



Food and Agriculture  
Organization of the  
United Nations

2015

# Regional Overview of Food Insecurity Asia and the Pacific



**Towards a Food Secure Asia and the Pacific**

# 2015

## Regional Overview of Food Insecurity

# Asia and the Pacific

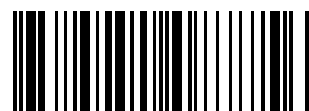
## *Key messages*

- The Asia-Pacific region has achieved the Millennium Development Goals' hunger target (MDG-1c) of halving the proportion of undernourished people in 2015. The region has also achieved the largest reduction in the absolute number of undernourished people (236 million). However, this was not sufficient to meet the target set by the World Food Summit (WFS) of halving the number of undernourished people by 2015.
- There are large disparities among sub-regions and countries in the region. While Eastern Asia and South-Eastern Asia have achieved both the MDG-1c and the WFS hunger targets, highly populous Southern Asia has not met either target. Oceania did not reach the MDG-1c target due to slow progress while the absolute number of hungry actually increased.
- There are 490 million people still suffering chronic hunger in the region, and Asia and the Pacific is home to almost 62 percent of the world's undernourished. Besides the calorie consumption deficit, the problem of undernutrition is manifested in high rates of stunting in children below five years of age, while various micronutrient deficiencies prevail among people of all ages. At the same time, the number of people who are overweight or obese is rapidly increasing in the region, especially in Southwest Pacific Island countries and middle-income countries of Asia.
- The serious challenge facing the region is the remaining undernourished 12 percent of the total population that is still hungry and has been left behind, denied their share of the benefits of economic growth. They are the poor and most vulnerable groups in society. Therefore, the challenge facing the region is not only to produce more food from the increasingly limited natural resource base, but also how to ensure more equitable access to food, while addressing various threats such as climate change.
- A number of policy commitments, and institutional and technological innovations, combined with effective social protection measures are required to meet this challenge, in an overall framework of sustainable economic growth that is more equitably shared and environmentally sustainable. It will be crucial to accelerate actions through the Zero Hunger Challenge (ZHC) and other relevant food security and nutrition initiatives, focusing on supporting resource-poor family farms and the most vulnerable and disadvantaged groups in society.



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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

**Bangkok, 2015**

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# Contents

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- iv Foreword
  - vi Acknowledgements
  - vii Acronyms and abbreviations
- 

## 9 Part I. Monitoring food security trends in the region

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- 15 Part II. Beyond undernourishment:  
insights from the suite of food security indicators
- 18 Food availability: increasing and diversifying, but sustainability is not assured
- 21 Access to food: improved, but problems persist in poorer economies
- 22 Stability: exposure to short-term risks reduced across the board
- 24 Utilization: improving at a slow pace,  
but chronic undernutrition among children is a serious concern
- 27 Future outlook towards 2050
- 30 National and regional policies, actions, commitments and initiatives
- 33 The path ahead to eradicating hunger and ensuring food and nutrition security

# Foreword

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**D**uring the past quarter century, of all regions in the world, the Asia and the Pacific region has achieved the fastest rate of economic growth. This has led to a dramatic reduction in extreme poverty below US\$ 1.25/person/day measured at 2005 international prices, adjusted for PPP. The region met the Millennium Development Goal of reducing the proportion of people living in extreme poverty by half in early 2010, well before the MDG target date. The region also achieved the largest reduction in the number of undernourished people in the world. As a consequence, owing to the concerted efforts by all concerned, the region achieved the MDG 1c target of reducing the proportion of people who suffer from hunger by half by 2015 (see the State of Food Insecurity in the World 2015 by FAO, IFAD and WFP).

We should be proud of this remarkable and historic achievement, which has been our longstanding dream.

However, there are large disparities among subregions and countries in achieving the target, and there still remains 12 percent of the region's total population who have been left behind and have not shared fully in the benefits of economic growth. Without supporting them, we cannot achieve 'Zero Hunger' in the region.

The world now produces enough food to feed everyone. World cereal production in 2014 is estimated at 2 544 million tonnes, 51 million tonnes more than the required quantity. Based on the current forecast for cereal stocks and utilization, the cereal stocks-to-use ratio is expected to reach 25.9 percent in 2014/15, its highest value since 2001/02. Meanwhile, world food prices are low. The FAO Food Price Index averaged 173.8 points in March 2015, down nearly 40 points (18.7 percent) below its level in March 2014. Lower food prices are good for consumers in general, and also for many small farmers who are net buyers of food.

The Asia and the Pacific region has also made great strides in food production. The FAO estimates that in the past 25 years, the average dietary energy supply adequacy increased significantly, and almost all countries in the region now have adequate food supplies to meet people's average dietary needs.

However, FAO estimates that globally a total of 795 million people do not have access to a sufficient supply of dietary energy to live a healthy life, with 490 million – nearly two-thirds of the total – living in the Asia and the Pacific region. These disadvantaged people live at the bottom of society, suffering daily extreme hardship. Until hunger is completely eradicated, social equity and sustainable development will not be achieved. FAO is therefore focused on helping these hundreds of millions of people through the Zero Hunger Challenge.

The region faces the challenge of eradicating hunger within a context of growing shortages of land, water and labour, and these shortages are likely to become worse in the coming decades. Add to this a number of uncertainties surrounding future crude oil prices, food price volatility, the negative impacts of climate change and natural disasters, and biofuel developments, and it is obvious that it will be a tremendous challenge to meet the food and nutrition demands of a growing, wealthier and increasingly urbanized population. Aside from the deficits in dietary energy that must be overcome, the negative health consequences of micronutrient deficiencies continue to affect millions of people in this region.

Rapid income growth in the region is crucial for decreasing poverty and hunger, but past experience has shown that it needs to be more sustainable and equitable to eradicate hunger. Policies, strategies and institutional arrangements need to be adjusted to meet these challenges. New and innovative technologies must be developed and made accessible to all producers in order to increase productivity sustainably, while social protection measures combined with employment generation, value chain development and other targeted interventions should be pursued to support poor farm households and the most vulnerable groups in our society.

This regional overview has been prepared to take stock of the current food security situation, present the challenges of ensuring food security in the context of growing and changing patterns of food demand, and propose key measures that must be taken in a coordinated manner by different stakeholders in this very dynamic and populous part of the world. Part I presents the region's progress in meeting the Millennium Development Goal 1 and the World Food Summit targets in reducing the proportion and number of undernourished, respectively. Part II discusses insights from a suite of indicators related to the four dimensions of food security (food availability, access to food, stability and utilization); the future outlook towards 2050; policies, actions, commitments and initiatives by countries and regional organizations to address existing and emerging food security challenges; and finally, the path ahead to eradicating hunger and ensuring food and nutrition security in the region.

In conclusion, everyone should have a right to access food. Food is essential for our survival, stability, and peace and for world security. The challenge of ensuring food security can only be met if all stakeholders work together. FAO is therefore committed to working together with its member countries and partners around the region and the globe towards eradicating hunger, ensuring future generations of farmers and consumers are well-nourished and prosperous, and achieving a world with equity, peace, stability and sustainable development.



**Hiroyuki Konuma**

Assistant Director-General and Regional Representative

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For more information about this publication, please contact David Dawe (david.dawe@fao.org).



# Acronyms and abbreviations

<b>ADB</b>	Asian Development Bank	<b>MDG</b>	Millennium Development Goal
<b>AFTA</b>	ASEAN Free Trade Area	<b>NCDs</b>	Non-Communicable Diseases
<b>AMAF</b>	ASEAN Ministers of Agriculture and Forestry	<b>NGOs</b>	Non-Government Organizations
<b>AP</b>	Asia and the Pacific	<b>PHP</b>	The Philippines peso
<b>APRC</b>	FAO Regional Conference for Asia and the Pacific	<b>PPP</b>	Purchasing power parity
<b>APTERR</b>	ASEAN Plus Three Emergency Rice Reserve	<b>RAI</b>	Responsible agricultural investment
<b>ASEAN</b>	Association of Southeast Asian Nations	<b>R&amp;D</b>	Research and development
<b>DPR Korea</b>	Democratic People's Republic of Korea	<b>SAARC</b>	South Asian Association for Regional Cooperation
<b>ESCAP</b>	United Nations Economic and Social Commission for Asia and the Pacific	<b>SSBs</b>	Sugar Sweetened Beverages
<b>FAF</b>	Food, agriculture and forestry	<b>TRQ</b>	Tariff-rate quota
<b>FAO</b>	Food and Agriculture Organization of the United Nations	<b>UNDP</b>	United Nations Development Programme
<b>GDP</b>	Gross domestic product	<b>UN-HABITAT</b>	United Nations Human Settlements Programme
<b>GIAHS</b>	Globally Important Agricultural Heritage Systems	<b>UN</b>	United Nations
<b>ICT</b>	Information and Communication Technology	<b>VAD</b>	Vitamin A deficiency
<b>IFAD</b>	International Fund for Agricultural Development	<b>WB</b>	The World Bank
		<b>WFP</b>	World Food Programme
		<b>WFS</b>	World Food Summit
		<b>WHO</b>	World Health Organization
		<b>ZHC</b>	The Zero Hunger Challenge



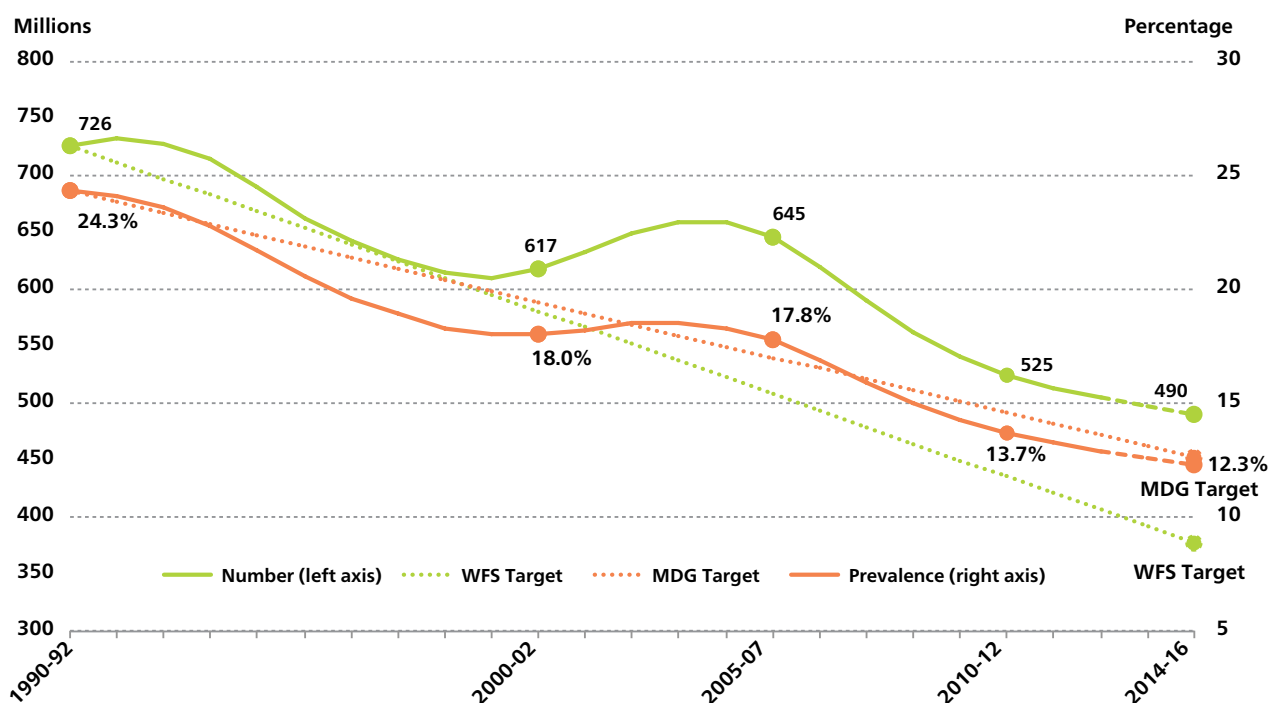
# Part I. Monitoring food security trends in the region

## Undernourishment in the region

According to FAO's estimate for 2014–16, 794.6 million people are undernourished in the world (Table 1), down 10.7 million from the previous estimate of 805.3 million for 2012–14 that was released in The State of Food Insecurity in the World 2014. The proportion of undernourished in total population is now estimated at 10.9 percent worldwide<sup>1</sup>.

The Asia and the Pacific (AP) region as a whole has achieved the Millennium Development Goal (MDG) 1C hunger target of “halving, between 1990 and 2015, the proportion of people who suffer from hunger” under MDG-1 (Figure 1)<sup>2</sup>. Since 1990–92, the proportion of hungry has been reduced by 12 percentage points from the initial 24 percent. In other words, while one in four people was undernourished some 25 years ago, today only one in eight is hungry.

Figure 1: The trajectory of undernourishment in Asia and the Pacific: actual and projected progress towards the MDG and WFS targets



Note: Data for 2014-16 refer to provisional estimates.  
Source: FAO

<sup>1</sup>Food and Agriculture Organization of the United Nations (FAO), International Fund for Agricultural Development (IFAD) and World Food Programme (WFP). 2015. State of Food Insecurity in the World.

<sup>2</sup>Goal 1 of the MDG (MDG-1) is to “eradicate extreme poverty and hunger.” It includes targets for poverty reduction, employment and hunger reduction, numbered 1A through 1C, respectively.

