

Food and Nutrition Security in Southeast Asia

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1. Introduction

Asia has been the success story of development. Countries which once were Japanese or British possessions, i.e. Taiwan, the Republic of Korea (South Korea), Hongkong and Singapore, quickly recovered from the aftermath of colonialism and war. These newly industrialized countries (NICs) became famous as the Asian *tigers* and enjoy a standard of living equal to that of West European nations. They were later joined by other Southeast Asian states, first of all Malaysia and Thailand, and finally by the People's Republic of China, not to speak of oil-rich Brunei. The Philippines and Indonesia saw a more modest and less robust growth. Vietnam only recently started to make headlines, whereas Myanmar, Lao PDR, Cambodia and East Timor (Timor-Leste) are only slowly coming up.

Given the fact that East and Southeast Asia suffered from World War II as much as Europe, that most of the countries saw liberation and civil wars of the worst kind afterwards and that most of them were hardly prepared for independence, the achievement is striking. As in Europe two centuries earlier, agricultural development was the precondition for industrialization and overall development, with the exception, of course, of the city states of Singapore and Hong Kong. The following analysis, however, will concentrate on Southeast Asia, as defined by the (now) ten member-states of the Association of Southeast Asian Nations (ASEAN). ASEAN was founded in 1967 as the civilian pendant to the Southeast Asian Treaty Organization (SEATO) of Cold War times. The original members were the strictly non-Communist states of Indonesia, Malaysia, the Philippines, Singapore, and Thailand, later joined by Brunei. After the collapse of the Soviet Union and China's opening towards the West, Cambodia, Lao PDR and Vietnam became members as well as – against much international protest – Myanmar. Except for East Timor, which still has to be admitted, ASEAN now comprises all of what was traditionally called Southeast Asia.

The various ASEAN countries, however, have reached different stages of development and wealth: Singapore, Brunei, and – to some extent – Malaysia enjoy a standard of living as high as any in Western Europe. According to the Human Development Report 2003 Singapore, Brunei and Malaysia rank at positions 28, 30 and 58 among 175 states on the poverty scale of UNDP (HP-1 ranks), Cambodia at 130 and the People's Democratic Republic (PDR) of Lao PDR, the poorest state of the region, at 135; they all enjoy at least “medium” human development (Singapore even has “high” human development), none of them ranking “low” in this respect.

2. Food supply: calories, protein, fat

Accordingly, food availability can be considered sufficient, at least on the macro average level. The Food and Agriculture Organization of the United Nations (FAO) has published detailed food

balances for most of the states (but not for Singapore and East Timor) from 1961 onwards. According to the FAO, the best fed South Asians were in Malaysia (next to Singapore, most probably). From 1999 to 2001 they had an energy availability of 2,916 **calories** per head and day, which may not sound much if compared to Europe, North America or Australia, but is more than in much richer and cooler Japan (2,753). Values are almost as high in Indonesia (2,903), Myanmar (2,813) and Brunei (2,772). Less is available in Vietnam (2,502), Thailand (2,455) and the Philippines (2,374), and certainly in Lao PDR (2,282) and Cambodia (1,973).

Protein and fat availability follow a similar pattern, although the differences are much more marked: Brunei, Malaysia and Myanmar consume 82 grams (g), 76 g and 73 g protein per head and day, more than Indonesia (65 g), Vietnam (60 g), Lao PDR (59 g), Thailand (56 g) and the Philippines (55 g). The lowest protein availability, with only 48 g, is found in Cambodia.

Malaysia (83 g) and Brunei (78 g) also top the list in **fat** consumed, with availability much higher than in Indonesia (59 g), Thailand (49 g), the Philippines (49 g) and Myanmar (47 g), and twice as much (and even more) as in Vietnam (40 g), Lao PDR (29 g) and Cambodia (21).

None of the countries has been a heavy consumer of animal products. Traditionally meat is eaten in small quantities, if at all, though fish is a staple food in some areas. If we take **animal products** as a proxy for higher value foods, again Malaysia and Brunei stand out with around one fifth of all calories, and half of the protein and fat of animal origin. At the other end of the spectrum, only 121 calories per capita and day in Indonesia and 125 calories in Myanmar are of animal origin, even though both countries show a comparatively high overall calorie availability. Protein availability in the Philippines and Thailand is only half that in Malaysia and Brunei (42 g each), and just 14 g in Vietnam, 13 g in Cambodia, 12 g in Indonesia, 10 g in Lao PDR and 10 g in Myanmar. The regional distribution is similar for animal-fat availability: 39 g in Brunei and 30 g in Malaysia, but only 7 g in Indonesia and 8 g in Myanmar; it is higher in Lao PDR (12 g) and Cambodia (13 g), the two poorest countries of the region.

