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22081

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Revised synopsis for Agro-Industries in Africa: Performance and Prospects

Chapter One: Introduction and Summary:

Source: rest of report

2500 words

Chapter Two: The context:

The development crisis in Africa; low growth in GDP; GDP/head; other development indicators such as mortality, education, urbanisation; exports debt.

The factor endowment; natural resources; human resources; infrastructure;

Reasons for poor performance: politics; policy; exogenous factors

The South East Asian development experience; its relevance as a model; its reliance on agro-industry for export. Positive and negative lessons. Can the model be exported?

Comparative advantages in Africa;

Sources: UNIDO database and research papers; World Bank, World Development Report; EIU reports on South East Asia and others as necessary

c15,000 words

Chapter Three: Major agro-industrial branches in Africa

Food processing

Textiles and clothing

Leather and footwear

Wood and furniture

Packaging and paper

Agricultural machinery

Fertilisers

Building materials

Growth and structural change; contribution to MVA; productivity and profitability; competitiveness; employment structure and ownership; opportunities and prospects for import substitution/export

Sources: UNIDO database; international sources

c15000 words

Chapter 4; The policy environment

What overall policy stance will favour the sustainable growth of agro-industrial enterprise? Assess the extent to which appropriate policies are in place

Macroeconomic: overall goal is elimination of poverty; low inflation and stable exchange rate regime; role of the state and local government

Agricultural: land tenure patterns; provision of credit; price stabilisation policies; investment; irrigation; raising rural incomes and commercialising the rural sector

Industrial: Picking winners? Encouraging optimal scale; focus on SMEs ; fostering linkages; identifying domestic and international markets; what role for the public sector?

Technology and human resource development: key role of education and dissemination of appropriate technologies

Financing policy: Crowding in-an appropriate level of public investment; learning from others' mistakes; providing a real rate of return but keeping interest rates stable; local credit facilities; foreign exchange availability

Trade policy: Impertinence of Uruguay Round; identifying comparative advantage; how can the public sector facilitate trade- the East Asian lessons

Foreign investment policies: reversing disinvestment and attracting appropriate FDI; are export processing zones of any value? ; providing the right infrastructure- human and physical; concentrating efforts on producing linkages; mobilisation of aid

Environmental policies: avoiding the mistakes of East Asia; pricing pollution and making the polluter pay; promoting sustainability

Regional co-operation: The existing fora; examples from elsewhere

Sources: Mainly UNIDO research papers and database;

international sources

c15000 words

Chapter 5 A reform agenda

Improving existing structures for devising and implementing policy- governance and other issues

Strengthening structures for policy harmonisation

Proposed reforms to create an environment that is supportive of sustainable agro-industrial growth

national

regional

international

A role for UNIDO

C 10,000 words

Sources UNIDO research papers, supplemented by others as necessary

Proposed delivery: May 18

Sources: UNIDO to supply as available, ASCII diskettes of research papers. Name of contact for access to UNIDO database and other possible advice on sources.

Chapter 2: The Context

The development crisis in Sub-Saharan Africa

A poor performance in comparative terms--

The comparatively poor economic performance of sub-Saharan Africa (SSA) over the nearly 30 years from 1970-98, and especially from 1980, is well documented. Key basic indicators on GDP growth, income per head, illiteracy and life expectancy paint a disquieting picture and one that has not shown much improvement. Africa accounts for around 10% of the population of the world, but its share of PPP-adjusted GDP was only 2.7% in 1997. Of the 2.4% of world GDP which 47 countries in SSA produced in 1996, 40% came from South Africa and Nigeria. Indeed GDP per head has fallen by 0.7% a year in real terms in 1974-90 and it fell again, by 0.8% a year in 1991-96. <Hawkins Ch2,page 2> So entrenched has the decline become that if growth of 4.5% is maintained over the next few years, it will be 2006 before income per head is back to the 1982 level, itself below the 1974 peak.

-- accompanied by absolute deterioration in several key areas

As the tables below show, not only has growth in SSA lagged that of other regions in the developing world, and by a wide margin., but levels of welfare have also deteriorated in many countries. Not only has GDP/ head been falling, but measures such as life expectancy, . poverty, illiteracy and other indicators of welfare have failed to improve . In 1985-95 average annual growth in GDP per capital was -1.1% in SSA; life expectancy at birth was 52 years and 43% of the adult population were illiterate, according to the World

Bank <World Development Report, 1997>. This represents a considerable worsening form the picture in the 1987-85 < find data>.

<Add long term tables with indicators>

The worst performing region

As the tables which follow show, SSA has the lowest life-expectancy and the worst annual average growth record of the regions compared. Even South Asia, which has faced very severe developmental challenges in view of its large population and poor resource endowment has outperformed SSA by all measures other than adult illiteracy.