Despite this historic and remarkable achievement, there were large disparities among subregions and countries in the region. Out of 27 countries for which progress was monitored, 19 countries, or 70 percent, achieved the MDG hunger target, seven countries did not reach the target owing to slow progress, and one country witnessed an increase in the proportion of undernourished. While South-Eastern Asia followed by Eastern Asia were early achievers and significantly over-

shot the MDG 1C targets (reductions of 68.5% and 58.5% respectively), Southern Asia (34.4%) did not reach the target (Figure 2).

The Asia and the Pacific region made substantial progress in reducing the number of people suffering chronic hunger towards the World Food Summit (WFS) target of halving the number of undernourished people by 2015. Since 1990–92, it achieved the largest reduction in the number of undernourished people (236 million) of any region in the world (see Figure 3).

Figure 2: Prevalence of hunger in Asia and the Pacific by subregion, 1990–92 - 2014–16

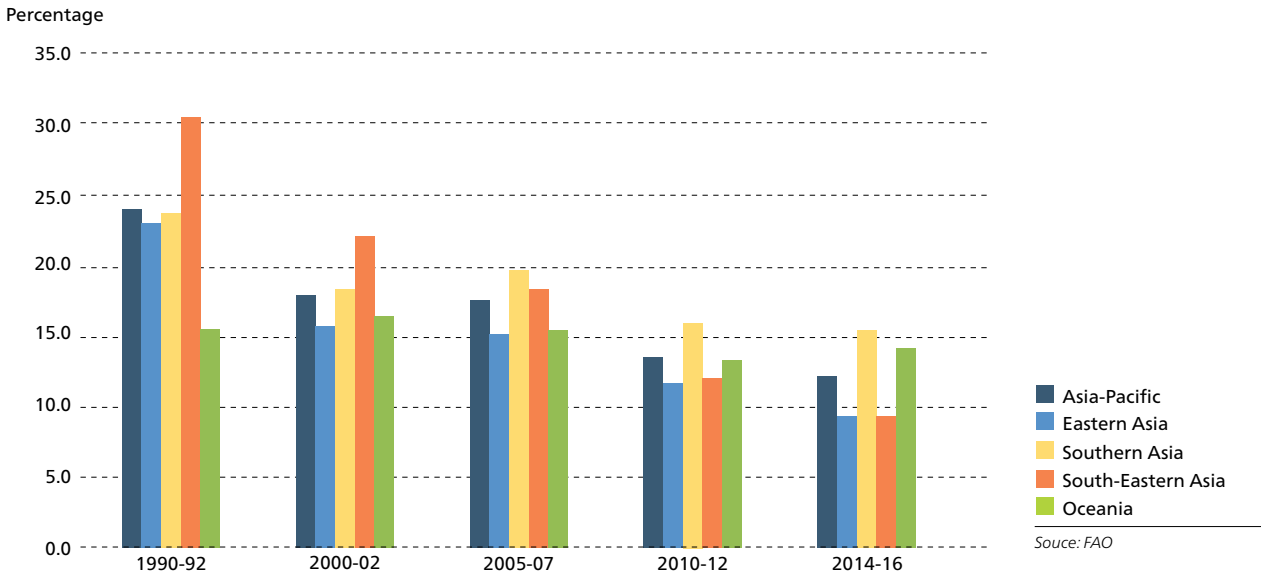


Figure 3: Reduction in the number of undernourished by region and the world, 1990–92 - 2014–16

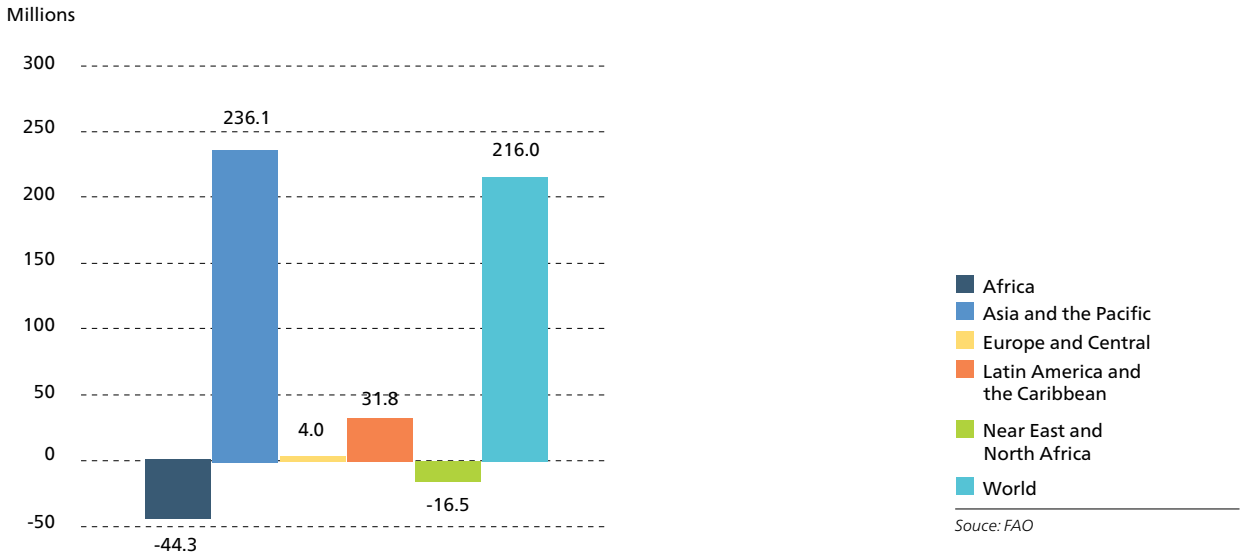
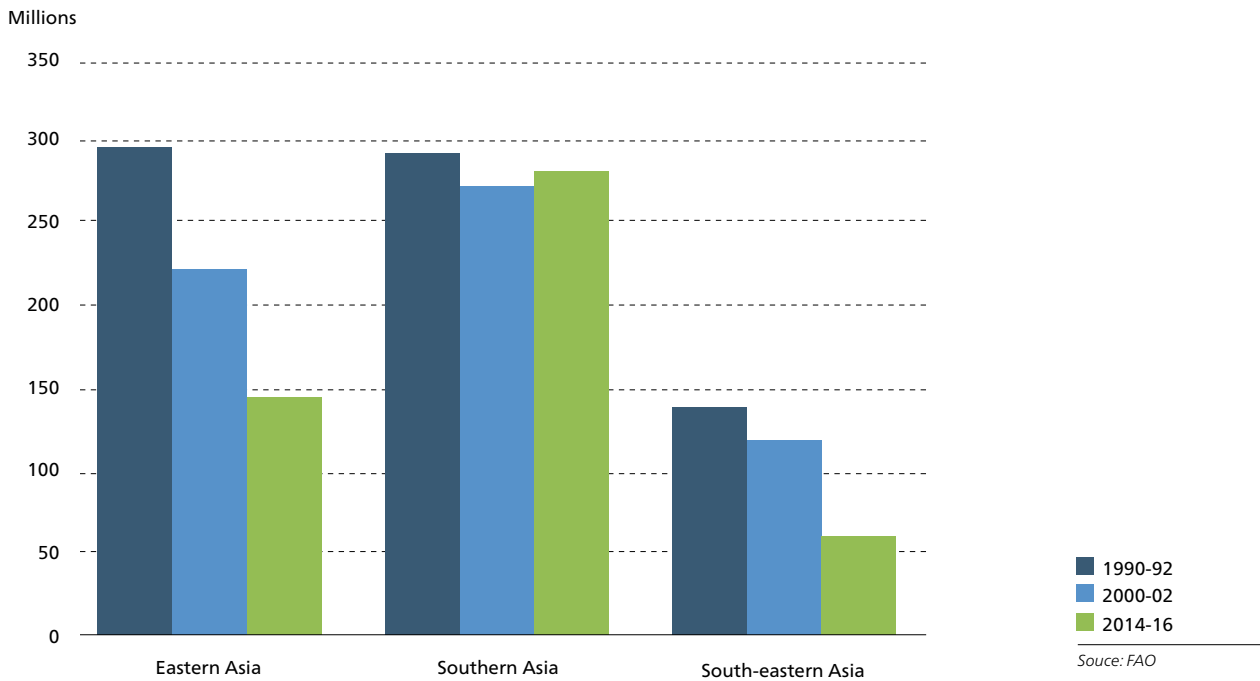


Figure 4: Number of undernourished in Asia-Pacific, by subregion, 1990–92 - 2014–16.



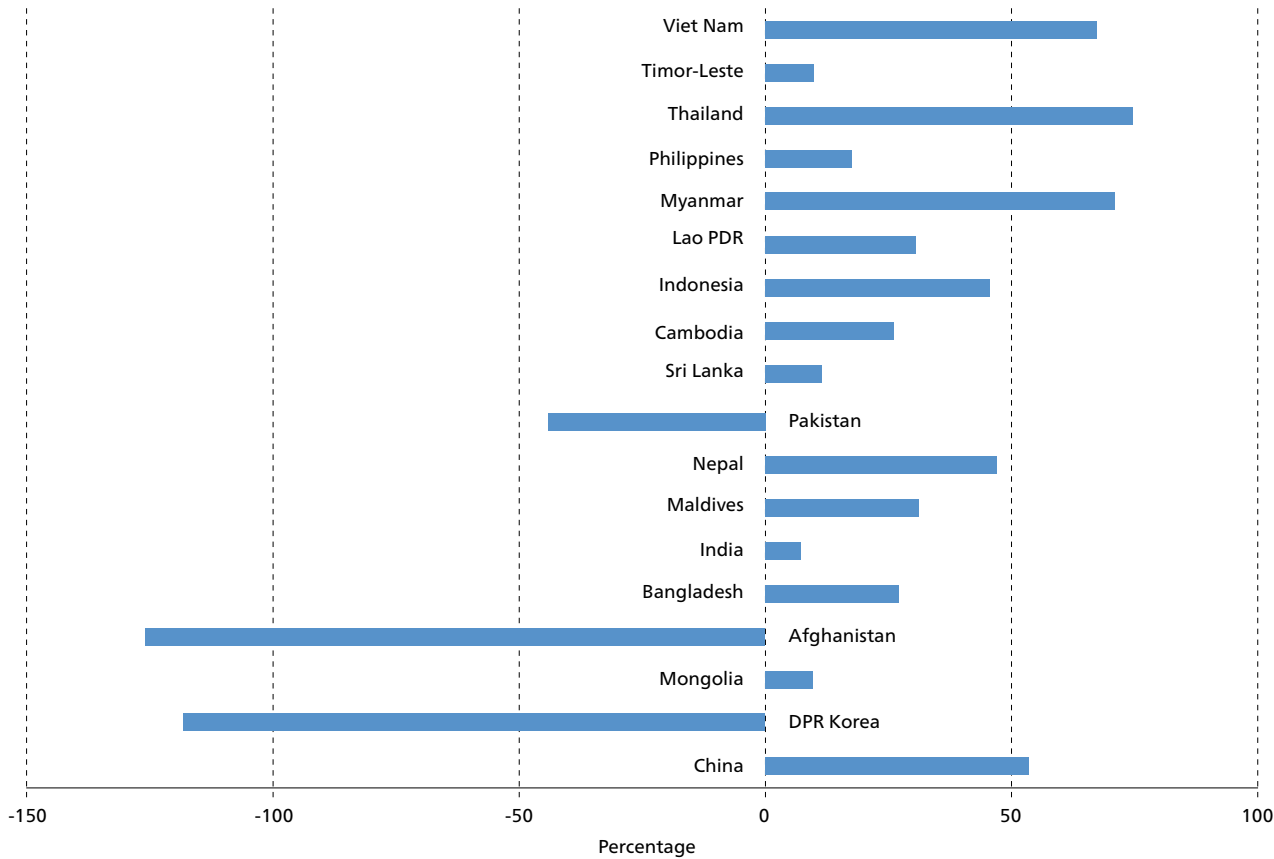
However, the region fell short of achieving the WFS target. With 490 million people still suffering chronic hunger, the region is home to almost 62 percent of such people in the world.

Eastern Asia and South-Eastern Asia have shown great success in reducing the number of hungry and have achieved the WFS target. Southern Asia, however, did not meet the WFS target. Although Eastern Asia and Southern Asia started with almost the same number of undernourished in 1990–92, the former has halved this number since then, while little has changed in the latter (Figure 4). Indeed, Southern Asia continues to be the subregion with the largest number of hungry people

in the world. The number of hungry also increased in Oceania, although it is recognized that monitoring of progress by these countries is seriously hampered by data limitations.

Overall, individual country performance in reducing the number of hungry differed widely, as shown in Figure 5 for 18 selected countries. Only six of the 27 countries in the region achieved the WFS target of halving the number of undernourished. Two other countries almost reached the target, and another 14 made progress but did not achieve the target. Five countries experienced an increase in the number of undernourished.

Figure 5: Percentage reduction in the number undernourished in Asia-Pacific countries, 1990–92 to 2014–16.



Source: FAO

The range of performance in reducing the number of undernourished reflects country and subregional differences in terms of economic growth, natural resources for food production, infrastructure, the macroeconomic and sector policy environments, the internal peace and security situation, and institutional stability. Eastern and South-Eastern Asia, with rapid economic growth and policies to improve agricultural productivity, performed better than Southern Asia and Oceania. In Southern Asia, performance was affected by poor infrastructure and war and conflicts in some areas.

Overall, the bottom line is that while the region did achieve the MDG target, progress in meeting the WFS target was much less. And there remain 490 million people in the region who are still chronically hungry.

