World Hunger Series 2007

Hunger and Health

United Nations
World Food
Programme

EARTHSCAN

World Hunger Series 2007: Hunger and Health

Published by Earthscan in the UK and USA in 2007
Copyright © The World Food Programme, 2007
ISBN: 978 1 84407 546 1 (paperback)
978 1 84407 551 5 (hardback)
WFP ISBN: 978 92 92050 09 9
Design concept by Deepend Italia Spa
Typeset by MapSet Ltd, Gateshead, UK
Printed and bound by Gutenberg Press, Malta

For a full list of Earthscan publications please contact:
Earthscan, 8–12 Camden High Street, London, NW1 0JH, UK
Tel: +44-(0)20-7387-8558 • Fax: +44-(0)20-7387-8998
Email: earthinfo@earthscan.co.uk • Web: www.earthscan.co.uk
22883 Quicksilver Drive, Sterling, VA 20166-2012, USA
Earthscan publishes in association with the International Institute for Environment and Development

Publications of the World Food Programme can be obtained from the Communications Division,
Via Cesare Giulio Viola, 68/70 – 00148 Rome, Italy
Tel: +39-066513-2628 • Fax: +39-066513-2840
Email: wfpinfo@wfp.org • Web: www.wfp.org
For more information on the World Hunger Series, including any errors or omissions, please go to
www.wfp.org/whs or email us at worldhungerseries@wfp.org

This book is published on paper sourced from sustainably managed forests

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior permission. Requests for permission to reproduce or translate WFP publications — whether for sale or for noncommercial distribution — should be addressed to Communications Division, at the above address.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Food Programme concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. All reasonable precautions have been taken by the World Food Programme to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either express or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Food Programme be liable for damages arising from its use.

A catalogue record for this book is available from the British Library

Library of Congress Cataloging-in-Publication Data
Hunger and health / United Nations World Food Programme.
p. ; cm. – (World hunger series ; 2007)
Includes bibliographical references.
ISBN 978-1-84407-551-5 (hardback) – ISBN 978-1-84407-546-1 (pbk.) 1. Malnutrition–Developing countries. 2. Hunger–Developing countries. 3. World health. I. World Food Programme. II. Series.
[DNLM: 1. Malnutrition–complications. 2. Malnutrition–prevention & control. 3. Developing Countries.
4. Health Policy. WD 100 H936 2008]
RA645.N87H84 2008
363.8'091724–dc22