Table 2.1 Comparative Indicators

	Population		Population		GNP	Life expectancy	Adult
	Millions		avge annual growth		% avge annual growth	at birth, years	illiteracy
	1980	1995	1980-90	1990-95	1985-95	1995	%
Sub-Saharan Africa	381	583	3	2.6	-1.1	52	43
East Asia& Pacific	1360	1706	1.6	1.3	7.2	68	17
South Asia	903	1243	2.2	1.9	2.9	61	51
Latin America& Caribbean	358	478	2	1.7	0.3	69	13
High-income	816	902	0.7	0.7	1.9	77	..

Source: World Bank, World Development Report, 1997

Comparison of the growth performance of the regions by structure over the period 1988-95 shows that growth of industry in SSA was the lowest of the five regions compared, at less than 1% a year in both sub-periods. This compares with very rapid growth in industry in East Asia and fairly buoyant growth in South Asia. Growth of services in SSA was faster than GDP. This was also the case the other developing regions, with the exception of East Asia. But the contrast between growth rates for services and industry in SSA was particularly wide, with an elasticity of 2.5 in 1990-95, compared with 1.2 for South Asia, and 1.52 for Latin America.

On the demand side the investment performance of SSA was particularly weak and the losses of the first five year period, when investment fell by 4% a year, were not recouped by the 3.4% a year rise in 1990-95.

Exports also performed poorly, growing by 1.9% a year in 1980-90 and 2.5% a year in 1990-95, when East Asian exports grew by 8.8% and then 13.9% while South Asia's export growth accelerated from 6.4% a year to 11.9% a year in 1990-95.

Table 2.2 Growth of GDP

	GDP		Agriculture		Industry		Services		Exports etc		Investment	
	1980-90	1990-95	1980-90	1990-95	1980-90	1990-95	1980-90	1990-95	1980-90	1990-95	1980-90	1990-95
Sub-Saharan Africa	1.7	1.4	1.9	1.5	0.6	0.2	2.5	1.5	1.9	2.5	-4	3.4
East Asia& Pacific	7.6	10.3	4.8	3.9	8.9	15	9	8.4	8.8	13.9	8.5	14.4
South Asia	5.7	4.6	3.2	3	6.9	5.3	6.6	6.4	6.4	11.9	6.1	5.3
Latin America& Caribbean	1.7	3.2	2	2.3	1.4	2.5	1.9	3.8	5.4	7	-1.5	5.7
High-income	3.2	2	2.3	0.6	3.2	0.7	3.4	2.3	5.2	6.4	4.1	-0.2

Source: World Bank, World Development Report, 1997

Industry's share of SSA's GDP has fallen; services risen

In Sub-Saharan Africa, as in Latin America and the Caribbean, the share of industry and of manufacturing in GDP fell between 1980 and 1995. The share of services rose, as was the case in all the developing regions. But the share of services in GDP in SSA was even higher in 1995 than was the case in East or South Asia. The deindustrailisation suggested by these data is at least partly the reflection of data unreliability as well as an increasing role being played by government services as the private sector has failed to flourish on any scale. This is reflected in the faster growth of government consumption recorded in SSA.

Table 2.3 Structure of GDP

% of total value added

Agriculture		Industry		Manufacturing		Services	
1980	1995	1980	1995	1980	1995	1980	1995

Sub-Saharan Africa	24	20	36	30	12	15	38	48
East Asia& Pacific	27	18	39	44	27	32	32	38
South Asia	39	30	24	27	15	17	35	41
Latin America& Caribbean	10	10	37	33	25	21	51	55
High-income	3	2	37	32	24	21	58	66

Source: World Bank, World Development Report, 1997

Comparative data on the distribution of GDP by expenditure show the declining investment and savings ratios and the failure to generate exports that lay behind SSA's poor growth performance. Gross domestic investment fell from 23% of GDP in 1980 to only 19% in 1995 in SSA, compared with a sharp rise in East Asia and a more modest, but appreciable rise in South Asia.

SSA's declining openness- world trade was growing by about 6.6% a year in 1990-95 when exports of goods and services from SSA were growing by only 2.5% a year- is shown by the fall in exports as a share of GDP, to 28%. During the period 1990-95 South Asia, whose development strategy was autarkic in the 1970s and 1980s, saw exports grow by 11.9% a year in 1990-95, taking their share of GDP to 14% from only 8% in 1990.

Table 2.4 Distribution of GDP

	(% of total)											
	Govt		Private		Gross domestic		Gross domestic		Exports		Resource balance	
	Consumption		Consumption		Investment		Saving					
	1980	1995	1980	1995	1980	1995	1980	1995	1980	1995	1980	1995
Sub-Saharan Africa	14	17	60	67	23	19	27	16	31	28	3	-3
East Asia& Pacific	12	11	58	51	28	39	28	38	16	29	1	-1
South Asia	9	11	75	69	20	23	15	20	8	14	-6	-3
Latin America& Caribbean	11	12	67	67	25	20	23	19	16	17	-2	-2
High-income	17	15	60	63	23	21	23	21	22	22	0	2

Source: World Bank, World Development Report, 1997

High dependence on aid

Aggregate resource flows to SSA have risen from 5.5% of GNP in 1980 to 8.3% in 1995, but inflows of private capital have been modest < add SSA's share of FDI and portfolio investment and evidence of disinvestment >. The chief source of resource flows over the period in question has been aid, which has risen from 3.4% of GDP in 1980, to over 16% in 1994, by far the largest proportion of any region.