These people typically live in extreme poverty, and besides the lack of food and income, they usually have little access to education and health facilities. Many of them are landless and marginal farmers, indigenous people, ethnic minorities, people with disability and their families, members of female-headed households, and other disadvantaged groups in society. The Zero Hunger Challenge, launched in the region in 2013 and discussed in more detail later in this report, aims to encourage countries to come up with action plans that will eradicate this extreme poverty and hunger, in line with the new Sustainable Development Goals. FAO is committed to work with all countries to assist in whatever way possible to help eradicate hunger once and for all.

Table 1. Prevalence of undernourishment and progress towards the World Food Summit (WFS)<sup>1</sup> and the Millennium Development Goal (MDG)<sup>2</sup> targets in developing regions

Regions/subregions/ countries	Number of people undernourished						Progress towards WFS target <sup>3</sup>	Proportion of undernourished in total population						Progress towards MDG target <sup>5</sup>
	1990-92	2000-02	2005-07	2010-12	2014-16 <sup>3</sup>	Change so far <sup>4</sup>		1990-92	2000-02	2005-07	2010-12	2014-16 <sup>3</sup>	Change so far <sup>4</sup>	
	(millions)						(%)	(%)						
<b>World</b>	1,010.6	929.6	942.3	820.7	794.6	-21.4		18.6	14.9	14.3	11.8	10.9	-41.6	
<b>Developed regions</b>	20.0	21.2	15.4	15.7	14.7	-26.3		<5.0	<5.0	<5.0	<5.0	<5.0	na	
<b>Developing regions</b>	990.7	908.4	926.9	805.0	779.9	-21.3	↔	23.3	18.2	17.3	14.1	12.9	-44.5	CtR
<b>Asia and the Pacific<sup>6</sup></b>	726.2	617.2	645.3	525.4	490.1	-32.5	↔	24.3	18.0	17.8	13.7	12.3	-49.5	A
<b>Asia</b>	741.9	636.5	665.5	546.9	511.7	-31.0	↔	23.6	17.6	17.3	13.5	12.1	-48.9	A
<b>Eastern Asia</b>	295.4	221.7	217.6	174.7	145.1	-50.9	A	23.2	16.0	15.2	11.8	9.6	-58.5	A
China	289.0	211.2	207.3	163.2	133.8	-53.7	A	23.9	16.0	15.3	11.7	9.3	-60.9	A
Democratic People's Republic of Korea	4.8	8.7	8.5	10.3	10.5	118.5	▲	23.3	37.7	35.5	42.0	41.6	78.4	■
Mongolia	0.7	0.9	0.9	0.7	0.6	-9.8	↔	29.9	36.1	34.0	24.5	20.5	-31.5	■
Republic of Korea	ns	ns	ns	ns	ns	<-50.0	A	<5.0	<5.0	<5.0	<5.0	<5.0	na	A
<b>Eastern Asia (excluding China)</b>	6.4	10.4	10.3	11.5	11.3	77.6	▲	9.6	14.6	13.9	15.1	14.6	50.9	■
<b>Southern Asia</b>	291.2	272.3	319.1	274.2	281.4	-3.4	↔	23.9	18.5	20.1	16.1	15.7	-34.4	■
Afghanistan	3.8	10.0	8.3	7.1	8.6	126.1	▲	29.5	46.7	32.3	24.3	26.8	-9.0	■
Bangladesh	36.0	27.7	24.3	26.5	26.3	-27.0	▲	32.8	20.6	16.8	17.3	16.4	-49.9	A
India	210.1	185.5	233.8	189.9	194.6	-7.4	↔	23.7	17.5	20.5	15.6	15.2	-36.0	■
Iran (Islamic Republic of)	2.9	3.8	4.7	4.7	ns	>0.0	▲	5.1	5.6	6.6	6.2	<5.0	na	A
Maldives	<0.1	<0.1	<0.1	<0.1	<0.1	-31.6	CtR	12.2	11.9	15.4	8.7	5.2	-57.6	A
Nepal	4.2	5.2	4.1	2.5	2.2	-47.3	↔	22.8	21.9	15.8	9.2	7.8	-65.6	A
Pakistan	28.7	34.4	38.1	38.3	41.4	44.2	▲	25.1	23.4	23.7	21.8	22.0	-12.4	■
Sri Lanka	5.4	5.7	5.9	5.3	4.7	-11.6	↔	30.6	29.7	29.1	25.3	22.0	-28.3	■
<b>Southern Asia (excluding India)</b>	81.1	86.7	85.3	84.3	86.8	7.0	▲	24.5	21.0	19.0	17.5	17.0	-30.6	■
<b>South-Eastern Asia</b>	137.5	117.6	103.2	72.5	60.5	-56.0	A	30.6	22.3	18.3	12.1	9.6	-68.5	A
Brunei Darussalam	ns	ns	ns	ns	ns	>-50.0	↔	<5.0	<5.0	<5.0	<5.0	<5.0	na	A
Cambodia	3.0	3.6	2.7	2.5	2.2	-26.1	↔	32.1	28.5	19.6	16.8	14.2	-55.8	A
Indonesia	35.9	38.3	42.7	26.9	19.4	-45.9	CtR	19.7	18.1	18.8	11.1	7.6	-61.6	A
Lao People's Democratic Republic	1.9	2.1	1.6	1.4	1.3	-30.6	↔	42.8	37.9	26.9	21.4	18.5	-56.8	A
Malaysia	1.0	ns	ns	ns	ns	>-50.0	↔	5.1	<5.0	<5.0	<5.0	<5.0	na	A
Myanmar	26.8	24.3	17.0	9.4	7.7	-71.4	A	62.6	49.6	33.7	18.0	14.2	-77.4	A
Philippines	16.7	16.1	14.3	12.7	13.7	-17.9	↔	26.3	20.3	16.4	13.4	13.5	-48.8	A
Thailand	19.8	11.6	7.7	6.0	5.0	-74.9	A	34.6	18.4	11.7	8.9	7.4	-78.7	A
Timor-Leste	0.4	0.4	0.3	0.3	0.3	-10.0	↔	45.2	41.6	34.0	31.2	26.9	-40.4	■
Viet Nam	32.1	20.7	15.9	12.2	10.3	-68.0	A	45.6	25.4	18.5	13.6	11.0	-75.8	A
<b>Oceania<sup>7</sup></b>	1.0	1.3	1.3	1.3	1.4	51.5	▲	15.7	16.5	15.4	13.5	14.2	-9.9	■
Fiji	<0.1	ns	ns	ns	ns	>-50.0	↔	6.6	<5.0	<5.0	<5.0	<5.0	na	A
Kiribati	<0.1	ns	ns	ns	ns	>-50.0	↔	7.5	<5.0	<5.0	<5.0	<5.0	na	A
Samoa	<0.1	<0.1	ns	ns	ns	<-50.0	A	10.7	5.2	<5.0	<5.0	<5.0	na	A
Solomon Islands	<0.1	<0.1	<0.1	<0.1	<0.1	-17.1	↔	24.8	15.0	12.0	10.7	11.3	-54.5	A
Vanuatu	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	▲	11.2	8.2	7.0	6.1	6.4	-42.8	■

Notes: Countries revise their official statistics regularly for the past as well as the latest reported period. The same holds for population data of the United Nations. Whenever this happens, FAO revises its estimates of undernourishment accordingly. Therefore, users are advised to refer to changes in estimates over time only within the same edition of The State of Food Insecurity in the World and refrain from comparing data published in editions for different years.

<sup>1</sup> World Food Summit target: halve, between 1990–92 and 2015, the number of people undernourished.

<sup>2</sup> Millennium Development Goal 1, target 1C: halve, between 1990–92 and 2015, the proportion of people suffering from undernourishment, or reduce this proportion below 5 percent. Indicator 1.9 measures the proportion of population below minimum level of dietary energy consumption (undernourishment). The results are obtained following a harmonized methodology and are based on the latest globally available data averaged over three years. Some countries may have more recent data which, if used, could lead to different estimates of the prevalence of undernourishment and consequently of the progress achieved.

<sup>3</sup> Projection.

<sup>4</sup> Change from the 1990–92 baseline. For countries where the prevalence of undernourishment is estimated to be below 5 percent, the change in the number of people undernourished since the 1990–92 baseline is only assessed as: achieving the WFS target, i.e. reducing the number by more than half (<-50.0%); progress, but insufficient to achieve the WFS target, i.e. reducing the number by less than half (>-50.0%); or an increase in the number of people undernourished (>0.0%).

<sup>5</sup> The color indicator shows the progress achieved by 2014–16:

WFS target

▲ Off track from target

↔ Did not reach the target, due to slow progress

CtR Close to reaching the target. Will reach it before 2020 if observed trend persists

A WFS Target achieved

MDG target

■ Off track from target

■ Did not reach the target, due to slow progress

CtR Close to reaching the target. Will reach it before 2020 if observed trend persists

A MDG target 1C achieved

In order to reach MDG target 1C, it is only necessary to achieve a reduction of 48 percent because there were only 24 years between 1990–92 (1991) and 2014–16 (2015) instead of the 25 years allowed for other targets.

#### Country composition of the special groupings:

<sup>6</sup> "Asia and the Pacific" includes developing countries falling under the responsibility of the FAO Regional Office RAP: Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Democratic People's Republic of Korea, Fiji, India, Indonesia, Iran (Islamic Republic of), Kazakhstan, Kiribati, Lao People's Democratic Republic, Malaysia, Maldives, Mongolia, Myanmar, Nepal, Pakistan, Papua New Guinea, Philippines, Republic of Korea, Samoa, Singapore, Solomon Islands, Sri Lanka, Thailand, Timor-Leste, Uzbekistan, Vanuatu, Viet Nam.

<sup>7</sup> In addition to the countries listed in the table Oceania includes: French Polynesia, New Caledonia, Papua New Guinea. Australia and New Zealand are considered in the "developed countries" group

#### Key

<5.0 proportion of undernourished less than five percent.

<0.1 less than 100 000 people undernourished.

na not applicable.

ns not statistically significant.

Source: FAO estimates





## Part II. Beyond undernourishment: insights from the suite of food security indicators

**B**y definition, food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and their food preferences for an active and healthy life<sup>1</sup>. From this definition, four food security pillars can be identified:

- Food availability;
- Economic and physical access to food;
- Food utilization; and
- Stability over time of food availability, access and utilization

Food security has become increasingly complex and challenging in the Asia and the Pacific region. It is affected by economic and agricultural growth, population growth and changes in demographics, domestic market development, consumption patterns, food price volatility, the state of the environment, the impact of bio-energy development, an area's vulnerability to climate change and natural disasters, and other factors. Many of these factors are greatly influenced by macroeconomic and sector policies and connectivity to the world market.

The Asia and the Pacific region has made remarkable progress in economic growth and poverty reduction in recent decades. From 1990 to 2010, the average annual GDP growth rate of nations in developing Asia was 7 percent in terms of 2005 purchasing power parity (PPP), far exceeding the global average of 3.4 percent<sup>2</sup>. This rapid growth has led to significant improvements in living standards and reduced poverty. Between 1990 and 2010, the proportion of people living on less than \$1.25 per day, measured at 2005 international prices and adjusted for PPP, fell by more than half – from 54.7 to 20.7 percent. Poverty reduction was particularly impressive in Eastern Asia, where the poverty rate fell by 48.6 percentage points (largely led by China), followed by South-Eastern Asia (31 percentage points), Southern Asia (19.8 percentage points) and the Pacific (10.9 percentage points)<sup>3</sup>. The changes in poverty headcount ratios in selected Asian countries presented in Figure 6 indicate that many large countries have made rapid progress in reducing the incidence of poverty over the past two decades. China and Viet Nam drastically reduced poverty during their transformations from centrally planned to market-oriented systems.

Although the relationship between hunger and poverty is not always straightforward, and reduced access to food can result from other factors, such as crop failure and supply disruptions due to conflict, the close connection between poverty reduction and food security is well supported by data that show the differences in performance at the subregional level in Asia and the Pacific. For example, Eastern and South-Eastern Asia, which reduced poverty at faster rates, also reduced food insecurity more rapidly than Southern Asia.

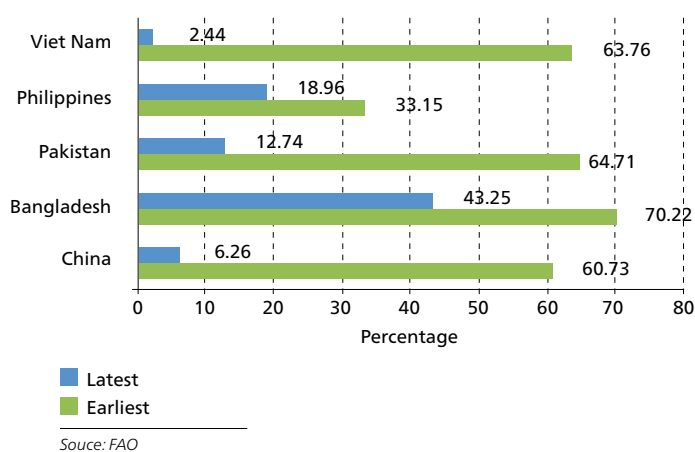


<sup>1</sup> 2009 Declaration of the World Summit on Food Security.

<sup>2</sup> Asian Development Bank (ADB). 2013. Food security in Asia and the Pacific. Manila.

<sup>3</sup> ADB. 2014. Key Indicators for Asia and the Pacific 2014. Manila.

Figure 6: Poverty headcount ratio in selected Asia-Pacific countries at \$1.25 a day (PPP) (percent of population)<sup>4</sup>



reduction, the region is home to 62 percent of the world’s undernourished. Between the 1990s and the latest available year, the population-weighted mean Gini coefficient<sup>7</sup> for the entire region rose from 33.5 to 37.5 percent<sup>8</sup>. Of the 30 countries compared, 12 – accounting for about 82 percent of developing Asia’s population – experienced rising income inequality in terms of the Gini coefficient during the period from the early 1990s to the late 2000s<sup>9</sup>.