2007038013

World Hunger Series 2007

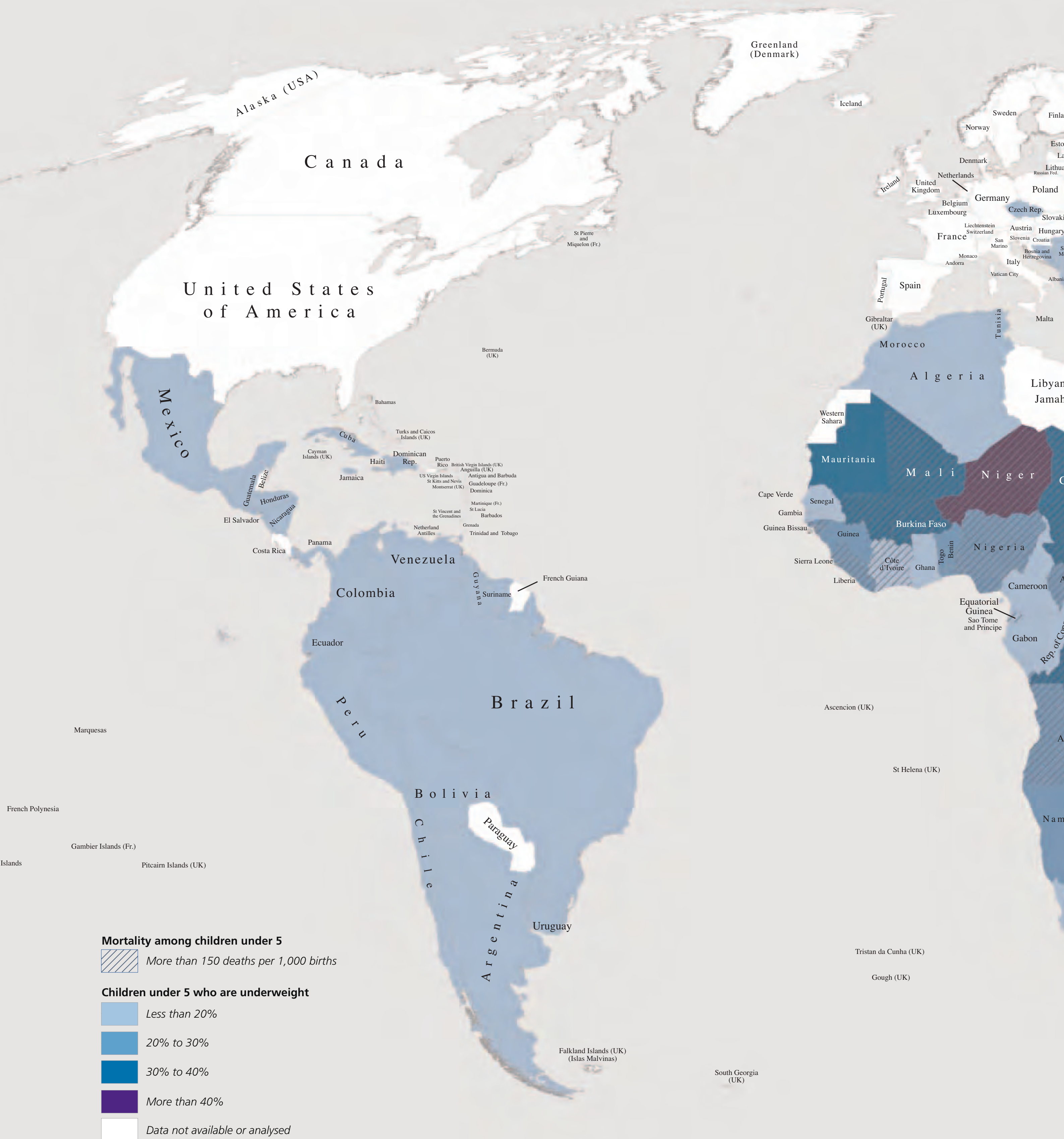
Hunger and Health

United Nations
World Food
Programme

A United Nations World Food Programme publication, Rome

EARTHSCAN

Map A – Hunger and health across the world



The boundaries and the designations used on this map do not imply any official endorsement or acceptance by the United Nations.
Map produced by WFP VAM.

Data source: WHO, 2007

Russian Federation
Belarus
Ukraine
Rep. of Moldova
Romania
Serbia and Montenegro
Bulgaria
The Former Yugoslav Rep. of Macedonia
Greece
Kazakhstan
Mongolia
Georgia
Armenia
Azerbaijan
Uzbekistan
Kyrgyzstan
Turkmenistan
Tajikistan
Turkey
Dem. People's Rep. of Korea
Rep. of Korea
Japan
China
Cyprus
Lebanon
Israel
Occupied Palestinian Territories
Syrian Arab Republic
Iraq
Islamic Rep. of Iran
Afghanistan
Jammu and Kashmir
Jordan
Kuwait
Bahrain
Qatar
Pakistan
Nepal
Bhutan
Egypt
Saudi Arabia
United Arab Emirates
Oman
India
Bangladesh
Myanmar
Taiwan
Viet Nam
Hong Kong (China)
Macao (China)
Lao People's Dem. Rep.
Thailand
Cambodia
Chad
Sudan
Eritrea
Yemen
Djibouti
Ethiopia
Somalia
Central African Republic
Sri Lanka
Maldives
Philippines
Northern Mariana Islands (USA)
Guam (USA)
Palau
Federated States of Micronesia
Brunei Darussalam
Malaysia
Singapore
Uganda
Kenya
Dem. Rep. of Congo
Rwanda
Burundi
United Republic of Tanzania
Seychelles
Indonesia
Papua New Guinea
Timor-Leste
Angola
Zambia
Malawi
Comoros
Cocos (Keeling) Islands (Australia)
Christmas (Australia)
Mozambique
Madagascar
Zimbabwe
Botswana
Mauritius
Réunion (Fr.)
South Africa
Swaziland
Lesotho
Australia
New Zealand

About the United Nations World Food Programme

Founded in 1963, WFP is the world's largest humanitarian organization and the United Nations' frontline agency in the fight against global hunger. WFP uses food assistance to meet emergency needs and support economic and social development.

Operational in 77 countries, WFP relies exclusively on donations. In close collaboration with other members of the United Nations family, governments and non-governmental organizations, WFP works to put hunger at the centre of the international agenda, promoting policies, strategies and operations that directly benefit the hungry poor.

Acknowledgements

Many people in the United Nations World Food Programme (WFP) were instrumental in preparing this latest report in the *World Hunger Series: Hunger and Health.*

Stanlake Samkange, Director of the Policy, Strategy and Programme Support Division, guided the effort. Deborah Hines was the lead author and team leader. The *World Hunger Series* team responsible for data collection and analysis included Federica Carfagna, Bruce Crawshaw, Peter Gray, Tomoko Horii, Rebecca Lamade, Kartini Oppusunggu, Robert Palmer, Livia Paoluzzi and Elena Vuolo – all made valuable contributions to the report.