In all the countries covered we can observe a marked, if not sensational, **improvement in food supply**: Almost all indicators of Table 1 show an upward trend over the last four decades. For an easy comparison, tri-annual averages are compared for the years 1961-63, 1971-73, 1981-83, 1991-93 and 1999-2001. We see a marked improvement for calories, protein and fat. Only Cambodia saw a serious reduction in its total food supply, owing to the turmoil of the 1970s; food supply, as measured in calories, has still not fully recovered, but qualitatively (protein and fat) we can observe at least a modest improvement. In Southeast Asia in general, food of animal origin today is almost twice as important (if measured by per capita availability) than four decades ago: animal calories have risen from just 35 to 179, animal protein from 4.5 g to 12.5 g and fat from 4.4 g to 13.3 g in Cambodia, and from 51 to 121 calories, 4.7 g to 11.6 g protein and 3.2 g to 7.4 g in Indonesia. The spread across the countries and time is enormous, e.g., if we compare Cambodia's 4.5 g protein and 4.4 g fat in the early 1960s to Malaysia's 76.3 g protein and 82.6 g fat today.

In several instances we can already notice a **reverse trend**: Total food-energy availability at the end of the century was less than at the beginning of the 1990s in Brunei. Similarly the fat availability is now less in Malaysia. We also see a few instances where the supply has gone down albeit still on a low level (e.g., total fat in Cambodia, animal fat in Indonesia), but this may have other reasons.

Table 1: Food balances

Country/ Year	Calories		Protein (grams)		Fat (grams)	
	Total	Animal	Total	Animal	Total	Animal
Brunei						
1961-1963	2,123	238	47.0	18.1	40.0	16.4
1971-1973	2,383	257	54.9	21.4	42.3	17.0
1981-1983	2,710	537	77.0	38.7	59.3	32.4
1991-1993	2,810	528	79.0	37.0	68.8	33.9
1999-2001	2,772	574	82.1	41.9	77.5	38.5
Cambodia						
1961-1963	2,023	35	44.3	4.5	16.2	4.4
1971-1973	2,072	124	49.0	8.5	22.6	9.4
1981-1983	1,814	85	42.7	6.2	16.3	6.3
1991-1993	1,895	143	44.1	8.6	24.4	11.5
1999-2001	1,973	179	47.7	12.5	20.8	13.3
Indonesia						
1961-1963	1,732	51	34.8	4.7	25.5	3.2
1971-1973	1,949	57	40.2	5.4	25.8	3.6
1981-1983	2,307	81	48.2	7.8	39.4	4.9
1991-1993	2,750	118	62.3	10.2	55.1	7.9
1999-2001	2,903	121	65.2	11.6	59.2	7.4
Lao PDR						
1961-1963	1,954	88	49.8	5.6	18.2	6.7
1971-1973	2,082	94	51.8	6.1	20.4	7.3
1981-1983	2,079	106	50.6	6.5	23.1	8.7
1991-1993	2,079	116	50.6	7.0	22.7	9.1
1999-2001	2,282	164	59.1	10.3	28.9	12.3
Malaysia						
1961-1963	2,423	259	48.9	14.7	49.3	16.6
1971-1973	2,537	291	51.6	17.2	56.5	19.3
1981-1983	2,712	406	58.4	26.6	82.9	25.9
1991-1993	2,819	559	71.3	40.2	91.8	35.4
1999-2001	2,916	520	76.3	42.0	82.6	30.4
Myanmar						
1961-1963	1,770	93	45.7	8.2	30.4	5.1
1971-1973	2,083	94	52.9	7.6	33.4	6.2
1981-1983	2,491	110	62.6	8.7	40.0	7.5
1991-1993	2,680	99	66.1	8.3	43.3	6.2
1999-2001	2,813	125	73.1	9.8	46.9	8.3
Philippines						
1961-1963	1,732	200	40.2	15.2	29.4	13.9
1971-1973	1,845	248	46.1	20.7	33.4	16.6
1981-1983	2,177	251	52.0	21.9	34.1	16.3
1991-1993	2,190	292	53.2	23.3	41.0	20.2
1999-2001	2,374	349	55.2	23.8	48.5	26.2

