shown).



Box 9.

Promotion of breastfeeding and the Baby-friendly Hospital Initiative in Malaysia

Malaysia has a long history of protecting and supporting breastfeeding. The country's Code of Ethics for the Marketing of Infant Formula Products was first printed in 1979, and was revised in 1983, 1985 and 1995. Legislation such as the Food Act of 1983 and the Food Regulations of 1985 strengthened infant food labelling to further support breastfeeding. The National Breastfeeding Policy was prepared in 1992, and was revised in 2006 to make it consistent with the WHO recommendation for exclusive breastfeeding for 6 months. The policy has been widely communicated to the public in the print and electronic media. A national lactation centre was established in 2008 to strengthen lactation training, services and practices in Malaysia. Both health and non-health professionals have been trained in the appropriate skills for taking care of and educating lactating mothers. Moreover, breastfeeding has been integrated into the curricula for primary and secondary schools.

The Ministry of Health Malaysia, in collaboration with government and nongovernment agencies, has implemented the BFHI since it was initiated in 1993. In March 1998, Malaysia was recognized by WHO as the third country in the world, after Sweden and Oman, in which all government hospitals were baby friendly. By March 2010, there were 132 baby-friendly hospitals in the country, comprising 122 government hospitals, two army hospitals, two university hospitals and six private hospitals. Adoption of the BFHI and the "Ten steps to successful breastfeeding" has been effective in promoting and protecting breastfeeding, and the necessary support is given to mothers to initiate and maintain lactation even after discharge from hospital. The Malaysian Breastfeeding Advisory Association and the Lactation Consultant Association have provided much support to ensure that breastfeeding is continued as long as possible.

The BFHI has been successful in Malaysia because of the highly structured health-care delivery system, strong institutional support at all levels and a large pool of personnel. State nutritionists are responsible for promoting breastfeeding at community level, and for coordinating training in lactation management, which is facilitated by paediatricians, obstetricians, gynaecologists, family health officers, health sisters, and paediatric and obstetric ward sisters. The state nutritionists also coordinate initial assessments of hospitals for baby-friendly status by a pool of trained professionals in various disciplines, throughout the country. At national level, a committee to recognize baby-friendly hospitals, chaired by the Director of Nutrition, meets every 2 months to review the forms forwarded by the assessment team.

The multipronged strategy adopted by Malaysia to promote breastfeeding has improved certain indicators. The National Health and Morbidity Surveys show that the prevalence of infants under 12 months of age who were ever breastfed increased from 88.6% in 1996 to 95.0% in 2006, and the rate of timely initiation of breastfeeding increased from 22.3% in 1996 to 63.7% in 2006, and is now among the highest in the South-East Asia Region.

 **Box 10.**
The Baby Friendly Initiative in New Zealand

The aim of the Baby Friendly Initiative (BFI), launched in New Zealand in 2000, is to improve breastfeeding rates and practice in both maternity facilities and community health services. In 2001, the New Zealand Ministry of Health audited 30 maternity facilities, representing more than a third of all such facilities. Each service was assessed for its compliance to the “Ten steps” and the International Code of Marketing of Breast-milk Substitutes, and its breastfeeding rates. This provided a benchmark for the standards of care before the facilities achieved accreditation as baby-friendly hospitals. Since then, achieving and maintaining BFI accreditation has been made a requirement for all maternity services, and 75 out of 77 services have complied.

With continued support from the Ministry of Health, the New Zealand Breastfeeding Authority prepared standards for the Baby Friendly Community Initiative (BFCI), which were disseminated in 2006. The Breastfeeding Authority initially pilot-tested the programme in five community health services or groups; by 2009, 17 services had been accredited as baby-friendly, based on a “seven-point plan” and the International Code of Marketing of Breast-milk Substitutes.

The BFI in New Zealand is based on the WHO/UNICEF global criteria for baby-friendly hospitals, the International Code of Marketing of Breast-milk Substitutes and subsequent World Health Assembly resolutions; it ensures the inclusion of Maori and other ethnic groups.

The results are significant. In 2013, nearly all services have achieved accreditation and 99.85% of infants born in BFI accredited maternity services. Accredited services are reassessed every three years.

Most assessments showed improvements in the standards achieved. In 2011, documents on the BFI were revised to meet the updated UNICEF/WHO standards. The average rate of exclusive breastfeeding at discharge from baby-friendly facilities was 83% in 2008, up from 56% in 2001; in 2007, 52% of infants were exclusively breastfed at 6 weeks of age (up from 46% in 2002), and 39% of infants were being breastfed at 3 months (up from 33% in 2002).

The factors that made the BFI work were:

- strong political commitment and policy orientation at the start;
- a dedicated breastfeeding committee;
- a clear plan of work and targets, which were well communicated to all involved;
- decentralization beyond hospitals to the community;
- a well-designed training plan with courses tailored according to the level and role of staff as follows: level 1 – awareness (no clinical role), level 2 – generalist (some clinical role) and level 3 – specialist (clinical role);
- well-documented results, and monitoring of progress and achievements.



Box 11. The infant and young child feeding programme in the Philippines

Following the launch of the UNICEF/WHO Global Strategy on Infant and Young Child Feeding in 2003, and publication of the results of the National Demographic Health Survey in 2004, the Philippines prepared a national policy on infant and young child feeding, and recently issued its second 5-year strategic plan of action. The national policy was signed by the Secretary of Health in May 2005 (Administrative Order No. 2005-0014). National and regional technical working groups with representation from various agencies within and outside the Department of Health are responsible for overall management and monitoring of the programme.

The programme was reinforced by legislation and policies, such as strengthening of the National Milk Code (EO 51); a policy on donation of breast-milk substitutes during emergencies; an expanded “Rooming-in” Act (Republic Act 10028, March 2010), which contains provisions to ensure creation of breastfeeding-supportive workplaces; and a protocol and policy for essential newborn care, launched in December 2009 in the campaign “The first embrace (*Unang Yakap*)”. The protocol for essential newborn care lists four major steps: immediate and thorough drying; early skin-to-skin contact; properly timed cord clamping; and not separating the newborn from the mother for early, complete breastfeeding. The results of initial implementation show that the exclusive breastfeeding rate at 28 days of life rose from 54% to 69%.

Community engagement is another priority, with modelling of key settings, such as supporting the establishment of community breastfeeding support groups in urban and rural areas, and of breastfeeding support systems at the workplace. The activities and resources involved national, regional and local coordination between the private and public sectors. Documentation of the experience resulted in initial guidelines and good practices that were promoted and disseminated to scale up the interventions. Since 2005, more than 2100 support groups have been reported.

Research has been conducted to identify effective interventions. Community peer counselling was associated with a large increase in exclusive breastfeeding, and a significant reduction in the rate of exclusive formula and mixed feeding. Of 148 infants who were not being exclusively breastfed, 69.5% were being fed in another way after three home visits, of whom 76% were exclusively breastfed. A case-control study showed that infants fed exclusively with formula were more likely to be hospitalized for any infection (odds ratio [OR], 3.7; 95% confidence interval [CI], 1.8–7.5), pneumonia (OR, 3.0; 95%CI, 1.2–7.4) or diarrhoea (OR, 10.5; 95% CI, 2.5–41.9) than exclusively breastfed infants. Further studies revealed that the medical care given to newborn infants in the Philippines was below WHO standards, depriving the infants of their mother’s natural protection in the first hour of life (warmth; colonization of family bacteria in lieu of hostile hospital bacteria; colostrum [the first immunization]; and the calming effect of skin-to-skin contact, which leads to quicker resolution of blood acid-base imbalance and hypoglycaemia after delivery), leading to high rates of neonatal sepsis and mortality. Another article showed that marketing by milk companies in the Philippines negatively influences mothers’ choice of breastfeeding.

The programme was operationalized after advocacy to obtain financial support from the government, which eventually made a large budget allocation for training local health workers in counselling on infant and young child feeding. The government’s Hunger Mitigation Strategy included a component for improving infant and young child feeding. Moreover, supportive supervision of infant and young child feeding at health centres became national, with incorporation of key indicators in the national “integrated child survival monitoring” tool, and institutionalization of local monitoring and training follow-up visits by national and regional coordinators. A tool to monitor local progress was devised and disseminated to regional coordinators of infant and young child feeding.

The lessons learnt from these activities are that national and local governments must invest both human and financial resources, and that a range of stakeholders within and outside the health system must provide concrete support. Training must be sustained, with mentoring, supportive supervision and coaching, and these should be considered in ensuring implementation of policies and protocols. Implementation and enforcement of codes of marketing and promotion of products must be effectively monitored. Finally, maternity protection should be addressed to support women in exclusive breastfeeding for 6 months.

The initial results show that the programme is creating the conditions for optimal infant and young child feeding. As of 2010:

- 8.7% of provinces and 11.8% of the local government units had passed ordinances (local laws) related to infant and young child feeding;
- 81% of health workers in 50 of the 80 provinces had been trained using the UNICEF/WHO counselling training for infant and young child feeding;
- 2159 community support groups had been established;
- National Milk Code monitoring activities had been conducted in 4 out of 13 regions;
- 88 workplaces had become breastfeeding friendly.

3.4.2 International Code of Marketing of Breast-milk Substitutes

In 1981, the World Health Assembly adopted the International Code of Marketing of Breast-milk Substitutes, which contains recommendations for Member States to regulate the marketing of breast-milk substitutes, to protect breastfeeding (WHO, 1981). A number of World Health Assembly resolutions have been adopted since 1981 that refer to the marketing and distribution of breast-milk substitutes.²⁰ The Code and subsequent World Health Assembly resolutions must be considered together in interpreting and translating the Code into national measures.

Pursuant to Article 11.6 of the Code, Member States submit information annually to the Director-General of WHO on action taken to give effect to the Code's principles and aim. Module 3 of this Review asked about regular reporting on the status of country implementation of the Code into national legislation; it included an extensive set of questions on specific provisions of the Code. Responses to Module 3 were received from 97 countries and territories. Because the response rate varies from year to year, a number of sources are used to determine worldwide implementation of the Code. This section summarizes the data in the most recent report (WHO, 2013c), which is based largely on the results collected for Module 3. Information is presented for 194 Member States and 5 territories²¹ that voluntarily submitted information.

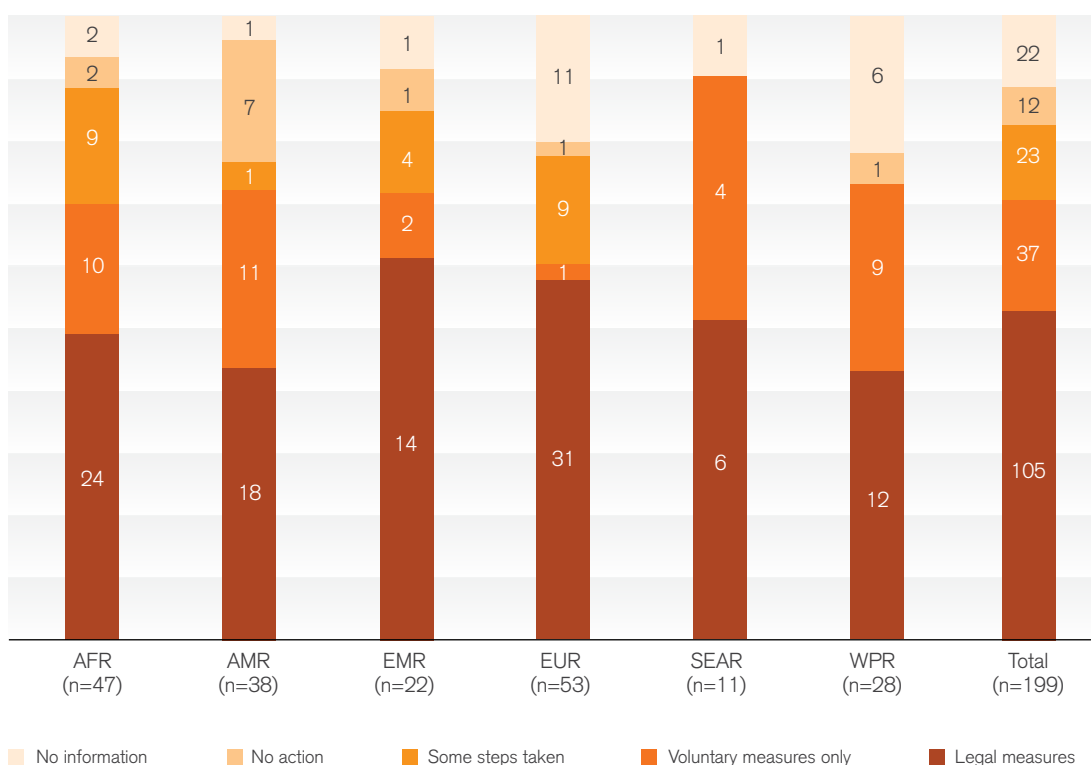
²⁰ Subsequent World Health Assembly resolutions on infant and young child nutrition and the International Code of Marketing of Breast-milk Substitutes that clarify or extend certain provisions of the Code include WHA34.22, WHA34.23, WHA35.26, WHA37.30, WHA39.28, WHA41.11, WHA43.3, WHA45.34, WHA47.5, WHA49.15, WHA54.2, WHA55.25, WHA58.32, WHA59.11, WHA59.21, WHA61.20, WHA63.23 and WHA 65.6.

²¹ Anguilla, British Virgin Islands and Montserrat in the Region of the Americas and French Polynesia in the Western Pacific Region, which responded to the questionnaire, and Palestine in the Eastern Mediterranean Region, which was considered in WHO Code report. The information received from these territories is included in this report as country responses.

Figure 29 summarizes the status of implementation of Code legislation by WHO region. Overall, 53% of countries reported legal measures, 19% had voluntary measures only, 12% had taken steps towards implementation and 6% had no measures in place. Except in the Region of the Americas and the Western Pacific Region, more than half of the countries had legal measures in place, with the highest proportion being in the Eastern Mediterranean Region (64%). The reported voluntary measures ranged from codes to guidelines, agreements and policies covering various aspects of the Code, such as information and education, or promotion of breast-milk substitutes to the general public and mothers. Some countries had draft legislation awaiting legal implementation.

Although many countries had legal measures in place, not every country covered every provision of the Code, and the measures were seldom backed up by appropriate monitoring. The WHO report gives regional and country information on the scope of national codes, implementation of specific provisions and the existence of regulatory mechanisms (WHO, 2013c).

Figure 29. Numbers and distribution of countries at various stages of implementation of the International Code of Marketing of Breast-milk Substitutes, by WHO region, 2006–2012. From WHO (2013c)



AFR, African Region; AMR, Region of the Americas; EMR, Eastern Mediterranean Region; EUR, European Region; SEAR, South-East Asia Region; WPR, Western Pacific Region

3.4.3 School programmes

Eighty-three responses, mainly from government departments, were received from 82²² countries (Table 2).

All but four countries reported school programmes, usually in primary schools (85%). Preschool programmes were most common in the European Region (75%) and least common in the Eastern Mediterranean Region (36%), whereas secondary school programmes were most common in the Eastern Mediterranean Region (82%) and least common in the Region of the Americas (46%).

²² One country returned two completed questionnaires to reflect implementation of school programmes by the two main linguistic groups.

Table 2. Proportions of school-based nutrition programmes at preschool, primary and secondary level, by WHO region

School level	WHO region						Total (n=83)
	AFR (n=16)	AMR (n=21)	EMR (n=8)	EUR* (n=19)	SEAR (n=8)	WPR (n=11)	
Number of programmes reported	79	155	50	133	66	98	581
% of programmes at preschool level	66	66	36	75	48	61	63
% of programmes at primary school level	82	90	90	83	86	80	85
% of programmes at secondary school level	54	46	82	72	52	71	61

AFR, African Region; AMR, Region of the Americas; EMR, Eastern Mediterranean Region; EUR, European Region; SEAR, South-East Asia Region; WPR, Western Pacific Region

* One country returned two completed questionnaires reflecting implementation of school-based programmes in the two main linguistic groups

The usual programme components were training staff on health issues (83%) and ensuring safe drinking-water (73%) and hygienic cooking facilities (71%) (Figure 30). Overall, school meals were based on national dietary guidelines in 60% of reporting countries although few countries in the African Region indicated this. Provision of fruit and vegetables was most commonly mentioned among countries in the European Region (79%), the Western Pacific Region (73%) and the Region of the Americas (67%), whereas milk programmes were most commonly mentioned among countries in the Region of the Americas (67%), the Eastern Mediterranean Region (63%) and the European Region (63%). However, such programmes were hardly mentioned by countries in the African Region.