Many experts generously made important technical contributions. In particular, WFP would like to thank: Steve Collins, Lorraine Cordeiro, Camila Corvalan, Paul Farmer, Wafaie Fawzi, Fernando Fernholz, Rosemary Fernholz, Stuart Gillespie, Carlos Guevara Man, Jean-Pierre Habicht, Alistar Hallam, Joan Holmes, Channa Jayasekera, Gina Kennedy, Richard Longhurst, Nkosinathi Mbuya, Saurabh Mehta, Gretel Pelto, Fabiola Pueda, Kate Sadler, Anna Taylor, Andrew Thorne-Lyman, Melody Tondeur, Patrick Webb and Stanley Zlotkin.

WFP would like to acknowledge the contributions of the United Nations World Health Organization (WHO) in providing updated data and technical support. Specifically, WFP extends its appreciation to Zoe Brillantes, Valentina Buj, Quazi Monirul Islam, Dermot Maher, Aayid Munim, Mercedes de Onis, Tikki Elka Pang, Randa Saadeh, Akihiro Seita and Kenji Shibuya.

Several people provided helpful comments and support: Carlos Acosta, Claudia AhPoe, Robert Black, Martin Bloem, Henk-Jan Brinkman, Marco Cavalcante, Gyorgy Dallos, Agnes Dhur, Francisco Espejo, Kul Gautam, Aulo Gelli, Ugo Gentilini, Paul Howe, Michael Hutak, Robin Jackson, Dan Lewis, Saskia de Pee, Roman Rollnick, Joseph Scalise, Anne Strauss, Judith Thimke, Tina Van Den Briel and Steven Were Omamo.

Special thanks is extended to WFP's Vulnerablility Analysis and Mapping Unit for the design and construction of the maps: Joyce Luma, George Mu'Ammar and Paola de Salvo.

Production of the report was supported by Cristina Ascone, Caroline Hurford, Francis Mwanza and Anthea Webb of the WFP Communications Division, and by Mark Menhinick and Marie-Françoise Perez Simon of the Translation and Documents Unit.

Foreword

The battle against hunger can be won in our lifetime. The technology, knowledge and resources exist to meet the needs of the world's hungry. What is required now is for leaders to make the right political choices to ensure that images of hungry children are a problem of the past, rather than a shame of the present.

This edition of the *World Hunger Series* focuses on one of the most critical choices: taking action to address hunger and health together. For those in poor health, overcoming hunger is often a prerequisite for treatment and recovery. Food helps to speed recovery and guard against infection.

The 2007 *World Hunger Series* identifies proven solutions to ensure that research, policy and programmes reduce hunger and poor health for all people. For example, it shows that a combination of integrated food and health-related interventions is often better than a single disease approach. It also suggests that there are critical junctures when the benefits of reducing hunger and improving poor health have a particularly long-term impact. For instance, there is growing evidence to show that when pregnant women and especially adolescent girls in their first pregnancy are hungry, the well-being of future generations is jeopardized.

The report also makes the point that a greater alignment of efforts is necessary to address hunger and poor health effectively. National frameworks, policies, institutional arrangements, capacity-building and research all need to work in tandem as part of a coherent strategy, helping countries to be successful in creating a hunger-free population that is healthier, more productive and better able to learn.

Importantly, these actions make economic sense. The solutions are cost-effective and have long-term benefits for individuals, families, communities and nations. However, we must act not only for economic reasons – ending hunger is a moral imperative. The choices are before us. Leaders need to make the correct choices today, so that future generations will not suffer from hunger.

Josette Sheeran
Executive Director
United Nations World Food Programme

Contents

About the United Nations World Food Programme 4

Acknowledgements 5

Foreword 6

Introductory note 10

Preface 11

OVERVIEW 12

PART I THE GLOBAL HUNGER AND HEALTH SITUATION 17
- Introduction 19
- 1.1 Hunger, health and well-being 21
- *Intermezzo 1:* An overview of micronutrient deficiences 24
- 1.2 Who are the most vulnerable? 33
- *Intermezzo 2:* Women and ending hunger – the inextricable link 40
- 1.3 Tracking the hunger and health MDGs 43
- 1.4 Accelerating progress: making the right choices 53
- *Intermezzo 3:* Hunger and disease in crisis situations 56

PART II UNDERNUTRITION AND DISEASE: IMPACTS THROUGHOUT THE LIFE CYCLE 59
- 2.1 Undernutrition and disease: a close relationship 61
- 2.2 A closer look at undernutrition and disease 64
- *Intermezzo 4:* AIDS and hunger – challenges and responses 74
- *Intermezzo 5:* Food support and the treatment of tuberculosis 77
- *Intermezzo 6:* Nutrition transition in Latin America – the experience of the Chilean National Nursery School Council Programme 80
- 2.3 Emerging threats 82

PART III NATIONAL DEVELOPMENT: COMMITMENT AND POLITICAL CHOICE 87
- 3.1 Hunger impacts on human development 89
- 3.2 Effective solutions 92
- *Intermezzo 7:* Sprinkles – an innovative, cost-effective approach to providing micronutrients to children 101
- 3.3 Making the right political choices 104
- *Intermezzo 8:* Partnerships to overcome child undernutrition in Latin America and the Caribbean 110
- *Intermezzo 9:* From research to action 114