Table 2.5 Resource flows

	Aggregate net		Net private		Aid	
	resource flows		capital flows		% of GNP	
	% of GNP		\$ million			
	1980	1995	1980	1995	1980	1994
Sub-Saharan Africa	5.5	8.3	7906	9128	3.4	16.3
East Asia& Pacific	2.9	7.8	7135	84137	0.7	1.1
South Asia	3	1.3	1238	5191	2.4	1.9
Latin America& Caribbean	4.2	4.3	24590	54261	0.3	1.7

Source: World Bank, World Development Report, 1997

Although a nearly a quarter of SSA's external debt, which had reached 81.3% of GDP and 241.75 of exports by 1995, is from multilateral lenders, and therefore on concessional terms, the debt burden has become large. The debt service ratio for the region as a whole had risen to a comparatively modest 14.5% in 1995, well behind the 24.6% for South Asia and the 26.1% of Latin America.

Although moderate for the region as a whole, the debt service burden for several low income SSA economies had become unsustainable . Zambia, debt service ratio in 1995 was ; most of the countries in SSA were in the low-income group of economies as classified by the World Bank in 1995. Only Lesotho; Namibia; and Botswana were classified as middle-income economies; while South Africa and Gabon were upper-middle income economies. Among the poorest countries in the world were some in SSA

with very high debt- service ratios in 1995 < try for updated data> .These include: Zambia(174.4%); Guinea-Bissau (66.9%); Sierra Leone (60.3%)

Table 2.6 Debt data

	Total external debt		Debt/GNP		Debt/Exports		Debt service ratio		Multilateral debt/total	
	1980	1995	1980	1995	1980	1995	1980	1995	1980	1995
	\$bn	\$bn	%	%	%	%	%	%	%	%
Sub-Saharan Africa	84.4	226.5	30.6	81.3	91.7	241.7	9.8	14.5	9	24.3
East Asia& Pacific	64.6	404.4	17.3	32.9	81.8	98.3	11.5	12.8	8.4	13.3
South Asia	38	156.8	17.4	30.5	160.5	218.7	11.7	24.6	24.6	36.4
Latin America& Caribbean	257.3	636.6	36	41	201.8	212	36.3	26.1	5.5	11.4
High-income										

Source: World Bank, World Development Report, 1997

A fragile recovery

Improvements in the mid 1990s--

In the mid 1990s something of a recovery in aggregate growth in SSA became apparent. In 1995-97 SSA growth recovered, to 4.25% ,after 1.5% in 1990-94, allowing incomes per head to begin rising again. Inflation also fell, from an average of 44% in 1994 to 13% in 1997 and there was also a fall in the size of the overall fiscal deficit, from 9% of GDP in 1992 to 4.5% in 1997..

In a number of countries, the improvement was enhanced by a better macroeconomic environment and better governance. A 50% devaluation of the CFA franc in 1993 boosted competitiveness; recovery in agricultural output in several countries after bad weather and higher prices for oil in 1995-96 and other commodities in 1994-95 played an important role. These favourable developments in the external environment allowed a recovery in capacity utilisation.

Table 2.7 Performance of SSA economies

	1980-90	1991-97	1980-97
Real GDP growth			
(% per year)			
Success stories			
Botswana	10.1	5.1	8.0
Cape Verde	8.2	3.7	6.4
Guinea-Bissau	4.9	3.7	6.4
Lesotho	4.1	6.8	5.2
Mauritius	6.1	5.0	5.6
Uganda	3.4	6.9	4.8
Modest performance			
Benin	3.2	4.6	3.6
Burkina Faso	3.5	3.8	3.7
Chad	5.4	3.0	4.3
Congo (Brazzaville)	4.9	1.0	3.2
Ethiopia	3.1	4.2	3.5
Gambia	3.9	1.8	3.1
Ghana	2.2	4.2	3.0
Guinea	3.1	3.9	3.5
Kenya	5.0	2.1	3.3
Malawi	2.2	4.1	3.0
Swaziland	4.8	2.0	3.6
Declining living standards			
Angola	1.8	1.3	1.8
Burundi	4.5	-2.3	1.5
Cameroon	3.4	0.1	2.0
Central African Republic	1.1	1.3	1.0
Cote d'Ivoire	0.8	3.1	1.7
Democratic Republic of Congo	0.8	-4.4	-1.5
Gabon	0.5	2.8	1.4
Madagascar	0.5	0.6	0.5
Mali	2.3	3.4	2.7
Mauritania	1.6	4.2	2.6
Mozambique	0	6	2.5
Namibia	0.6	4.4	2.1
Niger	-0.5	1.8	0.3
Nigeria	1.2	2.9	1.9

