North Africa

Algeria, Morocco, and Tunisia have experienced a severe drought this year. However, this translates into only modest food gaps for Algeria and Morocco. Only Algeria faces a longrun food deficit. Allowing for a land degradation scenario changes this projection only slightly, given the limited land availability for production in the region. [Michael Trueblood]

Algeria, Morocco, and Tunisia have experienced a serious drought in 2000 leading to production deviations that range from 48 percent to 64 percent below trend. In the case of Morocco, a country with one of the highest levels of production variability in the world, the shortfall is even more severe than last year's deficit, compounding a difficult situation.

These significant production shocks translate into relatively modest food gaps. All of these countries are middle income countries with relatively high per capita consumption levels compared to other countries in this report. Tunisia had the smallest shock and appears able to compensate for the shortfall with commercial imports. For Morocco, there is no food gap in 2000 based upon recent per capita consumption trends, but there is a nutrition-based food gap of 1 million tons. Morocco represents an extreme case in which the recent per capita consumption target can change dramatically each year. Because of last year's drought, the per capita consumption target—a 3-year moving average—dropped from 398 kg/cap to 241 kg/cap. Given this lower consumption target, assuming trend level of commercial imports, the target can be met despite the second year of drought. Using last year's consumption target (i.e. average consumption of the years 1996-98) would translate into a food gap of 4.1 million tons under the same assumptions.

Algeria shows a food gap of 361,000 tons to maintain recent per capita consumption levels and a food gap of 518,000 tons to meet nutritional requirements. However, these gaps will probably be fully met this year because of Algeria's expected windfall in oil and gas export revenues from high world prices, which will allow for higher imports. Analysis of the ratio of food import costs to export revenues suggests that even an above-average level of imports could be easily afforded compared with many previous years.

Analyzing the distribution of food consumption, the lower income groups in Algeria are the most vulnerable in the short and longrun: the four lowest income quintiles are projected not to meet minimum nutrition requirements, both in 2000 and 2010. For Morocco, the impact of the consecutive droughts in 1999 and 2000 is such that all income groups are projected to be unable to meet nutrition requirements in 2000. However, by 2010, this situation should be turned around with all income groups meeting these requirements. In Egypt and Tunisia, all income groups are estimated to have nutritionally adequate food supplies in both 2000 and 2010.

The four countries in North Africa examined in this report will continue to face limited land and water resources and become more reliant on food imports over time. The primary economic question is whether they will be able to afford these imports to sustain their current consumption levels (holding aside the issue of production volatility). However, another question is, would food gaps develop if area expansion were constrained?

For the first question, only Algeria is projected to show longrun food gaps (718,000 tons by 2010 to maintain current per capita consumption levels, which is about 7 percent of total food supplies). This is a somewhat tenuous projection in the case of Algeria, given its high dependency on oil and gas revenues, because of the great uncertainty of petroleum prices. If oil prices are sustained at recent levels, these food gaps could easily be eliminated. As for the second question, assuming that crop land grows half as rapidly, the gaps only increase for Algeria, and even then only slightly (up to 758,000 tons by 2010). This can be explained by the small impact that crop land growth has in the base case (less than 1 percent growth per year, which is reduced to 0.5 percent growth in the modified scenario). A similar explanation applies to the other North African countries in this report.

Table 3--Food availability and food gaps for North Africa

Year	Grain production	Root production	Commercial imports	Food aid receipts (grains)	Aggregate availability of all food
			---1,000 tons ---		
1991	26,890	1,162	13,254	1,345	39,211
1992	20,765	1,085	15,109	831	38,740
1993	19,082	1,053	16,854	418	39,804
1994	24,645	945	19,131	239	41,955
1995	19,881	1,353	19,739	221	46,839
1996	33,267	1,465	16,312	190	44,178
1997	22,439	1,192	20,565	94	46,340
1998	26,699	1,261	21,745	50	45,769
1999	24,449	1,211	21,895	63	49,071
Projections				**Food gap**	
				SQ NR	(w/o food aid)
2000	20,628	1,277	22,274	***361*** ***1,563***	43,701
2005	27,752	1,396	22,686	***180*** ***354***	50,858
2010	30,492	1,521	24,039	***718*** ***909***	55,071

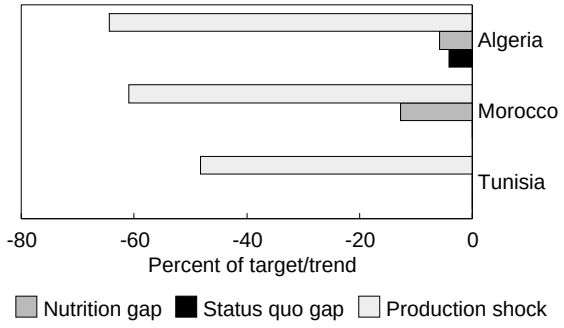
North Africa
138 million people in 2000

A second year of drought in North Africa has severely reduced production. Morocco could face the most severe nutritional food gaps. Algeria shows modest food gaps, but may avoid them due to imports financed by rising oil and gas prices.