About three quarters of countries in the European Region, the South-East Asia Region and the Western Pacific Region reported monitoring children's growth, and at least half of countries in the Region of the Americas, the South-East Asia Region and the Western Pacific Region had some systems in place to refer the children who required nutrition interventions. Such programmes were less common in countries in the African Region and the Eastern Mediterranean Region.

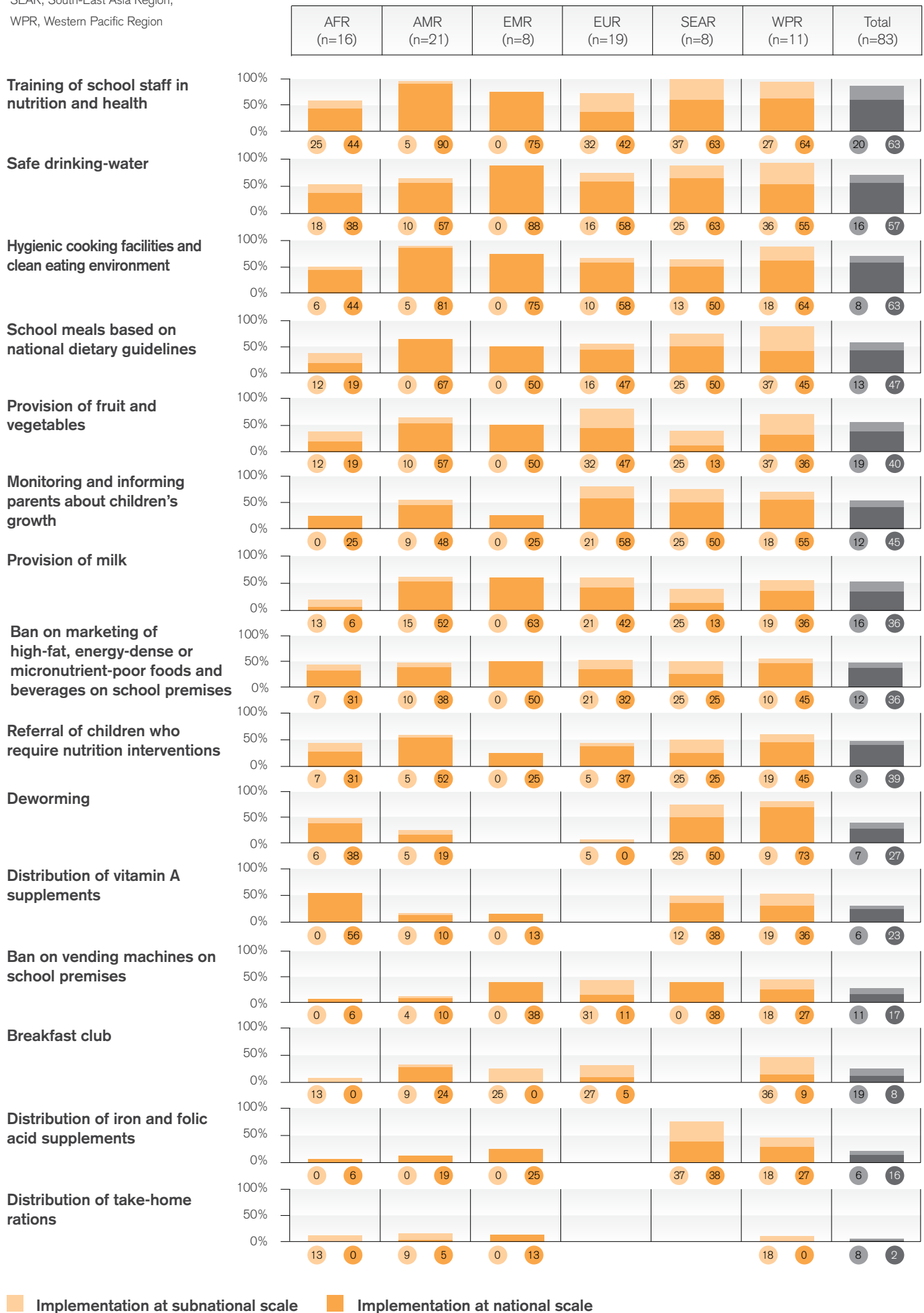
About half of the countries, except in the African Region, restricted marketing of unhealthy foods, but restrictions on vending machines were less common.

Deworming programmes were reported by 34% of the responding countries, especially in the Western Pacific Region (82%) and the South-East Asia Region (75%). Vitamin and mineral supplementation programmes were mentioned most frequently by countries in the African Region, the South-East Asia Region and the Western Pacific Region.

Monitoring and evaluation was conducted for most school-based nutrition programmes.

AFR, African Region;
 AMR, Region of the Americas;
 EMR, Eastern Mediterranean Region;
 EUR, European Region;
 SEAR, South-East Asia Region;
 WPR, Western Pacific Region

Figure 30. Proportions of countries reporting school activities relevant to nutrition, by WHO region



Global nutrition policy review: What does it take to scale up nutrition action?

3.4.4 Vitamin and mineral nutrition

In relation to vitamins and minerals, two broad intervention programmes were addressed in the questionnaire: supplementation and fortification programmes.

Supplementation

Responses to questions in Module 5 were received from 86 countries. Figure 31 shows the proportions of countries by WHO region that reported supplementation programmes, and those that were implementing the programmes at national scale.

Iron supplementation for pregnant or non-pregnant women was the programme most often implemented at national scale. Of the responding countries, 83% reported they were implementing supplementation at national scale, ranging from 100% in the South-East Asia Region to 56% in the European Region.

Most of the countries providing iron supplementation also gave folic acid to pregnant women (72%), but only 27% of countries provided folic acid to all women, ranging from 57% in the South-East Asia Region to 17% in the African Region. Only 30% of the responding countries reported national programmes of iron supplementation for anaemic women, although such supplementation was commonly implemented in the South-East Asia Region. Other supplementation programmes for pregnant women (i.e. multiple micronutrients, calcium, iodine and vitamin A) were reported by less than 25% of countries, with some notable regional differences. Vitamin A supplementation for postpartum women was common among countries in the South-East Asia Region (71%) and the African Region (61%).

Of the supplements given to children, vitamin A was the most frequent, followed by iron, zinc for the treatment of foodborne and waterborne diarrhoea, and multiple micronutrients. Vitamin A supplementation for children was reported by 43% of the responding countries, from 86% of those in the South-East Asia Region (all at national scale) and 72% in the African Region, to 6% in the European Region. Iron supplementation for children was reported by 40% of countries, ranging from 50% of countries in the African Region and the Eastern Mediterranean Region and 48% of countries in the Region of the Americas to 19% in the European Region. Zinc supplementation for the treatment of diarrhoea was most commonly reported in the South-East Asia Region (57%) and the African Region (44%), but was not reported at all by the countries in the European Region. Provision of multiple micronutrient supplements to children was most frequently mentioned by countries in the South-East Asia Region (57%), the Western Pacific Region (43%) and the Eastern Mediterranean Region (38%).

In most countries, vitamin and mineral supplementation programmes were managed by the government through free national schemes, with distribution by the health system (Figure 32). Pharmacies were also an important point of distribution in countries in the African Region and, to a lesser extent, the South-East Asia Region and the European Region. In the African Region and the South-East Asia Region, UN agencies, NGOs and the private sector were involved in management of the supplementation scheme, in addition to the government. In the European Region, vitamin and mineral supplementation most frequently involved the private sector.

Box 12 summarizes the weekly iron and folic acid supplementation programme in a province of Viet Nam, which resulted in a 48% reduction in the prevalence of anaemia.

AFR, African Region;
 AMR, Region of the Americas;
 EMR, Eastern Mediterranean Region;
 EUR, European Region;
 SEAR, South-East Asia Region;
 WPR, Western Pacific Region

Figure 31. Proportions of countries reporting vitamin and mineral supplementation programmes, by WHO region

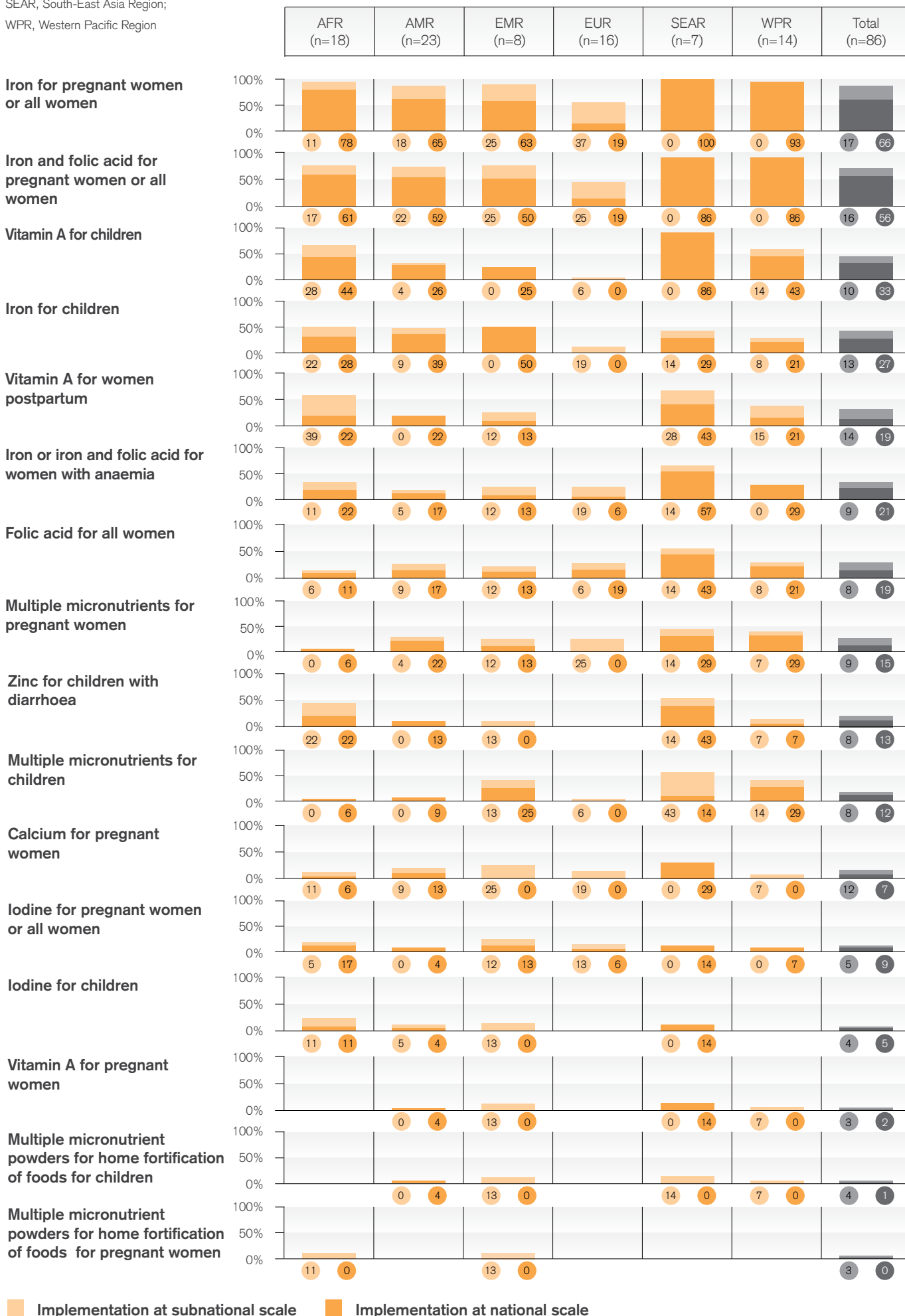
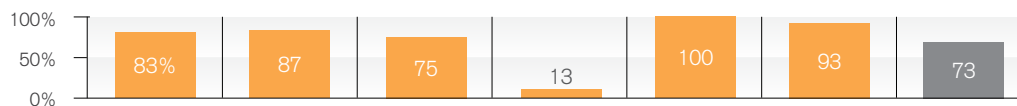


Figure 32. Proportions of countries with various approaches to payment, distribution and management of vitamin and mineral supplementation programmes, by WHO region

AFR, African Region;
 AMR, Region of the Americas;
 EMR, Eastern Mediterranean Region;
 EUR, European Region;
 SEAR, South-East Asia Region;
 WPR, Western Pacific Region

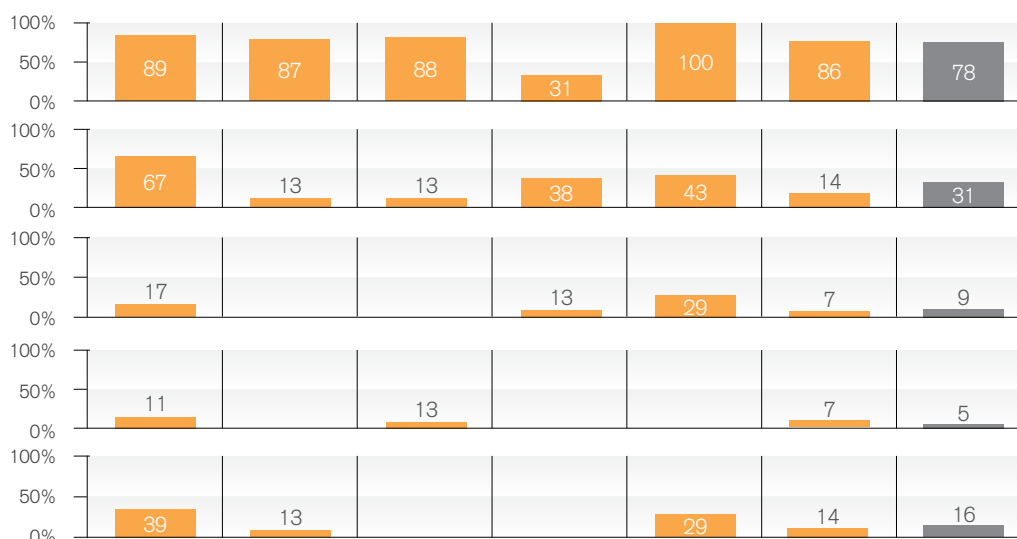
AFR (n=18)	AMR (n=23)	EMR (n=8)	EUR (n=16)	SEAR (n=7)	WPR (n=14)	Total (n=86)
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Payment for supplements



Supplements provided for free

Distribution system



Health system

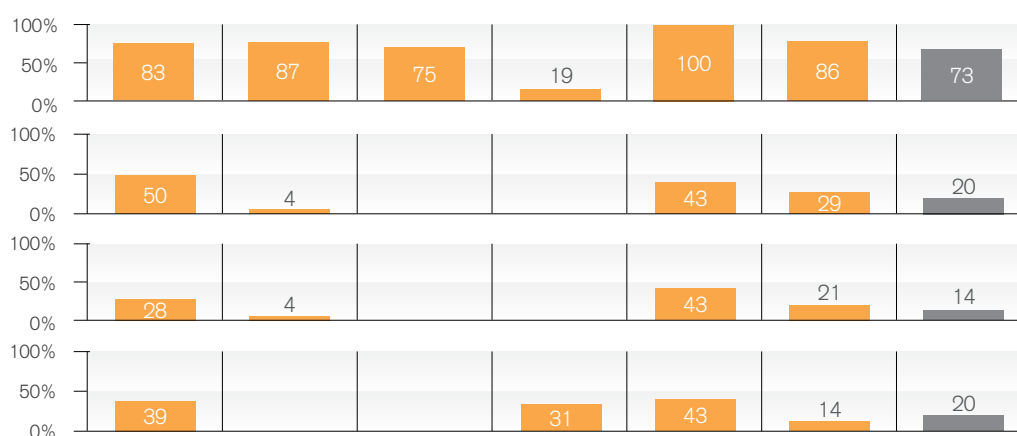
Pharmacies

Shops

Schools

Community

Management of system



Government

UN agencies

NGOs

Private sector



Box 12.