Rwanda	2.3	-3	-0.2
Senegal	3.1	2.4	2.8
Seychelles	3.3	2.1	2.8
Sierra Leone	1	-2.9	-0.8
South Africa	1.4	1.2	1.3
Tanzania	2.4	3.5	2.9
Togo	1.1	0.7	0.9
Zambia	1	0.4	0.8
Zimbabwe	3.3	1.8	2.7
Sub-Saharan Africa	1.8	2.3	2.0

Source; From Hawkins Ch2,page 3

--may not be sustained into the next century

But the growth was uneven and may not be sustained. As the table above shows, there are only six countries whose growth over the period since 1980 has exceeded 3% a year on average. These six, where living standards have been improving, experienced average growth of 5.4% < need to check this for weighting> over the period 1980-97.

Another 11 economies grew on average by 3.4% a year, just ahead of population growth of about 3% a year. But 23 of the 40 countries represented in the table above performed poorly, with annual average growth of only 1.3% a year. In those countries, already desperately poor, living standards have been declining and the recovery in growth in the 1991-97 period in these 27 countries was only modest.

--and the challenges are serious

In order to bring about a sustained recovery in economic performance of SSA it will be necessary, as recent analysis <Unctad Trade and Development Report, 1998> has noted, to address several systemic weaknesses in the economic performance of countries in SSA. These can be encapsulated in four adverse long term trends:

Deteriorating agricultural output. In SSA agriculture grew by an annual average of only 1.5% in 1990-95, down from 1.9% in 1980-90 < give earlier figures as well>; only 7% of the total land area was planted to crops in 1994 and this in a region where urbanisation has been rapid- reaching 31% in 1995 denting demand for domestically produced crops. Land is in plentiful supply in SSA, but investment in raising output and productivity has been inadequate;

- **Deindustriailisation:** Manufacturing value added (MVA) in SSA declined by an annual average of 1% over the period 1990-96, after growing only 1.9% a year in 1980-09. SSA's share of world MVA remained at a mere 0.22% since 1970 < Unido database>, peaking at 0.29% in 1980-90. The value of MVA has fallen since 1990 in 13 out of 33 countries for which data are available.

- **Declining investment:** As the data above show, investment has fallen in SSA, both as a share of GDP and in annual average terms. This fall lies behind the very poor growth performance and has been particularly marked in the sphere of public investment, which has fallen from 12.6% of GDP in 1975-84 to only 4.7% in 1990-97, as fiscal constraints and debt-service have eaten into key provisions, especially for infrastructure and in institutions. Gross domestic investment at 16.6% of GDP in 1990-97 is insufficient to generate rapid GDP growth.

- **Deteriorating institutions:** There is a large body of anecdotal evidence to support the view that there is a widespread crisis of governance in SSA, which has been exacerbated by aid addiction (SSA accounted for 38% of global aid flows in 1996). Institutional weakness has also been worsened by inadequate spending on health and education; the result has been high illiteracy levels, poor enrolment in tertiary education and poor access to health care.

<insert table comparing East Asia post crisis with SSA>

Table 2.8 Basic Indicators, SSA

	Population	GNP per head	Life expectancy	Poverty ^a	GDP growth
	(m)	\$	years	(%)	(%)
	1996	1996	1996	1995	1996
Success					
Botswana	1.5	3210	66	34.7	6.2
Cape Verde	0.4	1090	66	na	4
Guinea-Bissau	1.1	250	45	87	5.5
Lesotho	2.1	660	62	50.4	12.5
Mauritius	1.1	3690	71	na	6.1
Uganda	22	300	44	50	9.4
Modest performance					
Benin	5.6	350	48	na	5.6
Burkina Faso	10.6	230	47	na	5.5
Chad	6.5	160	49	na	2.8
Congo (Brazzaville)	2.7	670	53	na	4.8
Ethiopia	56.7	100	49	33.8	11.9
Gambia	1.1	320	46	na	3
Ghana	18	360	57	na	5.2
Guinea	6.9	560	46	26.3	4.5
Kenya	29.1	320	55	50.2	4.3
Malawi	11.4	180	47	na	4
Swaziland	0.9	1120	59	na	2.5
Declining living standards					
Angola	11.5	270	48	na	7.2
Burundi	6.6	170	51	na	-12.9
Cameroon	13.6	610	57	na	5
Central African Republic	3.4	310	50	na	-3.9
Cote d'Ivoire	14.7	660	60	17.7	6.8
Democratic Republic of Congo	45.3	160	na	na	1.3
Gabon	1.3	4020	55	na	3.2
Madagascar	15.2	240	58	72.3	2
Mali	11.1	240	47	na	4
Mauritania	2.3	470	53	31.4	4.5
Mozambique	16.5	90	47	na	6.4
Namibia	1.6	2250	60	na	5
Niger	9.4	200	48	61.5	3.3
Nigeria	115	240	51	28.9	2.3
Rwanda	8.2	190	47	45.7	11.4
Senegal	8.5	560	50	54	5.1