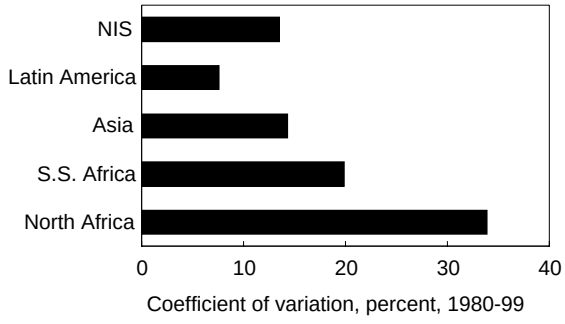
Food supplies for the lowest income groups in Algeria and Morocco may not be adequate in 2000, but should be sufficient in the long run.

Algeria is the only country in the region to face longrun food gaps, but this will depend on oil and gas price projections.

North Africa's production shocks have led to differently sized food gaps



North Africa's grain output variability is relatively high



North Africa: Land use

Region/ country	Share of cropland irrigated		Arable land 1995-97	Change (ha per capita) in arable land between 1979-81 and 1995-97	Annual rate of change in deforestation 1990-95
	1979-81	1995-97			
	Percent		Hectare per capita		Percent
North Africa	**52.2**	**52.7**	**0.18**	**-20**	**0.9** *
Algeria	3.4	6.9	.26	-30	1.2
Egypt	100.0	99.8	.05	-17	.0
Morocco	15.2	13.1	.33	-13	.3
Tunisia	4.9	7.6	.32	-37	.5

* Aggregate for Middle East and North Africa.
Source: World Development Report 2000/2001, World Bank.

Sub-Saharan Africa (SSA)

Of the 37 countries in the region, per capita consumption is projected to rise in only 7 countries. In 2010, consumption for 60 percent of the region's population is projected to fall short of nutritional requirements. In addition, the region is projected to account for nearly two-thirds of the hungry people in the 67 countries, while accounting for only 24 percent of the population. [Stacey Rosen]

Food security in Sub-Saharan Africa is almost entirely dependent on domestic production. Imports, as a share of the region's total food supplies, averaged around 10 percent in the late 1990s despite strong growth in commercial imports. The food aid share of imports peaked in the late 1980s at roughly 40 percent. In more recent years, that share has averaged less than 20 percent of imports.

Sub-Saharan Africa's agricultural productivity—as measured by output relative to agricultural land area—has accelerated over time. Between 1990-98, this productivity indicator rose 2.3 percent per year. This compares quite favorably to the success stories among the East and Southeast Asian countries where growth measured just under 2.5 percent during the same time period. However, Sub-Saharan Africa's population growth averaged 2.7 percent per year since 1990, meaning that productivity declined on a per capita basis. Moreover, the region's absolute level of productivity measured only about 65 percent of that of the Asian countries. This low level of productivity is directly attributable to low input use. Fertilizer use, the lowest rates in the world, actually declined between 1990 and 1998. Irrigated area as a share of total agricultural area stagnated during the 1990s and measured only about 3 percent in 1998. In Latin America, this share exceeded 11 percent and in Asia 20 percent.

Nearly 90 percent of the region's historical grain production growth stemmed from area expansion. This trend is not expected to continue in the future, as much of the region's remaining land area is marginal for agricultural purposes.

Production growth during the next decade is projected to fall short of historical rates and average 2.1 percent per year. To close the nutritional food gap, production would need to rise 2.9 percent per year. Given the region's limitations to expanding land area, achieving this growth rate would require investment in research and extension activities, improved infrastructure, and increased input use. Similar to the historical period, imports will not be a significant factor in the food security equation. Commercial imports are projected to account for less than 8 percent of food supplies in 2010 as slow export earnings growth is expected to constrain import capacity. Food aid allocations to the region may rise, but that has not been the case in recent years. Political and financial instability have been deciding factors in global food aid allocations. Sub-Saharan Africa, the most vulnerable region according to our analysis, received only a quarter of global food aid in 1999.

This slow production and import growth is expected to result in a continuation in the declining trend in per capita consumption. Of the 37 countries in the region, per capita consumption is projected to rise in only 7 countries—Ethiopia, Kenya, Sudan, Mozambique, Zimbabwe, Chad, and Togo. Even in these countries, the growth is not expected to be particularly strong. For example, Sudan is expected to experience the highest growth, but still only 1.4 percent per year. For Sudan, growth in grain output is not projected to match that of the historical period, but it will still outpace population growth by more than 1 percent per year. The same is true for Ethiopia and Mozambique. Slow population growth projections, due to the HIV/AIDS epidemic, is the primary factor behind the positive per capita consumption growth as production growth is projected to be quite slow—even falling short of the regional average. For Kenya, Chad, and Togo, the growth is negligible.