The poor’s access to food will be enhanced more rapidly when economic growth is more broadly based and creates more decent and productive employment and income opportunities. In many countries, the rise in inequality can be linked at least in part to slow growth in



In the Southwest Pacific Island Countries<sup>5</sup>, where economic growth and poverty reduction has not been as rapid, the proportion of undernourished has fallen at a slower pace between 1990-92 and 2014-16, not rapid enough to achieve the MDG-1C target. Although Fiji and Samoa have reduced the proportion of undernourished to less than 5 percent, in other countries the percentage of underweight children is still at high levels, as in Papua New Guinea and the Solomon Islands. Lack of data is an issue in several countries. Better data are urgently needed in order to better inform policy-making<sup>6</sup>.

However, a high rate of economic growth has not benefitted everyone equally; it has resulted in income disparity and social inequity between the rich and poor and has not been sufficient to eradicate hunger. Despite rapid economic growth and progress in poverty



agriculture, which continues to employ some of the region’s poorest people and pays lower wages than industry or services. Furthermore, when workers exit from agriculture, they often find employment in low-productivity services with little job security.

Rapid changes in diet and decreasing levels of physical activity sometimes lead to one form of malnutrition (overweight and obesity) co-existing with another (undernutrition). The overweight and obesity problem has emerged in most countries of the region,

<sup>4</sup> Earliest point from 1990 to 1993, and the latest point from 2010 to 2012, depending on the availability of data.

<sup>5</sup> The term “Southwest Pacific Island Countries” as used in this report excludes Australia and New Zealand, which are not widely discussed, as they are developed countries.

<sup>6</sup> FAO. Report of the Thirty-second FAO Regional Conference for Asia and the Pacific, APRC/14/2.

<sup>7</sup> A common measure of inequality, ranging from 0 indicating perfect equality, to 1 (or 100), indicating perfect inequality.

<sup>8</sup> United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), ADB and United Nations Development Programme (UNDP). 2013. Perspectives for a Post-2015 Development Agenda, Asia-Pacific Regional MDGs Report 2012/13. Bangkok.

<sup>9</sup> ADB and Routledge. 2014. Inequality in Asia and the Pacific: Trends, Drivers and Policy Implications. London and New York.



and it has become an important public health and national economic issue especially in the Southwest Pacific Island Countries<sup>10</sup>. They have the highest obesity rates in the world (International Obesity Taskforce, 2009, and the World Bank 2012<sup>11</sup>). In at least 10 Southwest Pacific Island Countries, more than 50 percent (and in some, up to 90 percent) of the population is overweight<sup>12</sup>. In four of these countries, at least half the adult population is obese<sup>13</sup>. Obesity can even occur among the young. In the Cook Islands, 29 percent of boys are obese, and in Tonga nearly 24 percent of boys and 19.1 percent of girls are obese (WB, 2012<sup>11</sup>), resulting largely from poor dietary habits and a sedentary lifestyle.

Producing more food with fewer natural resources in order to meet growing and increasingly diversified demand for higher quality food has led to more pressure on land, water and energy resources. Unfortunately, a vast quantity of this food is lost or wasted. According to an FAO study, nearly 30 percent of global annual food production is lost or wasted every year. This estimate indicates that of the 460 kg/year per capita production of edible parts of food for human consumption in

sub-Saharan Africa and Southern/Southeastern Asia, 120-170 kg/year (or 26-37 percent) is lost somewhere along the value chain. In addition, approximately 6-11 kg of food per capita per year is wasted in sub-Saharan Africa and Southern/Southeastern Asia<sup>14</sup>.

The world today produces enough food for everybody to have food security, if only it were shared equally. From an economic perspective, hunger and food insecurity are, in most cases, not a supply problem, but rather an access problem caused by lack of purchasing power, lack of physical access or lack of social protection schemes. The challenge, therefore, is not only increasing food production and availability to meet the growing demand in the future, but also ensuring continual access to nutritious and diverse food and its fullest utilization by the body for a healthy and productive life. Addressing these complex and multi-dimensional food security issues in Asia and the Pacific will require pursuing a mix of technological, policy and institutional innovations that ensure growth with shared prosperity and environmental sustainability.

<sup>10</sup>Pacific Islands Forum (2011). Joint Statement of the Pacific Island Forum Leaders and United Nations Secretary General. Auckland, New Zealand.

<sup>11</sup>The World Bank. 2012. The Economic Costs of Non-Communicable Diseases (NCDs) in the Pacific Islands-A rapid stock take of the situation in Samoa, Tonga and Vanuatu.

<sup>12</sup>World Health Organization (WHO). 2010. Pacific Islanders pay heavy price for abandoning traditional diet.

Available from: <http://www.who.int/bulletin/volumes/88/7/10-010710/en/>.

<sup>13</sup>Cook Island (63 percent), Nauru (71 percent), Samoa (54 percent) and Tonga (57 percent).

<sup>14</sup>FAO. 2011. Global food losses and food waste: Causes, extent and prevention. Rome.

## Food availability: increasing and diversifying, but sustainability is not assured

**F**ood availability is the first pillar of food security and refers to the physical availability of adequate levels of food in a particular location. Food can be made available through home production, local markets or imports. The availability of an adequate supply of food to meet everybody's needs is a necessary, but not sufficient condition for food security. Over the past quarter-century (from 1990-92 to 2014-16), food supplies in the Asia and the Pacific region have grown faster than population, resulting in rising food availability per person in most subregions.



In the Southwest Pacific Island Countries, however, agricultural production per capita is declining across the subregion. Traditionally, these countries were generally food secure, as they had a diet of readily available and abundant indigenous food resources, including root crops, fish, fruit and vegetables sourced locally through environmentally sustainable farming and harvest systems. This has changed fundamentally in tandem with urbanization, growing population pressure, commercialization of food chains and changes in dietary patterns. The transformation of household diets toward imported foods has increased food-import dependence.

As a result of a growth in crops, livestock and fisheries production over the past two decades, FAO estimates that the average dietary energy supply adequacy increased by about 20 percent in Eastern Asia and South-Eastern Asia. Southern Asia and the Southwest Pacific Subregion also recorded small increases in per capita food supply. Because of this growth, only one country in the region (DPR Korea) now has total food supplies inadequate to meet people's average dietary needs.

In Asia, especially after the Green Revolution, the output of traditional staple foods such as rice, wheat and root crops has grown at a slower pace than that achieved in non-staple crops, such as maize, fruits, vegetables, pulses and oil crops, production of which has grown rapidly. This is because the demand per person for cereals is not growing rapidly, as the economic status and dietary patterns of people have changed. The Southwest Pacific Island Countries have been an exception to this trend. Growth of per capita output both of staple and non-staple foods has been low in that subregion.

Many farmers in the region own livestock as an integral part of a predominantly mixed farming system. In most countries, the production of meat, milk and eggs has expanded rapidly in response to higher demand propelled by income growth.

The region accounts for nearly 90 percent of global aquaculture output, and production has grown rapidly. During 2005-2010, it grew at an annual rate of 6.2 percent in Asia and 4.5 percent in Oceania. Output from capture fisheries has grown in Asia, albeit slowly at 1.8 percent, while it declined at an annual rate of 4.2 percent in Oceania. The total volume of aquaculture production in Eastern Asia far exceeds that from capture fisheries, and given its recent rapid growth, the volume of aquaculture production is now approaching that from capture fisheries in South-Eastern and Southern Asia. In Southwest Pacific Island Countries, however, volumes from capture fisheries far exceed those from aquaculture, although in recent years the rapid expansion seen during 1990-2005 has slowed<sup>15</sup>.

According to household surveys (conducted in different years between 2001 and 2006 in the Southwest Pacific Island Countries and between 2008 and 2011 in Asian countries), per capita fish consumption is generally higher in Southwest Pacific Island Countries than in Asia. Among the 16 states studied in the Southwest Pacific

subregion, annual per capita fish consumption ranged from a high of 111 kg in Tuvalu to a low of 13 kg in Papua New Guinea. Fish consumption also varies widely in Asia, ranging from 64 kg/capita in Cambodia to 3 kg/capita in India and 0.6 kg/capita in Pakistan. In several Asian countries, the share of fish in the intake of animal protein is quite significant: 54 percent in Indonesia, 56 percent in Bangladesh, 57 percent in Sri Lanka, 65 percent in Cambodia and 71 percent in the Maldives<sup>16</sup>.

In line with the rising affluence and the increased purchasing power of consumers in the region, the food consumption pattern is rapidly diversifying away from cereals, roots and tubers towards protein-rich foods. The share of dietary energy derived from cereals, roots and tubers has declined in all parts of the region. From 1990-92 to 2009-11, it has declined most rapidly in Eastern Asia (25 percent) – influenced by the dietary changes in China – followed by Southern Asia (10 percent) and South-Eastern Asia (9 percent). In Southwest Pacific Island Countries, however, the change was quite small (2 percent).



<sup>15</sup>FAO-RAP. The State of Food and Agriculture in Asia and the Pacific 2014. Bangkok.

<sup>16</sup>Needham, S. & Funge-Smith, S.J. (forthcoming). The consumption of fish and fish products in the Asia-Pacific region based on household surveys. Bangkok. FAO Regional Office for Asia and the Pacific; and FAO. The State of World Fisheries and Aquaculture 2014. Rome.



The average protein supply has grown rapidly in response to rising demand. During the same period, it rose most rapidly in Eastern Asia (42 percent), followed by South-Eastern Asia (33 percent) and Southern Asia (9 percent). Again there was little change in the Southwest Pacific Island Countries (3 percent). Moreover, in line with consumer preferences, the average supply of protein of animal origin has grown at rapid rates in Eastern Asia (131 percent), South-Eastern Asia (64 percent) and Southern Asia (40 percent), and in 2009-11 it reached a level of 37g per capita per day in Eastern Asia (Table 2). In the Southwest Pacific Island Countries, however, animal protein supply declined slightly from 39g to 38g per capita per day between 1990-92 and 2009-11.

Several challenges to the continuation of the positive trend on food supply have emerged. Climate change is a major source of vulnerability and uncertainty. Vast tracts

of fertile land are taken away from agriculture by rapid urbanization. There has been increasing competition between food crops and bio-energy crops for the use of land and water. Moreover, agricultural lands are degraded by unsustainable farming practices. Investment in agriculture, particularly in research and development, is not keeping pace with the need. The rate of productivity growth for major cereal crops has declined. Young, capable and better-educated successor farmers are migrating from rural to urban areas, leaving farms to the elderly. Water shortages are a growing threat to food production across Asia, particularly in drier areas. All these factors will adversely affect food supply and, with increasing and diversifying demand for more protein-rich, resource-intensive food, may lead to higher food price inflation in the absence of major technology breakthroughs and policies favouring agriculture.

## Access to food: improved, but problems persist in poorer economies



Access to food is critical for food security. Even if food is physically present in an area, it may not be accessible if people lack purchasing power. An increase in per capita availability of food at the national level has little meaning for households lacking access to it in the required quantities and at the right time as a result of economic and physical constraints. In general, it is a problem for the poor who lack direct access to food through their own production, have insufficient income to buy it from the market in required quantities, or cannot rely on social support and safety nets to meet short-term deficits. Access can also be a problem for people living in mountains, remote areas and small islands where local production is insufficient and supplies from outside face high costs, irregularity due to low volume or disruptions due to weather. Many of them are indigenous people and ethnic minorities; they constitute a large proportion of the poor and hungry in the region. Good infrastructure enhances connectivity to inputs and output markets, and it reduces the costs of transportation and storage, thereby lowering the cost of food and expanding access for the poor.

Robust economic growth, increased employment opportunities, reduction in poverty rates and lower inflation – particularly for food – all help to expand access to food. The average growth of 7 percent achieved by the Asia and the Pacific region, a greater than 50 percent

reduction in extreme poverty during the past two decades, and the moderate increase in food prices during the 2000-2014 period<sup>17</sup> have led to increased access to food for the people in the region. The achievement of the MDG-1C target for the prevalence of undernourished in the region is the culmination of these positive developments.

However, as with other indicators, there is a wide disparity in income and opportunities among different subregions and across countries within subregions. In general, Eastern Asia and South-Eastern Asia performed better than Southern Asia and the Southwest Pacific Island Countries, but there are wide variations in per capita GDP (PPP-adjusted) within the region. The PPP-adjusted per capita GDPs of each of the five high-income economies in the region were at least four times greater than the 2013 regional average. At the same time, 16 countries had a per capita GDP that was less than half of the regional average. Among the most populous developing countries, only China's per capita GDP in PPP was higher than the regional average in 2013, while the per capita GDPs of the other populous countries (Bangladesh, India, Indonesia, and Pakistan) were below the average<sup>18</sup>.

Although the region has already achieved the MDG-1 target for halving the proportion of people living in extreme poverty, over 20 percent of the people still live in extreme poverty in a number of countries, including countries with large populations (Bangladesh, India and Pakistan) and those with smaller populations (e.g. Lao PDR and Nepal). An assessment of the achievement of MDG targets in the region showed that the proportion of underweight children under the age of 5 remained serious problems in many economies, with 11 of the 22 countries in Eastern, Southeastern and Southern Asia and Oceania behind pace to meet this target as of 2012/13<sup>19</sup>.

<sup>17</sup>Increases in food price indices (relative to non-food prices) during 2000-2014 were low in Eastern and South-Eastern Asia, 30 and 12 per cent respectively, and were negative (-10 percent for Southern Asia).