Thailand						
1961-1963	1,979	175	44.0	12.3	31.9	11.9
1971-1973	2,192	195	51.6	16.5	28.4	13.0
1981-1983	2,296	206	51.5	16.5	35.5	14.2
1991-1993	2,284	289	54.1	23.0	47.8	19.9
1999-2001	2,455	287	55.5	22.9	49.3	19.4
Vietnam						
1961-1963	2,069	139	48.2	9.2	21.4	10.9
1971-1973	2,139	132	49.5	9.2	21.5	9.9
1981-1983	2,224	142	49.5	8.1	22.4	11.6
1991-1993	2,304	107	52.1	9.9	29.9	15.8
1999-2001	2,502	264	60.1	14.4	39.6	22.0

Source: FAOSTAT, 18 Nov 2003.

3. Cereals: supply and consumption

Feeding a fast growing population at an ever rising level of availability has been achieved mostly by increasing food production. As can be seen from Table 2, cereal production rose in all the states, except Brunei, which – like Singapore – can afford to rely on imported food. In the other states production increased many times over, the major exception being Cambodia: if we look at its production at decennial intervals, we see that it fell in the 1960s and 1970s by one third and only rose after Pol Pot was driven out of power; now it is almost two thirds higher than in the early 1960s and more than double that of the early 1970s and 1980s. In Malaysia, production almost doubled, in Thailand and Myanmar it almost tripled, in Indonesia, Lao PDR and Indonesia it almost quadrupled. Indonesia now produces more cereal than all ten ASEAN states put together in the early 1960s. The economic (Asian) crisis of the late 1990s had no marked (negative) impact on cereal production, but, of course, it did affect the access to food of those who lost their jobs and incomes.

Table 2: Cereals: Domestic Supply and Utilization (1000 metric tons)

Country/ Year	Domestic Supply					Domestic Utili- zation	Per Caput Supply kg/year
	Pro- duction	Imports	Stock Changes	Exports	Total		
Brunei							
1961-1963	3	9	0	0	12	11	1209
1971-1973	3	16	1	0	20	19	1323
1981-1983	2	33	-1	0	33	30	1447
1991-1993	1	50	-1	0	49	44	1616
1999-2001	0	65	-6	0	59	52	1577
Cambodia							
1961-1963	1735	20	-136	378	1242	997	1750
1971-1973	1361	92	33	19	1466	1270	1789
1981-1983	1278	135	-93	9	1310	1123	1599
1991-1993	1612	74	285	12	1959	1722	1557
1999-2001	2851	93	-353	2	2589	2146	1538

Indonesia							
1961-1963	10784	1223	-920	1	11085	10136	1013
1971-1973	16429	1704	359	255	18237	16728	1330
1981-1983	2688	2338	-700	16	28503	24938	1590
1991-1993	38277	3103	-479	239	40662	35535	1884
1999-2001	43476	6860	-393	142	49801	42610	2009
Lao PDR							
1961-1963	366	124	14	0	504	437	1921
1971-1973	585	85	6	0	677	568	1995
1981-1983	777	49	-55	0	771	624	1865
1991-1993	942	21	29	6	987	798	1835
1999-2001	1584	32	-300	2	1315	1017	1926
Malaysia							
1961-1963	767	802	-31	25	1513	1358	1566
1971-1973	1267	949	9	17	2208	1824	1599
1981-1983	1266	1936	-36	98	3068	2077	1433
1991-1993	1380	3480	-65	163	4630	2470	1320
1999-2001	1457	4758	67	284	5998	3335	1501
Myanmar							
1961-1963	5091	41	138	1715	3555	3082	1369
1971-1973	5504	25	288	510	5306	4701	1671
1981-1983	10060	6	-958	776	8332	6991	1991
1991-1993	10445	15	549	260	10749	9276	2207
1999-2001	14787	126	-2139	528	12245	10224	2141
Philippines							
1961-1963	3883	574	13	2	4467	3184	1099
1971-1973	5410	1235	28	7	6660	4659	1204
1981-1983	8543	1383	-72	46	9809	6749	1337
1991-1993	11054	2032	-406	30	12652	8376	1310
1999-2001	12796	3943	-1046	17	15675	10289	1357
Thailand							
1961-1963	8192	41	-831	2055	5348	4004	1411
1971-1973	11244	95	-319	3372	7649	5933	1557
1981-1983	15675	228	329	6490	9742	7162	1496
1991-1993	16924	810	-37	5645	12051	6857	1217
1999-2001	21668	1222	-703	7395	14792	7922	1262
Vietnam							
1961-1963	6594	439	-137	173	6723	5884	1664
1971-1973	7452	1516	-68	4	8895	7847	1747
1981-1983	9683	627	141	55	10396	9133	1651
1991-1993	15008	371	-36	1612	13730	11671	1694
1999-2001	23281	988	-1716	3973	18580	14311	1831
ASEAN							
1961-1963	37415	3273	-1890	4349	34449	29093	
1971-1973	49255	5717	337	4184	51118	43549	
1981-1983	49972	6735	-1445	7490	71964	58827	
1991-1993	95643	9956	-161	7967	97469	76749	
1999-2001	121900	18087	-6589	12343	121054	91906	