The region's food gap to maintain consumption is projected to rise about 65 percent during the next 10 years to 8.3 million tons in 2010. The nutritional food gap is projected to increase 40 percent, nearing 17 million tons in 2010. In other words, the region would need more than two times the amount of food to achieve nutritionally adequate diets as compared with simply maintaining the recent standard. The region's nutritional gap is estimated to account for 65 percent of the nutritional gap for the 67 countries in total in 2000. This number is projected to jump to 76 percent in 2010. The region accounts for only 24 percent of the population of the 67 countries, thus indicating the severity of the region's food security situation.

The situation appears even more desperate when examining projected consumption by income group. The distribution gap—the amount of food needed to raise consumption in each income group to the nutritional target—is projected to increase 40 percent during the next decade, reaching almost 23 million tons in 2010. At the same time, the number of people in the region consuming inadequate diets is projected to rise 25 percent during the next decade. The fact that this gap is projected to rise at a faster rate than the number of

Table 4--Food availability and food gaps for Sub-Saharan Africa

Year	Grain production	Root production	Commercial imports	Food aid receipts (grains)	Aggregate availability of all food
			---1,000 tons ---		
1991	59,185	35,394	5,262	5,140	113,750
1992	57,345	36,993	6,858	5,514	124,658
1993	61,108	39,479	7,717	3,236	125,908
1994	64,401	39,768	7,864	3,295	130,818
1995	64,872	41,029	7,179	2,269	137,916
1996	69,804	41,542	7,526	1,846	137,016
1997	63,597	40,945	9,860	2,140	136,878
1998	69,295	44,772	11,940	2,598	148,628
1999	68,792	45,763	10,466	1,700	148,117
Projections				**Food gap**	
				SQ NR	(w/o food aid)
2000	69,734	45,600	11,152	***3,287*** ***10,999***	147,217
2005	81,354	49,996	11,344	***4,687*** ***12,812***	165,527
2010	90,756	54,753	12,055	***8,295*** ***16,574***	182,620

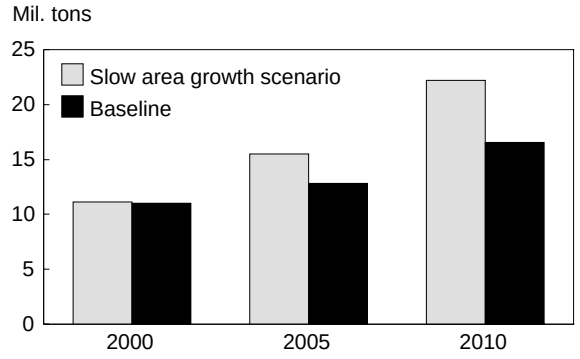
Sub-Saharan Africa
589 million people in 2000.

Only 7 of the 37 countries are projected to have rising per capita consumption trends through the next decade.

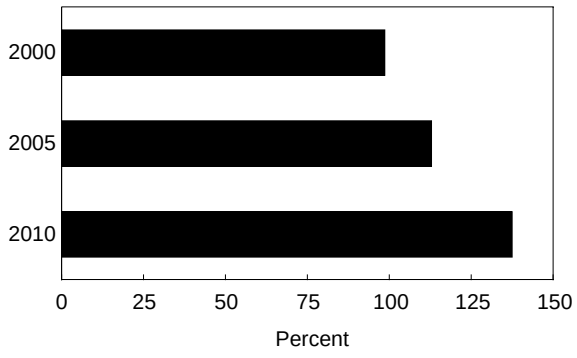
While Sub-Saharan Africa will have only 24 percent of the population of the study countries in 2010, it is projected to account for 76 percent of the total nutrition gap.

Sixty percent of the region's population is projected to consume at levels below the minimum nutritional requirement in 2010.

Nutritional food gap in Sub-Saharan Africa



Nutritional gap as share of imports



Sub-Saharan Africa: Land use

Region/ country	Share of cropland irrigated		Arable land 1995-97	Change (ha per capita) in arable land between 1979-81 and 1995-97	Annual rate of change in deforestation 1990-95
	1979-81	1995-97			
	Percent		Hectare per capita		Percent
SSA					
Kenya	0.9	1.5	0.14	-39	0.3
Rwanda	.4	.3	.12	-20	.2
Angola	2.2	2.1	.27	-34	1.0
Madagascar	21.5	35.0	.19	-32	.8
Mozambique	2.1	3.4	.18	-25	.7
Congo, Dem. Rep.	.1	.1	.15	-40	--

Source: World Development Report 2000/2001, World Bank.

hungry people is an indicator that the food security problems in this region will not only spread, they will intensify. In 2010, consumption for 60 percent of the region's population is projected to fall short of nutritional requirements. In addition, the region is projected to account for nearly two-thirds of the hungry people in the 67 countries, while accounting for only 24 percent of the total population (see fig. 2 in the Overview).