<sup>18</sup>ADB. 2014.

<sup>19</sup>ESCAP, ADB and UNDP. 2013.

## Stability: exposure to short-term risks reduced across the board

With significant growth in cereal productivity and production in the region, declining food prices in real terms in global markets, and increased trade liberalization and connectivity, the Asia and the Pacific region experienced generally stable food prices prior to the world food price crisis in 2007/08. Since then, price spikes in international food markets (2007/08 and 2010/11) came as major shocks to the countries in the region. The food crisis encouraged governments to emphasize food production and productivity, and in many countries some public assistance was provided to poorer households affected by high prices. Despite the crisis, regional economic growth continued to be quite rapid, leading to higher household incomes and faster poverty alleviation, enhancing the ability of households to cope with food-price increases. The growth also gave governments greater fiscal capacity to assist affected households and shield them from the full impact of higher international food prices. The immediate measures adopted by governments were aimed at insulating domestic food prices from the international price surge through trade policy interventions, which by and large were quite effective in stabilizing domestic prices in most countries.

Though the region as a whole did not experience a major deterioration in overall food security, not all households were immune from the impact of high food prices. Poorer households, with very limited access to savings or credit markets, were especially vulnerable to sudden swings in prices, particularly food-price increases, and the evidence suggests that some of the poorer households experienced higher food insecurity during the crisis<sup>20</sup>. Since that time, the international rice market in particular has been relatively stable, although domestic policy interventions in some countries have led to domestic price increases for rice.

In terms of stability in food supply, several indicators show an improved situation in the Asia and the Pacific region. During 1990/92 – 2010/12, the region reduced the vulnerability of food production to weather conditions by substantially expanding irrigation coverage. The percentage of arable area equipped with irrigation increased by 55 percent in Eastern Asia, 38 percent in South-Eastern Asia and 36 percent in Southern Asia. Southwest Pacific Island Countries, where 4 percent of the arable area was irrigated, recorded 72 percent growth.



<sup>20</sup>FAO. 2012. Food price spikes, increasing volatility and global economic shocks: coping with challenges to food security in Asia, A comparative regional study of the experiences of ten Asian economies, RAP Publication 2012/17.





The dependency on imports for meeting domestic cereal consumption requirements remains at low levels in the main subregions, ranging from 1.5 to 4.9 percent. Cereal-import dependency declined by 58 percent in Southern Asia and by 20 percent in Eastern Asia between 1990/92 and 2009/11. But cereal-import dependency rose by 167 percent in South-Eastern Asia during the same period, from 1.5 to 4.0 percent. Import dependency during this time remained almost constant in Oceania. There are several factors behind the increased reliance on trade for cereals in South-Eastern Asia, including increased demand for human consumption and livestock feed, agricultural diversification towards high-value non-staple crops and increased intra-regional trade, particularly in South-Eastern Asia with the trade liberalization under AFTA (ASEAN Free Trade Area).

However, the ratio of the value of food imports to total merchandise exports remained at low levels and either declined or remained constant. It declined from 11 to 8 percent in South-Eastern Asia, from 4 to 3 percent in Eastern Asia, from 20 to 18 percent in Oceania and remained constant at 4 percent in Southern Asia. Considering this, the increased cereal-import dependency ratio is not a major concern for food security in the region; it is rather an indicator of greater self-reliance and increasing trade flows.

Besides the amount stored by farmers for household consumption until the next crop arrives and the commercial stocks of food maintained by private traders, many countries in the region maintain government-owned strategic food reserves to meet emergency needs and to ensure food price stability. Of the 581 million tonnes of world cereal stock in 2014 (which had the highest world stock-to-use ratio, 25.4 percent, since 2001/02), developing Asian countries held 368 million, or 63 percent<sup>21</sup>. Four (India, Pakistan, Thailand and Viet Nam) of the world's five major rice exporters are from the

Asia-Pacific region (the United States is the only of the top five from outside the region), and their collective stock-to-disappearance ratio for 2014-15 is estimated at 23.4 percent<sup>22</sup>. In addition, countries in the region have established the ASEAN Plus Three Emergency Rice Reserve (APTERR) and the SAARC Food Bank at the subregional level to deal with emergencies and food crises. The overall improvement in food-supply stability is indicated by the improvement in per capita food-supply variability. Variability declined in all subregions: by 79 percent in South-Eastern Asia, 53 percent in Southern Asia, 40 percent in Eastern Asia and 38 percent in Oceania. Nevertheless, the threat of natural disaster is very high. Asia is the world's most disaster-prone region, and no country is immune from the risk of being hit by natural disasters, which often wipe out livelihoods, infrastructure and individual lives. With limited resources and vulnerable livelihoods, the rural poor often bear the brunt of the region's catastrophic risks<sup>23</sup>.

<sup>21</sup>FAO. 2015. Crop prospects and food situation. No.1.

<sup>22</sup>Defined as the sum of the five major exporters' stocks divided by the sum of the five countries' domestic utilization plus exports; FAO. 2015. Rice Market Monitor, Volume XVIII Issue No. 1.

<sup>23</sup>Asian Development Bank. Development Asia, "Dealing with Disasters". January-March 2011.

## Utilization: improving at a slow pace, but chronic undernutrition among children is a serious concern



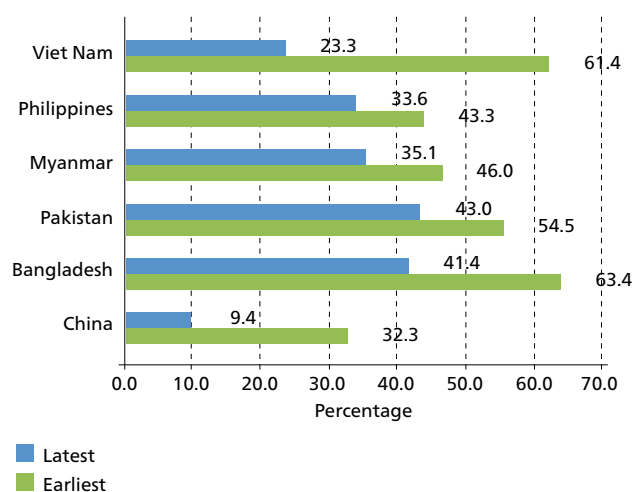
changed much in the past two decades and remains below 20 percent. South-Eastern Asia (based on data from Cambodia, Indonesia, Myanmar, Philippines, Timor-Leste and Viet Nam) and Southern Asia (based on data from Afghanistan, Bangladesh, Bhutan, India, Nepal and Pakistan) have higher rates of wasting among children than in Eastern Asia and Oceania. The percentages of children suffering wasting range from 4 to 12 percent in South-Eastern Asia, excluding Timor-Leste, 6 to 20 percent in Southern Asia and 1 to 5 percent in Eastern Asia.

**E**ven if the quantity of dietary energy is adequate, the body may not properly utilize the food due to several factors. Food utilization can be assessed through anthropometric indicators, such as wasting, stunting and underweight of children under the age of five. These convey the outcome of the quantity and quality of food intake, access to critical health services and overall environmental sanitation conditions. Wasting, for instance, is the result of short-term inadequacy of food intake, often the result of an illness or infection, whereas stunting is often caused by prolonged inadequacy of food intake, repeated episodes of infections and/or repeated episodes of acute undernutrition. Other important factors that contribute to effective food utilization include micronutrient deficiencies, food quality and safety during preparation and access to safe water and hygienic conditions.

In the Asia and Pacific region, anthropometric indicators for children under the age of five are not regularly collected in many low- and middle-income countries. Nevertheless, available data indicate that wasting among children under the age of five has not

Despite significant progress over the past two decades, stunting of children remains a serious problem, with the rate of prevalence over 40 percent in several countries (Figure 7). The problem of stunting of children prevails in all countries in Southern Asia, with the incidence ranging from 20 to 43 percent. High rates of stunting also prevail in most countries of South-Eastern Asia. Among the eight countries for which data are available, the rate of stunting ranges from 23 to 41 percent in 6 countries. Malaysia and Thailand had slightly lower rates of 17 and 16 percent (2006). In Eastern Asia, China drastically brought down the rate of stunting among children from 32 percent in 1990 to 9 percent in 2010. However, the prevalence of stunting remains high in DPR Korea (32 percent) and Mongolia (28 percent). The scant information available on the Southwest Pacific Island Countries indicates high rates of stunting among children in Papua New Guinea, Solomon Islands and Vanuatu. These data clearly convey the persistence of long-term food insecurity, lack of health care and hygiene, or a combination of these, in parts of the region.

Figure 7: Percent of children under 5 stunted<sup>24</sup>



Source: FAO Food Security Indicators at <http://www.fao.org/economic/ess/ess-fs/ess-fa-data/en>

Halving the proportion of underweight children is one of the MDG-1 targets. Analysis of country-level data showed that more than 20 percent of children under the age of five were underweight in five out of eight countries in South-Eastern Asia, and in six out of eight countries in Southern Asia. In Eastern Asia, China had reduced the proportion of such children from 12 to 3 percent during 1990-2010, while the number for DPR Korea was close to 20 percent in 2009. The Asia-Pacific Regional MDGs Report 2012/13 assessed that the region is not on track to reduce by half the proportion of underweight children by 2015<sup>25</sup>. Out of 21 countries included in the analysis, five had achieved the target, six were on track to meet the target by 2015, but nine were making slow progress (insufficient to meet the target by 2015), and one (Timor-Leste) was stagnating or slipping back.

In Southwest Pacific Island Countries, undernutrition among children under the age of five persists, particularly in Papua New Guinea, Solomon Islands, Kiribati, Vanuatu, Republic of the Marshall Islands and Federated States of Micronesia. In these countries, undernutrition is associated with high rates of infant mortality, underweight and stunting<sup>26</sup>.

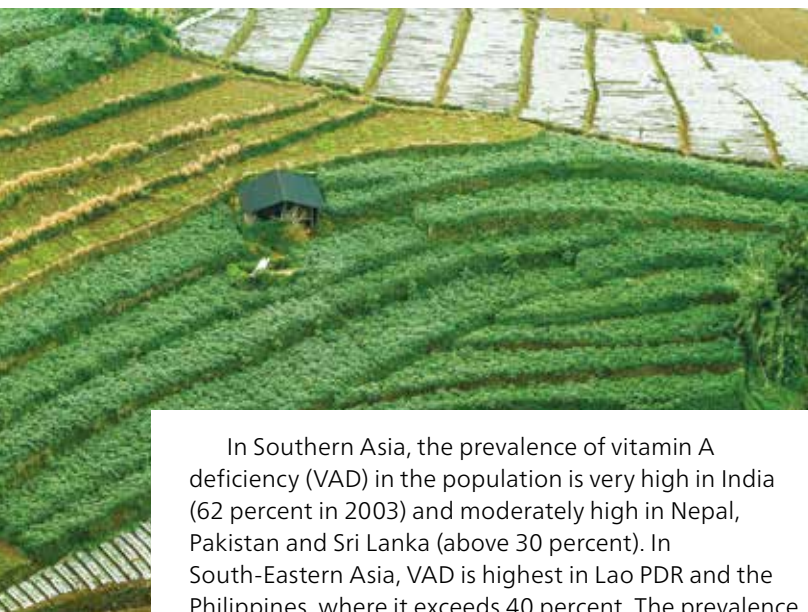
The people in the Asia and the Pacific region also suffer significant micronutrient deficiencies. Micronutrients are vitamins and minerals required in only small amounts that are essential to our health and necessary for the absorption of other nutrients from food. Some of the key micronutrients that are typically deficient are iron (which often plays a role in anaemia), vitamin A and iodine. Among countries for which there are data, the most recent data indicate that all countries in South-Eastern Asia and Southern Asia have a high incidence of anaemia among pregnant women and children. Among pregnant women, the incidence ranges from 24 percent in Viet Nam to 51 percent in Cambodia in South-Eastern Asia, and from 25 percent in Sri Lanka to 54 percent in India in Southern Asia. Pregnant women in DPR Korea, Mongolia and the Republic of Korea in Eastern Asia also suffer from anaemia, with the prevalence rate between 25 to 27 percent. Prevalence of anaemia among children under five is often higher than among women. It ranged from 30 percent (Maldives) to 61 percent (Pakistan) in Southern Asia, and from 18 percent (Brunei Darussalam) to 55 percent (Cambodia) in South-Eastern Asia. In Eastern Asia, it ranged from 14 percent in the Republic of Korea to 34 percent in DPR Korea, and in Pacific Island Countries it ranged from 32 percent (Fiji) to 44 percent (Papua New Guinea).



<sup>24</sup>Earliest point from 1990 to 1993 and the latest point from 2009 to 2011, depending on the availability of data.

<sup>25</sup>ESCAP, ADB and UNDP, 2013.

<sup>26</sup>Nutrition in the Pacific Island Countries and Territories 2014, a review of development since ICN1- FAO paper.



In Southern Asia, the prevalence of vitamin A deficiency (VAD) in the population is very high in India (62 percent in 2003) and moderately high in Nepal, Pakistan and Sri Lanka (above 30 percent). In South-Eastern Asia, VAD is highest in Lao PDR and the Philippines, where it exceeds 40 percent. The prevalence of VAD is quite low in the countries of Eastern Asia.

In Eastern Asia, Mongolia has a very high incidence of iodine deficiency at over 50 percent. In South-Eastern Asia, Lao PDR, Myanmar and the Philippines have incidences exceeding 20 percent. In Southern Asia, Afghanistan has the highest rate of prevalence (72 percent in 2004), while India, Maldives, Nepal, Pakistan and Sri Lanka all have iodine deficiency over 20 percent.

