

PA-ABH-831

ISSN 712660

Food in sub-Saharan Africa: Trends and Policy Challenges for the 1990s

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Reprinted from
Food Policy
Vol. 15, No. 6, December 1990

**INTERNATIONAL
FOOD
POLICY
RESEARCH
INSTITUTE**

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Washington, D.C. 20036-1998 U.S.A.

Reprint No. 200

Food in sub-Saharan Africa

Trends and policy challenges for the 1990s

Joachim von Braun and Leonardo Paulino

The food situation in Africa can be expected to become increasingly serious as the end of the century approaches. The gap between domestic supply and food needs is rapidly widening. Yield-increasing technology becomes essential in view of land scarcity in high-potential areas and sustainability problems in marginal zones. The concern of governments for food self-sufficiency, however, must not divert attention from the primary objective of household food security, which is essentially a question of households' real income. Accelerated rural growth and improved rural health and sanitation services accessible to the poor are central elements for household food security improvement.

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This article builds on a study supported by the UN Secretary-General's Group on 'African Commodity Problems'. We acknowledge constructive comments by an anonymous reviewer on an earlier draft and assistance by Rajul Pandya-Lorch (IFPRI) in revising the paper.

This article addresses three sets of questions:

- What are the food production and consumption trends emerging for the 1990s in sub-Saharan Africa?
- To what extent can present food consumption patterns be changed, in particular so that they can be met from within the region?
- What are the constraints to domestic or regional food self-reliance and to what extent can these be overcome?

These complex questions are addressed with information from sector and country levels and with insights from microlevel findings obtained from a number of studies in African countries. Following the order of the above questions, the article first views the regional food supply and demand situation as portrayed by available national estimates from the UN Food and Agricultural Organization (FAO) and then examines the food situation at the household level on the basis of data gathered from present and ongoing International Food Policy Research Institute (IFPRI) surveys in the region. This approach helps identify the constraining factors that relate to food consumption at both national and household levels. The building of conclusions on such a combination of country and microlevel information is chosen because of inherent weaknesses of national production and food consumption data in many African countries and because much of the consumption and nutrition implications of production and trade policy can only be adequately assessed when the relevant population groups and socioeconomic settings are disaggregated.

Food production and consumption trends

Africa neither produces the food it needs nor does it acquire sufficient food through trade and food aid to satisfactorily meet the nutritional needs of the poor. Some 40 countries south of the Sahara have been and remain the focus of attention by the donor community and development

Table 1. Average annual consumption and production (million metric tons) of basic food staples in sub-Saharan Africa, 1979-83.^a

Country group	Consumption ^b	Production	Surplus/deficit
Sub-Saharan Africa	83.50	75.90	-7.60
<i>By region^c</i>			
West Africa	37.04	33.42	-3.63
Central Africa	13.40	12.65	-0.75
Eastern/Southern Africa	33.06	29.63	-3.22
<i>By crop group</i>			
Cereals	48.81	41.10	-7.71
Non-cereals	34.69	34.80	0.11

^aAs used here, the term 'basic food staples' includes cereals, roots and tubers, pulses, groundnuts and bananas and plantains; in aggregating these commodities, rice is in husked form and the non-cereals are in cereal equivalents.

^bTotal domestic utilization includes direct food use, animal feed, seeds, other non-food uses, and allowances for waste.

^cGrouping of countries in sub-Saharan Africa is as follows: West Africa: Benin, Burkina Faso, Chad, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo; Central Africa: Angola, Burundi, Cameroon, Central African Republic, Congo, Gabon, Rwanda, Zaire; Eastern/Southern Africa: Botswana, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Reunion, Somalia, Swaziland, Tanzania, Uganda, Zambia, Zimbabwe.

Source of basic data: FAO, 'Agricultural supply utilization accounts tape, 1984', Rome, 1986.

workers responding to the critical needs and the economic development challenges faced by these countries, of which their food problems appear to be most pronounced.

Past trends continue: imports expanding

A 1977 study gave early warning that population increase had outstripped the slow growth of food output in 28 developing market economies (DMEs) in sub-Saharan Africa during 1960-75 and that population was expected to grow even faster during 1975-90, leading to a rapidly widening food gap.¹ A 1986 follow-up analysis strongly confirmed the 1977 findings.² The picture for the 40 sub-Saharan African countries showed food production growing slowly, if at all, while food consumption was growing rapidly during 1961-80. The resulting food gap had to be filled with imports, including food aid. During these two decades, production of major food crops grew at a rate way below the 2.8% population growth rate in the region.³ Among the food crops, roots and tubers accounted for one-third of the production increase, followed by maize with nearly 30%.

The sub-Saharan African food picture showed that, at the beginning of the 1980s, basic food staples consumption exceeded production by about 8 million metric tons (Table 1). Less than 1 million tons of this deficit was in Central Africa, and the rest was about equally divided between West Africa and Eastern/Southern Africa. The relative distribution of food consumption and production among the subregions was quite similar, consumption exceeding production by a proportionate margin. However, the distribution by crop group differed to some extent, with cereals representing 54% of production and 58% of consumption. The indicated deficit of cereals in domestic utilization was slightly offset by a small surplus of non-cereals.