PART IV THE WAY FORWARD: TOWARDS A WORLD WITHOUT HUNGER 117
- 4.1 The way forward: ten key actions 119
- *Intermezzo 10:* Nutrition a priority in Thailand 124

PART V RESOURCE COMPENDIUM 129
- Overview: Technical notes 131
- Table 1 – What does a hungry world look like? 133
- Table 2 – How many people suffer from hunger throughout the life cycle? 137
- Table 3 – What does a world with poor health look like? 141
- Table 4 – How many people suffer from poor health during their life? 145

Contents

Table 5 – Who is at risk of hunger and poor health in crisis situations? 149
Table 6a – How many people suffer from hidden hunger and childhood diseases? 153
Table 6b – How many people suffer from infectious diseases? 157
Table 7 – How many people are affected by natural disasters? 161
Table 8 – What solutions are available for addressing hunger and poor health? 165
Table 9 – What resources are allocated to reduce hunger and poor health? 169
Table 10 – Progress towards achieving the MDGs by 2015 173

PART VI ANNEXES 179
Abbreviations and acronyms 181
Glossary 182
Bibliography 186
Text notes 198
Costing the essential solutions 199
Methodology for maps 202

Figures

Figure 1 – Transition of average stature and life expectancy 21
Figure 2 – Per capita daily consumption 23
Figure 3 – Number of health professionals in developing and transition countries 27
Figure 4 – Access to health services in developing and transition countries 27
Figure 5 – Hunger and health determinants 28
Figure 6 – Natural disasters worldwide 36
Figure 7 – Prevalence of child underweight in LIFDCs by region 45
Figure 8 – Prevalence of undernourishment in LIFDCs by region 46
Figure 9 – Hunger indicators by region 47
Figure 10 – Progress on underweight: MDG 1 for developing LIFDCs 50
Figure 11 – Progress on undernourishment: MDG 1 for developing LIFDCs 50
Figure 12 – Progress on child mortality: MDG 4 for developing and transition LIFDCs 51
Figure 13 – Progress on maternal mortality: MDG 5 for developing and transition LIFDCs 51
Figure 14 – GDP, child mortality and underweight in developing and transition countries 53
Figure 15 – Undernutrition and disease determinants 62
Figure 16 – Major causes of death among children under 5 worldwide 64
Figure 17 – The two-way relationship: malaria and micronutrient deficiencies 68
Figure 18 – Estimated burden of TB 73
Figure 19 – Malnutrition in children under 5 in LIFDCs 79
Figure 20 – Historic relationship between grain prices and food aid volumes 83
Figure 21 – Number of slum dwellers 85
Figure 22 – Undernutrition and lifetime loss in individual productivity 90
Figure 23 – Practical solutions for all stages of the life cycle 92
Figure 24 – National samples of growth faltering 97
Figure 25 – Practical solutions for pregnant and lactating women, infants and young children 98
Figure 26 – Practical solutions for school-age children and adolescents 99
Figure 27 – Government spending on health as a percentage of GDP 106
Figure 28 – Government expenditure on health 107
Figure 29 – ODA and food aid 113

Maps

Map A – Hunger and health across the world 2
Map 1 – Hidden hunger across the world 30
Map 2 – Hunger and natural disasters 39
Map 3 – Inequality of hunger across the world 55
Map 4 – Mortality and childhood diseases 66
Map 5 – The burden of malaria across the world 70
Map 6 – HIV/AIDS mortality in children under 5 72
Map 7 – Health inequalities across the world 103
Map 8 – National commitment to health 126
Map B – Hunger and health across the world 204

Introductory note

Hunger and Health *not only surveys current knowledge about the link between poor nutrition and health, but also details the mechanisms by which hunger saps health and destroys the promise of decent, long, and meaningful lives.*

Moving between Harvard and Haiti, the affluent and poor worlds in general, one learns many things about what is in truth one world. This is our world: Coca-Cola is often readily available for the poor, who have almost nothing nutritive to eat yet are afflicted by diabetes because they consume too many of the wrong nutrients; cellular telephones reach into the poorest corners of the world, places in which childbirth is fraught with lethal peril; an art exercise with Rwandan orphans reveals that, although many of them do not attend school and are unsure of the provenance of their next meal, they do know how to draw uncannily accurate renditions of American rap stars.

This is the world I inhabit as a physician working in Rwanda and Lesotho and Haiti and Boston; it's also, if less transparently, the world inhabited by those who will read a report about hunger; it's the world described, in unflinching terms, in a new and important United Nations World Food Programme report on *Hunger and Health*.

This report is of the utmost importance, as all those working among the poor know. Sound approaches are laid out in careful detail in *Hunger and Health*, which offers a concise prescription for food and nutrition security, a prescription buttressed by solid research and long experience. It is our great privilege to find, in the World Food Programme, an ally in the struggle for equitable access to food, which is part of equitable access to good health.