The growing share of imported foods with high salt and saturated fat content in household diets in the Southwest Pacific Island Countries has adversely affected the nutritional quality of overall food consumption. This has had negative impacts on health and indicates a growing vulnerability of national food security resulting from rising food-import dependence<sup>27</sup>. Higher consumption of foods dense in dietary energy combined with increasingly sedentary lifestyles has caused obesity, diabetes and a number of non-communicable diseases, such as increased hypertension and cardiovascular disease.

The types and levels of malnutrition vary considerably across different Southwest Pacific Island Countries. Poor growth, reflected in stunting and underweight, is more prevalent in the Melanesian countries<sup>28</sup>, while vitamin A deficiency has mostly been a significant problem in Micronesia<sup>29</sup>. Iodine deficiency has been found in all of the Melanesian countries, and it has also been found elsewhere in the region. Anaemia is prevalent in all Southwest Pacific Island Countries. The rates of overweight and obesity are generally much higher in Polynesia<sup>30</sup> and Micronesia; however, the rate of increase in some of the Melanesian countries may indicate that



they will reach similar levels in the absence of effective intervention.

Diet-related non-communicable diseases, such as diabetes and cardiovascular disease, are now the leading cause of death and morbidity in the Southwest Pacific Island Countries, leading to calls by the regions' political leadership for greater public-sector intervention<sup>31</sup>. Promoting a healthy lifestyle and improving the availability of lower-cost, nutritionally superior and local food products have been identified as critical to improving food security and health in the Pacific.

Access to safe drinking water is another key factor influencing the effective utilization of nutrients in food. In this area, the countries of Asia and the Pacific have generally performed quite well. According to the aforementioned Regional MDG Report, the proportion of people without access to safe drinking water fell from 28 to 9 percent in the region. This is one of the two MDG targets where the Asia-Pacific region has had great success (the other one being the halving of the proportion of people living in extreme poverty).

Access to improved sanitation facilities is also essential for nutrient utilization. Since 1990, it has increased dramatically in Southern Asia (82 percent) and by 48 percent in South-Eastern Asia. Despite this progress, only 42 percent of the people in Southern Asia have access to improved sanitation facilities, compared with 71 percent in South-Eastern Asia and 93 percent in Eastern Asia. Southwest Pacific Island Countries did not make any progress in this regard, and only 36 percent of the people in this subregion had access to improved sanitation facilities in 2012.

<sup>27</sup>FAO, Report of the Thirty-second FAO Regional Conference for Asia and the Pacific, APRC/14/2.

<sup>28</sup>The Melanesian island countries include Fiji (also Polynesia), Papua New Guinea, Solomon Islands and Vanuatu.

<sup>29</sup>The Micronesian island countries and territories include Federated States of Micronesia, Kiribati, Marshall Islands, Nauru and Palau.

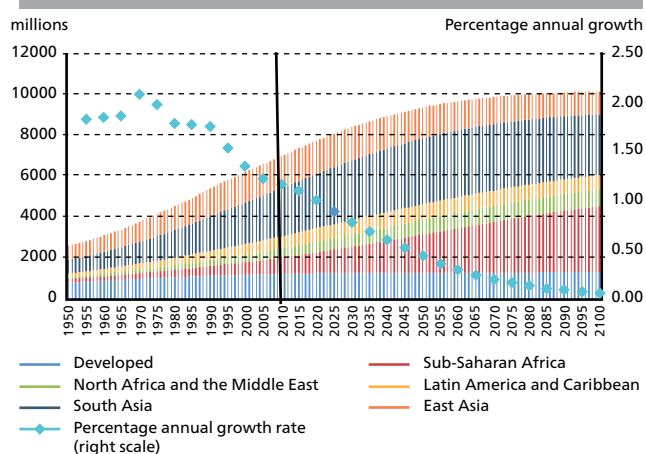
<sup>30</sup>The Polynesian island countries include Cook Islands, Fiji, Niue, Samoa, Tonga and Tuvalu.

<sup>31</sup>Pacific Islands Forum. 2013. Towards healthy islands: Pacific non-communicable disease response. 10th Pacific Health Ministers Meeting. Apia, Samoa.

## Future outlook towards 2050

In 2012, 4.1 billion out of 7.0 billion people, or nearly 60 percent of the world's population, lived in the Asia and the Pacific region. Population in the region is expected to grow more slowly in the future, with an expectation of an additional one billion people (half the global increase) by 2050 (Figure 8). Since 1990, the region's urban population has increased by more than 754 million – and the proportion of people living in urban areas is likely to grow – from 42 percent in 2010 to 53 percent by 2030, and to 63 percent by 2050, when the urban population could be 3.3 billion<sup>32</sup>. The urban population in Eastern Asia, South-Eastern Asia and Southwest Pacific Island Countries is expected to grow between 3.5 to 4.0 percent per annum between now and 2050, with a slightly slower rate in Southern Asia of 3.0 to 3.5 percent per annum.

Figure 8: World population continues to increase



Source: UN, 2011

Population growth, income growth and urbanization together portend a growing and diversified consumer demand for protein-rich and energy-dense food. Moreover, as a greater share of people live in cities, away from agricultural areas, value addition through food processing, transportation, storage, packaging and distribution is expected to increase. Concern for food safety from intensive production, long storage, long distribution channels and other factors will grow, and substantial investment in these areas will be needed. Per capita food consumption per day has grown globally



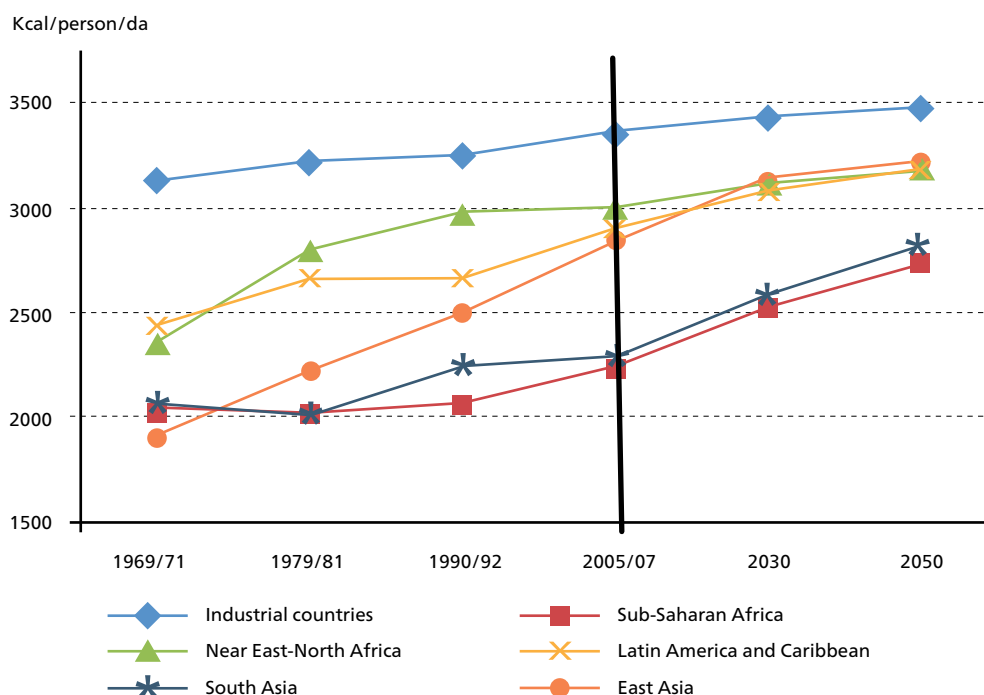
from 2370 kcal per person per day at the beginning of the 1970s to 2770 kcal per person per day in 2005/07, with similar patterns across regions. At the global level, it is expected to continue to rise in the future and reach just over 3000 kcal/person/day in 2050. As shown in Figure 9, per capita consumption in Eastern Asia is expected to approach a plateau, reaching 3225 kcal/person/day in 2050, while that of Southern Asia is projected to remain lower than the former but slightly higher than in sub-Saharan Africa<sup>33</sup>.

FAO projects that in order to meet increased global food demand in 2050, the monetary value of agricultural production must increase by 60 percent (77 percent for developing countries) from the 2005/07 level. Consistent with changing consumer preferences, cereal production is anticipated to grow more slowly than the production of fruits and vegetables, vegetable oils and meat. In the Asia and the Pacific region, because of the consumer preference for diversifying diets to non-cereals and from rice to wheat within cereals, rice production is projected to grow by only 22 percent by 2050, less than growth in wheat (37 percent) and maize (60 percent). However, rice demand will grow much more rapidly in sub-Saharan Africa and the Middle East, and Asia is likely to enhance its role as a rice exporter to other regions in future decades.

<sup>32</sup>United Nations Human Settlements Programme and United Nations Economic and Social Commission for Asia and the Pacific. 2010. The State of Asian Cities 2010/11. Fukuoka: UN-HABITAT.

<sup>33</sup>Alexandratos, N and J Bruinsma, 2012. World Agriculture Toward 2030/50: The 2012 Revision. ESA, Working Paper No. 12-03, Jun 2012. Rome, FAO.

Figure 9: Increasing per capita food consumption Kcal/person/day



Source: Alexandratos and Bruinsma, 2012, Table 2.1

Of the three major cereals, maize production is expected to grow most rapidly because of increased demand for animal feed to produce meat, milk and eggs. However, rice will still be the single most important source of calories in the region for many decades.

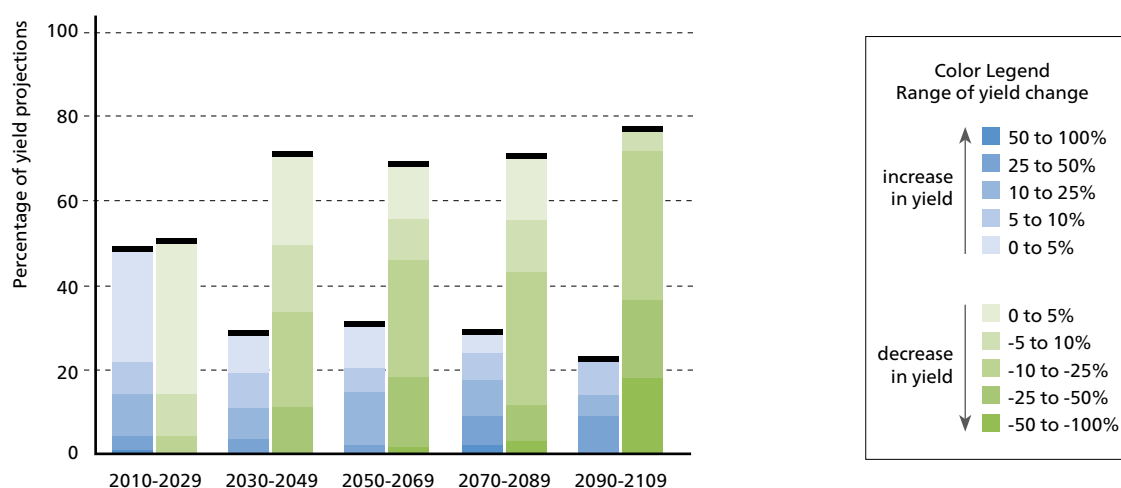
The production of most other crops is projected to grow more rapidly: palm oil (95 percent), coconut oil (73 percent), fruits (67 percent) and sugar (84 percent). Meat production is expected to grow by 192 percent in South Asia (similar to Southern Asia as used in the current report) and 80 percent in East Asia (including Eastern Asia, South-Eastern Asia and the Southwest Pacific Island Countries)<sup>34</sup>. Many factors, however, may constrain the realization of these projections, including the scarcity of land and water, suboptimal agricultural investment leading to stagnation or decline of productivity growth, climate change, biofuels, high oil prices and food-price volatility.

Overall, the scope for expansion of arable land in the Asia and Pacific region is fairly limited, and the quality of land is declining. Therefore, yield increases will need to account for the vast bulk (nearly 90 percent) of the growth in production by 2050. In order to realize sufficient yield growth, the region needs to invest heavily in agricultural research.

Agriculture currently uses 70 percent of the region's water resources, but the demand by other users is increasing. Furthermore, the best land for irrigation has already been developed. Thus, FAO projects that only a small amount of additional land will be equipped for irrigation by 2050. Compared to 48 and 53 million hectares of land equipped with irrigation in East Asia (including Eastern and South-Eastern Asia) and South Asia respectively during 1961/63 – 2005/07, only 8 and 3 million hectares respectively are projected to be added by 2050.

<sup>34</sup>Fish production will also grow rapidly, although it was not included explicitly in the projections given in Alexandratos and Bruinsma (2012).

Figure 10: Summary of projected changes in crop yields due to climate change



Source: IPCC 2014

Climate change adds significant uncertainty to the future outlook for agriculture in the region. The gradual increase in global temperature projected by climate scientists could lead to a seawater level increase that may result in a reduction of agricultural lands in some countries, as well as large changes in growing conditions for different crops, livestock and fisheries. It might also lead to high acidity of rainfall that could affect soil conditions as well as the forestry and fisheries sectors. Figure 10 illustrates the projected impact of climate change on crop yields. The prevalence of yield decreases are greater than the prevalence of yield increases. Adaptation, often at substantial cost, will be required. Climate change is also expected to increase the frequency of natural disasters, such as typhoons, floods and droughts, causing huge damage to infrastructure and farms and increasing the vulnerability to food insecurity of people in the region.