Consumption of basic food staples in sub-Saharan Africa expanded between 1961-65 and 1979-83 by 55%, at an annual growth rate of 2.5% (Table 2). Among the subregions, Eastern/Southern Africa accounted for nearly one-half of this increase, which was more than proportionate to its share of the region's consumption. Hence West Africa, with less

¹IFPRI, *Food Needs of Developing Countries: Projections of Production and Consumption to 1990*, Research Report No 3, IFPRI, Washington, DC, December 1977.

²For details of the methodology of the projections, see Leonardo Paulino, *Food in the Third World: Past Trends and Projections to 2000*, Research Report No 52, IFPRI, Washington, DC, 1986.

³The term 'major food crops' is used synonymously with 'basic food staples' and includes cereals, roots and tubers, pulses, groundnuts, and bananas and plantains. In aggregating these commodities, rice is in terms of husked form and the non-cereals are converted to cereal (wheat) equivalents based on calorie content.

Table 2. Average annual consumption of basic food staples in sub-Saharan Africa, 1961-65 and 1979-83.*

Country/crop use groups	1961-65 average		1979-83 average		Change		Annual growth rate %
	Million metric tons	% shares	Million metric tons	% shares	Million metric tons	% shares	
Sub-Saharan Africa	53.9	100	83.5	100	29.6	100	2.5
<i>By region</i>							
West Africa	25.7	48	37.0	44	11.3	38	2.0
Central Africa	8.6	16	13.4	16	4.8	16	2.5
Eastern/Southern Africa	19.6	36	33.1	40	13.4	46	2.9
<i>By crop group</i>							
Cereals	31.3	58	48.8	58	17.6	59	2.5
Non-cereals	22.7	42	34.7	42	12.0	41	2.4
<i>By domestic use</i>							
Direct food	37.8	70	61.3	73	23.4	79	2.7
Animal feed	2.9	5	5.6	7	2.7	9	3.8
Others ^b	13.3	25	16.6	20	3.4	12	1.3

*'Consumption' here refers to total domestic utilization

^bIncludes seeds, other non-food uses, and allowance for waste

Note: Parts may not add to totals due to rounding

Source of basic data: FAO, 'Agricultural supply utilization accounts tape, 1984', Rome, 1985

than 40% of the regional increment, had a significantly less than proportionate increase in relation to its share of the region's consumption.

Growth of food consumption has been influenced mainly by population increase. For the region as a whole the estimated annual rate of growth of population between 1961 and the mid-1980s was almost 3%. Both West Africa and Eastern/Southern Africa recorded similar rates, and were growing faster than Central Africa. UN population projections, unlike those for other developing regions, show growth rates for sub-Saharan Africa still increasing, and hence projections of accelerated population increase in all three subregions. The overall growth rate between 1985 and the end of the century is projected to be 14% faster than the population growth of the region during 1961-85.

Data updated to 1985 show that growth in basic food staples production remained slow at 1.7% a year (Table 3). However, some changes from the 1961-80 trends occurred among the three subregions: indications of some improvement in West Africa were offset by growth decelerations in Central Africa especially as well as in Eastern/Southern

Table 3. Average annual production of major food crops in sub-Saharan Africa, 1961-65 and 1981-85.

Country and crop groups	1961-65 average		1981-85 average		Change		Annual growth rate %
	Million metric tons	% shares	Million metric tons	% shares	Million metric tons	% shares	
Sub-Saharan Africa	56.7	100	79.3	100	22.6	100	1.7
<i>By region</i>							
West Africa	23.1	50	35.0	44	7.0	31	1.1
Central Africa	8.8	15	13.2	17	4.4	19	2.0
Eastern/Southern Africa	19.8	35	31.1	39	11.3	50	2.3
<i>By crop group</i>							
Cereals	30.6	54	41.6	52	11.0	49	1.6
Wheat	(0.9)	(2)	(1.3)	(2)	(0.4)	(2)	(2.0)
Rice	(2.9)	(5)	(5.4)	(6)	(2.5)	(11)	(3.2)
Coarse grains	(26.8)	(47)	(34.9)	(44)	(8.1)	(36)	(1.3)
Non-cereals	26.1	46	37.7	48	11.6	51	1.8
Roots/tubers	(15.3)	(27)	(25.2)	(32)	(9.9)	(44)	(2.5)
Others	(10.8)	(19)	(12.5)	(16)	(1.7)	(7)	(0.7)

Note: Parts may not add to totals due to rounding.

Source of basic data: FAO, 'Production yearbook tape, 1986', Rome, 1987.

Table 4. Average annual exports and imports ('000 metric tons) of basic food staples in sub-Saharan Africa, 1961-65 and 1979-83.

Country and crop groups	1961-65 average			1979-83 average			Annual growth rate	
	Exports	Imports	Net trade*	Exports	Imports	Net trade*	Exports (%)	Imports (%)
Sub-Saharan Africa	3333	1960	+1373	1465	8402	-6937	-4.5	+8.4
<i>By country group</i>								
West Africa	2356	765	+1591	780	4498	-3718	-6.0	+10.3
Central Africa	251	253	-2	66	1111	-1045	-7.2	+8.6
Eastern and Southern Africa	726	942	-216	619	2793	-2174	-0.9	+6.2
<i>By crop group</i>								
Cereals	638	1861	-1223	702	8251	-7549	+0.5	+8.6
Non-cereals	2695	99	+2596	763	151	+612	-6.8	+2.4

*Exports minus imports.