Given the region's land constraints, we ran a scenario of reduced area growth. In the base scenario, agricultural area was projected to rise 1.2 percent per year. For the scenario, this growth was cut in half. As a result of these changes, the nutritional gap is projected at more than 22 million tons—30 percent above that under the base scenario (see fig. 4 in the Overview). Given the precarious food security position of the region, the implications of lower domestic production growth rates are particularly acute for the lower income groups. The number of people with inadequate diets jumps 15 percent relative to the base scenario to 435 million as consumption in only the highest income group is projected to exceed the minimum nutritional requirement.

While policy reform in the region has had some positive effects (i.e., market-determined prices, private sector involvement in food marketing), there is considerable room for improvement. Investment is needed to improve rural infrastructure to facilitate the transport of agricultural inputs and products. Policies are needed to promote the continued participation of the private sector in distributing inputs and marketing output. The HIV/AIDS crisis, which has already reduced the supply and productivity of labor in many countries, must be addressed through education efforts. Countries in this region need to participate in international trade negotiations to improve their trade and market access.

The discussion of debt forgiveness within the international community is welcome news for these countries and should open opportunities for increased investment. Gross domestic investment in the region declined from 23 percent of GDP in 1980 to 18 percent in 1997. The new U.S. initiative—The African Growth and Opportunity Act—was signed into law on May 18, 2000. It provides preferential access to U.S. markets for eligible products from designated countries within the region as well as improved access to U.S. credit and technical expertise.

Asia

The region's food security situation is projected to improve during the next decade as the share of population consuming nutritionally inadequate diets falls from an estimated 17 percent in 2000 to 9 percent in 2010. Most of the region's improvements can be attributed to India. [Stacey Rosen]

The Asia region in this report includes Afghanistan, Bangladesh, India, Indonesia, Nepal, the Democratic People's Republic of Korea (North Korea), Pakistan, the Philippines, Sri Lanka, and Vietnam. Fewer people in the region are expected to be hungry in 2010 than in 2000. The aggregate food security situation for the region is projected to improve during the next decade, as a larger number of people will consume nutritionally adequate diets. The region's achievements in agricultural growth during the last two decades were largely a result of rapid growth in input use and productivity. Investment in public research and extension, expansion of irrigated area, and improvements in rural infrastructure and human capital contributed greatly to the productivity growth. Concerns are growing, however, as population growth is placing pressure on natural resources. Already, nearly 80 percent of the region's potentially arable land is cultivated. In addition, there is increasing competition for water from household and industrial uses that will invariably raise costs.

Grain output in the region rose roughly 2.5 percent per year during the historical period (1980-99) due to strong yield growth. This growth was supported by steady increases in irrigated land area and fertilizer use. In 1998, 36 percent of the region's cultivated land was irrigated—twice the world average. Fertilizer use jumped more than 5 percent per year and averaged 130 kilograms per hectare, roughly 10 percent above the world average. The strong production growth, coupled with rapid commercial import growth, resulted in an increase in per capita consumption and will continue to sustain it through the next decade.

Improvements in food security are also reflected in food consumption by income group. In 2000, consumption in all income groups, with the exception of the lowest 20 percent, is estimated to exceed the minimum nutritional requirement. In 2000, 17 percent of the region's population are estimated to be hungry. By 2010, we project that this share will fall to 9 percent, or 177 million people.

Most of the region's improvements can be attributed to India whose population of more than 1 billion is by far the largest in the region and therefore influences the performance of the region on the whole. Agricultural output per hectare, a measure of land productivity, grew at an annual rate of 3.3 percent—twice the U.S. and world average rates. This growth was supported by high rates of input use. Roughly 35 percent of cultivated land is irrigated, twice the world average. The country is estimated to have no status quo or nutritional food gaps in 2000. Per capita consumption is projected to continue its upward trend during the next decade, ensuring that by 2010, consumption in all income groups, on average, will exceed the nutritional requirement. However, within the lowest income group, there will be people who cannot afford to purchase enough food for an adequate diet.

Indonesia is beginning to recover from the international financial crisis that hit in 1997 and continued through early 1999. The country's real GDP declined nearly 14 percent in 1998 and a further 4 percent in 1999. The currency depreciation resulted in an inflation rate of 70 percent which, in turn, led to a decline in consumption. For example, wheat consumption declined 50 percent from the 1996 peak to 1998. Food aid shipments of 1 million tons in 1998 and 500,000 tons in 1999 were crucial in preventing famine. The situation began to stabilize in 1999 and real GDP growth for 2000 is estimated at around 2 percent. The projections indicate that the country's nutritional food requirements were being met as of 1999 and that the food security situation is expected to improve through the next decade.

Political uncertainty makes projections for North Korea and Afghanistan difficult. North Korea has been characterized by a stagnating economy that has reduced both commercial import capacity and the supply of agricultural inputs. Per capita consumption fell 25 percent during the 1990s. North Korea is estimated to account for a third of Asia's nutritional food gap in 2000. While the situation is projected to improve, it is still desperate. By 2010, consumption in only the top income group is expected to exceed the minimum target, meaning that roughly 80 percent of the population will have inadequate diets.