The Yen Bai story: a public health approach to reducing anaemia and improving women's health in Viet Nam

In May 2005, Yen Bai Province was selected for a demonstration project on anaemia. This is a major public health problem among women of reproductive age in north-western Viet Nam, possibly due to iron deficiency, owing to lack of dietary iron and hookworm infection. The initial survey, in November 2005, showed that 37.5% of non-pregnant women were anaemic (haemoglobin < 120 g/l) and 23.0% were iron deficient (ferritin < 15 ng/l). Although iron deficiency was common among anaemic women, less than one half of cases could be attributed to iron deficiency. Hookworm infection was present in 78.1% of women, and heavy infection was recorded in 6.3%.

A 1-year programme of iron supplementation and deworming was launched in May 2006, in two districts of Yen Bai Province: Yen Binh and Tran Yen. Iron and folic acid were distributed weekly to women of reproductive age (16–45 years), with the aim of covering 50 000 women. The supplement contained 60 mg elemental iron and 0.4 mg folic acid. Albendazole (400 mg) was given for deworming three times during the year.

To ensure the support of the authorities and the community, the plan was presented and advocacy meetings were held with the heads of the provincial people's committee and the health department, centres of preventive medicine and directors of commune health stations. Training sessions were organized for village health workers, to support them in educating women about the value of regular iron supplementation and deworming, and to involve them in the programme, including identifying and resolving any problems. The health team comprised 680 village health workers in the two districts, two nurses at each commune health station, and two staff at each district preventive medicine centre, all of whom were trained in the causes, treatment, prevention and health risks of anaemia and hookworm infection. Treatment with iron–folic acid was not supervised; however, to ensure compliance with treatment, women were encouraged by the village health workers to take the tablets regularly on a designated day of the week, between meals. Because village health workers are an integral part of the community, they were able to make use of their usual activities and social interactions to tell the women about the positive attributes of the intervention. Information, education and communication were an essential component in raising awareness of iron deficiency and anaemia, and in supporting women in taking their tablets regularly. The materials included information brochures, posters, calendars, radio programmes and television commercials. Advocacy workshops were held for the health team and for women.

Monitoring was conducted routinely during regular visits to the district preventive medicine centres, commune health stations and village health workers. Monitoring by the health team improved rapport at all levels. Compliance was monitored by an independent NGO: the Research and Training Centre for Community Development.

The project resulted in a decrease of 48% in the prevalence of anaemia within 12 months, and a reduction in the prevalence of hookworm infection from 76.2% at baseline to 25.2%.

In view of the success of the demonstration project and its low cost, expansion of the programme to other provinces was advocated to the government through the Ministry of Health and the National Institute of Nutrition. The Prime Minister of Viet Nam approved the National Nutrition Strategy 2011–2020 in February 2012, and the National Institute of Nutrition has prepared a nutrition action plan for 2012–2015. One objective of the plan is to improve the vitamin and mineral status of the population, especially of women and children. To prevent and control anaemia, weekly iron–folic acid supplementation will be provided for women of reproductive age, through “social marketing” in richer provinces (see below), and government subsidies in disadvantaged areas.

In Yen Bai, various options are being considered to ensure the sustainability of the programme, including a social marketing approach to encourage women who can afford it to buy the supplement. The small profit made from such purchases would be fed back into the programme to ensure that the supplements are freely available to women who cannot afford them. Another option is to encourage the government to consider including in the health insurance package iron–folic acid supplementation for prevention of anaemia for women of reproductive age, pregnant women and children, on the basis that this would contribute to several national health priorities.

Food fortification

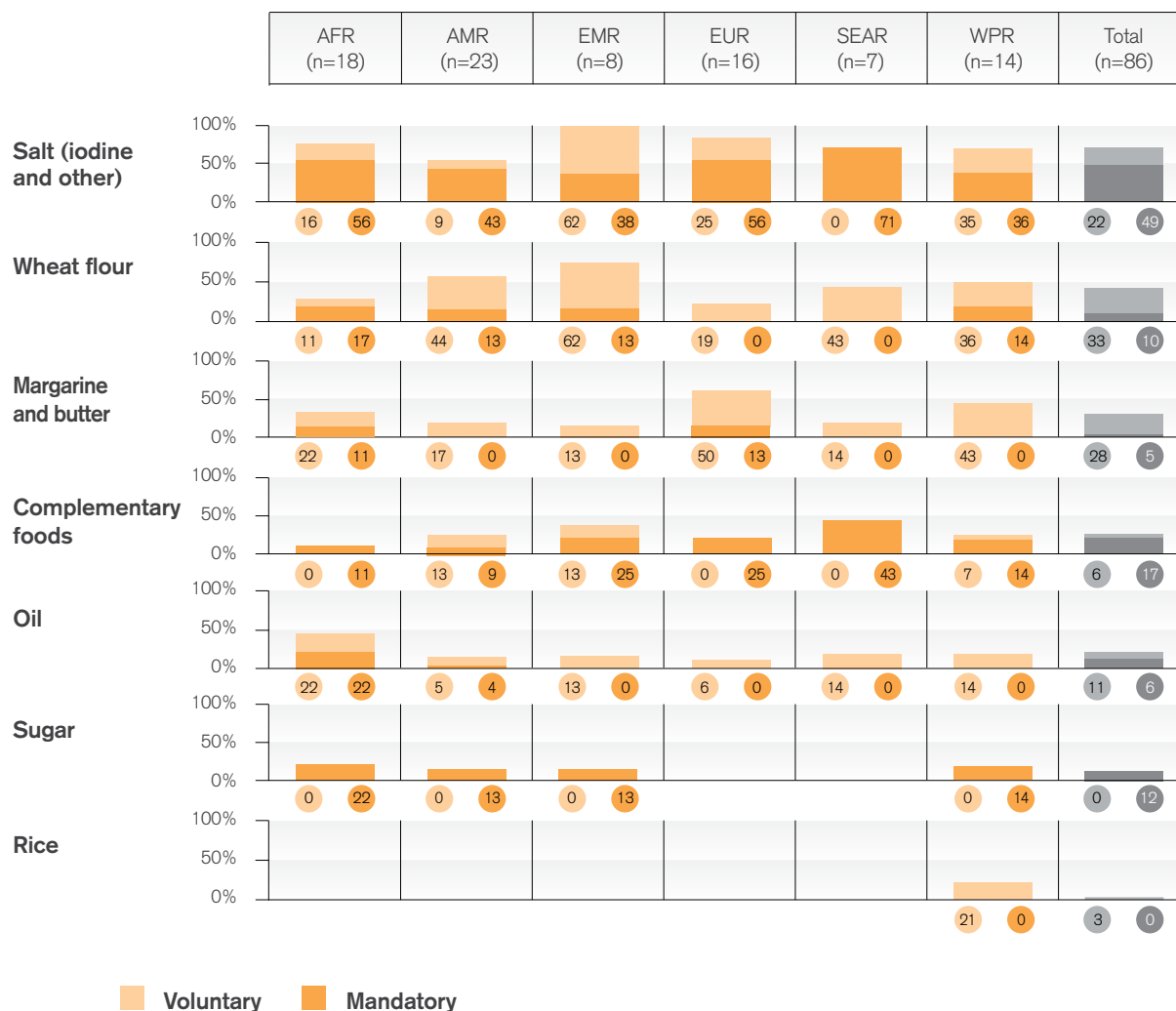
Figure 33 shows the proportions of countries that reported fortification of various foods by region, and those in which the fortification is mandatory. Most countries reported salt fortification programmes, ranging from 100% of countries in the Eastern Mediterranean Region to 52% in the Region of the Americas. Salt was usually fortified with iodine, but was also fortified with vitamin A and other nutrients in some countries. Few salt iodization programmes were mandatory, except in the South-East Asia Region. In the Eastern Mediterranean Region, 100% of countries reported salt iodization, but this was mandatory only in 38% of the reporting countries.

Overall, 43% of the countries reported fortification of flour, usually with iron but also with other nutrients such as folic acid or zinc; however, flour fortification was mandatory in only 10% of countries. Fortification of other foods was limited, and varied across regions. One third of countries reported fortification of margarine and butter, usually with vitamin A. Complementary foods were most often fortified in countries in the South-East Asia Region and the Eastern Mediterranean Region, and oil fortified with vitamin A was most common in the African Region.

Government agencies were most often reported to be responsible for implementing food fortification programmes. However, in contrast to supplementation programmes, the production and distribution of fortified foods often involves the private sector and requires their collaboration. A few countries reported that the fortification programme was based on their national policy and was also subsidized. A few programmes are trying to target specific population groups, whereas salt iodization and flour fortification are based on a population approach.

Box 13 summarizes Nigeria's successful programme to combat iodine deficiency disorders with a salt iodization programme. Box 14 describes the wheat flour fortification programme in Jordan, which has reduced the prevalences of anaemia and iron deficiency.

Figure 33. Proportions of countries reporting fortification of food products, by WHO region



AFR, African Region; AMR, Region of the Americas; EMR, Eastern Mediterranean Region; EUR, European Region; SEAR, South-East Asia Region; WPR, Western Pacific Region

Box 13. Combating iodine deficiency disorders: a success story from Nigeria

Iodine deficiency disorder has been a public health problem in Nigeria for three decades. In 1993, a national survey revealed an average total rate of goitre of 20%, and showed that less than 40% of the salt used in the country was iodized. In the same year, Nigeria began an iodine deficiency disorder control programme, in line with a 1991 World Health Assembly resolution that called for the elimination of this disorder. The aim of the programme was virtual elimination of iodine deficiency disorder, and institution of universal salt iodization. In 2002, a national food and nutrition policy was published with the aim of reducing vitamin and mineral deficiencies – including iodine deficiency disorder – by 50% by 2010. The Micronutrient Initiative and UNICEF (2004) projected that a decrease in the goitre rate from 20% in 1993 to 7.7% in 2004 would benefit the country in two ways: 590 000 fewer infants born with intellectual impairment annually, and a future productivity gain of US\$ 220 million per year to the Nigerian economy.

The aim of the universal salt iodization programme was to ensure that 80% of the population had access to iodized salt, to prevent iodine deficiency disorder. A national consensus workshop was attended by major domestic salt importers, distributors and packagers. Following the workshop, the Standards Organizations of Nigeria (which is charged with maintaining standards for all manufactured and imported products, including food and drugs), and relevant government ministries mandated that all food-grade salt be iodized with 50 parts per million (ppm) potassium iodide at the packaging stage. Nigeria's handful of large domestic salt companies import almost all salt for national consumption through four major ports; thus, the environment for achieving universal salt iodization was favourable. The required iodization levels were specified for salt arriving from suppliers in Australia, Europe, South America and southern Africa.

Barely 1 year after the mandate (1994), monitoring showed that less than 40% of Nigeria's salt had adequate levels of iodine. Evidence from other universal salt iodization programmes suggested that major losses of potassium iodide occurred when salt was exposed to the elements; for example, when sold in bulk in open-air markets, which is often the case in Nigeria. The Standards Organization therefore revised the standard, specifying inclusion of potassium iodate to improve retention, and establishing measures to improve the overall quality of food-grade salt, including packaging, labelling, transport and storage requirements, analytical methods and substantial legal penalties. Consignments that do not meet the standard can be impounded or sent to an iodization facility before entering the market. The standard defines properly iodized salt as containing more than:

- 50 ppm iodine at port of entry and salt factory level;
- 30 ppm iodine at distributor and retail levels;
- 15 ppm iodine at household level.

Since 1995, the Standards Organization has maintained records of inspection at port of entry and at salt companies, which show that 90–100% of consignments have iodine levels of more than 50 ppm.

To sustain universal salt iodization, Nigeria established a multisectoral task force comprising representatives of the Standards Organization secretariat and relevant partners, including salt producers and marketers, relevant government regulatory agencies and ministries, development partners, consumer associations and the media. The task force is responsible for assessing iodine levels in edible salt (quarterly at factories and wholesale level, and annually at retail and household levels), reviewing the results at quarterly meetings and documenting their findings. The assessment has revealed problems that provide the basis for continual improvement. A regular public awareness programme is conducted in print and electronic media, backed by annual celebration of Micronutrient Day.

Outcomes and conclusion

The results of a national assessment were that (Ajayi et al., 2006):

- 98% of households in Nigeria have access to adequately iodized salt;
- the prevalence of goitre decreased from 20% in 1993 to 6% in 2005;
- in all zones, the median urine iodine excretion rate was more than 100 µg/dl, indicating that no zone was deficient in iodine.

The success of the salt iodization programme can be ascribed to a number of factors: high-level commitment and good leadership, a favourable industrial and market environment, domestic financing (donors and government) that absorbed the cost of iodization, continual improvement, revision of the standards, and awareness, support and collaboration in the private sector.

The challenges that remain include smuggling of non-iodized salt into the country, and lack of salt iodization by village salt producers, who provide 1–2% of salt used in the country. To secure the livelihoods of these village producers, they are provided with small iodization facilities and connected to alternative markets, where their salt will not be used for human consumption.

Sustaining universal salt iodization requires coordination of multiple sectors, to maintain ownership and commitment, and to coordinate stakeholders to ensure high-quality production, raise consumer awareness and monitor results. Nigeria has been recognized as the first African country to achieve universal salt iodization. The country has a strong influence on trade in West Africa: without Nigeria's universal salt iodization programme, about 50% of households in the subregion that now have access to iodized edible salt would not have it.

Box 14. **Wheat flour fortification in Jordan**

After the International Conference of Nutrition in 1992, Jordan took steps to improve food and nutrition, particularly in relation to vitamin and mineral deficiencies. A comprehensive analysis of the nutrition situation was conducted, and strategies were devised to address important components of food and nutrition policies. In 2006 and 2009, with technical assistance from WHO, the Jordanian Ministries of Health and Agriculture, and academic institutions, adopted a food and nutrition policy and action plan.

Vitamin and mineral malnutrition is a public health problem in Jordan, particularly with respect to vitamin A, iron and iodine. Jordan therefore conducted two national vitamin and mineral fortification programmes: for salt iodization in 1995, and for wheat-flour fortification in April 2002.

The first survey of vitamin and mineral status in Jordan was conducted by the Ministry of Health in 2002, on iron deficiency anaemia and vitamin A deficiency. The survey showed that, among Jordanian women aged 15–49 years, 32.3% were anaemic, 40.6% had iron deficiency and 22.5% had iron deficiency anaemia. Of children aged 12–59 months, 20.2% had anaemia, 26.1% had iron deficiency and 10.1% had iron deficiency anaemia. Vitamin A deficiency was found in 15.2% of children.

In 2002, flour was fortified with iron and folic acid. In March 2006, the programme was expanded to include folic acid; iron; niacin; vitamins A, B1, B2, B6 and B12; and zinc. In 2010, the Ministry added vitamin D. Currently, all 10 mills in Jordan fortify Mowahad wheat flour (73–78% extraction rate), which is the only subsidized flour, and constitutes 92.5% of wheat flour production in Jordan.

The objectives of the flour fortification programme were to:

- reduce the prevalence of iron deficiency anaemia among preschool and school-age children, women and the elderly;
- reduce the prevalence of vitamin D deficiency among women of childbearing age, lactating women, children and the elderly;
- eliminate vitamin A deficiency among children under 5 years of age, and pregnant and lactating women;
- increase the percentage of households in which adequate amounts of folic acid, iron and vitamins A and D are consumed;
- decrease the incidence of neural tube defects among newborns;
- reduce the cost–benefit ratio of measures to prevent and correct iron deficiency and anaemia.

The success of the programme was due to:

- high-level political support from the Ministry of Health, which included the cost of the premix as a budget line item in the annual budget (1 million Jordanian dinars per year);
- a national fortification alliance and flour fortification steering committee, with multisectoral membership from industry, the government, civil society and NGOs;
- capacity-building, with technical assistance from WHO, the Global Alliance for Improved Nutrition and the Flour Fortification Initiative, for Ministry of Health programme staff and a laboratory technician, and for mill personnel on the use of feeders and quality control procedures;
- support from the milling industry for adding additional fortificants to the premix;
- legislation mandating fortification of Mowahad flour.

The programme is cost-effective and sustainable. The cost of fortification is 0.03 dinars per capita per year, whereas the cost of treating anaemia is 4.9 dinars per capita per year.

A study was conducted on consumer acceptance of iron fortification, and on the effects of storage and baking on the stability of iron in bread. The benefits will be expanded to schools, because the Ministry of Education has adopted a programme of providing biscuits made with fortified flour.

Follow-up

The Ministry of Health has established an effective routine monitoring system to ensure proper, high-quality implementation of the programme; a strategic plan for communication to all target groups; and an advocacy tool for decision-makers.