Source of basic data: FAO, 'Agricultural supply utilization accounts tape, 1984', Rome, 1986

Africa. Non-cereals production, mainly influenced by roots and tubers, performed better than cereals in the region during those two decades.⁴ Among the grains the fastest output growth was achieved in rice (over 3% annually), but its effect on cereal growth was limited because of its relatively small share in production. In sub-Saharan Africa, in contrast with the production trends of other developing regions, the role of non-cereals relative to cereals increased between 1961-65 and 1981-85.

In all three subregions food exports declined and imports rapidly expanded during the two trend decades (Table 4). In 1979-83 West Africa accounted for one-half of food imports, with Eastern/Southern Africa absorbing one-third and Central Africa the rest. Cereal imports rose more than fourfold, while non-cereal imports dropped by more than 70% during the period.

In summary, production and consumption estimates up to the mid-1980s signal the extension of the poor output performance shown by past trends and the widening food gap in the region. The food production and consumption trend lines for sub-Saharan Africa suggest food self-sufficiency existed until 1973, when these lines crossed each other, after which the food deficit has been expanding (Figure 1).

⁴It should be pointed out that statistics on non-cereals, especially root crops, are particularly unreliable in sub-Saharan Africa.

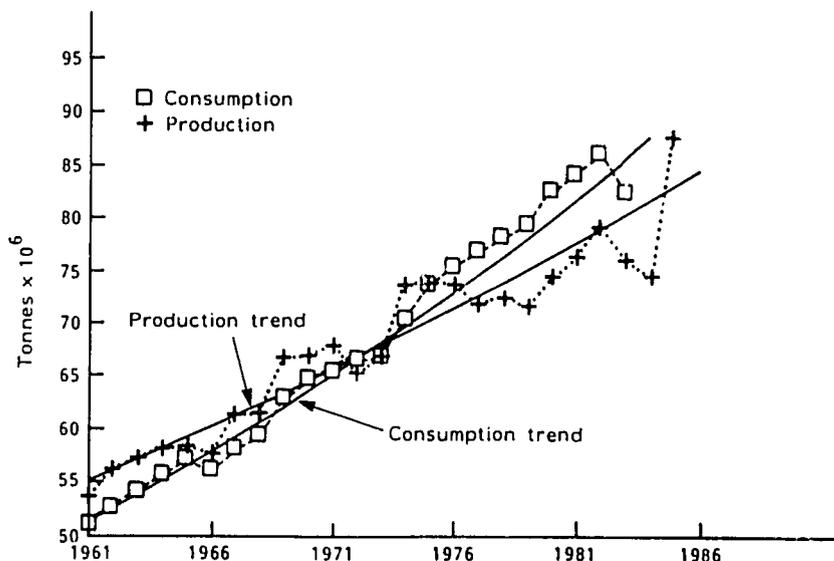
Close links between agriculture, poverty and nutrition

Before the trends of the emerging food gap in sub-Saharan Africa by the

Figure 1. Food production and consumption trends, sub-Saharan Africa, 1961-86.

Note: Major food crops include cereals, roots and tubers, pulses, groundnuts, and bananas and plantains; in aggregating these commodities, rice is in husked form and the non-cereals are in wheat equivalents. Data periods are 1961-83 for consumption and 1961-85 for production.

Sources: FAO, 'Agricultural supply utilization accounts tape, 1984', Rome, 1986; FAO, 'Production yearbook tape, 1986', Rome, 1987.



year 2000 are presented, basic points relating to the poverty dimension, the regional diversity and the intertemporal diversity of the food and nutrition problem will be considered.

First, one needs to distinguish consumption needs from actual consumption when constrained by poverty. Food consumption needs are a function of the health and climatic environment and the desired or necessary activity level of people. The objective of policy here must be to provide enough food, in both quantity and composition, to enable the poor to lead healthy and active lives and not just for survival. Even if Africa were to produce the quantity of food that its people can effectively demand – from home production and from the market given current income levels and distribution – many would still go hungry. A rural survey in the Gambia, West Africa, for instance, finds that it is basically the bottom 25% on the income scale who suffer from persistent food-energy deficiency (hunger) and whose children show prevalence rates of undernutrition (stunting) of 31%.⁵ The percentage of hungry poor is even larger (49%) in a more densely populated, generally poorer area in Rwanda.⁶

Secondly, attention needs to be given to the regional diversity of the food problem, not only among subregions of the continent but also among zones within countries. Even in a small country like Benin, for instance, regional differences in the food problem can be large: undernutrition in the coastal provinces increased dramatically in 1987 by 10–15% whereas relative rates remained largely unchanged in the north.⁷ A poor maize crop and deterioration of the employment situation in the context of adjustment problems of the economy accompanied this development.

Thirdly, averages over some years or one-shot information on food supply–demand situations and on undernutrition fail to capture the intertemporal diversity of the food problem, ie the severe problem of transitory hunger in Africa. Data from Western Sudan (Kordofan), for instance, show a strikingly close relationship between short-term price fluctuations induced by crop production fluctuations and nutritional deterioration among children.⁸ A very strong short-term relationship between price increase and undernutrition is also found in an urban survey performed in Niamey (Niger) between 1985 and 1987.⁹ Similarly, an IFPRI survey in Rwanda showed serious wasting (underweightness of children) in the autumn of 1985 in the context of the region's general food shortage, whereas six months later the problem was hardly recognizable through this indicator after the drought-induced subsistence food shortage and price inflation had been overcome.¹⁰ However these short-term fluctuations resulting in severe weight losses have detrimental long-term consequences for child survival and welfare. Potential risks of frictions in trade and food aid reliability are to be seen in this context.