Seychelles	0.1	6960	72	na	1.7
Sierra Leone	4.6	210	40	na	4.8
South Africa	42.4	3130	64	23.7	3.1
Tanzania	30.5	170	52	16.4	4.2
Togo	4.3	300	56	na	6.2
Zambia	9.7	370	48	84.6	6.5
Zimbabwe	11.5	610	52	41	7.4

Sources: World Bank, World Development Report, 1997; African Development Bank, Basic Indicators
a% of population with less than \$1 per day at PPP 1981-95

SSA's resource endowment

< Insert conclusions from World Bank 1995 ranking of countries by wealth to build on the following observations>.

SSA is well endowed with;

land; per caput availability is high

mineral fuels

metals

marine resources

forest resources

cheap labour

It is poorly endowed with

Water resources;

Installed energy capacity;

Transport infrastructure

Communications networks

Skilled labour

Distribution and marketing networks

Educational institutions

Financial infrastructure

< add quantitative data as appropriate >

Industrial performance in SSA

Industry is highly concentrated--

Deindustrialisation, as noted, has been a feature of SSA's economic performance in the 1990s, a process which has served to heighten industrial concentration. In 1996 seven countries (excluding South Africa) accounted for nearly 70% of total regional MVA, up from 60% in 1970, while South Africa alone accounted for 55% of the MVA of SSA in 1996.

Table 2.9 Industrial concentration^a

(% of total MVA)

	1970	1996
Nigeria	16.9	22.3
Cote d'Ivoire	12.6	13.5
Zimbabwe	10.7	10.9
Ghana	5.6	5.7
Mauritius	1.1	5.2
Kenya	4.6	5.1
Cameroon	5.3	5
Total	56.8	67.7
memo		
South Africa		55

a excluding South Africa

Source: UNIDO database, 1997

--dominated by domestic demand

The manufacturing sector in SSA is dominated by production for the domestic market of comparatively low value-added products. Food beverages and tobacco and the clothing and textiles and footwear sectors together accounted for nearly 55% of total MVA in 1996. SSA has built

market share in some sectors, but it has been in branches where world growth has been very slow, or where there has been a decline.

Productivity, meanwhile, as measured by value-added per worker has fallen: by 0.5% a year in the case of SSA between 1970 and 1996, rising by 2.4% in developed economies and 1% in developing economies. This trend reflects low investment in SSA. Growth of employment in manufacturing was faster than population growth in SSA, at 3.3% a year in 1970-96, this was concentrated in the 1980s, but was fast enough to ensure that employment grew faster than output, so that productivity declined.

Table 2.10 Structure of Manufacturing in SSA

	1970	1980	1996
(% of total)			
Food, beverages & tobacco	39.4	35	40.6
Clothing, textiles, & Footwear & leather	17.7	14.3	14.3
Wood & furniture	4.8	5.7	3.9
Paper & printing	4	4.8	4.6
Chemicals			
Petroleum & coal	12.6	12.6	13.9
Rubber & plastics	2.2	3.3	3.5
Glassware, pottery & non-metallic minerals	3.9	3.6	4.6
Iron & steel & non-ferrous metals and products	5.6	12.2	6.5
Machinery			
Total (Incl other)	100	100	100

Source: UNIDO

The achievement of sustainable economic growth is strongly correlated with rising MVA and with a rising share of industry in GDP. Employment in manufacturing also provides an important way of reducing the pressure of population on agriculture and thereby raising the productivity of the agriculture sector. Many countries in SSA lack the resource-base to set up a

diversified manufacturing sector and their domestic and even regional markets are limited.

SSA and the world

Table 2.11 SSA's manufactured exports, 1995

	\$m	% of total
Food manufactures	1790	24.3
Clothing	913	12.4
Refined petroleum	782	10.6
Wood/cork	505	6.9
Iron and steel	395	5.4
Non ferrous metals	391	5.3
Industrial Chemicals	369	5
Textiles	344	4.7
High technology goods ^a	404	5.5

^a Electrical and non-electrical machinery, transport equipment and professional and scientific goods

Source: UNIDO Global Database. 1997

A falling share of the world market--

SSA's role in the world market has diminished over the nearly 20 years since 1980. While a few countries, too small in terms of population to rely on domestic demand to stimulate growth, have experienced some export growth < check> , most have not. Only Mauritius has established a pattern of export-led growth of the kind experienced by East Asia and that has been on the narrow base of export-processing of low-value added clothing, mainly for the EU market.