A demographic and health survey in 2010 showed a decrease in the rate of anaemia among children under 5 years of age and women of childbearing age. A survey of schoolchildren showed improvements in serum ferritin levels, with a decrease in the prevalence of iodine deficiency, from 11.5% in 2003 to 4.2% in 2009.

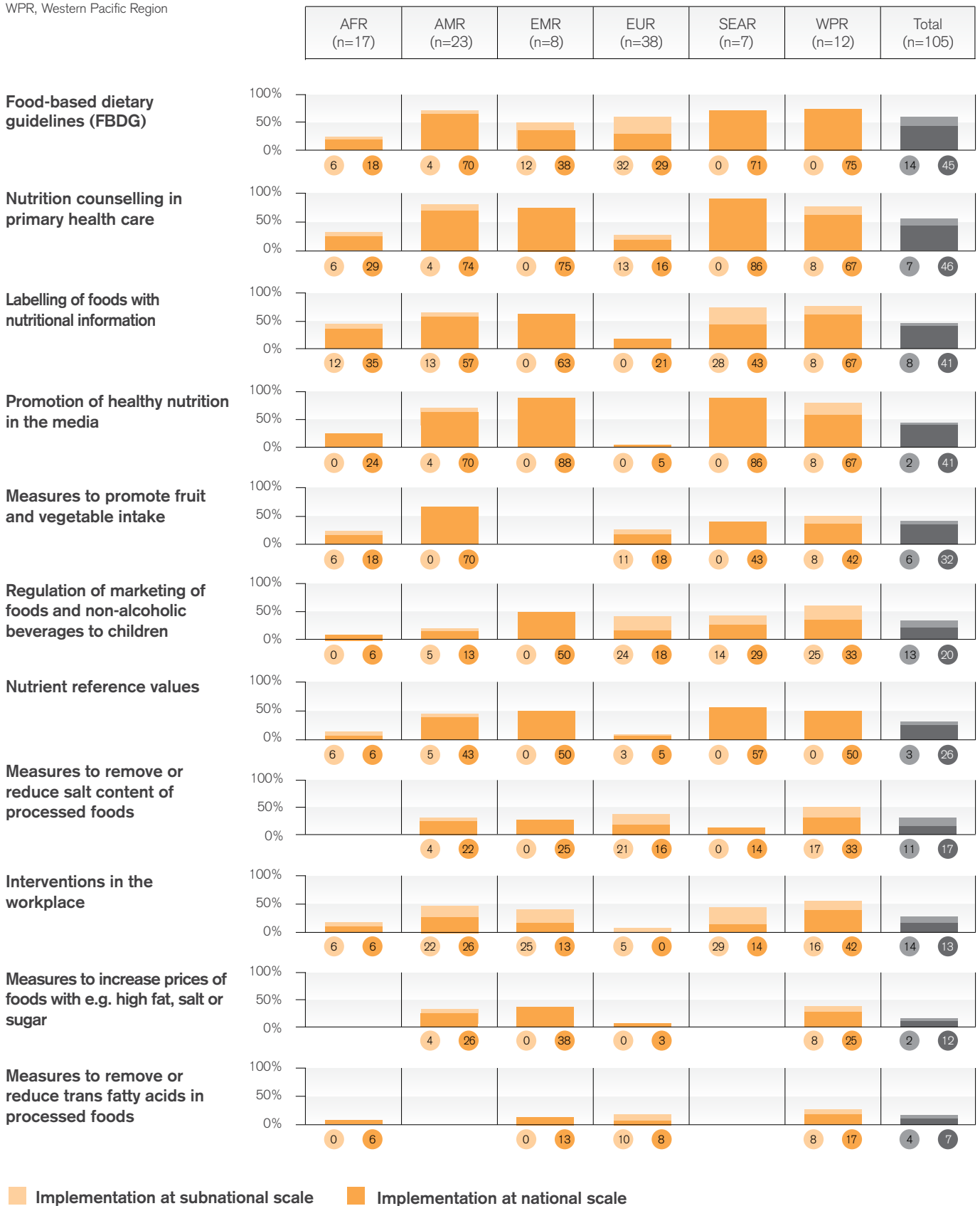
3.4.5 Obesity and diet-related noncommunicable diseases

Most of the 105 countries responding to Module 6 reported policies to combat obesity and diet-related NCDs. Dietary guidelines, nutrition counselling at primary health-care service and food labelling are intervention programmes that were reported by more than half the countries, in particular by those in the Region of the Americas and the South-East Asia Region, but not by those in the African Region (Figure 34). Healthy-eating messages were promoted through the media in 43% of reporting countries, especially in the Eastern Mediterranean Region and the South-East Asia Region. In the Region of the Americas, 70% of countries had national programmes to promote fruit and vegetable consumption, whereas none in the Eastern Mediterranean Region reported such measures.

Regulations on the marketing of foods and non-alcoholic beverages to children were most commonly reported by the countries in the Western Pacific Region (58%) and the Eastern Mediterranean Region (50%). Measures to remove or reduce salt/sodium or trans-fatty acids from processed foods were most common in the European Region and the Western Pacific Region. Some countries from a few regions also reported measures to raise the prices of unhealthy foods. In addition, many countries in the Western Pacific Region (58%) reported interventions in the workplace.

AFR, African Region;
 AMR, Region of the Americas;
 EMR, Eastern Mediterranean Region;
 EUR, European Region;
 SEAR, South-East Asia Region;
 WPR, Western Pacific Region

Figure 34. Proportions of countries reporting programmes relevant to obesity and diet-related NCDs, by WHO region



The legislative basis for the interventions varied from country to country. Statutes regulated trans-fatty acid reduction (58% of reporting countries), labelling (57%), marketing of foods and non-alcoholic beverages to children (42%) and salt/sodium reduction in processed foods (36%).

Interventions to address obesity and diet-related NCDs were reported to be the responsibility of the government, mainly the ministry of health, except in the European Region and the African Region. Intervention programmes were usually funded by the government, with support from UN agencies in the African Region and the South-East Asia Region. The target was predominantly the general population or children.

Box 15 shows how nutrition policy affected nutrition and physical activity in France.



Box 15.
Effect of French nutrition policy on the prevalence of obesity

Childhood obesity is assuming epidemic proportions in Europe, despite many European, national and local initiatives conceptualized, implemented and evaluated after adoption of the European Charter to Counteract Obesity in Istanbul, November 2006. The prevalence of childhood obesity in France is among the lowest in Europe; nevertheless, as in other countries, it has been increasing in recent years, with the rate of overweight rising faster in children than in adults. However, France may be one of the first countries in Europe to see signs of a levelling off in the national prevalence of childhood obesity, even though inequities still exist, with rates being higher in the lowest socioeconomic group. The change was brought about by the introduction in 2001 of a national nutrition and health programme that includes a comprehensive package of initiatives to fight obesity, as part of a change in public health policy. Although it cannot be proved that the stabilization of obesity rates is due to these interventions, the project is likely to have played a role. Growing awareness of the issue of obesity, especially in children, may also have had an effect.

In January 2001, at the demand of the Prime Minister, France launched the national programme, with nine quantifiable objectives. The main aim of the programme is to change food behaviour and physical activity in order to both reduce the prevalence of obesity among adults and stabilize the increasing prevalence of obesity in children. The programme is based on six comprehensive strategies, including delivery of information, communication and education, health system activities, and interventions targeting economic stakeholders and consumers. It is coordinated by the Ministry of Health; also, a strategic committee (chaired by the Minister of Health) and an executive commission convenes regularly to discuss and propose initiatives. To involve all sectors of society, the programme includes representatives of nine ministries, and partners in a range of sectors: agriculture, education, consumption, research, youth and sports, health, research institutes, local and regional governments, social scientists, nutrition and economic actors, the food industry, mass caterers, retailers, producers and consumers.

Many activities have been conducted within this programme. Millions of copies of information material have been distributed to groups within the population, and large media campaigns have been conducted. Several interventions at the municipality level appear to have been effective, as has interaction with major stakeholders; for example, the salt content of bread was reduced after negotiations with the industry, and levels of added sugars were reduced in some processed foods, which are consumed mainly by disadvantaged groups. The communication and media strategy created and maintained a brand image for the national plan, which kept its brand value high, providing good arguments to convince policy-makers in the health sector to prioritize nutrition.

Schools were one of the priorities of the programme. Pedagogical opportunities in the curricula were used to promote health and proper nutrition in families; at the same time, the school food and nutrition environment was improved by banning vending machines.

Intensive surveillance was conducted, with continual evaluation. Individual actions were evaluated, and national surveys were conducted to evaluate activities and make any required

changes. Government regulation was used to improve the nutritional quality of food served in schools, and to prevent advertising of food products in schools. Restrictions on television advertising were also implemented.

The programme focused on medium-term interventions in nutrition and physical activity, on the basis that nutrition is a major health determinant with a large impact on the increase in obesity. Recommendations were made for individual groups of the population in terms of food habits, nutrition and physical activity.

France has recently seen improvements in many indicators of physical activity and nutritional outcome, such as stabilization of child overweight and increased intake of fruit and vegetables. Although these developments are contemporaneous with the national nutrition and health programme, a causal relation cannot be assumed (Hercberg, 2009).

3.4.6 Food security and agriculture

Figure 35 summarizes the main areas addressed in the food security and agriculture policy documents of the 66 countries that responded to Module 7. The most commonly reported policy activities were research (59%) and provision of seeds (55%), followed by subsidized sales and construction of irrigation systems (48%), construction of rural infrastructure (42%), price control (41%), international agreements to increase domestic food production (41%), production credit from state-owned banks (39%) and subsidized food for vulnerable groups (38%).

The main policy goals of these programmes were to increase output and farm incomes, followed by improving quality of the products. Few of the broad policy goals explicitly mentioned nutritional goals, such as combating undernutrition, reducing overweight or obesity, or promoting a healthy diet. Poverty alleviation was seldom mentioned as a goal by countries in any region in any type of programme.

The most common food commodities targeted by the intervention programmes were cereals, roots and tubers; countries in the Region of the Americas were more likely to report interventions that also covered other food groups, such as fruits and vegetables. Countries in the Eastern Mediterranean Region were more likely to provide seeds and support research, and to do so for a wider range of food groups. Countries in the Region of the Americas and the European Region were more likely to subsidize sales of fruit and vegetables. Few countries subsidized any food groups targeted at vulnerable people.

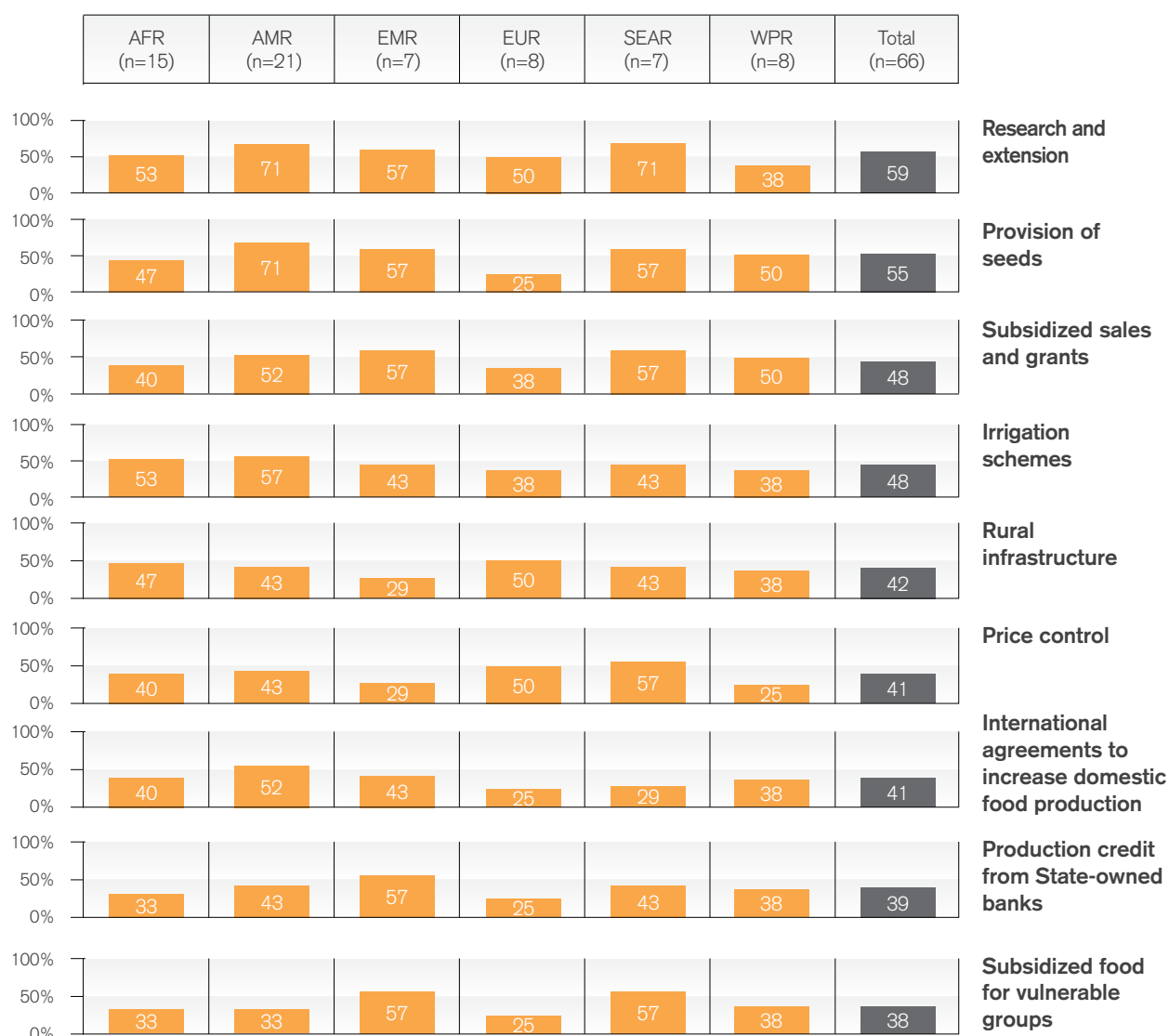
3.5. Analysis of policy coherence

Of the 123 countries that responded to the questionnaire survey, 54 Member States or territories²³ completed all seven modules, and reported policies, stakeholders, interventions and surveillance for all the aspects of nutrition issues addressed in the survey.

A subset analysis was conducted to determine whether there was any difference in environment for policy or implementation between countries with a high burden of specific nutrition problems and those with a lesser burden. The four nutrition problems analysed

²³ The 54 respondents that completed all seven modules comprise 13 countries in the African Region (Burundi, Cameroon, Côte d'Ivoire, Ethiopia, Ghana, Guinea-Bissau, Madagascar, Mauritania, Mauritius, Seychelles, Togo, Zambia and Zimbabwe); 19 countries and territories in the Region of the Americas (Antigua and Barbuda, Barbados, Brazil, Chile, Colombia, Dominica, El Salvador, Grenada, Guatemala, Honduras, Mexico, Montserrat, Peru, Plurinational State of Bolivia, Saint Lucia, Saint Vincent and the Grenadines, Suriname, United States of America and Uruguay); 4 countries in the Eastern Mediterranean Region (Bahrain, Iraq, Islamic Republic of Iran and Kuwait); 5 countries in the European Region (Armenia, Croatia, Latvia, Poland and Sweden); 6 countries in the South-East Asia Region (Bangladesh, Maldives, Nepal, Sri Lanka, Thailand and Timor-Leste); and 7 countries in the Western Pacific Region (Cambodia, Lao People's Democratic Republic, Malaysia, Mongolia, Papua New Guinea, Republic of Korea and Tuvalu).

Figure 35. Proportions of countries reporting various food and agriculture policy activities, by WHO region



AFR, African Region; AMR, Region of the Americas; EMR, Eastern Mediterranean Region; EUR, European Region; SEAR, South-East Asia Region; WPR, Western Pacific Region

were child stunting, maternal undernutrition (underweight and low birth weight), women’s obesity and a double burden of malnutrition (both child stunting and women’s obesity). The most recent national data available in the WHO global nutrition databases were also used to support this further analysis. Countries were considered to have certain nutrition problems on the basis of an established or other cut-off point for public health significance. Table 3 summarizes the distribution of the four nutrition problems in the 54 countries by WHO region.

These four nutrition challenges are related to maternal and child undernutrition, either directly or indirectly. Implementation of interventions to improve maternal, infant and young child nutrition (Table 4) was assessed as “high” if more than half the interventions were reported to be implemented and “low” if half or fewer were implemented.