Consideration of agricultural production levels and stability is central for improved consumption and nutrition in sub-Saharan Africa, because of agriculture's key role in generating employment and income in rural areas. A focus on agriculture, however, does not need to be synonymous with a focus on staple food production for domestic consumption.¹¹ Long-term studies in Kenya and the Gambia, for instance, show that real income earned by poor farm households from cash crops such as sugarcane and groundnuts is converted to food calories for consumption in a similar manner to subsistence food

⁵J. von Braun, D. Puetz and P. Webb, *Irrigation Technology and Commercialization of Rice in The Gambia: Effects on Income and Nutrition*, Research Report No 75, IFPRI, Washington, DC, 1989.

⁶J. von Braun, H. de Haen and J. Blanken, *Commercialization of Agriculture under Population Pressure: Production, Consumption and Nutritional Effects in Rwanda*, Research Report, IFPRI, Washington, DC, 1990.

⁷UN-ACC/SCN, *Update on the Nutrition Situation*, UN, Geneva, Jan/Feb 1989.

⁸J. von Braun and T. Teklu, 'Food policies for drought-affected areas in the Sudan', IFPRI, Washington, DC, 1989 (mimeo).

⁹UN-ACC/SCN, *op cit*, Ref 7, p 84.

¹⁰Von Braun *et al*, *op cit*, Ref 6.

¹¹T. Reardon, P. Matton and C. Delgado, 'Coping with household-level food insecurity in drought-affected areas of Burkina Faso', *World Development*, Vol 6, No 9, 1988, pp 1065–1074.

Table 5. Trend projections of consumption and production (million metric tons) of major food crops in sub-Saharan Africa to the year 2000.

Country group	Consumption ^a	Production ^b	Surplus/deficit
Sub-Saharan Africa	161.3	110.4	-50.9
West Africa	76.1	42.0	-34.1
Central Africa	24.4	19.2	-5.3
Eastern/Southern Africa	60.8	49.2	-11.5

^aTotal domestic utilization includes direct use for food, animal feed, seeds and other non-food uses and allowance for waste. The trend estimate of per capita consumption of each commodity is projected using elasticity estimates and trend income growth (1966-80). Projections from a 1986 study are revised for changes in UN population projections.

^bBased on extrapolation of country trends of aggregate major food staples (with non-cereals in cereal equivalent), drawn from 1961-85 data, assumes zero growth during 1985-2000 for countries with negative trends.

Note: Parts may not add to totals due to rounding.

Sources: L.A. Paulino, *Food in the Third World*, Research Report No 52, IFPRI, Washington, DC, June 1986; FAO, 'Production yearbook tape, 1986', Rome, 1987; UN, *World Population Prospects* (as assessed in 1984), 1986.

actually grown at home (in real income terms).¹² Therefore, also from a nutrition perspective, the focus can be on the most productive resource use in agriculture and the rural economy, which often, though not always, may actually be rapid growth of staple foods.

Outlook for the year 2000: widening food gap

Food projections to the year 2000¹³ for sub-Saharan Africa show that the projected production of 110 million metric tons of basic food staples would fall short of projected demand by about 50 million metric tons (Table 5). The projected increase in food production in the region would fill only 44% of the projected increase in food consumption from the 1980s. These projections suggest a widening food gap in sub-Saharan Africa.

Based on trends during the past two decades, food production is projected to grow at a slow pace and food demand is expected to be driven largely, as before, by population growth. All three subregions are projected to be in a food-deficit situation in the year 2000, with West Africa accounting for the bulk (67%) and Central Africa for the smallest share (10%) of the regional shortfall. These consumption trend projections are probably on the high side, since the 1966-80 country trends of income that were used in the projections may have generated above-normal growth in demand, especially for the oil-producing countries which were beneficiaries of significant price increases in those years. If the trends in food demand were revised to include data up to the mid-1980s, the effects on income growth of the recession that started about 1980 and of the decline in oil prices that followed are likely to dampen those trends. Thus food consumption growth would be slower if income growth rates were lower or even negative. While this would reduce the food gap it could further worsen the nutritional situation. Nigeria, for example, which represents nearly three-fifths of food consumption in West Africa and 70% of the subregion's projected food gap in 2000 would be considerably affected.

The FAO's revised (1987)¹⁴ projections for cereals production, demand and net balances in sub-Saharan Africa for the year 2000, based on more realistic income growth rates rather than on the (optimistic) UN income targets and output trends, result in 100 million tons of demand and 83 million tons of production and thus a net deficit, to be filled by trade and food aid, of 17 million tons. It should be noted that

¹²E. Kennedy and B. Cogill, *Income and Nutritional Effects of the Commercialization of Agriculture in Southwestern Kenya*, Research Report No 63, IFPRI, Washington, DC, November 1987; von Braun *et al*, *op cit*, Ref 5.