During a period in which world trade has been growing rapidly, SSA's share of world exports of manufactures has been in sharp decline. In 1970-95 SSA's manufactures exports have grown by 5.5% a year, a period in which world exports of manufactures have expanded by 11.9% a year, and developing countries' exports by 13.4%

The manufactured exports of SSA are dominated by foodstuffs, clothing, and refined oil . Exports of high-technology products account for a very small share of the total. Exports of manufactures accounted for 44% of MVA in 1990, compared with 68% for developing countries in the same year. Manufactures' share in total exports of SSA countries is limited. Only Mauritius, South Africa and Zimbabwe are among the top 60 exporters of manufactures < check WTO> and the manufactured exports of these three countries together accounted for 77% of SSA's exports of manufactures in 1995.

--and exports are concentrated

Four countries were responsible for over two-thirds of the region's manufactures exports in 1995: Mauritius; Cote d'Ivoire; Kenya; and Zimbabwe. Each of these had export revenues of more than \$1bn in that year and the exports of each of them were dominated by clothing, (Mauritius) food manufactures (Cote d'Ivoire); iron and steel and petroleum (Kenya and Zimbabwe). Nearly three quarters of total exports, moreover, go to developed economies (52.6% to the EU in 1995; 14.5% to North America 4% to Japan <check these numbers>).

Levels of intraregional trade in SSA have remained low, in part reflecting the competitive nature of their resource-endowment, but also reflecting a weak trading infrastructure.- poor transport and marketing links. In East Asia, intra-regional trade (excluding Japan) had reached about 15% of total trade by the mid 1990s < check this>.

Manufactured imports have grown faster than exports

Since 1970 the growth of manufactured imports, at 7.2% a year , <check basis. > was faster than that of manufactured exports, at 5.5%. This has contributed to persistent current account deficits, despite low levels of investment, in many SSA countries. As price takers on international markets

SSA countries have generally suffered from adverse terms of trade movements as most commodity prices have been and remain under downwards pressure. They are vulnerable to external inflationary pressure .

< Insert Table from EIU on Commodity prices >

The importance of commodity exports

Many SSA countries have narrow export bases, relying on the sale of one or two commodities, which are generally processed elsewhere, so that the local value added is limited and the foreign exchange returns are constrained.

Maximising the value-added potential from the existing export base would seem one viable strategy for increasing exports and employment, but as argued below (see Chapter 3) this is a complex process which will require careful targeting.

< add data on commodity exports >

The need for greater openness and improved competitive position

The current trade regimes of many SSA countries are discriminatory against exports in several ways. Governments are dependent on export taxes for a fairly large share of revenues < quantify if possible>; balance of payments considerations have led to attempts to close current as well as capital accounts resulting in shortages of foreign exchange. The effect has been to institutionalise the practise of smuggling. Most countries have liberalised their trade and foreign exchange regimes to a considerable extent, but there is further to go.

An important barrier to greater openness and competitiveness is the problem of high transport costs, reflecting the weak infrastructure.

< add data on transport costs from Hawkins Ch5p age 11 here or in Chapter 4/5 >

Inadequate investment

The share of investment in GDP

The comparatively low share of investment in GDP in SSA is well documented, as is the fact that investment has been falling (see Tables above)

It has been argued < cite Hawkins>, that the investment to GDP ratio needs to rise from just under 17% to around 30% if a sustainable growth rate of 5-6% a year is to be achieved in SSA. This is impossible to achieve in the foreseeable future without radical reform of the investment climate. Capital output ratios in SSA are also on the high side

Public sector investment needs to rise and to be targeted

The crowding in impact of targeted public investment, in which resources are directed at the provision of physical infrastructure and human resources is well known, not least via the East Asian experience. Gross public investment to GDP has fallen to 4.7% in 1990-97, from 12.6% in 1975-84. This is despite continuing high inflows of aid. <add data>

Private sector investment has also been slow

Falling public investment, poor infrastructure, a deteriorating institutional environment, have been among the factors contributing to falling private-sector investment. There is evidence to suggest that private savings have left SSA in large amounts, in search higher returns and lower risk.

< give data on private investment>

Foreign direct investment flows are modest--

While SSA has relied heavily on foreign capital, especially aid, its ability to attract inflows of foreign direct investment has been constrained. FDI flows to SSA were < add data from UNIDO paper on Asian crisis> over \$3bn a year since 1994, but over two thirds of this has gone to oil producing countries and there has been disinvestment by some multinationals.

There is a pressing need to create a climate that would be conducive to FDI, but this depends much more on overall economic and political stability than on incentives. FDI inflows, other than in specific resource-sharing projects, tend to be a product of growth rather than a precursor.