Another subset analysis was conducted for 27 countries with high stunting rates, out of the 54 countries that answered all modules. The aim of this subset analysis was to determine any differences in the policy environment between countries where most of the maternal, infant and young child nutrition interventions had been scaled up, and those in which implementation had not been scaled up.

Table 3. Distribution of four nutrition problems in 54 countries responding to the complete questionnaire, by WHO region

School level	WHO region						Total (n=54)
	AFR (n=13)	AMR (n=19)	EMR (n=4)	EUR (n=5)	SEAR (n=6)	WPR (n=7)	
Stunting							
High levels	11	5	2	0	4	5	27
Low levels	2	8	2	1	2	1	16
No data	0	6	0	4	0	1	11
LBW/maternal undernutrition							
High levels	11	6	1	1	5	3	27
Low levels	1	12	3	4	1	4	25
No data	1	1	0	0	0	0	2
Women's obesity							
High levels	7	12	4	5	0	3	31
Low levels	5	0	0	0	1	2	8
No data	1	7	0	0	5	2	15
Double burden of women's obesity and child stunting							
High levels of both conditions	6	5	2	0	0	2	15
Low levels of at least one condition	6	6	2	1	3	2	20
No data	1	8	0	4	3	3	19

AFR, African Region; AMR, Region of the Americas; EMR, Eastern Mediterranean Region; EUR, European Region; SEAR, South-East Asia Region; WPR, Western Pacific Region

Table 4. Maternal, infant and young child nutrition interventions evaluated*

	All contexts	Specific contexts**
Maternal and birth outcomes	<ul style="list-style-type: none"> Iron and folic acid supplementation Maternal multiple micronutrient supplementation Maternal iodine through iodization of salt Maternal calcium supplementation Interventions to reduce tobacco consumption or indoor air pollution 	<ul style="list-style-type: none"> Maternal supplements of balanced energy and protein Maternal iodine supplements Maternal deworming in pregnancy Intermittent preventive treatment for malaria Insecticide-treated bednets
Newborns and children	<ul style="list-style-type: none"> Promotion of breastfeeding Behavioural change communication to improve complementary feeding Zinc supplementation Zinc in management of diarrhoea Vitamin A fortification or supplementation Universal salt iodization Hand-washing or other hygiene interventions Management of severe acute malnutrition 	<ul style="list-style-type: none"> Neonatal vitamin A supplementation Delayed cord clamping Conditional cash transfer (with nutritional education) Deworming Iron fortification and supplementation Insecticide-treated bednets

* Implementation at national or subnational scale of these interventions was evaluated on the basis of countries' responses to modules 1, 2 and 5. Data on scale of programme were not collected for conditional cash transfers.

** Bhutta et al. (2008) proposed a set of interventions relevant for all contexts and another set for specific settings, such as malaria-endemic areas.

3.5.1 Stunting

Stunting was a problem of public health significance ($\geq 20\%$) in 27 of the 54 countries that had completed all seven modules of the survey: 11 in the African Region, 5 in the Region of the Americas, 2 in the Eastern Mediterranean Region, 4 in the South-East Asia Region and 5 in the Western Pacific Region. Data were not available for 11 countries (Table 3).

More countries with a problem of stunting (i.e. sufficient to be significant to public health) reported national policies to address the stunting problem than those with stunting rates below the 20% threshold (Figure 36). In countries with a significant stunting problem these policies more often addressed underlying issues of the problems than was the case in countries with lower stunting rates. Over 90% of countries with a high level of stunting reported policies to improve breastfeeding, complementary feeding, and low birth weight or maternal undernutrition. Most of the policies also included vitamin A supplementation for children. However, fewer countries included supplementation of iron and folic acid in their policies, and even fewer included supplementation with zinc. More than 80% of the countries with high levels of stunting recognized the importance of ensuring food security, but fewer than half mentioned conditional cash transfers.

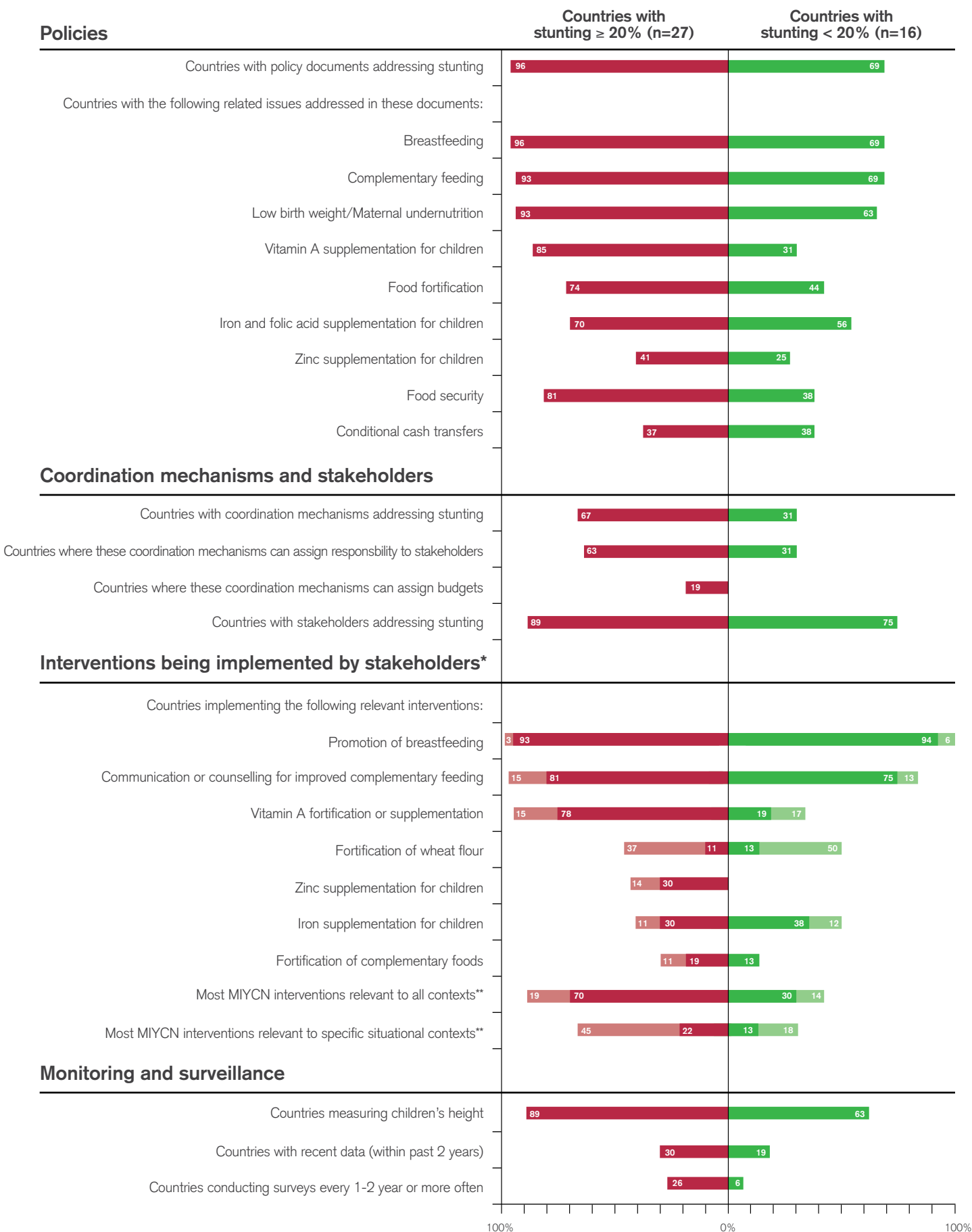
Existence of coordination mechanisms to address the stunting problem were reported by 67% of the countries that had significant levels of stunting, which was more than double that of countries with lower levels of stunting. In countries with high levels of stunting, the coordination mechanisms involved more sectors, particularly the health sector, followed by agriculture, food, education and research. More than 60% of countries with a high rate of stunting reported that their coordination mechanism had some authority to assign responsibility to stakeholders; however, only 19% had authority to assign budgets. Stakeholders were implementing relevant interventions in 89% of countries with a significant stunting problem.

In all countries with high levels of stunting, programmes to promote breastfeeding and behaviour-change communication or counselling to promote complementary feeding were usually at national scale. Vitamin A supplementation and fortification programmes were more often at national scale in countries with a high level of stunting, whereas iron supplementation for children was more likely to be at national scale in countries with lower levels. Fortification of wheat flour was common in countries with lower levels of stunting, although it was usually non-mandatory and thus less likely to be implemented at national scale.

More countries with a significant stunting problem implemented the maternal, infant and young child nutrition interventions highlighted in *The Lancet* (Bhutta et al., 2008), in all contexts and in specific contexts, such as malaria-endemic areas. Further analysis of interventions in the 27 countries with high levels of stunting is presented in section 3.5.5 (page 97).

Children's height was measured in national surveys in 89% of countries with a high level of stunting, but less than one third of the countries reported conducting surveys in the previous 2 years, or that they conducted such surveys every 1–2 years.

Figure 36 Policies, coordination mechanisms and stakeholders, interventions and surveillance in countries with high and low levels of stunting. Data are presented as the percentage of total number of countries in each group.



* For interventions, the darker area indicates implementation at national scale, the lighter area indicates implementation at subnational scale, and the full bar implementation at any scale (national or subnational).

** This refers to a majority of maternal, infant and young child nutrition (MIYCN) interventions relevant to please all contexts or in specific situational contexts as identified by Bhutta et al. (2008) and listed in Table 4.

3.5.2 Maternal undernutrition and low birth weight

Of the 54 countries that responded, 27 had a prevalence of maternal undernutrition (BMI < 18.5 kg/m²) that was above the cut-off for public health significance ($\geq 10\%$) or a rate of low birth weight $\geq 10\%$. These countries comprised 11 in the African Region, 6 in the Region of the Americas, 5 in the South-East Asia Region and 3 in the Western Pacific Region (Table 3). Data were not available for one country in the African Region and one in the Region of the Americas.

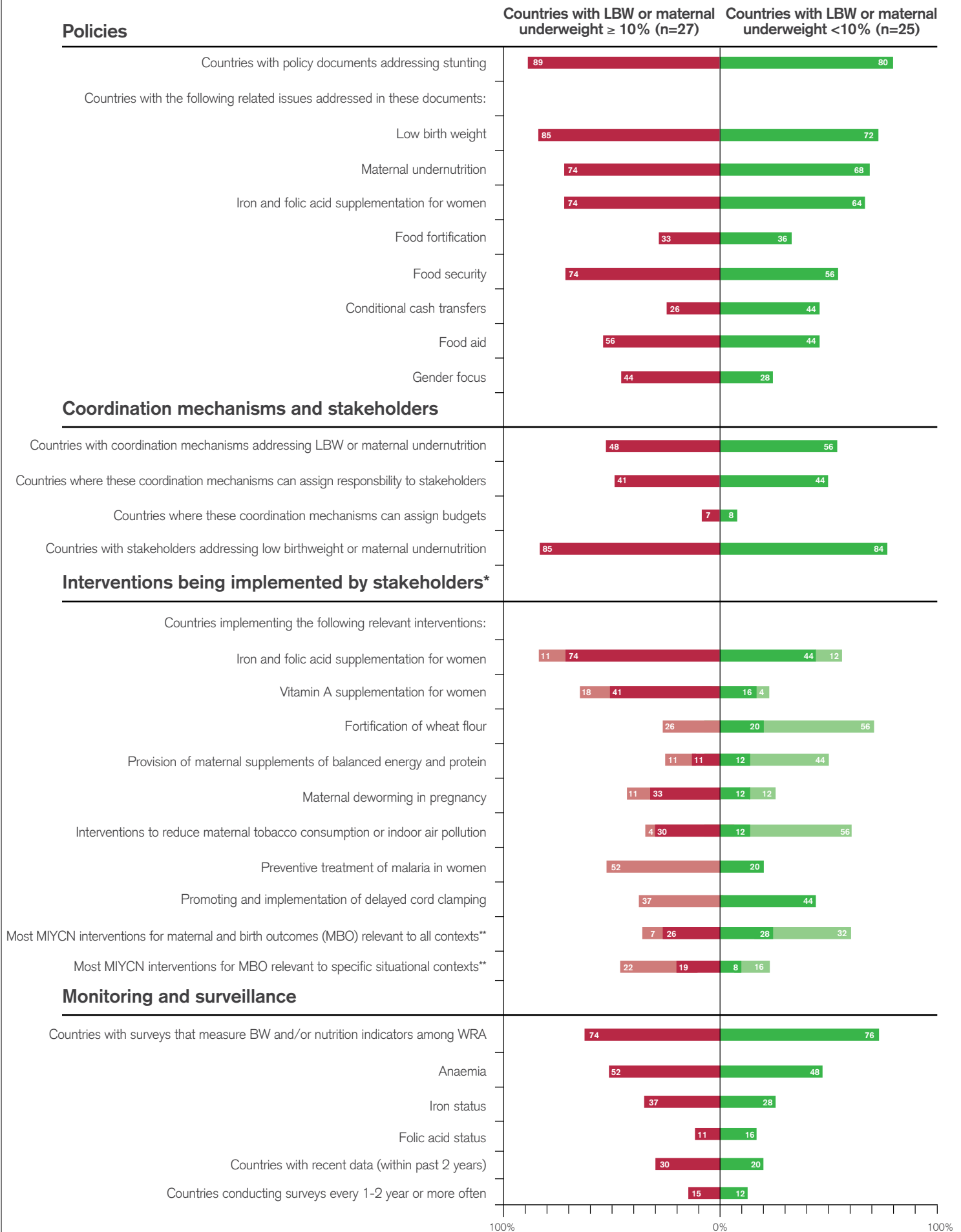
Policies to address maternal undernutrition or low birth weight were reported by 89% of countries with a high level of maternal undernutrition (Figure 37). These policies often included interventions such as iron and folic acid supplementation, and underlying factors such as food security. Fewer than half the policies had a gender focus, or covered interventions such as food fortification and conditional cash transfers.

In most countries, stakeholders were conducting programmes to address maternal undernutrition or low birth weight, but only about half had coordination mechanisms for implementing such programmes. The ministry of health was involved in coordination in all countries with a high level of maternal undernutrition that had a mechanism for coordination. Other sectors frequently involved were those of agriculture and food, education, and research, whereas ministries concerned with women's affairs were seldom mentioned. Most coordination mechanisms had authority to allocate responsibility, but few had authority to assign budgets.

Among countries with high levels of maternal undernutrition, more reported vitamin and mineral supplementation programmes for pregnant women or for all women; by contrast, countries with lower levels of maternal undernutrition had more fortification programmes. Fewer than half the countries with a high level of maternal undernutrition provided energy and protein supplements for mothers. Few countries in this group had scaled up indirect nutrition interventions that affect maternal and birth outcomes, such as deworming in pregnancy. Only a third of these countries implemented most of the key maternal, infant and young child nutrition interventions for maternal and birth outcomes identified in *The Lancet* series (Bhutta et al., 2008) as relevant for all settings, whereas about two thirds of the countries with lower levels did so. Slightly more countries with high maternal undernutrition levels reported implementation of key maternal, infant and young child nutrition interventions for specific contexts.

About three quarters of countries conducted surveys to measure either birth weight or relevant nutrition indicators in women of reproductive age (weight and height; or anaemia, iron or folic acid status). Despite broad implementation of iron and folic acid supplementation in countries with high levels of maternal undernutrition, only about half conducted national surveys to measure anaemia, and a third conducted surveys of iron or folic acid status. Less than a third reported conducting surveys in the previous 2 years or conducting surveys every 1–2 years.

Figure 37 Policies, coordination mechanisms and stakeholders, interventions and surveillance in countries with high and low levels of maternal underweight or LBW. Data are presented as the percentage of total number of countries in each group



* For interventions, the darker area indicates implementation at national scale, the lighter area indicates implementation at subnational scale, and the full bar implementation at any scale (national or subnational).

** This refers to a majority of maternal, infant and young child nutrition (MIYCN) interventions relevant to please all contexts or in specific situational contexts as identified by Bhutta et al. (2008) and listed in Table 4.

3.5.3 Women's overweight and obesity

Of the 54 countries that responded, 31 had obesity rates among women of more than 5%, comprising 12 in the Region of the Americas, 7 in the African Region, 5 in the European Region, 4 in the Eastern Mediterranean Region and 3 in the Western Pacific Region (Table 3). Data were not available for 15 countries.