Afghanistan is estimated to account for the other two-thirds of the region's nutritional gap in 2000. Production, although rebounding from the lowest points of the early 1990s, has not recovered to the levels achieved in the 1980s. Per capita consumption in 1999 was roughly half of the mid-1980s level; it is projected to fall more than 1 percent per year through 2010. Consumption will fall short of nutritional requirements in all income groups; in even the highest

income group consumption is projected at only 80 percent of the nutritional target in 2010.

Considering the land constraints facing the region—primarily attributable to population pressures—we ran a scenario for Asia assuming zero area growth. In the base scenario, total area was projected to rise 0.3 percent per year. Under the reduced area scenario, consumption for 23 percent of the population—or 459 million people—will fall short of the nutritional requirement in 2010. In the base scenario, only 9 percent of the population was projected to consume an inadequate diet. The region's per capita consumption growth is cut by more than half—from 0.5 percent per year to 0.2 percent. While this lower area growth adversely affected all countries in the region, the implications varied. For example, the food security position of Indonesia, Sri Lanka, and Vietnam was so strong, that even with lower production growth, nutritional requirements will continue to be met across all income groups. Conversely, in India and Pakistan, the drop in output results in inadequate diets for the lowest income group. In Afghanistan and North Korea, even consumption in the top income group is projected to fall below the nutritional target. Therefore, what seems to be a very small change in one variable can have severe implications for consumption, particularly for the poorest segments of the population, in many countries in the region.

Table 5--Food availability and food gaps for Asia

Year	Grain production	Root production	Commercial imports	Food aid receipts (grains)	Aggregate availability of all food
			---1,000 tons ---		
1991	269,734	14,804	7,485	2,811	391,293
1992	280,809	15,669	11,461	1,769	399,324
1993	286,011	15,298	11,296	1,792	409,558
1994	289,925	15,431	10,971	1,942	418,601
1995	299,303	15,295	17,824	2,106	435,076
1996	303,206	16,016	15,899	1,722	445,101
1997	307,064	16,621	16,947	2,054	446,522
1998	316,929	14,916	15,220	4,193	450,664
1999	324,982	16,768	16,991	2,534	475,894
Projections				**Food gap**	
				SQ NR	(w/o food aid)
2000	330,470	16,616	17,403	***2,627*** ***2,925***	479,938
2005	356,138	17,944	19,463	***2,445*** ***2,783***	519,832
2010	386,322	19,362	22,699	***3,218*** ***3,454***	566,771

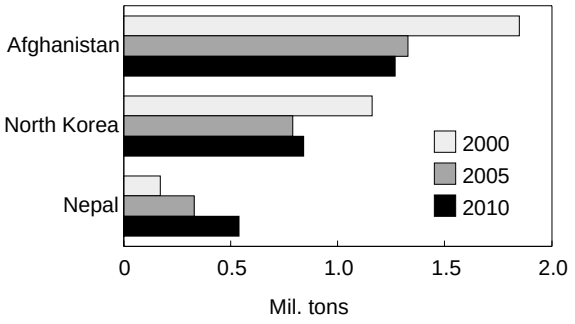
Asia
1,678 million people in 2000

By 2010, Asia's population—65 percent of the total of the 67 study countries—is projected to account for 17 percent of the nutritional food deficit.

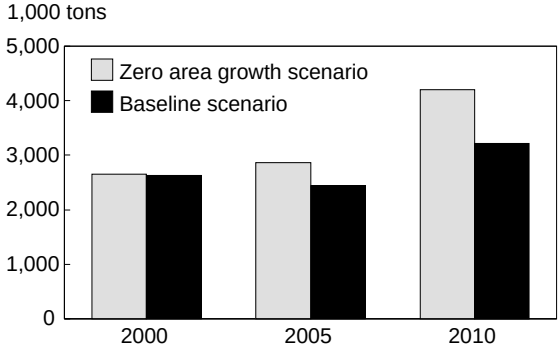
The share of the region's population consuming nutritionally inadequate diets is projected to fall from an estimated 17 percent in 2000 to 9 percent in 2010.

Serious land constraints face the region. In a zero area growth scenario, the region's per capita consumption growth was cut in half—from 0.5 percent per year to 0.2 percent.

Status quo gaps in selected Asian countries



Status quo food gap in Asia



Asia: Land use

Region/ country	Share of cropland irrigated 1979-81	Share of cropland irrigated 1995-97	Arable land 1995-97	Change (ha per capita) in arable land between 1979-81 and 1995-97	Annual rate of change in deforestation 1990-95
	Percent		Hectare per capita		Percent
Asia					
Bangladesh	17.1	43.4	0.06	-40	0.8
India	22.8	32.4	.17	-29	.0
Indonesia	16.2	15.5	.09	-25	1.0
N. Korea	59.6	60.6	.04	-20	.2
Pakistan	72.7	80.8	.17	-29	2.9
Philippines	14.0	16.3	.07	-22	3.5

Source: World Development Report 2000/2001, World Bank.