In the wake of the high fuel prices experienced in 2008, a number of Asia and the Pacific countries adopted policies and action plans to expand biofuel production to reduce their dependency on imported fossil fuel. As

several governments are conscious of the food security implications of expanding the production of biofuels, however, the future outlook remains unclear.

Agriculture relies on petroleum products for inputs (chemical fertilizers and pesticides), irrigation, and transportation of inputs and outputs. Thus, changes in crude oil prices affect the costs of producing and marketing food, so food prices and oil prices often move in tandem. Crude oil prices have been volatile in recent years and have thus contributed to increasing the volatility of food prices. Adding to this will be the upward pressure on food prices from the demand-supply imbalances caused by land and water constraints and the effects of climate change. While higher food prices increase farmers' incentives to produce more, sharp price fluctuations increase the risks of investment. Moreover, most small farmers in the region are net food buyers, and thus high food prices may increase their food insecurity. Mitigating and dealing with such volatility, climate change and natural resource constraints will pose challenges for governments, farmers and consumers in the future.

## National and regional policies, actions, commitments and initiatives



Governments in the Asia and the Pacific region are conscious of the challenges of food and nutrition security facing their nations. Most governments have adopted agricultural development policies and plans to boost food and agricultural production, and to improve the functioning of markets to ensure an efficient flow of commodities from farms to markets. They have also adopted trade liberalization policies in the context of WTO and regional trade agreements. A number of bilateral free trade agreements have been signed, and many more are under negotiation. Many governments have corrected past policy distortions biased against agriculture and created a more level playing field for agriculture vis-à-vis the industrial sector. In fact, a number of governments have now adopted various policies and made institutional arrangements to support the agriculture sector. India, for example, subsidizes urea fertilizer, electricity and diesel for irrigation and procures rice and wheat at guaranteed support prices announced before the sowing season. Many countries offer guaranteed procurement prices for various crops, although these prices are not always available to all farmers owing to budgetary limitations.

In addition to these farm support policies, many governments have institutional mechanisms to provide staple grains at subsidized prices to low-income households on a regular basis and/or after natural disasters. India enacted the National Food Security Act in 2013, which is one of the largest social safety net programs in the world. It seeks to “provide for food and nutritional security ... by ensuring access to adequate

quantity of quality food at affordable prices to people”. The act entitles two-thirds of India’s total population of 1.25 billion to 5kg of rice, wheat or coarse cereals per person per month at the highly subsidized price of 1–3 rupees (Rs) per kilogram (US\$0.016–\$0.050 per kilogram). In Indonesia, Law No. 18/2012, adopted in November 2012, institutionalized the human right to food and defined the state’s obligations to ensure the availability and affordability of sufficient, safe and nutritionally balanced food for all people at all times.

Many countries, especially importers, also maintain strategic food reserves to be able to intervene in the market and stabilize prices when deemed necessary. A number of countries are implementing nutrition enhancement programmes, such as school gardens and school meal programmes, to promote education and address stunting, short-term undernutrition and deficiencies in key micronutrients such as vitamin A, iodine and iron. International NGOs and domestic civil society organizations are also actively engaged in various programmes to assist farmers and nutritionally disadvantaged groups.

Some countries are well on the way to taking an integrated approach to food security and nutrition. One example is Bangladesh, which has undertaken an in-depth and consultative process of food security policy reform. This has provided the Government with a comprehensive food security policy framework (the National Food Policy) and programming document (the National Food Policy Plan of Action), as well as an investment plan for food security and nutrition (the Bangladesh Country Investment Plan).

A number of countries in Asia undertook analyses of key issues in agricultural and rural policies and institutions to develop recommendations for action to enhance their pro-poor focuses. Examples of such work include the analyses of policies for reducing disparities among regions in China; policy on the use of forest resources by indigenous people in India; agricultural insurance policy in Indonesia; and land policy and cooperatives in Viet Nam. Countries are in different stages of implementing the recommendations emerging





from these analyses. Some of these countries have pursued this agenda further with a particular focus on reducing risks and vulnerability of the rural poor.

Rice, as the staple grain of the majority of the people in the region, is a “sensitive commodity” in trade agreements signed by many countries in the Asia and the Pacific region. Maintaining or achieving rice self-sufficiency is a major national priority and policy platform of governments, as is the case in Indonesia and the Philippines. Such policies often entail significant trade restrictions and therefore a trade-off with economic efficiency. Governments are typically advised to follow a policy of “self-reliance” instead. Nevertheless, rice self-sufficiency continues to have popular support as a matter of national pride. Some high-income countries, such as Japan and Republic of Korea, have very high tariffs in order to protect domestic rice production from external competition. The tariff on rice imports that exceed the tariff-rate quota (TRQ) of 408 700 tonnes in the Republic of Korea, for example, is set at 513 percent; Japan’s tariff is even higher.

In support of rice self-sufficiency, the Philippines Government has earmarked 86.1 billion Philippines pesos (US\$1.9 billion) for the Agricultural Development Program in 2015. The funding is being used to boost rice production and improve irrigation and drainage areas in the top 33 rice-producing provinces. The program also strengthens credit services, increases research and development, and funds the construction of farm-to-market roads. PHP 6.02 billion (US\$133 million) has been budgeted for the Bureau of Fisheries and Aquatic Resources, a 28 percent increase, mainly for the construction of 252 fish landings.

In a bid to exploit its comparative advantage in rice production and increase exports, Cambodia will build new rice silos with a US\$300 million loan from China. The funds will be used for 10 new warehouses to store around 1 million tonnes of paddy for both domestic use

and export. More investments in post-production, such as new mills and improved port facilities, will also be needed.

Thailand has reduced the generosity of its paddy-pledging program, aiming to reduce the previous large gap between market prices and the subsidized prices paid to farmers. This gap led to a large build-up of rice stocks that will eventually need to be exported, fed to animals or used as feedstock for biofuels.

China’s most recent “No. 1 Central Document”<sup>35</sup>, the first policy document jointly released by the Central Committee of the Communist Party of China and the State Council on February 1, 2015, has called for reform of domestic policies supporting farmers, and for allowing more imports of feed grains for livestock in order to support trends towards dietary diversification. It marks the 12th consecutive year that the “No. 1 Central Document” has focused on agricultural issues<sup>36</sup>.

In 2013, Bhutan approved the National Organic Program to develop and promote organic farming as a way of life among Bhutanese farmers; enhance nutrition, health and farm household income; and turn the country into a net exporter of organic products. The global organic food market is expanding, and Bhutan could conceivably become the first completely organic country by 2020.

<sup>35</sup>As it is jointly issued by the apex body of the Chinese ruling party and the state, the “No 1 Central Document” is the most important official policy document issued in the early months of each year to provide guidance on the country’s development priorities and policies.

<sup>36</sup>Official website of the Ministry of Agriculture of the People’s Republic of China: [http://english.agri.gov.cn/news/dqnf/201502/t20150203\\_24952.htm](http://english.agri.gov.cn/news/dqnf/201502/t20150203_24952.htm)

Pacific Health Ministers have made commitments to reducing obesity levels in their National Health Strategies and in Noncommunicable Disease (NCD) and Nutrition Plans of Action<sup>37</sup>. The approaches considered have included measures such as nutrition education and advocacy on diet and physical activity; use of legislation to mandate maximum salt and other content in food products; and import bans on certain foods high in saturated fat, such as turkey tails and mutton flaps. As a result of the escalating health and financial impacts of NCDs<sup>38</sup>, there is high-level support among political leaders in the Southwest Pacific Island Countries for the consideration of taxes on Sugar Sweetened Beverages (SSBs) and foods high in sodium and total fat. At the Joint Forum Economic and Pacific Health Ministers Meeting in the Solomon Islands in July 2014, Finance and Health Ministers committed to develop country-specific roadmaps for addressing NCDs. One specific action was to “consider policies that reduce consumption of local and imported food and drink products that are high in sugar, salt and fat content and directly linked to obesity, diabetes, heart disease and other NCDs in the Pacific through targeted preventative measures, taxes and better regulation.”<sup>39</sup> There have also been measures to ensure affordable access to nutritious food for selected groups, such as youth and low-income households<sup>40</sup>.

Besides the actions at the country level, there are a number of regional/subregional initiatives to promote inter-country dialogue and regional cooperation for policy coherence and programmatic collaboration. In South-Eastern Asia, the Association of Southeast Asian Nations (ASEAN) has been actively promoting cooperation among its members on food, agriculture and forestry (FAF) since 1993. In that year, the ASEAN Ministers of Agriculture and Forestry (AMAF) identified “strengthening food security in the region” as the first of the seven areas of cooperation in the FAF sector. ASEAN is presently implementing the ASEAN Integrated Food Security Framework and the Strategic Plan of Action on Food Security, 2015-2019, which seeks to sustain increased food production, promote conducive markets and trade for agricultural commodities and inputs, and ensure food supply stability to improve the livelihoods of farmers and ensure long-term food security and nutrition. AMAF serves as the apex body providing policy guidance, approving programmes and activities, and monitoring their implementation. In Southern Asia, the South Asian Association for Regional Cooperation (SAARC) is implementing several regional cooperation activities among its members. Among others, it has established a SAARC Food Bank and is implementing a regional programme to control trans-boundary animal diseases.

At the 69th Session of the United Nations Economic and Social Commission for Asia and the Pacific in 2013, Asia-Pacific countries launched the Regional Zero Hunger Challenge (ZHC) for ending hunger, food insecurity and malnutrition by 2025. The five pillars of ZHC are: (i) 100 percent access to adequate food all year round, (ii) Zero stunted children less than 2 years of age, (iii) All food systems are sustainable, (iv) 100 percent increase in smallholder productivity and income, and (v) Zero loss or waste of food. Released in December 2013, the Regional Guiding Framework for Achieving Zero Hunger in Asia and the Pacific was formulated by the UN Regional Thematic Working Group on Poverty and Hunger. In January 2014, Timor-Leste launched its National Zero Hunger Challenge. Several countries in the region – including Cambodia, Myanmar, Nepal and Viet Nam – have either launched a “National Zero Hunger Challenge” or are preparing to launch one.

At the global level, under the aegis of the United Nations Secretariat, efforts are under way to formulate the Sustainable Development Goals as the post-2015 development agenda. The process of consultation and formulation of the Development Agenda started in Rio de Janeiro in June of 2012 with the adoption of the outcome document of the United Nations Conference on Sustainable Development “The Future We Want.” In July 2013, the UN Secretary General recommended the development of a universal, integrated and human-rights-based agenda for sustainable development that addresses economic growth, social justice and environmental stewardship and highlights the links between peace, development and human rights – a development agenda that leaves no one behind. A number of inter-governmental and civil society processes were launched, and valuable inputs from a wide range of stakeholders have been provided to the UN Secretariat. One key group is the Open Working Group of the General Assembly on Sustainable Development, which submitted its full report before the 68th Session of the United Nations General Assembly in September 2013. Among its 17 goals, it proposes to “End hunger, achieve food security and improved nutrition and promote sustainable agriculture,” which is complimentary to the five pillars of the Zero Hunger Challenge. The post-2015 development agenda is expected to be adopted and launched on 25-27 September 2015 by world leaders at the special Summit on sustainable development at the United Nations, convened as a high-level plenary meeting of the General Assembly.

<sup>37</sup>Pacific Islands Forum. 2014. Finance and Economic Ministers Meeting. Communiqué. Solomon Islands.

<sup>38</sup>World Bank. 2012. (Cited above.)

<sup>39</sup>Ibid.

<sup>40</sup>Pacific Islands Forum, 2013.

# The path ahead to eradicating hunger and ensuring food and nutrition security

As home to the largest number of undernourished in the world, the countries in the Asia and the Pacific region need to pursue the eradication of hunger and food insecurity with full commitment and vigour. Food insecurity is a complex problem, and eradicating it requires contributions from and coordination across different sectors. The countries in Asia and the Pacific should continue to strive for rapid economic growth with macroeconomic stability and low inflation, but the growth strategy should pay greater attention to making it more inclusive and environmentally sustainable. It will be crucial to accelerate hunger eradication interventions, such as the Zero Hunger Challenge (ZHC), with a focus on supporting poor family farms and the most vulnerable and disadvantaged groups in society.

Carefully crafted policies and coherent strategies on many fronts will be needed to meet the challenges of food and nutrition security in the years ahead; some of these are listed below.

- **Reform policy and institutional frameworks** to provide an enabling environment for farmers and the private sector to invest in expanding production, and provide efficient post-production services from the farm to the consumer. This would include promoting pro-poor agricultural policies and rural institutions such as farmer organizations, along with institutionalizing the right-to-food principle in national constitutions. Where necessary, the effects of macroeconomic (exchange rate, fiscal, income and monetary policies), trade, marketing and subsidy policies on the food and agriculture sector, farmers, and low-income consumers should be examined and necessary reforms carried out.

- **Accelerate investment and innovation in agriculture, especially in research and development (R&D)** to enhance smallholder's productivity and income in a sustainable way in the context of shrinking land and water resources and labour available for farming. This should include technological innovation and knowledge transfer using Information and Communication Technology (ICT) and e-Agriculture, which may also help

to attract and retain young successor farmers. Productivity growth in agriculture is central to economic growth, poverty reduction and food security. It has positive effects in three areas: lower food prices for consumers; higher incomes for producers; and growth multiplier effects through the rest of the economy as demand for other goods and services increases. The R&D should focus on key crops, livestock, and fishery and forestry enterprises that are critical to meeting future food needs in line with changing consumer demand patterns, both at home and abroad, as well as the need for adaptation to climate change. The overall principle should be to promote sustainable intensification that produces more food per unit of land, water and human resources without compromising the quality of the environment. In this regard, suitable technologies under the "Save and Grow" approach should be identified and promoted, as should technologies that reduce food losses and waste.