Of countries with high levels of women's obesity, 90% reported national policies to address obesity or diet-related NCDs, whereas all countries with lower levels had such a policy (Figure 38). These policies usually covered the intervention programmes related to breastfeeding and complementary feeding, but less often included underlying issues, such as trade. In the countries with high levels of women's obesity, child obesity was addressed more often than adult obesity.

More than 80% of countries which have data on women's obesity reported that stakeholders were conducting programmes addressing obesity or diet-related NCDs, but fewer countries reported any existing mechanisms to coordinate such programmes. The sectors most often involved were health, followed by education, research, agriculture and food; urban planning and transport were rarely included. Most of the coordination mechanisms reported had authority to assign responsibility for implementing programmes, but fewer had authority to assign budgets.

In all countries which have data on women's obesity, interventions to promote breastfeeding and behaviour-change communication or counselling to promote appropriate complementary feeding were usually implemented at national scale. Promotion of healthy diet through the media, and measures to prevent marketing of high-fat, energy-dense foods were reported by about half of the countries with a high level of women's obesity. Increasing fruit and vegetable intake was promoted by about a third of these countries. Other relevant interventions were less often implemented, and seldom at national scale.

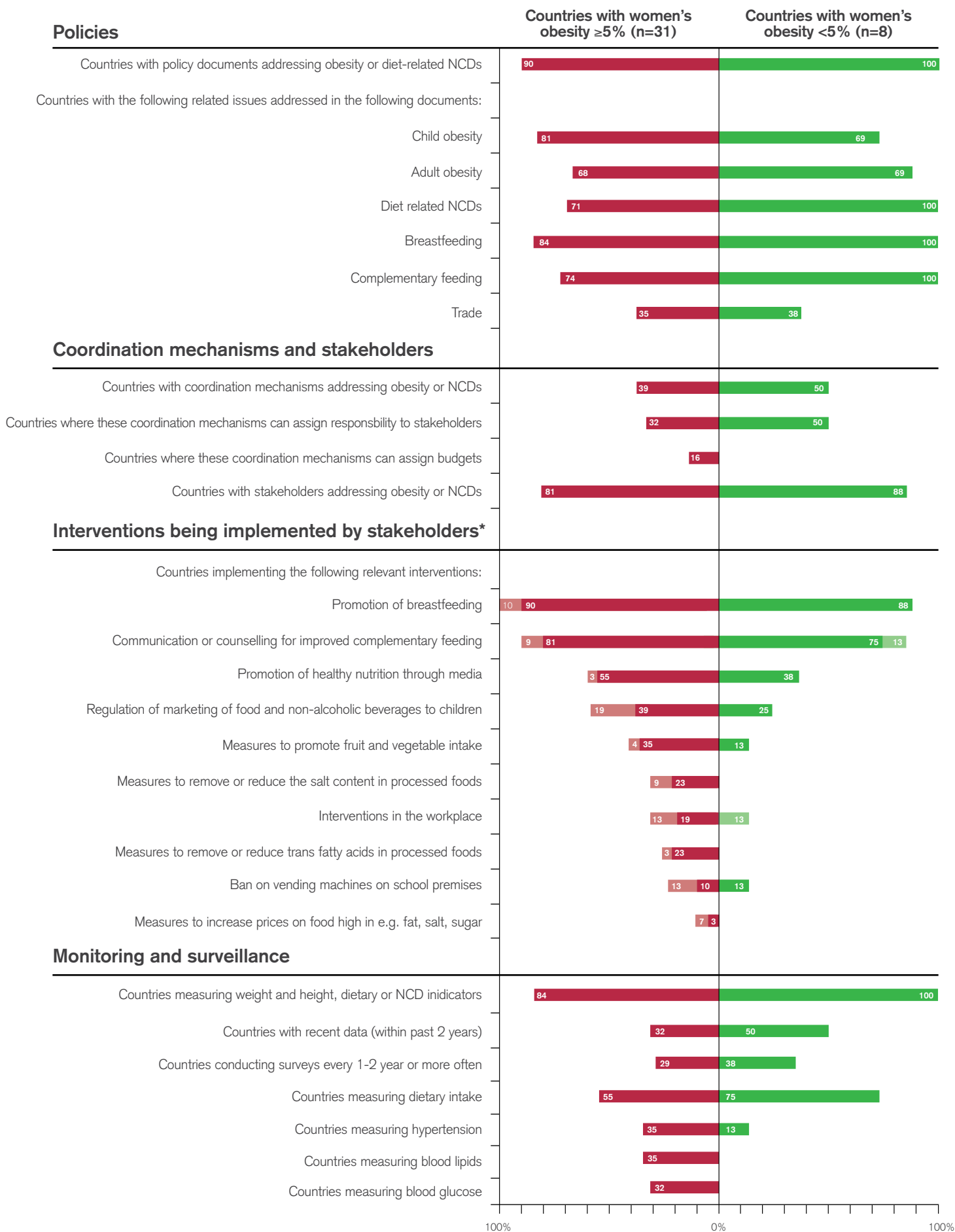
National surveys of both weight and height, and of specific indices of diet-related NCDs, were reported by 84% of the countries with a high level of obesity among women. However, few countries reported surveys that included measurements of blood glucose, blood lipids or hypertension. About a third of the countries reported that surveys had been conducted within the past 2 years, and that such surveys were conducted every 1–2 years.

3.5.4 Double burden of malnutrition

Of the 54 countries that responded to all modules, 15 were facing a double burden of malnutrition, with high levels of both child stunting and women's obesity. These comprised six countries in the African Region, five in the Region of the Americas, two in the Eastern Mediterranean Region and two in the Western Pacific Region (Table 3). Data were unavailable for 19 countries.

Policies to address both undernutrition and obesity and diet-related NCDs were reported by 67% of the countries experiencing a double burden of malnutrition, as compared to 90% of the countries that did not seem to be facing this challenge (Figure 39). The policies were more often addressing undernutrition than obesity, diet-related NCDs.

Figure 38 Policies, coordination mechanisms and stakeholders, interventions and surveillance in countries with high and low levels of women's obesity. Data are presented as the percentage of total number of countries in each group



* For interventions, the darker area indicates implementation at national scale, the lighter area indicates implementation at subnational scale, and the full bar implementation at any scale (national or subnational).

Most countries in both groups reported that stakeholders were conducting intervention programmes to address both undernutrition and obesity or diet-related NCDs. However, fewer countries had coordination mechanisms for addressing double-burden issues. Although the existing coordination mechanisms had authority to assign responsibility for programme implementation, they had much less authority to allocate budgets. The coordination mechanisms involved health, and agriculture and food sectors, and more often dealt comprehensively with undernutrition issues than with obesity or diet-related NCD issues.

Breastfeeding and appropriate complementary feeding were promoted in all countries with a double burden of malnutrition, usually at national scale. Again, more interventions targeted undernutrition, such as those identified in *The Lancet* series (Bhutta et al., 2008), than obesity or diet-related NCDs (e.g. through measures to remove or reduce salt/sodium or trans-fatty acids from processed food). In 73% of the countries with a double burden of malnutrition, the key maternal, infant and young child nutrition interventions relevant for all contexts were implemented at national scale.

Most of the countries facing a double burden of malnutrition (87%) and all of the countries not facing a double burden of malnutrition conducted national surveys that included not only anthropometric indicators, but also indicators and measures related to diet-related NCDs (although the indicators typically linked to diet-related NCDs were less likely to be monitored on a regular basis). However, fewer countries reported conducting surveys within the previous 2 years, or that surveys were conducted every 1–2 years.

3.5.5 Policy environment for scaling up interventions

Policies and governance in countries with high levels of stunting were examined to see whether there were any differences between the countries that implemented more than half of the key maternal, infant and young child nutrition interventions at national scale and those that implemented less than half of those key interventions at national scale (Figure 40).

The policies in countries that implemented more interventions at national scale were also more likely to cover relevant areas of nutrition and underlying factors. The greatest difference was in relation to the underlying factors. For example, the countries that were implementing intervention programmes at national scale were more likely to have policies that included food security, food aid and conditional cash transfers, as well as nutrition-specific interventions such as food supplementation and fortification. They were also more likely to focus on women and vulnerable population groups.

A similar pattern was seen with regard to coordination mechanisms. Countries that had more national interventions were more likely to have coordination mechanisms to address intervention programmes related to maternal, infant and young child undernutrition (particularly low birth weight, and infant and young child feeding), and zinc supplementation in the management of diarrhoea among children, as well as underlying factors. Those coordination mechanisms more often included stakeholders that funded nutrition intervention programmes.

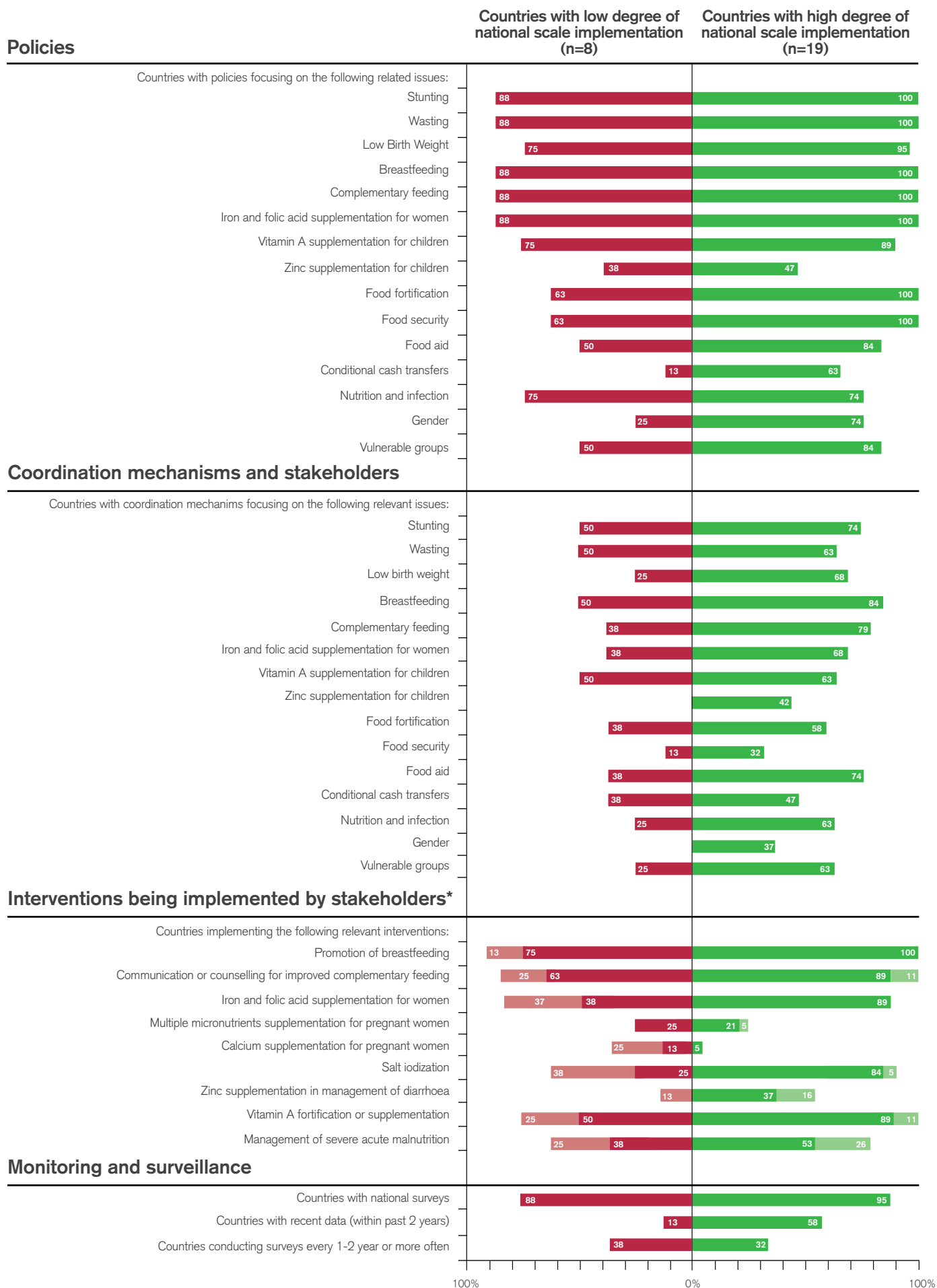
Figure 39 Policies, coordination mechanisms and stakeholders, interventions and surveillance in countries with and without a double burden of malnutrition (coexistence of child stunting and women's obesity). Data are presented as the percentage of total number of countries in each group.



* For interventions, the darker area indicates implementation at national scale, the lighter area indicates implementation at subnational scale, and the full bar implementation at any scale (national or subnational).

** This refers to a majority of maternal, infant and young child nutrition (MIYCN) interventions relevant to please all contexts or in specific situational contexts as identified by Bhutta et al. (2008) and listed in Table 4.

Figure 40 Policies, coordination mechanisms, interventions and surveillance in high burden stunting countries with high and low degree of national scale implementation of key MICYN interventions*. Data are presented as the percentage of total number of countries in each group.



* For interventions, the darker area indicates implementation at national scale, the lighter area indicates implementation at subnational scale, and the full bar implementation at any scale (national or subnational).

4.

Conclusions

Much progress has been made since the 1992 International Conference on Nutrition in designing and implementing national nutrition policies and plans of action. Most countries that responded to the Global Nutrition Policy Review have policies, strategies or action plans to address their nutrition challenges. In addition, regional nutrition strategies have been developed in most regions, to accelerate political commitment and support to countries (see Box 1 page 51). Furthermore, the World Health Assembly, at its 65th Session in May 2012, endorsed the Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition, with six global targets to be achieved by 2025.

More than 90% of the responding countries in each of the regions had policies and programmes that covered key nutrition issues, such as undernutrition, vitamin and mineral malnutrition, and obesity and diet-related NCDs, with a particular focus on maternal, infant and young child nutrition. Countries in the African Region and the South-East Asia Region more often addressed undernutrition in their national policies than obesity and diet-related NCDs; by contrast, countries in the Eastern Mediterranean Region, the European Region and the Western Pacific Region more often included issues related to obesity and diet-related NCDs. Most countries in the African Region, the Region of the Americas, the South-East Asia Region and the Western Pacific Region reported broad policies that cover all aspects of the double burden of malnutrition, rather than individual policies and strategies to address separate nutrition problems.

Improving nutrition requires a comprehensive approach to policy response and its implementation, adapted to each country's context. The experience of Brazil shows that a dramatic reduction in stunting can be achieved in a relatively short time if the combination of actions is right, and they are addressed in national policies and supported at the highest level. The types of policies promoted in Brazil (see Box 5 page 60), which directly address material deprivation by providing income or cash grants, indicate the importance of more active integration of health in social policies.

Political commitment backed by resources and legislation (laws and regulations that enforce policies) is a key factor in successful implementation of policies and programmes. The coordination of multiple stakeholders and interest groups is also important. The subset analysis of the 54 countries that responded to all seven modules showed that comprehensive policies that address both immediate and underlying causes, with relevant coordination mechanisms, are conducive to the scaling-up of essential nutrition actions.

Infant and young child feeding

Virtually all the countries that responded, except those in the European Region, reported policies to address infant and young child nutrition, with breastfeeding being mentioned more often than complementary feeding. The limited policy focus on infant and young child feeding in the European Region may reflect underreporting, because other studies have shown that a high proportion of European countries have national policies on breastfeeding (European Commission, 2008). Promotion of breastfeeding, and counselling for complementary feeding, were the interventions most frequently implemented at national scale in all regions. However, these policies and programmes do not appear to have been translated into practice, because the rate of exclusive breastfeeding at 6 months was low in most regions. This raises the question of the quality of the techniques used for promotion and counselling. Multiple strategies are required to protect, promote and support breastfeeding and the timely introduction of complementary feeding. In a life-course perspective of nutrition, appropriate infant and young child feeding is crucial to prevent all forms of malnutrition. Not all regions implement the full set of priorities recommended in the Global Strategy on Infant and Young Child Feeding (See Box 8 page 69). For example, more countries in the Eastern

Mediterranean Region reported high coverage of the Baby-friendly Hospital Initiative than was the case in other regions.