Note: Three years averages. Errors due to rounding off. Domestic utilization = domestic supply minus feed, seed, processing, waste and other uses.

Source: FAOSTAT, 18 Nov. 2003.

The region is a net importer of cereals: during the years 1999-2001, on average 121.9 million tons were produced, 18.1 million tons imported and 6.6 million tons taken from stocks. 12.3 million tons were exported, so that the total supply was 121.1 million tons. One fourth of this, 29.3 million tons, were retained for seed, feed and processing, leaving 91.9 million tons available for domestic utilization. With an average population of 513 million people (1999-2001, excluding Singapore), 179 kg of cereals per capita were supplied; the domestic supply was 236 kg per capita. Of the quantities available for domestic utilization, 0.8% may be deducted for seed, 6.5% for waste and 3.1% for other uses (as they are in Indonesia), so that the total supply available for utilization, directly and indirectly, was 108.5 million tons or 212 kg per capita. As can be seen from the table, total production more than tripled over the four decades under review; the other aggregates developed in a similar way.

This development took place almost everywhere. Only Brunei and Singapore have to rely totally on **imports**. All over Southeast Asia imports rose, but they are now much less important for domestic utilization. Imports and exports are subject to high fluctuations over time, much more than can be seen from a comparison of three-year averages over decennial intervals. Indonesia has been and still is the biggest regional importer and one of the most important importers worldwide, at times indeed the most important one. Over time imports have been around one tenth of domestic production in Indonesia; recently the figures have increased. The Philippines are the second biggest importer, with imports being around one third of the domestic production, and the tendency is rising. Malaysia imports almost as much as the Philippines. But whereas Malaysia's imports equalled in quantity its production in the early 1960s, they are now almost three times as much. The other countries are much less dependent on imports: Lao PDR, Cambodia and Myanmar import only small quantities; Vietnam has had imports at times.

Changes in **stocks** should balance out over time. Myanmar, Vietnam and Indonesia had to draw on their stocks lately. After recent bad harvests stocks had to be used all over the region.

Thailand has been famous as a leading rice **exporter** over decades, exporting roughly one third of the harvest. Vietnam has joined Thailand, developing into a major rice exporter recently. Myanmar, previously one of the main exporters, has lost its dominant position; only three percent of the harvest is still exported. None of the other countries is a major rice exporter or exports a considerable amount of their harvest.

The most striking development is the rising utilization of food grains for **feed and food processing**, which can be seen in Table 2 as the difference between total domestic supply and domestic utilization. It comprises more than one tenth of the domestic supply in all the states and much more in Malaysia (more than one half), Thailand (almost one half) and the Philippines. Four decades ago almost all of the domestic supply went into domestic utilization; at that time non-direct utilization was especially high in the Philippines, Cambodia, Myanmar and Thailand. The **per-capita supply** rose in all states, but has started to fall in some of them. Myanmar has the highest availability: its per capita supply was as high as 220.7 kg in the early 1990s and still stands at 214.1 kg. It has started falling on lower levels in Brunei, Cambodia, Malaysia and Thailand. It is interesting to note that peak levels differ a lot from one state to the next.

4. Rice: area harvested, yield and production

Rice (paddy) is by far the most important food grain all over Southeast Asia. The other major cereal in Southeast Asia is maize (corn), grown on a large scale only recently and mainly as feed. If we compare the development of rice production of Southeast Asia with that of East and South Asia we can see that Southeast Asia has been suffering less from land scarcity than the other two major regions. In China, for example, the **area under rice** was expanded from 27.7 million hectares in the early 1960s to 35.8 million ha a decade later and shrunk to 29.2 million ha recently. In India the area under rice was expanded over the same period from 35.4 million ha to 43.1 million ha. In Indonesia, the largest country of Southeast Asia, the area was expanded more than 60% from 7.0 million ha to 11.6 million, in Vietnam from 4.7 million ha to 7.5 million ha and in Thailand from 6.4 million ha to 9.9 million ha. There was little increase in Malaysia and Lao PDR; in Cambodia the area under rice is less than it was four decades ago (it almost halved in the 1960s and has not yet recovered).