Hunger and Health draws on decades of pragmatic experience in alleviating "food emergencies" and seeking to break the cycle of poverty and disease, and provides sound policy recommendations for nations and international standard-setting bodies seeking to meet the Millennium Development Goals.

We are deeply in debt to those who have written and contributed to *Hunger and Health*. Let this report, and written commitments to fair trade, land reform and improved agricultural practices, serve as the roadmap that we must all follow to make hunger in the 21st century be seen, first, as obscene and, second, as a global sickness for which we have, already, the cure.

Paul Farmer, MD
Harvard Medical School and Partners In Health

Preface

"We are made wise not by the recollection of our past, but by the responsibility for our future."

George Bernard Shaw (1856–1950)

As we pass the half-way mark for meeting the Millennium Development Goals (MDGs), hunger and health issues are receiving greater attention than ever before through the actions, campaigns and investments in support of the MDGs. However, progress is uneven in realizing most of the MDG targets and gaps are still widening in some countries.

One particular gap relates to the interaction between hunger and poor health. Women and children are particularly affected by lack of access to quality food and health services. Mothers struggle to prevent hunger and illness, with the effects playing out from one generation to the next. Obstacles also remain to putting knowledge and experience into practice at the community, national and international levels.

Learning from the past and applying our shared history is often idealized, yet in practice, political realities may dictate that we start anew and approach the future optimistically, neglecting the lessons of the past. Even so, there is still time to apply our accumulated experience, learning and will to define practical strategies and programmes to eliminate hunger. Opportunities to capitalize on the synergistic relationship between access to quality food and healthcare can be seized. In order to accelerate progress and achieve the MDGs, scientific knowledge must be translated into action, good intentions and international conventions given substance, and decisions made to put available resources to the best use.

This report, the second in the *World Hunger Series* after the inaugural report on learning in 2006, aims to contribute to improved understanding of the relationship between hunger and health. This 2007 edition uses evidence-based experiences to highlight lessons from past development practices and lays out possible solutions to eliminate hunger.

The 2007 report forms an integrated part of the *World Hunger Series* with evidence-based analysis intended to inform policy, programming and advocacy, and is to be followed by reports on markets, crises and social exclusion. The *World Hunger Series* complements ongoing efforts by governments, the private sector and local actors, and encourages sound policies in support of sustainable and cost-effective solutions that will, it is hoped, allow governments to surpass the MDG hunger target set for 2015 and eliminate hunger in the coming decades. The report provides sufficient evidence to confirm that hunger and poor health are solvable problems; we only need to mobilize our collective knowledge and make the right choices to end hunger.

Lessons from the past can be swept aside with surprising ease. Equally, indifference and inaction can be replaced by concrete efforts that galvanize all actors to work together to eliminate hunger.

Overview

Hunger and poor health not equally shared

Over the past 50 years the world has witnessed unprecedented gains in hunger reduction and health. Globally, there has been a significant decline in child undernutrition and infant mortality. Many physical aspects of health have improved substantially: people are living longer and globally experiencing lower levels of poor health in childhood and early adulthood.

Hunger and poor health are not shared equally among all people; the burden falls largely on the marginalized poor, with further disparity by gender, age and ethnicity. The life cycle impacts of hunger and poor health can be profound when compromised health spans generations.

We see major differences between rich and poor countries. In the poorest, most food-insecure countries – low-income food-deficit countries – life expectancy for men and women remains less than 50 years as a result of prolonged food shortages, disease, conflict and unequal access to quality healthcare. Approximately half of all deaths in children under 5 are directly due to hunger.

Also, while there are improvements in reducing hunger in some countries and for selected groups, the global attainment of MDG 1 target 2 (see box on page 44) is not on track. In some parts of the world past progress is being eroded and sustainable solutions are still far off for the hungry. Progress towards meeting health-related MDGs, like those for hunger, is also uneven and well-off countries are improving their health at a faster rate than those that are worse-off.

Hunger and health: a close relationship

The *World Hunger Series 2007* explores the multiple relationships between hunger and poor health and how they affect the growth of individuals, physiologically and psychologically, and constrain the development of nations both socially and economically.

Hunger and poor health are strongly related to political and economic choices, which in turn reflect the priorities attached to budget allocations, quality of social services and community values. People who suffer from hunger in any of its forms are not the decision-makers, nor are they necessarily well represented by them.

Just as hunger and health are closely related, so are undernutrition and disease; the relationship between undernutrition and disease is bidirectional and mutually reinforcing. Undernutrition leads to a state of poor health that puts the individual at risk of infectious and chronic disease. Hungry people are much less effective in fighting disease than well-fed people. An undernourished child tends to suffer more days of sickness than a well-nourished child as undernutrition contributes directly to disease by depressing the immune system and allowing pathogens to colonize, further depleting the body of essential nutrients.