SSA faces many obstacles, physical and institutional, to attracting large-scale FDI:

- Markets are small and fragmented;
- Financial infrastructure is weak
- Costs are high
- Skilled labour and services are in short supply
- Perceptions of risk and corruption

An underdeveloped financial infrastructure

From the above it follows that the generation of growth-stimulating investment in SSA will primarily be a matter of generating increased amounts of domestic savings, backed up by targeted aid. Financial structures in many countries in SSA need to be reformed to provide a more effective means of channelling savings.

< add data showing need for financial deepening >

The non-bank financial sector needs to be developed, to supplement a financial structure that is dominated by commercial banks, often state owned. Stock exchanges are spreading and there are now 14 in the SSA area, although their capitalisation, at \$245.6bn at the end of 1997, is still very small. There are venture capital companies, but their scope is limited. What is needed is a deeper and wider mechanism for channelling small scale savings into investment and in particular vehicles for making small-scale loans to private entrepreneurs and farmers, which are affordable. The process of financial deepening arising from a greater demand for cash among the public affords considerable seignuerage opportunities for the public sector and

allows for higher public spending without sparking inflation. The activities of the Grameen < spelling and check > Bank in Bangladesh might be an example.

After the Asian crisis

The effect of the Asian crisis. When will world trade growth recover? There are some signs that recovery will start in 2000, but the world economy is still delicately poised and world trade growth is going to slow in 1998-99. <Incorporate findings from UNIDO study>

Immediate costs to SSA economies:

These include:

- Slower world growth- and world trade growth
- Depressed commodity prices
- Lower prices for exports of manufactures
- Greater demand for resource flows reducing the availability of aid
- Reduced savings/ investment gaps causing a scarcity of capital
- Capital and FDI flows more difficult and higher premiums
- More competition from Asia and elsewhere

Potential benefits:

- Cheaper imports from Asia
- Demonstration effects leading to a more measured approach from donors and investors
- Lower world growth will lower interest rates and inflation
- But benefits, if any , will be intangible
- The continuing uncertainties.

Towards a new development model

Lessons from Asia

Targeted policy

Targeted aid

Infrastructure

Human resources

Governance and institutions

Greater regional Cooperation

Larger regional trade and investment flows

Recapturing and winning markets

Economies of scale

Agor industrial potential

Small and medium size projects

Box: Accounting for slow growth in SSA- adapt the Hawkins box

Box: The East Asian growth experience- common features and pitfalls

Box: Lessons from the Asian crisis- was it a liquidity crisis or a solvency crisis?

Overinvestment; mis-timed opening of the current and capital accounts; mismatched funding

The financial sectors in Asia; used as a channel of policy lending

A domestic interest-rate structure that failed to reflect markets

Structural insolvency in the corporate sector

Excessive dependence on industrial conglomerates with close poetical links to government

Lack of transparency and accountability in supervision of the financial sector

Insufficient attention to development of equity markets, leading to excessive reliance on debt as a source of finance for investment

Corruption

Chapter 3: Major agro-related industries in Africa

The definition of agro-related industries

Agro-related industries are defined by UNIDO as industries which use agricultural raw materials as inputs or produce industrial products which serve as inputs to agricultural production <(see Table 1)>. ISIC 369, non-metallic minerals including building materials is also defined as an agro-related industry. This branch has been defined as an agro-related industry for two reasons. First, building materials are a major input in the construction of irrigation and water conveyance and management systems in LDCs and increasing water availability is perhaps the single most important prerequisite for accelerating the pace of agricultural development in these countries. Second, building materials are likely to provide a major input for the development of small towns and permanent villages that are emerging in the countryside and are an important stimulant for agricultural commercial development

Table 1: Agro-related industries: Coverage

ISIC Code	Manufacturing subsectors
Food processing industries:	
3111	Meat processing
3112	Dairy products
3113	Fruit and vegetable preservation and processing
3114	Fish processing
3115	Oils and fats
3116	Grain mill products
3117	Bakery products
3118	Sugar products
3119	Cocoa, chocolates, confectionery
3121	Other food products
3122	Animal feed
3131/32	Distilling and wine
3133	Malt liquor
3134	Soft drinks
3140	Tobacco
Non-food agro-industries:	
3200	Wearing apparel and leather
3211	Spinning, weaving and finishing textiles
3212	Manufacture of made-up textile goods except footwear
2241	Footwear
3311	Sawmills, planing and other wood mills
3312	Manufacture of wooden and cane containers
3319	Manufacture of wood and cork products not elsewhere classified
3320	Manufacture of furniture and fixtures, except primarily of metal
3411	Manufacture of pulp, paper and paperboard
3412	Boxes of paper and paperboard
3559	Rubber products
Agro-input industries:	
3512	Fertilizer and pesticides
369	Non metallic minerals
3811	Hand tools
3822	Agricultural machinery and equipment