¹³Output projections of the 1986 IFPRI study cited in Table 5 have been revised by updating the country trends of the production of major food crops, using the period 1961-85 for 1961-80; other assumptions remain unchanged. Demand projections in that study were adjusted only for changes in the UN population projections to the year 2000; trends in income growth based on the years 1966-80 were not modified.

¹⁴FAO, *Agriculture Toward 2000*, revised version, FAO, Rome, November 1987.

these projections are not for total staples – as were our trend projections above – but for cereals only.

Changing food consumption patterns

The composition of the African staple food diet has been changing: the share of wheat and rice in staple foods consumption has been increasing. During 1961–65 to 1979–83 the share of rice in staple foods consumption increased from 12% to 21% and that of wheat from 3% to 10% in West Africa. This increase has been higher in countries with higher incomes and more rapid urbanization such as Nigeria and Côte d'Ivoire. So far, technological change under the existing agroecological situation has not given rise to a similar expansion in domestic production of these crops: thus imports of these two crops are rising.

Government responses to the changing food composition issue have been mixed and range from a *laissez-faire* approach to radical import controls. An example of the latter is the 1987 wheat import ban in Nigeria which was combined with high input and investment subsidies to domestic wheat production. Investment subsidies to irrigated rice in many African countries and consideration of 'protected price zones' are other example of doubtful policy responses. The ecological risks and economic costs of these policies may result in complex trade-offs between short-term (foreign exchange) and long-term development aspects.

In more general terms, the pressure for consumption change can be addressed by three different policy responses (individually or in combination):

- by constraining consumption of the non-traditional commodities through taxation (as actually done in many of the countries) and through import restrictions (as attempted in the above-mentioned case of Nigeria recently);
- by promoting utilization of traditional staples (for example, by improving processing of sorghum, millet and cassava); or
- by promoting export of crops and commodities to pay for rising import bills.

It appears that policies have centred on the first option and have underemphasized the second and third. Optimal mixes of the options can only be decided on an individual country or regional basis.

The growth, employment and equity implications of policy choices dealing with the consumption patterns issue are complex. Detailed analysis of the underlying causes of the changing consumption patterns suggests that price factors and food aid, frequently assumed to be major driving forces of the change, actually play minor roles and it is non-price factors such as income distribution, the need to eat away from home and occupational patterns which may be more important in driving wheat and rice consumption at household and national levels.¹⁵

Women's time constraints are another key factor accelerating the increased consumption shares of rice and wheat products among low-income households. The scope to stop or reverse this trend by price-based measures appears limited and in the case of rice, for instance, would have adverse effects for the poorest sections of the population, at least in certain areas, as research for urban Burkina Faso (Ouagadougou) and rural Gambia has demonstrated. The urban poor

¹⁵C. Delgado, 'Why is rice and wheat consumption increasing in West Africa?', paper presented to European Seminar of Agricultural Economists, Montpellier, May 1989.

(bottom income tercile) spend 36% of their staple food budget on rice, a higher proportion of their income than that spent by high-income urban consumers.¹⁶ The rural poor (bottom quartile) in the Gambia spend 49% of their food budget on rice in the 'hungry' (wet) season. Much of this rice is purchased, not grown at home.¹⁷

While there has been a substantial change in cereal consumption patterns, it is frequently overlooked that the share of non-cereal crops (roots and tubers) in staple food consumption has remained quite stable over time in sub-Saharan Africa. In the mid-1980s roots and tubers contributed to 42% of staple food consumption (on a calorie basis), the same share as in the mid-1960s (Table 2). While urban areas and 'urbanizing' rural areas with good market access have shifted more to imported cereals, remote rural areas under increased impoverishment have sustained or even increased root and tuber consumption. Micro-level research in Rwanda shows that, in an area with increasing population pressure, subsistence production of sweet potatoes by the poorest segments of the rural population is rapidly expanding at the cost of cereals because of the former's higher caloric return per unit of land.¹⁸ Such shifts in consumption and subsistence production in areas with a record of market failures due to lack of infrastructure and interrupted trade routes of land-locked countries are a symptom of the food security problem.

The trends in changing food consumption patterns certainly require policy attention. Yet they need to be considered in the context of an overall development strategy and the countries' and regions' trade opportunities rather than from a narrow food self-sufficiency perspective. Radical price and trade measures such as prohibitive import taxes or bans that attempt to cure the symptoms are not the answer. Pursuing the third policy option of dealing with the change in consumption patterns by strengthening efforts to pay for the change through export promotion rather than predominantly through taxation and trade control faces two scepticisms. First, rigidities in the domestic supply response might preclude significant export growth. Second, external demand-side constraints could impede export revenue growth if an export-led strategy, promoted jointly in many African countries, resulted in world market price deterioration.

The first concern is not supported by evidence from Africa. Neither does recent research lend much support to the second concern.¹⁹ Given the current composition of sub-Saharan Africa countries' agricultural exports, external demand constraints differ considerably across commodities. Coffee and cocoa are potential candidates for negative or low marginal export revenues if export-led growth is promoted simultaneously throughout sub-Saharan Africa and special problems could arise for countries like Côte d'Ivoire or Ghana. However, Koester *et al*²⁰ conclude that even for these highly vulnerable cases a structural adjustment policy may well be appropriate as revised domestic relative prices can induce diversification in production and exports. Also, individual exporting countries, which currently enjoy a premium on export prices because of a comparative production advantage, are able to cope with lower prices in response to increased exports.