Infections, no matter how mild, have adverse effects on nutritional status. Further, acute and chronic infections can have serious impacts on nutritional status, triggering different reactions, including reduced appetite and impaired nutrient absorption. Even when nutrients are absorbed, they may still be lost as a result of the infection.

Solutions are known and cost-effective

Despite the broad acceptance of the causal relationship between undernutrition and disease, resources have disproportionately been directed toward managing infectious diseases rather than preventing hunger and undernutrition. It is imperative that national frameworks and programmes are designed to consider the relationship between hunger and poor health. Only by prioritizing the hungry – and especially women and children at all stages of the life cycle – and by supporting principles of inclusion, equality, ease of access and transparency can the hungry benefit from the technological innovations that are transforming the world.

Reducing hunger increases productivity by improving work capacity, learning and cognitive development, and health by reducing the impact of disease and premature mortality. Hunger and poor health directly affect human and social capital formation and economic growth. These effects are long-lasting and inter-generational, with impacts impeding the achievement of other global social goals.

For the first time in history, the world can direct enormous resources to overcoming hunger and poor health. There is growing recognition that the cost of inaction is high, both in economic and moral terms – and that the cost of action is modest by comparison. A number of proven solutions are available and affordable, but they have to be scaled up to reach the world's vulnerable and marginalized people. An enabling environment to convert knowledge into feasible action and to remove institutional blockages is essential; otherwise, it will be difficult to maximize the potential gains from growing public and private resources to tackle hunger and poor health.

This *World Hunger Series 2007* puts forth a package of proven, practical and cost-effective solutions to address the interrelated causes of hunger and poor health. These solutions, combining food-based activities with basic healthcare and prevention activities, form "essential solutions" for hunger and poor-health reduction. With an emphasis on impact throughout the life cycle, these essential solutions aim to prevent hunger and improve the health of hungry people and contribute to achieving the MDGs. They specifically aim to expand programmes aligned with two broad "windows of opportunity" – critical times in an individual's life: early life, focusing on mothers, infants and young children, and adolescence, which includes school-age children.

The proposed essential solutions emphasize addressing common underlying factors, combining effectively the resources and tools at hand (including food and non-food resources), and scaling up what works. If programmes are built around the linkages between hunger and health, they will better address interrelated problems in a more holistic way.

They also highlight that general improvements in dietary intake, through improved access to quality food, in particular for young children, are likely to have a large impact on reducing the burden of disease.

Broadening commitment

Despite the various cost-effective solutions for combating hunger and improving health, and the potential to direct national and international political commitments to address these related problems for the poorest people, efforts are still insufficient. There is a real risk that the MDGs, themselves relatively modest, may not be met. The *World Hunger Series* challenges leaders to build on past successes, combining current knowledge with a will to undertake practical and effective solutions to end hunger in the coming decades.

There are four strong motivations for prioritizing these hunger–health solutions:

- The cost of hunger and poor health is high.
- Solutions are affordable, cost-effective and sustainable.
- There is consensus on the human right to adequate food, nutrition and health for all.
- Well-fed and healthy populations contribute to economic growth more effectively.

In the end, commitment determines whether interventions are effective and sustainable. The elimination of hunger cannot be relegated as a subsidiary goal of other commitments. In view of the tremendous human, economic and social costs of hunger, its elimination must be a development priority and an integral part of health goals.

To achieve optimal impact, appropriate resources are essential and their use must be maximized. The resources needed are not only financial: they include leadership, management and system support to make social services effective. To scale up activities, it is important to measure results and to know what works. Subsequently, resources can be allocated to projects that achieve impact:

- There is increasing evidence that nutrition and food support accompanying treatment for tuberculosis, human immunodeficiency virus and other infectious diseases increases adherence and improves outcomes, particularly for the poor. This support should become an integral part of treatment programmes. Research should be accelerated to improve the effectiveness of food and nutrition support aligned with treatment.
- The pervasive problem of micronutrient deficiencies shows that calories alone are not sufficient for good health. There is a need for increased awareness and understanding with regard to the value of micronutrients throughout the life cycle.
- Food fortification occurs in a number of countries, but more needs to be done. Multiple-micronutrient fortification of commonly consumed products and/or supplements may be a cost-effective strategy to address multiple deficiencies among school-age children, adolescents, refugees and internally displaced people. Also, more consideration should be given to fortifying food in the household (home fortification).

Making the right decisions

Urgent action is needed if hunger is to be eradicated in the coming decades. Government commitment to surpassing the MDGs, eradicating hunger and providing access to quality healthcare for hungry and marginalized people is the only option. The burden of hunger and poor health and its effect on national development can be only part of the rationale for acting. Action must address the human suffering caused by hunger and poor health and remove the divide between those who have access to sufficient quality food and healthcare, and those who miss these most essential ingredients for equitable human well-being.

We need to mobilize our collective will to make the right choices. The cost of inaction is high – economically, politically and, most importantly, morally.

What is hunger?