Latin America and the Caribbean (LAC)

Food security in the region is projected to improve as commercial imports are expected to fill most food gaps thanks to an optimistic economic outlook for most countries. Haiti and Nicaragua, the poorest countries in the region, will continue to depend on food aid. [Birgit Meade]

Food security in most of the 11 countries in this region[1] is improving as increases in food production combined with food imports will grow at a faster rate than population. Regional per capita consumption is projected to increase roughly 1 percent per year over the next 10 years. Despite this positive trend there remain four countries with insufficient food supplies to meet consumption requirements.

Compared to the 1999 projections, this year's results show considerably lower food gaps by the end of this decade, thanks to a more optimistic economic outlook. The region is expected to import almost half of its grain consumption. High import dependency for staple foods means that the financial situation of the countries will be a crucial factor in maintaining food security.

The nutritional food gap is projected to reach 900,000 tons by 2010. This projection is 36 percent lower than last year's projection for 2009 which illustrates growing optimism for the region based on agricultural and economic performance in recent years.

At the country level, food insecurity continues to be of concern in Bolivia, Haiti, Honduras, and Nicaragua. Bolivia and Honduras are projected to improve over time. Bolivia is expected to eliminate its food gaps by 2005 if projected production increases can indeed be realized. Honduras is still recovering from Hurricane Mitch, but is projected to raise per capita consumption above the base level during the next 10 years. Despite this positive trend, hunger will still remain a problem in Honduras where the nutritional gap is projected at 6 percent of total food availability in 2010.

Haiti and Nicaragua, the two poorest countries in the Western Hemisphere, have not been able to achieve adequate production to eliminate food gaps, which amount to one-third of grain and root crop requirements. Commercial imports are not expected to be able to compensate for the production shortfalls because of insufficient foreign exchange. Both countries are projected to rely on food aid receipts over the next decade.

While Haiti's political deadlock offers little hope for dramatic economic improvements, Nicaragua has enjoyed steady economic growth and fast increasing export earnings of 11 percent annually for the last few years. However, the country will need foreign investment to further expand its export sectors. In December, Nicaragua will find out if it is included in the Highly Indebted Poor Countries Initiative. Criteria include good economic performance, improved governance and more openness. If Nicaragua qualifies for relief on its debt of $6.3 billion it will be in a much better position to improve infrastructure and attract international investors.

Highly skewed income distribution remains the root cause of food insecurity in the region. The size of the distribution gap in 2000 is about 2.6 times the average nutrition gap. The good news is, however, that an increase in food availability and economic prosperity is expected to improve the food situation of the poor in the longrun. By 2010, the number of hungry people is projected to decline by 30 percent to 44 million and 2010 project the distribution gap projected to decline slightly, by 4 percent. More than 80 percent of the population of Haiti and Nicaragua is projected to fail to meet their nutritional requirements by 2010. On the other hand, Colombia, the Dominican Republic, Jamaica, and Peru are expected to limit food deficits to less than 20 percent of their populations.

The overall progress towards food security in the last two decades was mainly due to improvements in the performance of the export sector. Production growth of the staple food crops has been slow and most of the growth was due to area expansion. This pattern of growth is not sustainable over the next decade.While Latin America has the world's largest reserves of cultivable land—the agricultural potential of the region is estimated at 576 million hectares—more than half of this land has been adversely affected by land degradation, mostly soil erosion, but also loss of nutrients.

In order to examine the impact of resource constraints, in particular land degradation, a scenario of slower area expansion was analyzed for all regions. Area growth in Latin America and the Caribbean was assumed to be half the baseline rate. In this scenario, the average nutritional food gap increased by 30 percent and the status quo gap increased by more than 50 percent relative to the baseline scenario. In addition, the number of people vulnerable to food insecurity would be higher. This means, again, that in the absence of investment in improved technologies that raise land productivity, food security in the poorer countries will be critically dependent upon area expansion.

[1] The countries studied here are four Central American countries: El Salvador, Guatemala, Honduras, and Nicaragua; three Caribbean countries: the Dominican Republic, Haiti, and Jamaica; and four South American countries: Bolivia, Colombia, Ecuador, and Peru.

Table 6--Food availability and food gaps for Latin America and the Caribbean (LAC)

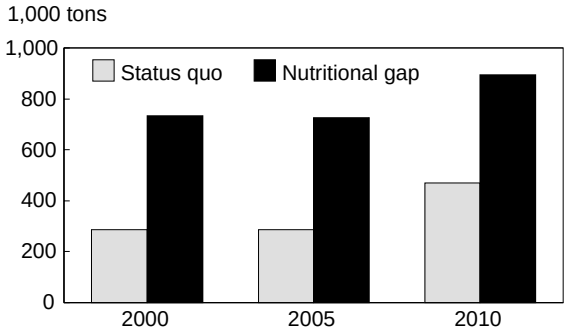
Year	Grain production	Root production	Commercial imports	Food aid receipts (grains)	Aggregate availability of all food
			---1,000 tons ---		
1991	9,575	2,468	4,308	1,828	27,608
1992	10,539	2,376	6,159	1,324	29,284
1993	11,036	2,723	6,052	1,371	29,153
1994	9,960	2,802	7,814	1,002	30,524
1995	10,088	2,970	8,619	520	31,861
1996	9,911	3,040	9,308	556	32,579
1997	9,736	3,028	10,145	476	32,572
1998	10,081	2,946	10,726	847	34,251
1999	10,625	3,369	10,611	493	35,148
Projections				**Food gap**	
				SQ NR	(w/o food aid)
2000	10,713	3,225	11,417	***287*** ***735***	35,569
2005	11,465	3,508	13,260	***286*** ***726***	39,964
2010	12,382	3,810	16,173	***470*** ***894***	46,470