Overcoming constraints to self-reliance

This section addresses the question: What are the constraints to

¹⁶T. Reardon, C. Delgado and T. Thiombiano, 'La demande pour les cereales importees vis-à-vis les cereales traditionnelles a Ouagadougou: Implications pour les politiques de prix cerealiés', IFPRI/ISRA conference paper, Dakar, July 1987.

¹⁷Von Braun *et al*, *op cit*, Ref 5.

¹⁸Von Braun, *et al*, *op cit*, Ref 6.

¹⁹U. Koester, M. Schafer and A. Valdes, 'External demand constraints for agricultural exports - an impediment to structural adjustment policies in sub-Saharan African countries?', *Food Policy*, Vol 14, No 3, August 1989, pp 274-283.

²⁰*Ibid*.

Table 6. Cereals self-sufficiency in sub-Saharan African countries in an above-average crop year (1985/86).

A. Countries with large net imports (import more than 50% of domestic production):		
Angola	Mauritania	Senegal
Botswana	Mozambique	Somalia
Lesotho		
B. Countries with moderate to large net imports (import 15–50% of domestic production):		
Central African Republic	Guinea-Bissau	Togo
Côte d'Ivoire	Kenya	Zaire
Gambia	Liberia	Zambia
Ghana	Mali	
Guinea	Nigeria	
C. Countries close to self-sufficiency or (temporary) net exporters (import <15% of production):		
Benin	Ethiopia	Sierra Leone
Burkina Faso	Madagascar	Sudan
Burundi	Malawi	Uganda
Cameroon	Niger	Tanzania
Chad	Rwanda	Zimbabwe

Source: Computed from FAO data tapes, Rome, 1986.

domestic or regional food self reliance²¹ and to what extent can these be overcome?

Food self-sufficiency: a questionable goal

Many countries in Africa consider food self-sufficiency²² an important goal. Understandably, that goal ranks high in countries that are faced with a combination of the following problems: land-locked borders, unreliable trade routes, covariate weather-induced production fluctuations and severe foreign exchange constraints.

In Table 6 sub-Saharan African countries are grouped by their degree of cereals self-sufficiency in an above-average crop year, 1985/86.²³ Group A countries would have to increase cereals production by more than 50% to achieve self-sufficiency; group B by 15–50%; and group C by less than 15%.

Although great variations in country income levels exist within each group, it is noteworthy that income levels are the lowest in group C (countries closest to self-sufficiency). It is quite likely that several of these countries 'achieve' high degrees of self-sufficiency because of lack of effective demand, and not because of a production success. For instance, the famine-prone countries of Ethiopia and Sudan are to be found in this group. Malawi combines an export surplus with an exceptionally high degree of malnutrition. Zimbabwe with its record of joint expansion of production, trade and consumption is an exception in this group. The economic and food security implications of striving towards the goal make the goal questionable. Food self-sufficiency is in the interest of improved food security only if it is reached at an increased level of the supply-demand balance, but not, as is often the case in Africa, if low effective demand is equated with limited production.

Potentials for intraregional cooperation for supply stabilization exist for blocks of countries stretching across agroecological zones. In the SADCC countries, for example, production fluctuations are positively correlated between countries, thus reducing the scope for food security through intraregional trade, although inclusion of Kenya and Uganda in the group would change the situation.²⁴ Nevertheless, research results indicate that the SADCC countries could be better off if they cooperated efficiently.²⁵ Products identified as having the greatest potential for

²¹Food self-reliance is understood to be the capacity of a country to provide a sufficient and stable food supply to all of its inhabitants, either from domestic production or from production of exportable goods to enable imports to cover the domestic deficit.

²²Food self-sufficiency is understood to be the provision of all staple foods for consumption out of domestic production.

²³The very good crop year of 1985/86 was chosen for this grouping in order to approximate medium-run potentials rather than short-term problems.

²⁴R. Hay and M. Rukuni, 'SADCC food security strategies: evolution and role', *World Development*, Vol 16, No 9, 1988, pp 1013–1024.

²⁵U. Koester, *Regional Cooperation to Improve Food Security in Southern and Eastern African Countries*, Research Report No 53, IFPRI, Washington, DC, July 1986.

intraregional specialization and trade include live animals, meat, maize, vegetables, sugar and vegetable oils. However, partner countries must be prepared to give up some autonomy in designing their domestic food policies, and market forces are to direct not only intraregional trade flows but also trade flows within cooperating countries.²⁶

Untapped production potentials

Africa's agricultural production potentials are far from being fully utilized. A complex set of technological and institutional factors is, however, to be considered for exploiting the potential in a sustainable and environmentally sound way. Among the factors, the development of rural infrastructure to facilitate the flow of inputs, output services and knowledge needs high priority.²⁷ A priority for infrastructural development should be the long-distance connection of high-potential production areas (even across borders) and a good provision of infrastructure within these areas. While the former is a precondition for exploiting gains from specialization, the latter facilitates intensification, and both are a basis for rural employment creation.²⁸

Rapid agricultural growth requires the spread of new technology and its companion inputs and extension know-how. In situations with thin private market systems and weak public research and extension systems, the utilization of potential is constrained. The resulting problems range from market failure to human capital constraints, to design flaws in policy and programmes such as credit, input delivery and extension systems that bypass women farmers.