Most people intuitively understand the physical sensation of being hungry. But specialists who work on hunger issues have developed a range of technical terms and concepts to help them better describe and address the problem. Unfortunately, there is some disagreement on what these terms mean and how they relate to each other. This box provides a short glossary of these terms and concepts as used in this report. It cannot claim to be the only “correct” usage, but it does offer a relatively clear and consistent way of understanding the issues.

HUNGER. A condition in which people lack the required nutrients, both macro (energy and protein) and micro (vitamins and minerals), for fully productive, active and healthy lives. Hunger can be a short-term phenomenon or a longer-term chronic problem. It can have a range of effects from mild to severe. It can result from people not taking in sufficient nutrients or their bodies not being able to absorb the required nutrients. It can also result from poor food and childcare practices.

MALNUTRITION. A physical condition in which people experience either nutritional deficiencies (undernutrition) or an excess of certain nutrients (overnutrition).

UNDERNUTRITION. The physical manifestation of hunger that results from serious deficiencies in one or a number of macronutrients and micronutrients. The deficiencies impair a person from maintaining adequate bodily processes, such as growth, pregnancy, lactation, physical work, cognitive function and resisting and recovering from disease.

UNDERNOURISHMENT. The condition of people whose dietary energy consumption is continuously below a minimum requirement for fully productive, active and healthy lives. It is determined using a proxy indicator that estimates whether the food available in a country is sufficient to meet the energy (but not necessarily the protein, vitamins and minerals) requirements of the population. Unlike undernutrition, the indicator does not measure an actual outcome.

SHORT-TERM HUNGER. A transitory form of hunger, including "hunger pangs", that can affect short-term physical and mental capacity.

FOOD SECURITY. A condition that exists when all people at all times are free from hunger. The concept of food security provides insights into the causes of hunger. Food security has four parts:

- availability (the supply of food in an area);
- access (a household's ability to obtain that food);
- utilization (a person's ability to select, take-in and absorb the nutrients in the food); and
- vulnerability (the physical, environmental, economic, social and health risks that may affect availability, access and use) (WFP, 2002; Webb and Rogers, 2003).

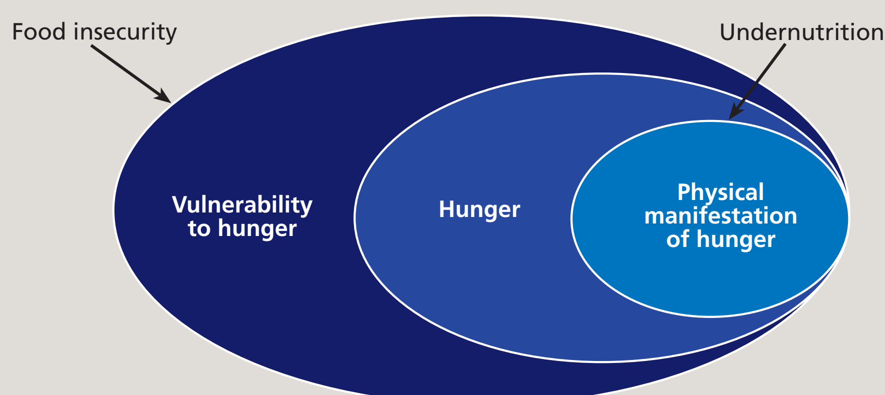
Food insecurity, or the absence of food security, is a state that implies either hunger resulting from problems with availability, access and use or vulnerability to hunger in the future.

What is the difference between hunger and undernutrition?
Undernutrition is the physical manifestation of hunger. It can be measured using indicators such as:

- weight-for-age (underweight);
- height-for-age (stunting); and
- weight-for-height (wasting).

In some cases, undernutrition can be caused by disease, which influences the adequacy of food intake and/or its absorption in the body (and therefore the level of hunger). Disease affects the adequacy of food intake by altering metabolism (thus increasing the requirements for the intake of nutrients) and reducing appetite (often reducing the amount of food ingested). At the same time, disease may cause problems of absorption through the loss of nutrients (e.g. vomiting, diarrhoea) or its interference with the body's mechanisms for absorbing them. Thus disease aggravates undernutrition. Of course, disease often has many other serious and debilitating effects not directly related to its impact on hunger.

How is hunger related to undernutrition and food insecurity?
Hunger, undernutrition and food insecurity are nested concepts. Undernutrition is a subset of hunger, which in turn is a subset of food insecurity (see diagram below).



PART I The Global Hunger and Health Situation

Hunger and health are inherently related. Health cannot be improved without tackling the problem of hunger; hunger in turn leads to poor health, and many of the causes of hunger also contribute to poor health.