A number of case studies show success in protecting, promoting and supporting breastfeeding. The example of Malaysia (see Box 9 page 70) shows the factors that led to improved rates of breastfeeding: supporting policies through legislation, strengthening of labelling and public awareness, inclusion of breastfeeding in school curricula, and training of health and non-health professionals. In New Zealand (see Box 10 page 71), a significant improvement in the average rate of exclusive breastfeeding was attributed to a range of factors: strong political commitment, backed by a dedicated committee and a clear workplan with targets; reaching out to the community beyond the hospital setting; well-designed and appropriate training; well-documented results; and monitoring of progress. In the Philippines (see Box 11 page 72), the national infant and young child feeding programme led to a national plan of action that was signed by the Secretary of Health. Important elements were legislative and policy support, community engagement and effective operationalization of the programme.

More than half of the countries in the world have legal measures to give effect to the International Code of Marketing of Breast-milk Substitutes and subsequent World Health Assembly resolutions. Although the Code was adopted 30 years ago, and many countries have legal measures, they do not cover all the provisions of the Code, and few include functioning mechanisms for implementation and monitoring (WHO, 2013c). Accelerating and renewing efforts to fully implement and monitor the Code and the subsequent resolutions, including independent monitoring, for instance by civil society, will be important to protect the essential right of breastfeeding mothers and their infants to food, health and care. Experiences and lessons learnt from the implementation of the Code could be used in guiding similar areas of work, such as the marketing of foods and non-alcoholic beverages to children (WHO, 2010d), and appropriate marketing of complementary foods.

Undernutrition

With regard to policies on undernutrition, underweight was the most frequently reported topic, followed by low birth weight, stunting, wasting and maternal undernutrition, except in the European Region, where low birth weight was most often mentioned. These issues were most frequently addressed in policies in countries in the African Region, the Region of the Americas, South-East Asia Region and the Western Pacific Region, where there is a high prevalence of child undernutrition. Most countries that have high rates of stunting also have policies to combat the problem.

The existence of policies to address maternal undernutrition varied from region to region. The analysis of 54 countries showed that most of those with high rates of maternal undernutrition had policies to address either maternal nutrition or low birth weight. Those policies also included interventions such as iron and folic acid supplementation for women, but less often addressed underlying issues such as gender equity. Less than half of the countries reported having coordination mechanisms to address and implement programmes on maternal undernutrition, and only one third stated that they implemented most of the key maternal, infant and young child nutrition interventions for improved maternal and birth outcomes listed in Table 4. The Landscape Analysis also identified the lack of awareness and understanding of the importance of fetal and infant growth for good physical and mental development and long-term health at all levels. This was

reflected in a lack of programmes (or weak programmes) being implemented in countries to prevent maternal undernutrition. From the life-course perspective, family planning and prevention of adolescent pregnancies can also prevent maternal undernutrition and low birth weight (UNSCN, 2010).

Although most countries reported the implementation of interventions for addressing maternal, infant and young child nutrition, such interventions varied considerably. For example, distribution of complementary foods or maternal supplementation for balanced energy and protein were most commonly reported by the countries in the Region of the Americas and the South-East Asia Region, whereas management of severe acute malnutrition was most commonly reported in the countries in the African Region and the South-East Asia Region, and management of moderate acute malnutrition in the countries in the African Region. Some countries that reported implementation of the management of severe and moderate acute malnutrition did not report appropriate protocols; a situation that could jeopardize sustainable integration of these activities into health systems. In the subset analysis of 54 countries, 70% of countries with high levels of stunting had scaled up most maternal, infant and young child nutrition interventions. However, only 26% of countries with high levels of maternal undernutrition or low birth weight had scaled up most interventions for improved maternal and birth outcomes.²⁴ In the countries with high levels of stunting, issues related to breastfeeding, complementary feeding and vitamin A supplementation were consistently addressed in their policies and programmes; these countries also had coordination mechanisms for these issues. Less consistently addressed was the issue of zinc supplementation for children, which was implemented in some countries that appeared to have no related policy. A supportive policy environment – for example, with comprehensive policies, relevant coordination mechanisms and funding partners – is important for the scaling-up of maternal, infant and young child nutrition interventions, as observed in the countries with a high burden of stunting as reported to the survey.

Nutrition in emergencies

The existence of policies and programmes for nutrition in emergencies such as natural disasters and conflicts was less consistent. Food aid was most often reported as a policy issue by countries in the South-East Asia Region, followed by the Region of the Americas and the African Region. Almost a third of countries reported to have policies for infant feeding in emergencies. The 2010 World Health Assembly resolution on infant and young child nutrition (WHO, 2010a) urged Member States “to ensure that national and international preparedness plans and emergency responses follow the evidence-informed Operational Guidance for Emergency Relief Staff and Programme Managers on infant and young child feeding in emergencies” (Infant Feeding in Emergencies Core Group, 2007). The operational guidance covers protection, promotion and support of optimal breastfeeding, minimizing the risk for artificial feeding by ensuring that any required breast-milk substitutes are purchased, distributed and used according to strict criteria.

Nutrition of school-age children

Most countries in all regions reported nutrition activities in pre-, primary and secondary schools. Training of staff in nutrition and health was the most commonly reported activity; provision of safe water and hygiene promotion were also frequently reported, except in the countries of the African Region. Clearly, more comprehensive health and nutrition programmes are required to improve the school environment in the African Region to become health and nutrition friendly. In addition, provision of milk, or fruit and vegetables, in

²⁴ These interventions were defined by Bhutta et al. (2008); see also Table 4.

schools was reported by half the countries in all regions, except in the African Region and the South-East Asia Region.

Schools offer many opportunities to promote healthy dietary and physical activity patterns for children. They are also a potential access point for engaging parents and community members in preventing children's nutrition problems, including both undernutrition, and obesity and diet-related NCDs. Comprehensive school health and nutrition programmes also provide a good opportunity to improve nutrition of adolescent girls, which in turn contributes to the improvement of future maternal, infant and young child nutrition, and to the prevention of obesity and diet-related NCDs later in life.

Obesity and diet-related NCDs

Most countries reported policies to address obesity and diet-related NCDs, although many lacked policies on both child and adult obesity. Obesity appeared to be considered as a personal responsibility rather than a problem against which states are obliged to protect their citizens. This was reflected in the fact that the most commonly reported policy implementation tool in all regions was relating to providing information to individuals; for example, through dietary guidelines, nutrition counselling in primary health care, food labelling and media promotion of healthy eating. Many countries reported the use of media to promote healthy diet, but less than half of the countries in all regions specifically promoted greater consumption of fruits and vegetables. An exception was the Region of the Americas, where 70% of countries reported such promotion at national scale. In the countries that used labelling instruments, 57% were regulated by statute.

About half of the responding countries in all regions, except the African Region, reported that marketing of unhealthy foods and beverages was not allowed in schools, and a third indicated that some regulation existed. Prohibition of vending machines in schools was less common. These actions may, however, increase in more countries since the adoption of the recommendations on the marketing of food and non-alcoholic beverages to children by the 63rd World Health Assembly (WHO, 2010d). Few countries reported measures to reduce the content of salt/sodium or trans-fatty acids in processed foods, except for in the Western Pacific Region where half of countries reported measures to reduce the content of salt/sodium.

The 54-country analysis showed that most countries with a high level of obesity among women implemented interventions such as promoting breastfeeding and complementary feeding, although the implementation of other relevant interventions was much lower. For example, less than half of the countries reported promotion of fruit and vegetable consumption, and one tenth reported measures to increase the prices of unhealthy foods. The countries with high levels of obesity implemented relevant interventions more often than the countries with low levels of obesity, yet the countries with low levels of obesity appeared to address the relevant issues more consistently, both in policies and in coordination of programme implementation by concerned stakeholders.

The same subset analysis of 54 countries showed that policies and coordination mechanisms in countries with a double burden of undernutrition and overweight less consistently included both undernutrition, and obesity and diet-related NCDs. Only one country with this double-burden problem reported that funding partners addressed both undernutrition, and obesity and diet-related NCDs. Nevertheless, all countries with the double burden reported implementation of most key maternal, infant and young child nutrition interventions.

The national health and nutrition programme in France (see Box 15 page 87) shows that a comprehensive package of obesity-fighting initiatives can help to stabilize the obesity epidemic. Some of the useful activities in this programme included promotion of health and nutrition in schools, banning of vending machines, use of a surveillance system to evaluate and alter programmes, government regulation to improve school meals, prevention of advertising of food products in schools, and regulation of television advertising.

Vitamin and mineral malnutrition

Vitamin and mineral malnutrition still affects billions of people worldwide. Iron and folic acid supplementation for women was most commonly reported in policies, and was covered by national policies in all regions. Iron supplementation for pregnant or all women was the programme most often reported in all regions. Also, in all regions, most countries reported iron and folic acid supplementation for pregnant and all women, although fewer countries reported folic acid supplementation for all women (an important intervention to reach women before pregnancy, to ensure an adequate folic acid status). The anaemia reduction programme in Yen Bai Province in Viet Nam, cited in Box 12 (page 80), is an example of an intervention to reach all women of reproductive age, to ensure optimal nutrition throughout the life-cycle. This programme resulted in a 48% reduction in the prevalence of anaemia; a reduction that was attributed to effective distribution of tablets by village health workers, community involvement backed up by education, training and capacity-building, and routine monitoring. Other supplementation programmes for women, such as vitamin A and multiple micronutrient supplementation, were seldom reported in any region, and less than a third of countries reported recommendations for supplementation to anaemic women.

With respect to supplementation programmes for children, countries in the African Region and the South-East Asia Region reported the highest policy coverage and implementation of vitamin A programmes. Zinc supplementation programmes also showed the same regional pattern. It was reported that iron and folic acid supplements were distributed in schools in most countries in the South-East Asia Region and about half of the countries in the Western Pacific Region. Vitamin A supplements were distributed in about half of the countries in the African Region, the South-East Asia Region and the Western Pacific Region.

Fortification was widely reported in national policies in all regions (except the European Region), mainly for salt, wheat flour, margarine and butter, and complementary foods. The most comprehensive coverage was with iodized salt, which was mandatory in almost half of the responding countries, although there was regional variation. The Eastern Mediterranean Region reported the highest implementation and the Region of the Americas the lowest; however, the Eastern Mediterranean Region has a more severe iodine deficiency problem than the Region of the Americas.

Success stories such as the programme in Nigeria show that iodine deficiency disorders can be significantly reduced with appropriate policy, regulation and monitoring (see Box 13 page 82). The expanded fortification programme in Jordan also demonstrates that essential vitamins and minerals can be added to the diet by legislation on flour fortification (see Box 14 page 84). The factors for the success of these programmes were high-level political commitment supported by mandatory legislation, and a strong national fortification alliance, which ensured multisectoral (including industry) support, consumer acceptance, capacity-building, reasonable cost and sustainability.

Addressing underlying and basic causes of malnutrition

The policy focus on the underlying causes of malnutrition (e.g. food insecurity, poor health and inadequate care for women and children) varied across regions. Policies to address nutrition and infection, as well as infant feeding, in the context of HIV/AIDS were most commonly reported from the African Region, the Region of the Americas and the South-East Asia Region, with a similar regional pattern for nutritional care and support for people living with HIV/AIDS.

Wider health interventions were reported as part of nutrition policies and programmes. For example, three quarters of the responding countries mentioned promotion of hand-washing as part of nutrition activities. Deworming was most often reported for young and school-age children in the African Region, the South-East Asia Region and the Western Pacific Region, and for pregnant women in the African Region and the South-East Asia Region. Malaria prevention or treatment was most often reported by countries in the African Region and the South-East Asia Region, followed by those in the Western Pacific Region, whereas interventions to reduce maternal tobacco consumption or indoor pollution were most often reported by countries in the Region of the Americas, the European Region and the Western Pacific Region. Delayed cord clamping was mentioned by only a third of countries.

Food security was addressed in nutrition policies in most countries in all regions except the Eastern Mediterranean Region and the European Region. The most commonly stated activities for food and nutrition security were research, agriculture extension services and provision of seeds. The food and agriculture strategies reported were seldom linked to nutrition goals, and activities in this area emphasized increasing farm income and output.

With regard to interventions to address the basic causes of malnutrition (e.g. poverty and inequity), few countries reported conditional cash transfers in their nutrition policies, except in the Region of the Americas and the South-East Asia Region. Trade was most often mentioned in relation to nutrition policy in countries in the Region of the Americas and the Western Pacific Region. In some regions, nutrition policy documents did not systematically address women or vulnerable population groups. Nutrition policies addressing the vulnerable groups were commonly available in the Region of the Americas, the South-East Asia Region and the Western Pacific Region. By contrast, gender was more frequently addressed in the South-East Asia Region, and least mentioned in the Eastern Mediterranean Region and the European Region.

Brazil markedly reduced stunting by addressing the basic causes, showing that what has been considered as a “long route” does not necessarily take longer than a “shorter route” (see Box 5 page 60). Brazil’s success in reducing stunting and inequalities in stunting over 18 years was due to:

- coordination of all ministries with responsibilities for the poor;
- enshrining of the right to adequate food in law;
- monitoring of food and nutrition security through a structure that reported directly to the President;
- a focus on strengthening family agriculture, local food banks, community kitchens and improved school meals;
- conditional cash transfers that were linked to participation in basic health monitoring and keeping children at school.

In a globalized world, policy in one country can affect nutrition in another. This was demonstrated by the example of universal salt iodization in Nigeria (see Box 13 page 82) – a policy that reduced iodine deficiency disorder in neighbouring countries that trade with Nigeria. Adequate legislation and measures are therefore essential.

The nutrition challenges that persist indicate that the approaches employed to date for addressing nutrition problems have not been effective enough. What needs to be changed? This Global Nutrition Policy Review has identified a major gap: that most countries lack a comprehensive policy approach for addressing the increasing public health problem of a double burden of malnutrition. Often, undernutrition, and obesity and diet-related NCDs are dealt with as separate problems; hence, few efforts are made to scale up a full set of interventions to comprehensively address the double burden of malnutrition at national scale.

This Review shows that countries have a variety of nutrition policies and strategies on which to base renewed efforts to improve nutrition. The policy base does not, however, always respond to the nutrition problems that countries are facing, in particular the increasing problem of the double burden of undernutrition, and obesity and diet-related NCDs. Many of the countries in the African Region have a high burden of undernutrition, but are also facing growing rates of obesity and diet-related NCDs. Other gaps identified by the Review include a lack of policies to address maternal nutrition, obesity in both children and adults, and zinc supplementation for children. The food security strategies did not include policy goals to address all forms of malnutrition. Many countries had relevant coordination mechanisms in place to address various nutrition problems; however, they often lacked clarifications of the roles and responsibilities of different stakeholders, and the coordination mechanisms needed for the scaling-up of relevant nutrition actions. The wider determinants and challenges identified at different levels show that a two-track approach is required; that is, continuing to treat but moving to prevention. To achieve this, the health sector needs to integrate measures to improve food and nutrition security; and make use of existing nutrition programmes and services for wider health interventions. In addition, key actors and stakeholders need to have control of the budget for nutrition.

Coverage of implementation

Most countries reported the implementation of a few key interventions at national scale. Overall, breastfeeding promotion and counselling of complementary feeding were scaled up in almost all countries in all regions. Other interventions for infant and young child nutrition, some vitamin and mineral supplementation programmes, and many of the programmes for obesity and diet-related NCDs and school-based interventions were also reported to be implemented at national scale by many countries. Nevertheless, rates of exclusive breastfeeding remain low, complementary feeding is still suboptimal, vitamin and mineral malnutrition persists, and both undernutrition and obesity remain as great challenges among school-age children.

A comprehensive approach is required, in which mutually reinforcing interventions are implemented at national scale. Many essential nutrition interventions still do not have national coverage in a number of countries. One of the weakest areas appeared to be obesity and diet-related NCDs. For example, only about half of the countries reported that they have measures to implement food labelling, perhaps because many NCD-specific interventions are not included in nutrition policies and strategies. This area requires further review, because undernutrition and obesity and diet-related NCDs are not separate issues, in particular in countries that are undergoing rapid transition.

Examples from other sources indicate that, in the 75 countries in which more than 95% of all maternal and child deaths occur (Countdown to 2015, 2012), the median

coverage rates of early initiation of breastfeeding were 46% and exclusive breastfeeding 37%, with only small improvements seen in countries where several data points were available. The coverage of vitamin A supplementation for children in these countries was much higher, at 92%. According to UNICEF (2012b), worldwide coverage of iodization of salt was at 71% and that of vitamin A supplementation to children was 66%.