Latin America and the Caribbean
137 million people in 2000

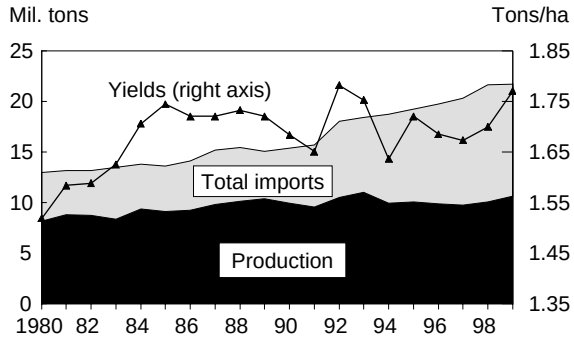
Food security in the region is projected to improve over the next 10 years. Despite recent economic difficulties in South America long term projections indicate rising per capita consumption for most countries.

Haiti and Nicaragua, however, the poorest countries in the region, do not share this optimistic outlook. Their situation is expected to worsen unless drastic political and infrastructural improvements can be achieved.

Food gaps in Latin America and the Caribbean



LAC's grain supply



Latin America and the Caribbean: Land use

Region/ country	Share of cropland irrigated		Arable land 1995-97	Change (ha per capita) in arable land between 1979-81 and 1995-97	Annual rate of change in deforestation 1990-95
	1979-81	1995-97			
	Percent		Hectare per capita		Percent
LAC	**11.6**	**13.5**	**0.28**	**-13**	**0.6**
Bolivia	6.6	4.1	.23	-34	1.2
Guatemala	5.0	6.6	.13	-32	2.0
Haiti	7.9	9.9	.08	-20	3.4
Honduras	4.1	3.6	.29	-34	2.3
Nicaragua	6.0	3.2	.54	-39	2.5

Source: World Development Report 2000/2001, World Bank.

New Independent States (NIS)

Droughts in Georgia and Tajikistan in 2000 led to shortrun food gaps in these countries. Only Tajikistan will continue to display food gaps over the next decade. Access to food by lower income groups is a problem now in a few of these countries, but it should improve as the economies of these countries grow. Political stability and investment will be key. [Michael Trueblood]

Severe droughts in Georgia and Tajikistan in 2000 have affected output and are estimated to lead to food gaps in these countries. Based upon recent per capita consumption levels, the food gap in Georgia is estimated to be 68,000 tons (7 percent of total supplies) and 208,000 tons in Tajikistan (15 percent of total food supplies). Using a nutrition standard, the food gaps are estimated to be 242,000 tons and 253,000 tons, respectively (21 percent and 17 percent of total supplies). Of the five NIS countries examined in this report, only Tajikistan is projected to have longrun food gaps (the nutrition-based food gap is projected at 70,000 tons by 2010, 4 percent of supplies).

Over the last 10-15 years, one common pattern among these five countries is that area sown has increased, especially after independence, offsetting declining yields. In many transition economies, yields declined after subsidies on inputs like fertilizer and plant protection agents were removed and their application levels declined. Future projections assume that the growth in land sown will slow (from 3-4 percent per year to 1-2 percent per year) and that yields will resume moderately positive growth rates ranging from 0.6 percent to 1.0 percent per year. The assumption about yield growth may be too optimistic, which may possibly understate future food gaps. Of course, any resumption of hostilities would dramatically affect these projections.

With the exception of Kyrgyzstan, these NIS countries depend on imports for a sizeable share of their total food supplies (ranging from about 30 percent to 60 percent). The share of imports in total food supplies is expected to increase. To finance these imports, these five countries will need to show steady growth in real export earnings. These countries' trade is highly open compared with many regions around the world. However, these five countries continue to depend on Russia and other former Soviet republics for trade (ranging from 40 percent to 80 percent of exports in 1999). After the Russian ruble devaluation in 1998, several of these countries devalued their own currencies to stay competitive, forcing a short-term contraction in imports and economic growth. Preliminary data suggest that the devaluation stimulated domestic output in Russia and the other NIS countries, which in the medium term may indirectly improve these countries' economies.