- **Increase water productivity** so that more food is produced with less water. According to one estimate, water productivity doubled between 1961 and 2001, but it will need to increase further in the future. In order to accomplish this, it will be essential to adopt knowledge-based green growth; review socio-economic objectives through a water lens; adopt policy instruments including pricing policies and payment for ecosystem services; support investments that boost ecosystem productivity and maintain water quality across all sectors and supply chains, including agriculture, fisheries, aquaculture and irrigation; recognize the multiple services water provides; return water to the environment; and recognize the increasing role of the private sector.

- **Promote diversification in food production and consumption** for the improved food security and nutrition of the people in the region. Small quantities of animal-based foods can provide essential nutrients for maternal health and for the physical and mental development of small children<sup>41</sup>. Livestock products are an excellent source of high-quality protein and a variety of micronutrients that are difficult to obtain in adequate quantities from foods of plant origin alone. Consumption of fish provides energy, protein and a range of essential nutrients, and it is usually low in saturated fats, carbohydrates and cholesterol. Even small quantities of fish can have significant positive nutritional impacts, as it is a concentrated source of protein, essential fatty acids and micronutrients. Better access to foods of animal origin for all will require development of smallholder livestock and fishery production for both own consumption and increased sales to markets.



- **Invest in rural and on-farm infrastructure and agricultural mechanization** to enhance connectivity to input and output markets in order to lower costs for all stakeholders in the food system and address the growing shortage of labour in agriculture. Such investments will help to raise agricultural productivity, reduce post-harvest losses and enhance farmers' capacity to sell when the price is right.

- **Close the gender gap in agriculture.** In many countries, women farmers face inequity in access to productive resources, services and markets, which leads to an inefficient allocation of resources, lower agricultural productivity and poor nutrition and health outcomes. Empowering women (and youth) with greater knowledge, skills and resources to become more productive will have high pay-offs not only to them but also to societies at large.



- **Promote sustainable natural resource management and conservation** to reduce natural resource degradation and increase resource productivity. It is important to conserve genetic resources, rural landscapes and agricultural heritage systems (e.g. GIAHS), and to implement the voluntary guidelines on tenure and responsible agricultural investment (RAI). These should be combined with improvements in the governance structure for private-sector investment to prevent environmental degradation and protect the rights of existing users.

<sup>41</sup>FAO. The state of food and agriculture 2009: Livestock in the balance. Rome.



- **Strengthen public-sector and community-based social protection and safety nets** to protect people from chronic and temporary food insecurity. To be cost-effective and sustainable, these should be situation-specific and targeted to vulnerable groups. They should include an early warning system, rapid-response mechanisms and a monitoring and evaluation framework, and they may include distribution of agricultural inputs to disaster affected poor farm households, targeted conditional cash voucher schemes, agriculture/crop insurance, low- or zero-interest loans to vulnerable groups, and other ways to strengthen resilience.

- **Expand access to clean water, sanitation and health care**, which are crucial for improved nutritional outcomes. Because these investments are usually handled by different ministries or agencies, multi-sectoral coordination by an umbrella body may be needed. Further coordination across the public and private sectors, academia, civil society organizations and communities may also be required. Such coordination is not easy to create, but when it is possible, it can achieve impressive results.

- **Promote nutritional awareness among women, teachers and community workers, and improve child nutrition.** Increased women's awareness of appropriate

breastfeeding, weaning and child care practices is essential for improved child nutrition. These practices should be bolstered by more diverse diets and the provisioning of micronutrients through food-based nutrition approaches such as biofortification, and fortification and supplementation when cost-effective. School gardens, school feeding programmes, school milk programmes, home gardens and other types of nutrition-enhancing programmes that help to improve school attendance, promote family nutrition and build human capital have shown good results in many countries.

- **Ensuring food safety and quality** is an essential component of food and nutrition security. This should be pursued throughout the value chain from farm to market to household. Organic agriculture and safe food production based on Good Agricultural Practices can provide better returns to farmers, as consumers become more conscious of food safety and quality. Supporting such practices requires governments to provide appropriate regulatory, inspection, certification and accreditation services to ensure adequate standards and quality so that consumers receive what they pay for.

- **Promote indigenous, underutilized food resources.** Considering that rural people in the region derive considerable amounts of vitamins and micronutrients from indigenous foods (e.g., edible leaves, gums, oils, nuts, fruits, tubers and roots, birds, animals, fish, insects and aquatic animals from open sources like forests, rivers and ponds), advocacy, research and extension for promoting these resources and assuring the safety of these products will contribute to the food and nutrition security of the rural population. This will be particularly helpful to poor communities in mountains and remote areas, where imported foods are costly and local communities have little to sell.

- **Promote rural employment and income generation by enhancing synergy between smallholder farming and value chain development.** A dynamic non-farm sector that creates ample employment opportunities can slow down migration to crowded cities

or overseas and help to keep families together. This will also help to retain young successor farmers in rural areas. By linking food production, processing and marketing, smallholder farmers, especially women, will have better opportunities for gainful and decent employment. Possibilities include small-scale, village-level food processing or preserving technologies, as they can compensate for the seasonality of food production and even contribute to enhancing nutritive content. Other opportunities exist in linking small family farms to modern agrifood value chains. As the transactions costs of reaching millions of small farmers individually can be prohibitive, it will be important to develop suitable group approaches to train and communicate with them.

- **Reducing food losses and food waste** at all levels contributes to greater availability and access to food, efficiency of resource use and reduction of carbon footprints. It calls for, among other things, raising awareness of the issue, disseminating knowledge on how to tackle the issue at different levels, and organizing stakeholders for investing in suitable drying, storage, transportation and handling infrastructures. The Save Food Campaign will help develop partnerships and collaborative initiatives and actions at regional and country levels with a range of stakeholders to reduce post-harvest losses at different stages of the value chain; reduce food waste at retail markets, restaurants and household levels; establish educational curricula and school learning programmes; and action plans to up-scale the interventions at the national level.

- **Reducing farmers' risks and uncertainties from weather, market fluctuations and natural disasters.**

The Asia and the Pacific region is the world's most disaster-prone area. The devastating effects of natural disasters in the region are evident every year, most recently the destruction caused by Tropical Cyclone Pam in Vanuatu and the earthquake in Nepal). Disasters create poverty traps that increase the prevalence of food insecurity and malnutrition. Effective strategies and action plans for disaster risk reduction and management are necessary for building resilient livelihoods and ensuring food and nutrition security in the context of the increased frequency of extreme events in the Asia and the Pacific region. The disaster risk reduction and management strategy should include prevention and mitigation measures, early warning systems, and a quick and effective response and recovery mechanism to ensure post-disaster rehabilitation of the people and the farming system. Irrigation greatly reduces weather risks and helps stabilize food availability. When there is limited potential for new or expanded irrigation systems, policy should prioritize improved management and modernization of existing systems to increase water productivity. Strengthening research-





extension linkages in order to promote the availability and adoption of new technologies that allow adaptation to external shocks is crucial to reducing the risk of crop failure and farmers' vulnerability to food insecurity.

• **Reducing the impacts of climate change on agriculture.** Climate change projections for the region show higher air temperatures and rising sea levels that lead to saline water intrusion and flooding in coastal areas. These changes will have adverse effects on crops, livestock, fisheries and forestry. Southwest Pacific Island Countries are regarded as a barometer for the early impacts of climate change, as their geophysical characteristics, demographic patterns and location in the Pacific Ocean make them particularly vulnerable to the effects of global warming<sup>42</sup>. These impacts include an

increased frequency of natural disasters such as drought and floods. To cope with this situation, countries in the region must identify integrated adaptation and mitigation options for a range of agro-ecosystems, strengthen the Disaster Risk Reduction (DRR) approach and improve the capacity to respond to food and agricultural threats and emergencies.

• **Further strengthening of regional cooperation and collaboration** are necessary for trade facilitation, policy coordination, prevention and control of trans-boundary diseases, and the exchange of information and technical capacity development. ASEAN, SAARC and other regional organizations can play crucial roles in this regard.

<sup>42</sup>E. Ferris, M. Cernea, D. Petz. (2011). On the front line of climate change and displacement: Learning from and with Pacific Island Countries. Brookings Institution – London School of Economics Project on Internal Displacement, 2011.

Table 2. Food Security Indicators, various years (percentage change in parentheses)

Indicator	Years	Eastern Asia	South-Eastern Asia	Southern Asia	Oceania
<b>AVAILABILITY</b>					
Average dietary energy supply adequacy (percent)	1990/92, 2014-16	107.0, 129.0 (20.6)	100.0, 120.0 (20.0)	106.0, 110.0 (3.8)	113.0, 114.0 (0.9)
Share of dietary energy supply derived from cereals, roots and tubers (percent)	1990/92, 2011-13	69.0, 52.0 (-24.6)	68.0, 62.0 (-8.8)	67.0, 60.0 (-10.4)	49.0, 48.0 (-2.0)
Average protein supply (gr/caput/day)	1990/92, 2009-11	66.0, 94.0 (42.4)	49.0, 65.0 (32.7)	56.0, 61.0 (8.9)	70.0, 72.0 (2.9)
Average supply of protein of animal origin (gr/caput/day)	1990/92, 2009-11	16.0, 37.0 (131.3)	14.0, 23.0 (64.3)	10.0, 14.0 (40.0)	39.0, 38.0 (-2.6)
<b>ACCESS</b>					
Percent of paved roads over total roads	1990, 2011	43.7 <sup>1</sup> , 63.1 (44.4)	38.3 <sup>2</sup> , 40.0 <sup>3</sup> (4.4)	46.22 <sup>2</sup> - 52.8 (14.3)	9.9, 11.5 <sup>4</sup> (16.2)
Road density (per 100 square km of land area)	1990, 2011	16.3, 37.7 (131.3)	17.2, 29.4 (70.9)	37.9, 81.2 (114.2)	5.8, 6.3 <sup>4</sup> (8.6)
Rail lines density (per 100 square km of land area)	1990, 2012	0.5, 0.6 (20.0)	0.4 <sup>2</sup> , 0.4 <sup>5</sup> (0.0)	1.3, 1.4 (7.7)	-
Gross domestic product per capita (in purchasing power equivalent, constant 2011 international dollars)	1990, 2013	1 991.1, 12 475.3 (526.6)	4 579.6, 9 773.1 (113.4)	2 210.7, 5 324.8 (140.9)	2 271.9, 3 033.5 (33.5)
Domestic food price index	2000, 2014	0.13, 0.19 (46.2)	0.30, 0.32 (6.7)	0.36, 0.31 (-13.9)	-
Prevalence of undernourishment (percent)	1990-92, 2014-16	23.2, 9.6 (-58.6)	30.6, 9.6 (-68.6)	23.9, 15.7 (-34.3)	15.7, 14.2 (-9.6)
Depth of the food deficit (kcal/caput/day)	1990-92, 2014-16	182.0, 76.0 (-58.2)	232.0, 73.0 (-68.5)	169.0, 114.0 (-32.5)	101.0, 94.0 (-6.9)
Prevalence of food inadequacy (percent)	1990-92, 2014-16	32.6, 16.2 (-50.3)	40.1, 16.6 (-58.6)	32.8, 24.5 (-25.3)	23.3, 22.0 (-5.6)
<b>STABILITY</b>					
Cereal import dependency ratio (percent)	1990-92, 2009-11	6.1, 4.9 (-19.7)	1.5, 4.0 (166.7)	3.6, 1.5 (-58.3)	94.4, 95.4 (1.1)
Percent of arable land equipped for irrigation (percent)	1990-92, 2010-12	40.6, 63.1 (55.4)	24.0, 33.0 (37.5)	36.6, 49.8 (36.1)	3.9, 6.7 (71.8)
Value of food imports over total merchandise exports (percent)	1990-92, 2009-11	4.0, 3.0 (-25)	4.0, 4.0 (0.0)	11.0, 8.0 (-27.3)	20.0, 18.0 (-10)
Domestic food price volatility (index)	2000, 2014	9.2, 8.0 (-13.0)	6.3, 11.7 <sup>6</sup> (85.7)	6.7, 13.7 <sup>6</sup> (104.5)	13.6, 8.3 (-39.0)
Per capita food production variability (constant 2004-06 international dollar per capita)	1990, 2013	3.0, 1.9 (-36.7)	2.7, 4.3 (59.3)	3.4, 2.8 (-17.6)	3.4, 6.6 (94.1)
Per capita food supply variability (kcal/caput/day)	1990, 2011	39.0, 24.0 (-38.5)	23.0, 10.0 (-56.5)	48.0, 23.0 (-52.1)	20.0, 13.0 (35.0)
<b>UTILIZATION</b>					
Access to improved water sources (percent of population with access)	1990, 2012	91.9, 97.4 (6.0) <sup>7</sup>	71.2, 89.1 (25.1)	72.5, 91.4 (26.1)	49.7, 55.5 (11.7)
Access to improved sanitation facilities (percent of population with access)	1990, 2012	83.7, 92.5 (10.5) <sup>7</sup>	47.6, 70.7 (48.5)	23.1, 42.0 (81.8)	35.5, 35.1 (-1.1)

 Source: FAO - Food Security Indicators at <http://www.fao.org/economic/ess/ess-fs/ess-fadata/en/>
<sup>1</sup> 2003.

<sup>2</sup> 1991.

<sup>3</sup> 1999.

<sup>4</sup> 2000.

<sup>5</sup> 2008.

<sup>6</sup> 2013.

<sup>7</sup> Excluding China.