The cross-sectional analysis of the Review on the type of policy environment that is conducive to the scaling-up of activities shows that policy matters. Those countries that had a high burden of stunting and had achieved national coverage with most maternal, infant and young child nutrition interventions tended to have policies and coordination mechanisms that addressed nutrition issues more comprehensively.

Governance and partners

Overall, 64% of the policies that countries had reported were adopted, ranging from 81% in the Eastern Mediterranean Region to 56% in the Region of the Americas. If policies are not officially adopted, they are likely to have less authority for securing the necessary funding and political support for implementation. Although official adoption indicates a commitment by governments, the Review did not determine whether such commitment extended to ensuring the right to food, health or nutrition.

Few countries reported that their national development plans could be used to improve nutrition, except in the African Region and the South-East Asia Region. This indicates that nutrition was not well integrated into poverty alleviation and other social development plans that are fundamental to achieving incremental gains in nutrition. Similar findings were noted in a review of the place of nutrition in poverty reduction strategy papers and UN development assistance frameworks, and the strength of nutrition governance, as reflected in the scores for a multi-component indicator prepared for the Landscape Analysis (Engesveen et al., 2009). Of 36 countries with a high burden of stunting, 2 of 23 that had poverty reduction strategy papers, and 4 of 33 that had a UN development assistance framework were classified as "strong" with regard to nutrition; 10 of the 36 were classified as "strong" in terms of nutrition governance. In this Review, only one country scored high on all three indices. Hence, there appeared to be no consistent relation between progress towards achieving the MDGs and priority given to nutrition in poverty reduction strategy papers, UN development assistance frameworks and governance.

In all regions, policies were usually coordinated and administered within ministries of health, with variable involvement of ministries or departments of agriculture and food, education, trade and social welfare; finance was seldom mentioned. Of the external partners, UN agencies, NGOs and civil society were often reported as taking part in nutrition policy preparation and implementation. UN agencies were most often involved in countries in the African Region, the Eastern Mediterranean Region, the South-East Asia Region and the Western Pacific Region. The European Region often reported the involvement of the private sector; in that respect, potential conflicts of interest of the private sector in policy-making and implementation must be managed transparently, especially in the area of infant feeding.

Few countries outside the South-East Asia Region reported that the multisectoral coordination mechanisms were established under the prime minister's or president's office, suggesting that nutrition is not given the highest priority. Moreover, the authority of those undertaking coordination was usually limited to allocation of responsibilities, and rarely to the control of budgets. This is rapidly changing since the establishment of the SUN Movement because, to be a SUN country, a high-level national government

focal point must be identified, to be responsible for ensuring that the country's efforts engage the whole of government and for coordinating external support for scaling up actions in nutrition.

The Landscape Analysis country assessments conducted in 18 countries found that many partners and stakeholders are involved in nutrition policies and programmes, at both national and subnational levels. There is, however, limited coordination (with the concomitant possibility that some areas are not covered) for implementing various nutrition programmes. But recently, efforts have been made to create consolidated coordination bodies in countries. For example, the WHO Comprehensive Implementation Plan urges Member States to establish intersectoral governance mechanisms for implementation of nutrition policies at national and local levels (WHO 2012), and the SUN Movement requires SUN countries to establish multistakeholder platforms.

The examples of the national nutrition programme in France (see Box 15 page 87), universal salt iodization in Nigeria (see Box 13 page 82) and policy development in Slovenia (see Box 4 page 54) demonstrate the importance of involving partners from the outset. In Slovenia, lack of a common understanding among the different stakeholders was identified as a problem, and the health impact assessment raised awareness of nutrition problems from the perspectives of sectors such as health and agriculture. The importance of gauging other sectors' perspectives was stressed during a recent WHO expert group meeting to discuss practical approaches to health in all policies (WHO and Government of South Australia, 2010).

Resources and capacity

Various resources should be mobilized to scale up nutrition actions (e.g. economic, human, organizational, knowledge, experience and technology). The Review did not seek detailed information about the availability of these resources for policy and programme implementation. The landscape analysis showed, however, that funding for nutrition is limited, and that governments rarely define or allocate a specific budget for nutrition, particularly at subnational level. Even when there is a separate budget line for nutrition, governments seldom allocate funds, because they often consider that nutrition should be funded by external donors. The limited involvement of the finance sector or bilateral partners in coordination means that economic resources for nutrition are not easily accessible. However, in this Review, most programmes were reported to be funded by governments, except for those in food fortification. This contradicts the findings of the landscape analysis, and requires further review.

Horton et al. (2010) argued that the scaling-up of financing for nutrition must be accompanied by the scaling-up of national capacity and systems in order to design, deliver, manage and evaluate large programmes. Although there is a global agreement on which interventions to scale up, much less is known about how to implement these interventions at scale, and how to minimize costs with alternative delivery mechanisms.

In the Jordan flour fortification programme (see Box 14 page 84), the Ministry of Health gave the premix to the mills, where it was added to the flour. A subsequent cost-benefit analysis showed that the cost of the programme for preventing iron deficiency was less than that of treating anaemia. Universal salt iodization in Nigeria helped save the equivalent of US\$ 220 million per year (see Box 13 page 82). Weekly iron-folic acid supplementation in Viet Nam involved sharing costs, by taking a small fee from women who could afford the supplements, and using that income to pay for free provision to women who could not afford them (see Box 12 page 80). Social marketing was considered essential to create a demand for the supplements.

Monitoring and evaluation

Most countries conducted national surveys, and had monitoring and evaluation systems in place for the various programmes. In most countries, height and weight were measured, but not for all age groups. Few countries reported recent or frequent national surveys, which would be required for reliable assessment of trends in nutrition problems over time. The indicators reported did not provide the necessary information to monitor progress in meeting nutrition challenges, or the uptake and impact of intervention programmes being implemented in the countries. Few countries reported measures for vitamin or mineral malnutrition, or NCD risk factors. Monitoring of fortification was mentioned rarely outside of the African Region. The subset analysis of 54 countries showed gaps in the monitoring of relevant indicators in countries with various nutrition challenges.

One of the findings of the landscape analysis was that little of the data collected on nutritional indicators or measures is used to inform policy-makers or the staff of the programme about the effectiveness of interventions. Policies exist, but they lack detailed goals, targets and plans for effective implementation. For example, poverty reduction strategy papers that mention maternal and child nutrition seldom include operational budgets or work plans.

Several examples demonstrated the importance of monitoring. The comprehensive surveillance system in Kuwait (see Box 6 page 64), in which a range of nutrition indicators are monitored, has led to changes in the programme to reduce anaemia and other forms of malnutrition. In the salt iodization programme in Nigeria, monitoring of impact allowed correction of unforeseen flaws; for it led to the replacement of one type of fortificant with a less volatile compound, thereby increasing the effectiveness of the programme (see Box 13 page 82).

Information on the extent, causes and consequences of nutrition problems will increase the demand for effective interventions by governments and service providers. Improved data may also increase awareness at a high political level, which may lead to the adoption of policies and stronger commitment. In addition, better communication of the extent, causes and consequences of nutrition problems may trigger demand from consumers for effective policies and intervention programmes.



Box 16. Summary of policy gaps

Design and content of existing policies and programmes

- Nutrition policies do not adequately respond to the challenges that countries and regions are facing today; in particular, the double burden of malnutrition (i.e. undernutrition, and obesity and diet-related NCDs).
- Nutrition policies often do not include evidence-informed interventions in a comprehensive manner.
- Many nutrition policies do not adequately consider or address the underlying and basic causes of malnutrition (e.g. food insecurity, inadequate health service, inadequate care for women and children).
- Nutrition policies are often not officially adopted.
- Food security strategies do not comprehensively address malnutrition in all its forms, including the vicious circle of malnutrition and foodborne and other infectious diseases.
- National development plans and poverty reduction strategy papers are seldom considered as important policy documents for improving nutrition.
- Policies do not clearly articulate operational plans and programmes of work, in that they do not:
 - have clear goals, targets, timelines and deliverables;
 - specify roles and responsibilities;
 - identify the capacity and areas of competence required of the workforce;
 - include process and outcome evaluation with appropriate indicators; and
 - have the necessary or adequate budget for implementation.

Nutrition governance

- Countries have inadequate coordination mechanisms to address existing nutrition challenges.
- There is inadequate or ineffective coordination within and between ministries, and with UN agencies and other development partners.
- Coordination mechanisms are seldom included in high-level policy-making framework or structure, such as a prime minister's or president's office or a planning commission, in which all relevant sectors could be involved.
- There are often inconsistencies between policies at the national level and programmes being implemented at the provincial or district level.

Implementation

- A comprehensive set of interventions addressing the life-course is not being implemented.
- Nutrition interventions – including many of the key interventions for maternal, infant and young child nutrition – are seldom implemented at scale.
- The International Code of Marketing of Breast-milk Substitutes, subsequent World Health Assembly resolutions and the Global Strategy on Infant and Young Child Feeding are not being implemented adequately.
- Vitamin and mineral supplementation and fortification programmes are inconsistent, and are generally inadequate in countries in all regions in terms of nutrient mix, target groups and coverage. Women are not reached with important interventions before they become pregnant.
- Implementation of programmes to address obesity and diet-related NCDs varies widely across regions, with low implementation in regions where the double burden of malnutrition is an increasing concern.
- Settings such as schools and workplaces are not sufficiently used to reach and deliver nutrition interventions. In addition, when nutrition interventions are being implemented in schools, they do not cover the entire spectrum of nutrition problems.
- National capacity in public health nutrition is limited, especially among nurses and other community health workers who are primarily responsible for delivering nutrition programmes. But the limited capacities and a lack of human resources for implementing nutrition programmes are also observed at all levels, including in the UN agencies working in the countries.
- Financial resources for nutrition are lacking, resulting in reliance on external development assistance, and thus jeopardizing the sustainability of nutrition programmes. Those responsible for improving nutrition usually do not have control over the budget.

Monitoring and evaluation

- National surveys do not adequately include nutrition indicators, or disaggregate data sufficiently to make it possible to understand and analyse issues related to inequities. Relevant indicators related to determinants of nutritional status used by other sectors should also be investigated, to ensure intersectoral understanding and coherence in monitoring and evaluating nutrition-related indicators and determinants.
- National nutrition surveys are not conducted routinely in a timely manner.
- Most policies included monitoring and evaluation components; however, routine data reporting is insufficient, policy-makers are not well informed, and the information required, in particular at the community level, is not available.

5.

The way forward

Evidence-informed, effective nutrition interventions exist and need to be scaled up to address the double burden of malnutrition. Great momentum has been gained in recent years in relation to the impact of undernutrition on infant and child mortality (with its largely irreversible long-term effects on health, and cognitive and physical development), especially since the 2008 global food price crisis and the publication of the 2008 Lancet Nutrition Series, followed by the launching of the SUN Movement in 2010. Global, regional and national initiatives to scale up action to address nutrition challenges are increasing, mobilizing not only the health sector, but also food security, agriculture and social protection sectors.

Nutrition has reached the highest level at the UN, as reflected in the Secretary-General's Zero Hunger initiative, the Global Strategy for Women's and Children's Health, and the Comprehensive Framework for Action of the High Level Task Force on the Global Food Security Crisis. Ministers of health and agriculture have made important commitments to nutrition at the World Health Assembly and the Committee on World Food Security. Countries and development partners in all sectors are demonstrating commitment by joining the SUN Movement. Nutrition has also reached the highest level in many governments, as reflected in the 1000 days campaign by the US and Ireland, the G8's New Alliance for Food Security and Nutrition, the Feed the Future Initiative of the US and the Hunger Summit at Number 10 Downing Street in the UK. There are many opportunities for the future. Given that the UK takes over the G8 presidency in 2013, and Ireland assumes the presidency of the European Union in the first half of 2013, it is possible that 2013 will become the year of accelerated actions, and effective increased support and investment in nutrition. Such opportunities need to be seized to increase the political attention and commitment for nutrition, so that nutrition can "occupy the global agenda" for the years to come.

Much is being done, but more is needed. As this Global Nutrition Policy Review shows, great progress had been made in nutrition policy development and implementation since the first intergovernmental conference on "nutrition" was held in 1992 (i.e. the International Conference on Nutrition). But nutrition challenges remain. Owing to the multisectoral and cross-cutting nature of nutrition, no single government ministry, UN agency, NGO or civil society organization (CSO), private sector or community has either the full responsibility or the capacity to meet these nutrition challenges effectively and comprehensively. A concerted effort by key stakeholders from different sectors is paramount for scaling up effective nutrition actions. Nutrition considerations need to be integrated into sectoral plans if they are to be effective and generate lasting change. A further action is also needed to make all sectoral plans and poverty reduction strategies nutrition-sensitive. This will help to advance nutrition, and to address the increasing public health problem of the double burden of malnutrition, and the growing social, geographical and gender inequities. Acknowledging and applying the principles of human rights to adequate food and the highest attainable standard of health for good nutrition would foster further policy development and implementation, and ultimately help to achieve improved nutrition outcomes for all.

Nutrition is a priority area in WHO's programme of work. At the 65th World Health Assembly in May 2012, WHO's Member States endorsed a Comprehensive Implementation Plan (CIP) on Maternal, Infant and Child Nutrition that included six global targets to be achieved by 2025 (WHO, 2012). To achieve these targets, the CIP outlined five priority actions that should be jointly implemented by Member States and international partners. These are to:

1. create a supportive environment for the implementation of comprehensive food and nutrition policies
2. include all required effective health interventions with an impact on nutrition in national nutrition plans
3. stimulate development policies and programmes outside the health sector that recognize and include nutrition
4. provide sufficient human and financial resources for the implementation of nutrition interventions
5. monitor and evaluate the implementation of policies and programmes.

WHO will support countries in their effective implementation of these priority actions, by providing evidence-informed guidance and policy implementation tools. Such tools include the Landscape Analysis country assessment, which provides a methodology for participatory assessment and stakeholder mapping within countries, to create a supportive environment for consolidated actions. The WHO e-Library of Evidence for Nutrition Actions (eLENA)²⁵ is another tool that provides a one-stop-shop for nutrition guidance and evidence on effective nutrition interventions, both for the “window of opportunity” from pregnancy to 24 months, and for other periods in the life-course. eLENA is being expanded to include guidance on obesity and diet-related NCDs; this will help to ensure that appropriate and effective guidance is available for addressing the double burden of malnutrition.

WHO will also contribute help to strengthen technical nutrition capacities at all levels, and participate in building common nutrition coordination platforms (e.g. improving surveillance and monitoring systems for food and nutrition). All WHO global nutrition databases have been brought together, and are now available through the Nutrition Landscape Information System (NLIS)²⁶. The most recent WHO contribution to policy and programme implementation monitoring is GINA, which contains information on nutrition-relevant policies and actions in countries worldwide, including the data presented in this report.

As part of its efforts to realize such support, WHO has initiated the implementation of the project on Accelerating Nutrition Improvements in sub-Saharan Africa. This project focuses on 11 sub-Saharan African countries, and will help to strengthen nutrition surveillance and the scaling-up of essential nutrition interventions.²⁷ Furthermore, FAO and WHO are planning to jointly convene the second International Conference on Nutrition in 2014. The conference will bring together food, agriculture, health, education, social protection and other concerned sectors, to mobilize further political commitment and resources that are needed if nutrition is to be included in objectives of the wider development agenda.

²⁵ <http://www.who.int/elena/en>

²⁶ <http://www.who.int/nutrition/nlis/en>

²⁷ The project on Accelerating Nutrition Improvements in sub-Saharan Africa is funded by the Canadian International Development Agency (CIDA) and is being implemented in Burkina Faso, Ethiopia, Mali, Mozambique, Rwanda, Senegal, Sierra Leone, United Republic of Tanzania, Uganda, Zambia and Zimbabwe.

The impact of nutrition cannot be underestimated. It is central to health and is an investment in human development. Health and human development stand at the centre of all development.

As this Global Nutrition Policy Review has indicated, major improvements in nutritional well being are within sight. Scientific knowledge is expanding, and practical experience is accumulating.

The implications for development are immense. Now is the time for action. However, the reforms needed to improve health and nutrition throughout the world cannot be carried out by any one international agency. The full participation of all multilateral, bilateral, NGOs, CSOs and the private sector is needed to achieve the global targets, and thus achieve health and nutritional well-being for all.

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