Part I reviews the current hunger and health situation and tracks progress towards meeting the Millennium Development Goals. **Chapter 1** lays out the bidirectional relationship between hunger and poor health, showing that it is difficult to significantly improve the health of an individual without eliminating all forms of hunger. **Chapter 2** shows what a hungry world and a world in poor health looks like and profiles the groups most vulnerable to hunger and poor health. It presents the development challenges before us, examining the multiple causes of hunger and poor health and the devastating role of conflict and natural disasters in impeding progress in hunger reduction. **Chapter 3** provides an update on progress towards meeting the MDGs for hunger and health, showing that progress is still not sufficient. **Chapter 4** lays out some choices that leaders may make to accelerate progress towards meeting the MDGs.

Introduction

"Why does hunger persist in a world of plenty? One of the greatest questions of our time, this is also a question of earlier times. … the history of hunger is embedded in the history of plenty."

Sara Millman and Robert W. Kates, 1990

Historical social and economic transitions illustrate interesting patterns of progress and regress. From the 21st century perspective, it is easy to assume that transitions represent remarkable strides to feed the world and protect it against disease. Over the last 200 years there have been important gains in hunger reduction; however, 854 million hungry people throughout the world still struggle to survive and more than 16,000 children die needlessly each day from hunger-related conditions. The progression to a world free from hunger is uneven, and it is clear that progress in tackling hunger and related health issues is held back by significant obstacles.

A number of development models suggest that improved diet and nutrition lead to better health, which results in greater equity (Semba, 2001). However, each country faces a unique set of challenges regarding the extent and type of hunger and the causes of prevailing health problems. The interwoven causes of hunger and poor health are deeply rooted in social, economic and political conditions.

Hunger and poor health are thus strongly related to political and economic choices, which in turn reflect the priorities attached to budget allocations, quality of social services and community values. People who suffer from hunger in any of its forms are not the decision-makers, nor are they necessarily well represented by them.

The *World Hunger Series 2007* explores the multiple relationships between hunger and poor health and how they affect the growth of individuals, physiologically and psychologically, and constrain the development of nations both socially and economically.

There are numerous discussions on hunger. Too often, however, hunger analyses focus exclusively on the physical manifestations, portraying acutely undernourished children with swollen bellies or stunted children affected with inadequate growth at critical periods of their lives. The causes often focus on poor food production or insufficient income to purchase the quality food required by a household. These may be central to any discussion on hunger, but it is important to emphasize that there are knowledge gaps in the hunger debate. The *World Hunger Series* attempts to shed light on some of the neglected areas in the discussion, and in this edition specifically, the hunger–health relationship. This *World Hunger Series* examines the profound effect that hunger has on health, including disease prevention and treatment, and gives special attention to nutrient absorption and utilization.

This report also addresses programming issues and the health actions necessary to overcome hunger: how hunger and health interventions can be better aligned and strategic key actions implemented to limit the damaging impact of hunger on health and well-being.

The *World Hunger Series 2007* argues that the factors that jeopardize good health and reinforce hunger are generally well known, and that affordable solutions are widely available. The report presents a call to action that lauds the unprecedented global efforts to tackle hunger and poor health. It also highlights that opportunities abound for concentrating resources in collaborative, harmonized approaches that support national and local frameworks. Five messages underlie the *World Hunger Series 2007*:

- Hunger and poor health are related global problems.
- They disproportionately affect the poorest and most vulnerable, needlessly shortening lives and the quality of life for hundreds of millions.
- Women and children are particularly affected by hunger and poor health.
- Poor health and hunger impact national development, both now and for future generations.
- Hunger and poor health are solvable problems; however, current approaches do not always lead to solutions that are equitably accessible and sustainable.

Introduction

The *World Hunger Series 2006* publication – *Hunger and Learning* – introduced the premise that political choice is directly related to the persistence of hunger. The 2007 report looks in more depth at how political choices influence progress in reducing hunger and achieving good health, and how these choices often ignore processes of marginalization and the inequalities that reduce access to quality food and health services by those who are most vulnerable.

This report emphasizes the profound and mutually reinforcing benefits that investments in hunger elimination and health can achieve for individuals and nations. It offers an agenda for concrete action at the community, national and international levels. New alliances and partnership approaches are increasingly apparent in a globalizing world and these represent new opportunities for action. Mobilizing the various actors to work jointly in the same direction is vital and the *World Hunger Series* makes a modest contribution to that end. This *World Hunger Series 2007* report has five principal parts:

- **The global hunger and health situation** surveys the current state of hunger and poor health in the world.
- **Undernutrition and disease: impacts throughout the life cycle** explores the two-way relationship between hunger and health during the life cycle and identifies knowledge gaps that if addressed would enhance current hunger reduction efforts.
- **National development: commitment and political choice** presents the rationale for increasing commitment to fight hunger and poor health. It also examines the role of hunger reduction in health programmes and in national development. Furthermore, it presents evidence showing that cost-effective solutions are at hand and have contributed to positive health impacts.
- **The way forward: towards a world without hunger** sets out concrete actions for moving ahead with integrated, harmonized solutions within government frameworks.
- A **resource compendium** contains supporting data.