Yields increased more dramatically: in Lao PDR from 867 kg/ha to 3,222 kg/ha, in Indonesia from 1,758 kg/ha to 4,407 kg/ha, in Myanmar from 1,616 kg/ha to 3,482 kg/ha, in the Philippines from 1,243 kg/ha to 3,178 kg/ha, and in Vietnam from 2,008 kg/ha to 4,354 kg/ha. The increase was more modest in Thailand (from 1,752 kg to 2,697 kg/ha) and in Malaysia (from 2,110 kg/ha to 3,097 kg/ha). Yields are still much lower than in China (6,228 kg/ha), in the Republic of Korea (6,616 kg/ha) and in Japan (6,641 kg/ha), but usually higher than in India (2,999 kg/ha), Thailand and Cambodia being the major exceptions.

5. Shift in the structure of diets

National-level data on food available for consumption do not reflect actual consumption as additional losses occur in the food chain that link producers and processors to consumers. It is estimated that about 20% to 27 % more food is available than the actual consumption levels. In addition, it is important to note that a greater proportion of perishable foods is wasted or discarded. Thus food balance data tend to overestimate fruit and vegetable consumption to a higher extent than in the case of roots and tubers (Popkin et al. 2001). As economic growth is one determining factor of development several efforts have been made to classify countries accordingly. According to the World Bank, the countries under review in this article can be grouped as follows (no data for Brunei):

Table 3: Gross National Income of Some Selected Asian Countries 2002

Group	Countries	GNI per capita (US\$)
High Income	Singapore	20,69
	Hong Kong, China	24,75
	Korea, Rep. of	9,93
Upper Middle Income	Malaysia	3,54
Low Middle Income	Thailand	1,98
	Philippines	1,02
Low Income	Indonesia	710
	Myanmar	
	Lao PDR	330
	Vietnam	330
	Cambodia	280
	Timor Leste	

Source: World Bank 2004, pp. 251-263.

With increasing income and increasing wealth one can observe a shift in the diet and lifestyle of people. In general, this implies a shift towards diets that contain more fat, more foods of animal origin, often more sugary foods and drinks and sometimes even more alcohol. These developments go hand in hand with a reduction of starchy staples and have consequently led to an increasing incidence of diet-related chronic diseases, some of which have become epidemic with remarkable speed.

Table 4 gives a summary of some of the consumption data according to income group (Note: the calculations in this table include all Asian countries grouped according to the World Bank classification)

Table 4: Trend in Foods Available for Consumption (annual totals in kg per capita)

Food Group		1962	1967	1972	1977	1982	1987	1992	1996
Cereals	H.I.	175.6	192.8	217.3	210.9	184.6	184.4	163.2	163.3
	M.I.	126.6	129.8	136.7	135.4	136.2	129.8	142.6	133.9
	L.I.	147.8	144.2	151.8	148.9	154.7	159.5	164.7	171.9
Starchy Roots	H.I.	42.3	51.4	44.8	31.5	22.8	16.7	16.9	18.4
	M.I.	28.6	25.1	20.3	37.9	29.7	28.3	31.3	31.4
	L.I.	11.5	15.0	17.1	20.2	20.8	19.7	20.4	21.1
Meat/Poultry	H.I.	8.6	10.8	13.5	16.8	23.7	28.8	40.2	48.1
	M.I.		15.2	15.0	15.8	18.1	18.7	27.7	30.6
	L.I.	12.7	5.0	4.9	4.9	5.3	5.8	6.5	6.9
Fruits & Vegetables	H.I.	81.9	104.3	123.2	202.2	215.8	215.7	250.4	264.4
	M.I.	129.4	128.0	121.9	147.7	157.2	151.0	133.3	142.0
	L.I.	59.1	63.4	63.5	64.2	68.1	72.8	74.2	79.6
Added sugar	H.I.	4.6	6.4	9.7	13.5	17.0	27.0	32.8	35.5
	M.I.	12.1	15.7	17.0	20.5	20.6	22.4	26.2	31.7
	L.I.	16.3	16.7	17.3	17.8	17.8	18.5	19.7	20.1

Notes: H.I.= High-income; M.I. = Middle-income; L.I. = Lower low-income.