To overcome these constraints, the most binding ones require priority attention. This leads to an approach with a narrow set of priorities to foster growth in African agriculture.²⁹ The precise set of priorities has to be country- and region-specific. The problems are many: good data, research and extension are a general necessity; irrigation potentials are not appropriately used, especially in small-scale schemes with high food security benefits; and fertilizer delivery systems have been curtailed in many parts of Africa by too-hasty institutional changes and unfounded hopes that private-sector initiative would move into the market swiftly. The problem of price distortions has been reduced in many countries, but inherent disincentive problems due to export-crop taxation and exchange-rate overvaluation continue to prevail in several countries.

The complementarity between traditional staple food production and production of cash crops (food and non-food) tends to be underemphasized and their competition overemphasized. Many African countries that fail to expand per capita food production also show negative cash crop sector growth rates, while the opposite – growth in both subsectors – is also observed in other African countries.³⁰ Successful development in the staple food sector through technological change and appropriate sectoral policies and growth in the cash crop sector are not mutually exclusive. Appropriate policies for input supply, output marketing and rural infrastructure benefit both sectors and are crucial for that growth.³¹

Food self-reliance (rather than food self-sufficiency) is improved by consistent macroeconomic policies and the utilization of trade opportunities for supply and price stabilization.³² This also applies to famine-prone countries like Sudan and Ethiopia, where the mix of agricultural policies and strategies requires special attention. In both countries large-scale as well as continuous local famines are not only related to

²⁶*Ibid.*

²⁷J. Mellor, C. Delgado and M. Blackie, *Accelerating Food Production in Sub-Saharan Africa*, Johns Hopkins University Press, Baltimore, MD, for the IFPRI, 1987.

²⁸IFPRI, 'Rural infrastructure', Policy Brief No 3, Washington, DC, 1988.

²⁹Mellor *et al*, *op cit*, Ref 27.

³⁰J. von Braun and E. Kennedy, *Commercialization of Subsistence Agriculture: Income and Nutritional Effects in Developing Countries*, Working Paper, IFPRI, Washington, DC, 1986.

³¹U. Lele, *Agricultural Growth, Domestic Policies, the External Environment and Assistance to Africa*, MADIA Discussion Paper 1, World Bank, Washington, DC, 1989.

³²T. Pinckney, *Storage, Trade and Price Policy under Production Instability: Maize in Kenya*, Research Report No 71, IFPRI, Washington, DC, 1988.

war and civil unrest but to complex agroecological problems and infrastructural weaknesses. The food production–hunger relationships in both countries are tightly connected. In Ethiopia an almost 1:1 relationship between relative rainfall fluctuations and cereal production at the aggregate country level is found, whereas it is 2:1 in Sudan.³³ Production shortfalls translate into dramatic real price increases and domestic cereal–livestock terms-of-trade deterioration and purchasing power disruption, which then get translated into malnutrition.

Food supply stabilization through storage and trade (including food aid) and expansion of cereal production are necessary, yet expansion of rural employment through agricultural growth and public works (food-for-work projects) is required to maintain and improve income levels of the poor in famine-prone areas. The build-up of rural infrastructure through labour-intensive schemes offers the potential to break the cycle of deterioration and move the famine-prone regions into a balanced growth process.

Overcoming constraints to food self-reliance actually does not only concern the food and agricultural sector but in fact the performance of the whole economy. It thus raises the issue of comparative advantage in agriculture and in the non-agricultural sectors, potentially generating employment and foreign exchange for food self-reliance at national level in support of food security at household level. The diversity of comparative advantage among countries and regions in sub-Saharan Africa is great. Generalizations on this topic would go beyond the scope of this paper.

Transforming the subsistence sector

The general economic situation of rural households and the complex interactions between production, consumption and health must be considered when a strategy for food self-reliance is to be formulated at country and regional levels. 77% of the population in sub-Saharan Africa lives in rural areas.³⁴ While urbanization has been increasing rapidly, poverty in Africa is still largely a rural phenomenon. Thus policies for the rural economy, particularly regarding food and agriculture, have a direct effect on poverty. Absolute poverty in the African subsistence-farm sector is characterized by:

- low income combined with low cash income;
- insufficient food consumption combined with high seasonal fluctuations in consumption; and
- inadequate access to services, such as health services (or the ability to acquire them), resulting in high morbidity, infant and child mortality, and low life expectancy.

High adult morbidity adversely affects labour productivity in agriculture. In the Gambia 61% of women farmers interviewed in the rainy season were ill during the preceding month.³⁵ Monitoring over a one-year period showed women farmers in Western Kenya, on average, were ill 28% of the time.³⁶ Lack of food, morbidity and low labour productivity perpetuate and reinforce each other and may become a vicious circle for the poor. Research in Zambia shows that low food output in one year may lead to reduced food crops in the next.³⁷

The importance of off-farm non-agricultural income sources for the rural poor in Africa is frequently underestimated. The rural poor typically obtain 30–40% of their income from non-agricultural sources.

³³Von Braun and Teklu, *op cit*, Ref 8; P. Webb and J. von Braun, 'Drought and food shortages in Ethiopia', IFPRI, Washington, DC, 1989 (mimeo).

³⁴World Bank Development Report, World Bank, Washington, DC, 1989.