The World Bank has projected that overall real GDP growth in the transition economies will average about 5 percent per year in the coming decade. Azerbaijan in particular is projected to grow quite rapidly. Over the past year, there have been a few key developments regarding the oil and gas sector in this region. A new oil pipeline went online connecting Baku, Azerbaijan, to Suspa, Georgia, on the Black Sea. A pipeline agreement was signed by Azerbaijan, Georgia, and Turkey that will allow oil to be delivered from Baku to the Mediterranean port of Ceyhan, Turkey, within 3 years. However, the economic viability of this deal remains questionable and may be determined by external oil and gas developments in several neighboring countries.

Except for Tajikistan, recent national average per capita consumption levels in these NIS countries have been above nutrition requirements. In Azerbaijan and Kyrgyzstan, all income groups are estimated to have adequate food supplies in the short and longrun to meet the minimum nutritional requirements. Although Georgia's recent national average per capita consumption level exceeds nutrition requirements, the 2000 drought has led to projections in which food supplies are nutritionally inadequate for each quintile group. However, this problem is expected to be resolved within a few years as production recovers. In Armenia, the two lowest income quintiles in 2000 are estimated to have inadequate food supplies to sustain minimum nutrition levels. However, by 2010, all income groups in Armenia are projected to have nutritionally adequate food supplies.

In Tajikistan, the recent national average per capita consumption levels are below nutrition requirements by about 5 percentage points. In 2000, every quintile group is projected to fall below nutrition requirements. This situation should improve slightly by 2010 with the top income quintile reaching the nutritional requirement.

We considered a scenario that hypothetically examined the effect of land degradation, assuming that the growth in land area is cut in half. Under this scenario, only Tajikistan would display food gaps. To maintain recent per capita food consumption levels, the gap would increase from 58,000 tons in 2010 in the base case to 67,000 tons; nutrition-based food gaps would increase from 70,000 tons to 118,000 tons. These relatively small changes in the food gaps reflect the already low growth rates assumed for future land area sown.

Table 7--Food availability and food gaps for New Independent States (NIS)

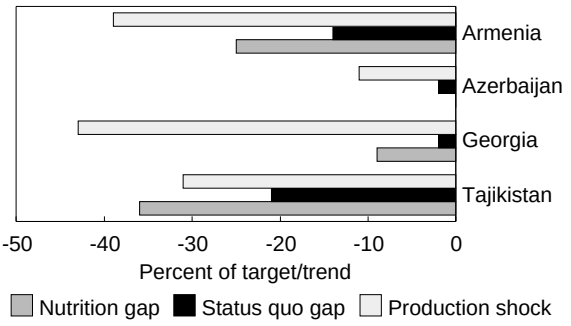
Year	Grain production	Root production	Commercial imports	Food aid receipts (grains)	Aggregate availability of all food
			---1,000 tons ---		
1991	3,814	---	---	---	---
1992	3,805	---	2,885	---	---
1993	3,535	246	1,889	1,159	6,556
1994	2,928	250	843	1,526	6,267
1995	2,822	291	728	1,097	6,101
1996	3,895	322	1,100	381	6,248
1997	4,621	337	1,507	573	7,422
1998	4,147	375	1,639	158	7,154
1999	4,245	442	1,395	277	7,210
Projections				**Food gap**	
				SQ / NR	(w/o food aid)
2000	3,298	404	1,623	***426*** / ***832***	6,216
2005	5,107	449	1,645	***0*** / ***243***	8,227
2010	5,482	498	1,746	***0*** / ***285***	8,862

NIS
27 million people in 2000

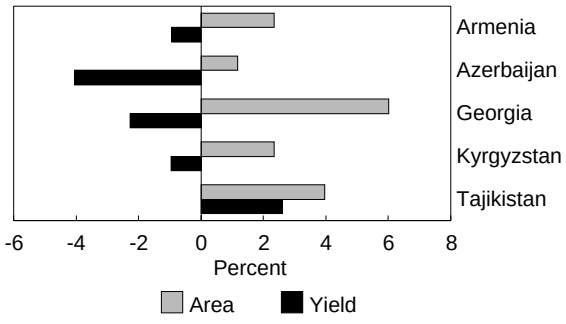
This year's drought has affected output in several countries. Shortrun food gaps may occur in four countries. The most severe gaps will be in Armenia and Tajikistan, which already faced food consumption levels that were low in absolute terms. Tajikistan is the only country in the region to face longrun food gaps.

Almost all income groups may have inadequate access to food in Armenia and Georgia in 2000, but this situation should improve with time. In Tajikistan, access will remain a problem.

NIS production shocks in 2000 translate into differently sized food gaps



NIS countries have increased area sown but yields declined in the 1990s



New Independent States: Land use

Region/ country	Share of cropland irrigated 1975-97	Arable land 1995-97	Annual rate of change in deforestation 1990-95
	Percent	Hectare per capita	Percent
NIS	**67.0**	**0.18**	**0.1***
Armenia	51.5	.13	-2.7
Azerbaijan	74.9	.21	.0
Georgia	43.3	.14	.0
Kyrgyzstan	77.3	.29	.0
Tajikistan	79.7	.13	.0

* Aggregate for Europe and Central Asia.
Source: World Development Report 2000/2001, World Bank.