Source: Popkin et. al. 2001 :13-14.

As can be seen from the table above, the trends in consumption are more distinct in terms of the high-income and the low-income grouped Asian countries. High-income countries, after reaching a certain peak, have reduced their cereal and starchy-roots consumption, whereas the consumption in low-income countries is still increasing, trying to reach the level of consumption of the high-income group in the early 1960s. During the same time period, meat consumption in high-income countries is more than 5 times higher as compared to 1962 and even sugar consumption multiplied by the factor 7. However, it is encouraging to note that even the fruit and vegetable consumption tripled in the given time period.

The consumption averages just indicate trends and cannot look into country-specific

consumption patterns. For example, the low-income group is highly dominated by India, which is the second largest country in the world.

Although production and food availability should suffice for all, theoretically, undernourishment is still widespread in some of the countries of the region: 76 million people or 13% of the total population were undernourished at the turn of the century, around two fifths of the population in Cambodia and around one fifth in Lao PDR, the Philippines, Thailand and Vietnam (Table 5).

Table 5: Prevalence of Undernourishment¹ in Southeast Asia

Country	Number of People Undernourished			Proportion of Undernourished in Total Population		
	1990-1992	1995-1997	1999-2001	1990-1992	1995-1997	1999-2001
	Millions			per cent		
Cambodia	4.3	5.2	5.0	43	45	38
Indonesia	16.6	11.4	12.6	9	6	6
Lao PDR	1.2	1.3	1.2	29	28	22
Malaysia	0.6	0.4	0.5	3	-	-
Myanmar	4.0	3.3	3.2	10	7	7
Philippines	16.1	16.1	16.8	26	23	22
Thailand	15.6	12.3	11.9	28	21	19
Vietnam	18.1	15.3	15.1	27	21	19
Total	76.4	65.4	66.3	17	13	13

Source: FAO 2003 : 31.

6. Nutritional status of children

In terms of food and nutrition security it is necessary to look beyond the question of food production and food availability in a country or region. Not merely the availability of food but also access to and the utilization of food matter. Food availability and access to it do not automatically translate into a good nutritional status. In addition to the nutritional status of children under 5 years of age, Table 6 gives some indicators on net school enrollment, life expectancy at birth and the under-5 mortality rate.

It is important to note that all countries under review show a remarkable reduction in the under-5 mortality rate between 1960 and 2001. The variation in anthropometric indicators is enormous and reflects the different status of development in the region. Countries with high-prevalence rates of stunting are also those that experience the highest mortality rates in the region and those whose school enrollment rates are far from satisfactory.

¹ Note: undernourishment according to the FAO's definition means: the estimated number of people who do not have access to sufficient food to meet their daily nutritional requirements.

Table 6: Nutritional Status and Other Development Indicators

Country	Under 5 Mortality		Life Expectancy at Birth	Net School Enrolment	Underweight WT/ Age $\leq 2SD$	Wasted WT/ HT $\leq 2SD$	Stunted HT/ Age $\leq 2SD$
	1960	2001					
Brunei	87	6	76	91	-	-	-
Cambodia	-	138	56	65	45	15	45
Indonesia	216	45	67	91	26	-	-
Lao PDR	235	100	54	69	40	15	41
Malaysia	105	8	73	94	18	-	-
Myanmar	252	109	56	68	36	10	37
Philippines	110	38	70	96	28	6	30
Singapore	40	4	78	93	14	4	11
Thailand	148	28	70	81	19	6	16
Vietnam	219	38	69	94	33	6	36

Source: UNICEF 2003.

7. Outlook on the macro level

The above short quantitative analysis of developments in the ASEAN countries over the past four decades shows an overall improvement of the food position in all the countries, mainly through a dramatic increase of food production. This was achieved by extending the areas under the main food crop and also increasing the yields per area unit. More and more of the food grains, especially imported maize, are used as feed and for food processing. Accordingly, more food of animal origin is consumed, albeit at low levels in international comparison. However, the countries show very different patterns and do not follow a uniform, single development path. If we compare regional developments with Japan, the first Asian country that joined the group of industrialized countries, we find that Southeast Asians, if possible, eat more than the modest 2,800 calories per head and day of present-day Japan. Protein consumption in Japan may have peaked at around 90 g per day, whereas fat consumption is still rising. Korea, another Asian OECD country now has a higher energy consumption of over 3,000 calories, which is still rising. Protein and fat consumption, however, are not as high as in Japan, but also still rising. China (particularly the coastal zone) has witnessed an almost unbelievable increase of food supply that is now higher than in Japan in terms of calories and fat intake; even the protein supply is almost as high as in Korea.