³⁵Von Braun *et al*, *op cit*, Ref 5.

³⁶Kennedy and Cogill, *op cit*, Ref 12.

³⁷S. Kumar, 'The nutrition situation and its food policy links', in Mellor *et al*, *op cit*, Ref 27.

The integration of Africa's rural poor in the cash economy is also often overlooked. In Western Kenya farm households typically receive 53% of their income in cash.³⁸ In the Gambia this figure is 45% and in Rwanda it is 46%.³⁹

Poor rural households spend the bulk of their cash income on food, especially for ingredients to complement the staples. In Rwanda they spend 74% of their income on food; in Northern Nigeria they spend 79%.⁴⁰ This leaves little for other essential expenditures. Therefore, in order to reduce the cost of effectively providing access to services such as health facilities, clean water and food supplies in times of crises, these services must be moved closer to the rural poor. Improved infrastructure to reduce transaction costs in a broad sense is crucial for poverty alleviation in rural Africa.⁴¹

The current farm sector has to feed not only itself but the growing urban communities as well. The more employment that can be generated in rural areas, the less burdensome will be the urbanization process as the labour force grows. The challenge actually is to generate increased employment jointly with increased labour productivity. Technological improvements in agriculture can provide the key input for addressing this challenge.

Transformation of subsistence agriculture towards market integration and specialization at low risks for smallholders requires policy action for improved infrastructure to foster technological change in agriculture and market integration. In addition, rapid development of rural financial markets addressing risk in production and consumption emerges as a key institutional requirements for the transformation of subsistence agriculture.

Conclusions

Projections to the year 2000 suggest that filling the projected gap in basic food staples in the region would require more than twice the 1.7% growth in production that occurred from the 1960s to the 1980s, which is unlikely to be achieved. Although the gap may have narrowed because of recent developments, particularly the slowdown in income growth, important issues remain: (1) the problem of accelerating output growth in West Africa; (2) the potential role of maize and rice in future production growth; and (3) the need for improvement in the production of millet and sorghum.⁴²

The food situation in sub-Saharan Africa can be expected to become increasingly serious as the end of the century approaches. Data reinforce earlier findings of the slowdown in the region's food production growth under conditions of a fast-rising food demand that is largely driven by population increase. The rapid decline of non-cereal exports and rapid increase of cereal imports in sub-Saharan Africa can combine to expand the region's net imports of basic food staples by the year 2000 to seven times the average yearly level in 1979-83. Among the sub-regions, the major concern is West Africa where, despite signs of recent improvement and a likely reduction in the projected magnitude of its problem, food output growth is still very slow and population is projected to increase by more than 3% a year between the 1980s and 2000. Most of the countries in sub-Saharan Africa are projected to be food-deficit by the year 2000.

Although the food prospects in sub-Saharan Africa for the years

³⁸Kennedy and Cogill, *op cit*, Ref 12.

³⁹Von Braun *et al*, *op cit*, Ref 5; von Braun *et al*, *op cit*, Ref 6.

⁴⁰P. Hazell and A. Roell, *Rural Growth Linkages: Household Expenditure Patterns in Malaysia and Nigeria*, Research Report No 41, IFPRI, Washington, DC, 1983.

⁴¹J.W. Mellor and R. Pandya-Lorch, 'Food aid and development in MADIA countries', IFPRI, Washington, DC, 1990 (mimeo).

⁴²Mellor *et al*, *op cit*, Ref 27.

ahead may not be bright, there may be mitigating factors. The composition of the region's consumption of basic food staples has remained at 58% for cereals and 42% for non-cereals since the 1960s; these proportions are not likely to change much for the rest of the century. Roots and tubers have yet to benefit from technological breakthroughs. New crops and technologies must take into account the complex determinants of production of existing food crops at any location in question, including especially the opportunity cost of labour, which is the key for adoption of new technologies in Africa. This calls for investment in local applied agricultural research and extension capabilities with a long-term perspective.⁴³

The introduction of new technologies must not require large amounts of working capital on the part of the farmer, otherwise liquidity constraints prevent adoption. This is especially true for women farmers who lack access to credit for financing technological change. Rural financial markets need to be developed rapidly from the bottom up to facilitate commercialization of the rural economy and the capturing of gains from specialization and scale effects by the poor.

Poverty alleviation in the context of subsistence agriculture requires not welfare provisions but provision of resources (including skills) to the poor to invest in self-sustaining development. Temporarily, poverty alleviation requires direct transfers that may end up in food consumption. Consumption, improvement of health and production, which are inseparably bound in subsistence agriculture, have to move together.

Food security is primarily a household-level issue. Achieving household-level food security – that is the ability of households to obtain sufficient food for an active and healthy life – may actually entail a further widening food gap if food production growth cannot be sufficiently accelerated. Thus there is a trade-off between policies which increase the demand for food at the household level and an increasing food gap at the national level if rising demand cannot be met by increased production. The concern of governments for food self-sufficiency, however, must not deviate attention from the primary objective of household food security, which is essentially a question of households' real income. As has been pointed out already, high levels of food self-sufficiency tend to coincide with low levels of household food security in many African countries.

⁴³C. Eicher and D.C. Baker, *Research on Agricultural Development in Sub-Saharan Africa: A Critical Survey*, International Development Paper No 1, Michigan State University, East Lansing, MI, 1982.