If we compare the richest Southeast Asian countries on our list, we see that Brunei (no data for Singapore) has reached the consumption level of Japan, while that of Malaysia resembles that of China. Myanmar, famous for a propensity to good eating, also has reached a high level of consumption in terms of protein and calories; its people still eat comparatively less fat. The nutritional status of children, the under-5 mortality rate and school enrollment are far from satisfactory, implying that factors other than food consumption play a major role in nutrition security in Myanmar. Thailand, Vietnam and Philippines should be expected to consume much more food per capita once production and/or income allow. The picture is different for Indonesia,

which already has a high level of food energy availability, but less in terms of protein and fat. In Lao PDR and Cambodia levels of food supply are still very low. The relatively poor nutritional status of children under 5 years old seems to be related to the poorer food security in these two countries.

Vietnam, with a relatively high school-enrollment rate was able to bring down under-5 mortality rates far more than Lao PDR. Again this is an indication of the importance of other interventions for the improvement of food and nutrition security.

8. Population growth and rising incomes

In the past, **population growth** was the main factor behind the increase in demand for food as well as the supply of labour to grow food. When the population explosion was first discussed in the 1950s, few would have expected that the growth rates would come down so soon and in such a dramatic way. The World Bank in its World Development Report 2003 (there are no figures in the report 2004) gives the average annual growth rate of the population: Population growth has come down to 0.9 % in Thailand, 1.6 % in Myanmar, 1.6 % in Indonesia, 1.7 % in Vietnam, and 2.1 % in the Philippines. It is still high in the smaller countries: Lao PDR 2.4 %, Malaysia 2.4 %, Brunei 2.7 %, Cambodia 2.7 %, and Singapore 2.7 %. The effect of the food production growing at a faster rate than the population (and a more or less constant share of net imports in the total supply) is an increasing food supply per capita as described above.

Given the fact that the **income** elasticities for basic food items are low and falling, incomes are a good indicator for showing how the demand for food items will develop: Brunei (no data) and Singapore (2002: PPP\$ 23,690) have reached an income like that of any industrialized country; Malaysia (\$8,280), Thailand (\$6,680) and the Philippines (\$4,280) are also comparatively well-off. The others still belong to the poorer countries: Myanmar (no data), Indonesia (\$2,990), Vietnam (\$2,240), Lao PDR (\$1,610), Cambodia (\$1,590).

Cambodia and Lao PDR should expect the highest rise in food consumption: their population is still growing quickly; as they manage to raise the average income, food consumption, still at low levels, should rise considerably. At the other end of the scale we find different set-ups: In Thailand, per capita consumption is still not very high, population growth is low and incomes are comparatively high. And in Singapore and Malaysia, incomes, levels of consumption and population-growth rates are all high.

9. Income distribution and the incidence of poverty

With a gross availability of 211.5 kg of cereals per capita it should be possible to ensure that no one gets hungry in Southeast Asia, provided a decent (secondary) income and food distribution can be organized. However, this is not yet the case, as demonstrated by the number of undernourished people.

The percentage of the population who cannot meet their most basic needs, i.e., subsist at an income of less than 1 US\$ a day, is very small in most ASEAN countries: less than two percent in Malaysia and Thailand and 7% in Indonesia, but 15% in the Philippines, 18% in Vietnam and 26% in Lao PDR. More cannot meet 2 US\$ a day requirements: 9% in Malaysia, 33% cent in Thailand, 46% in the Philippines, 55% in Indonesia, 64% in Vietnam and 73% in Lao PDR.

Incomes are certainly higher than in South Asia and sub-Saharan Africa, but not by much. This means that most of the people in Southeast Asia can meet their very basic food requirements, but still not all of them. At least one third of the total population has to get by below the two-dollar poverty line, which means that they can just barely meet caloric minimum standards, but nothing more.

The UNDP calculates a gender-development index (GDI) to measure the average achievement in the three basic dimensions captured in the human-development index (HDI), i.e., a long and healthy life, knowledge and a decent standard of living, adjusted to account for inequalities between men and women. The position of the Southeast Asian countries in the overall GDI ranking is a little better than that for HDI, if at all, indicating that the less well-off ASEAN countries are facing similar problems of intra-family distribution like other low- and low-middle income countries. Any programs aiming at food and nutrition security thus have to concentrate on Cambodia and Lao PDR and the pockets of poverty that we find in the mid-income countries of the region. Poverty-reduction efforts are best sustained when lives of young children are transformed. Focused investment here will reverse a syndrome of developmental impairment, including cognitive deficits in early childhood, which lower school performance and dim the learner's prospects in later productive efforts (Mason 2001).

The shift in the diets of better-off countries or better-off groups in certain countries will cause a different set of problems in the long run. This shift, as described above (less starchy foods, more sugar more meat etc.) is often accompanied by reduced physical activity in work and leisure, leading to a rapid increase in overweight people. Consequently, we find an epidemiological transition from endemic deficiencies towards diet-related chronic diseases, including ischemic heart diseases, diabetes, obesity, hypertension, stroke and certain cancers. The utilization of foods available in a country, be it rich or poor, is one of the determining factors in terms of the nutritional well-being of people. Education, especially of girls, and the improvement of the social status of women may have a very high impact on reducing nutritional problems in the long run. In the study done by Smith et al. (2000), national food availability contributed only about 25 % to the improvement of malnutrition in children, whereas women's education together with their improved social status were estimated to contribute more than 50% to it.

As elsewhere (and most probably more than in South Asia), Southeast Asia is experiencing a fast globalization, i.e, an adoption of consumption and eating habits developed elsewhere: following the life styles of the industrialized countries means especially an intake of more animal products and other high-protein, high-fat food. Cereals (and other foods) still needed to eliminate undernourishment are increasingly used as feed.

In conclusion: To combat hunger in the nutritionally precarious countries and the numerous pockets of poverty in the better-off areas of the region, just waiting for the benefits of further agricultural growth is no alternative. More is needed than simply special efforts for children. These must be embedded in a twin-track approach of targeted programs that reach the undernourished individuals and improve the livelihood chances of families in combination with programs that foster a favorable, facilitating environment, mainly by improving communal and regional infrastructures (see Schürmann, below).

Therefore, focusing the attention only on those that lack food availability or the access to food may be detrimental in the long run.

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Summary:

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Food availability can be considered sufficient in Southeast Asia, but only on an aggregate level. Less is available in Vietnam, Thailand, and Philippines, and certainly in Lao PDR and Cambodia. In all countries of the region we can observe a marked, if not sensational improvement in the food supply; in the wealthiest ones saturation has been reached or will be reached soon, at least as far as food energy, protein and fat are concerned. There has been a marked improvement in animal-food availability; more and more cereals and other foods are being used as feed. The region is experiencing a fast globalization of its consumption and eating habits: especially as far as animal products and other high-protein, high-fat food are concerned, and has thus remained an importer of cereals, although production more than tripled in the last four decades. 13% of the total population are still undernourished (according to the FAO's definition – no access to sufficient food), around two fifths of the population in Cambodia and around one fifth in Lao PDR, the Philippines, Thailand and Viet Nam.

Despite the positive development in terms of food availability in the region, we still find a relatively high prevalence of malnutrition. Apart from the problems of chronic or acute undernutrition, new problems are emerging that concern a shift in the diets of better-off countries or better-off groups in certain countries. Less starchy foods, more sugar and meat and reduced physical activity will lead to a rapid increase in overweight and its attendant health problems.

The Authors:

Wolfgang-Peter Zingel, Dr. rer. pol. Senior research fellow, South Asia Institute (SAI) of Heidelberg University, Department of International Economics, represented the SAI in Pakistan (1980-82) and India (1990-92) and taught at Himachal Pradesh University in Shimla (India); publications on economics and related fields, mainly on South Asia. Information: <http://www.sai.uni-heidelberg.de/abt/intwep/zingel/>
e-mail: h93@ix.urz.uni-heidelberg.de.

Friederike Bellin-Sesay, Dr.oec.troph. is a food-and-nutrition-security expert with extensive experience at the research and implementation level. An assistant professor for almost 10 years at the Justus-Liebig University, she has spent much time gaining long-term practical experience mainly in sub-Saharan Africa and the Caribbean; of late she has been working in several Asian countries. e-mail: friederike.bellin@ernaehrung.uni-giessen.de.