Source: <UNIDO>

Although the share of agro-related industry is declining--

The share of the agro-related branches selected for this study in the total manufacturing value added (MVA) of industrialized and developing countries is presented in Table 2. It is clear that these are declining branches in both groups. No branch, except beverages in the developing country group increased share of MVA between 1980 and 1994. Agro-industry branches now account for less than a quarter of industrialized country group MVA. Among the industrialised countries, whose economies have become more capital-intensive and more service-oriented, the steepest decline has been in the case of the textiles, clothing and footwear branches ; these three have witnessed a forty per cent reduction in MVA share. By contrast, the decline in the share of the food products branch was small, with a fall of only 0.4 percentage points in the industrialized countries, reflecting in part the the persistence of quantitative restrictions (QRs) and non-tariff barriers (NTBs) in the area, which have protected domestic producers The fall was also small in the case of the developing countries, while, as noted. the share of beverages rose slightly.

Table 2. Share of agro-related branches in total MVA, 1980 and 1994

Industrialized countries	Developing countries			
	1980		1994	
Food products	9.8	9.4	11.0	10.8
Beverages	2.1	2.0	3.7	3.8
Tobacco	1.4	1.2	3.5	3.1
Textiles	4.6	3.3	8.8	7.0
Wearing apparel	2.6	1.1	4.0	3.0
Leather	0.4	0.3	0.9	0.5
Footwear	0.7	0.4	1.5	0.9
Wood	2.0	1.7	1.5	1.3
Non-metallic minerals	3.2	2.6	3.8	3.6
Total	26.8	22.0	38.7	34.0

Source: UNIDO.

--agro-related industries still play a large role in developing countries

In developing countries these agro-related branches account for about a third of MVA -although their share has declined by about 10 per cent during the 1980-94 period. The greatest decline has been in the footwear, textile and clothing sectors. As noted earlier the beverage branch increased its share and the decline in the share of food products was also relatively small. In 1994 as in 1980 food manufacturing was by far the largest branch in the developing country group. Even in the developed countries food products was the third largest branch in 1994 behind only non-electrical machinery (14.8 per cent) and electric machinery (11.8 per cent).

Growth patterns have been mixed--

Table 3 presents the rate of growth of selected agro-related industries in the developing country group over the two periods 1980-90 and 1990-94. During 1980-90 all branches except footwear had positive growth rates. In 1990-94, the wearing apparel, leather and footwear branches contracted, but the growth rate of food products rose from 2.6 per cent per annum to 3.4 per cent per annum.. Growth of the beverages branch improved markedly and non-metallic minerals and tobacco also grew faster in the latter period..

--as countries "structure out" of agro-industry

Broadly speaking, both industrialized and developing countries are "structuring out" of the agro-related branches of primary interest to LDCs. The re-structuring is least pronounced in food products - beverages is in fact expanding - and most obvious in textiles, wearing apparel, leather products and footwear. In these branches, it would seem, a market niche is being vacated, which LDC producers can fill.

It should be noted that the average figures for the developing country group are heavily influenced by the performance of a small number of NICs, notably in East Asia, which account for a disproportionately high share of the MVA of developing countries as a group.

Table 3. Annual average growth rates of selected agro-related branches in developing countries, 1980-1994

(P e r c e n t a g e)			
	1980 - 1990		1990 - 1994
Food	2.6		3.4
Beverages	2.6		4.9
Tobacco	1.8		2.1
Textile	2.2		0.8
Wearing apparel		2.4	1.7
Leather	0.7		-3.6
Footwear	-0.4		-2.4
Wood products	2.1		
Building materials		3.0	4.1

Source: UNIDO.

Export-based growth prospects are mixed

Although the aggregate data on selected agro-related industries at the global level reveal that they are declining branches in both developed and developing countries, the prospects for LDCs to enter these markets with a view to exporting vary. They are least bright for food manufacturing and most promising for wearing apparel, leather products, footwear and (to a lesser extent) textiles. This is not to argue against investment in food manufacturing and non-metallic minerals in LDCs but to point out that such investment should be driven by domestic demand. There is a need to process, preserve and store food for augmenting food security as well as a need to increase cement production for the construction of irrigation and water storage systems and to establish permanent villages and associated market towns. A case may also be made for orienting a major portion of textile investment towards catering to the demand for low price cloth. The development of the agro input industries -fertilizers and agricultural machinery- is also grounded on domestic (not export) considerations.

Many agro-industrial industries are relocating from the developed world

With the exception of important segments of the food manufacturing branch, most agro-related industries are in a process of international relocation. This is pre-eminently true of the branches which use agricultural inputs - textiles, wearing apparel, leather and leather products, wood products and furniture. It is also at least partially true for the fertilizer and pesticides industries. This relocation is driven by both supply and demand factors. As labour and agricultural raw materials become more expensive in the developed world, textiles, clothing, leather and wood product manufacturers relocate to sites where inputs are significantly cheaper. At the same time, the income elasticity of demand of agriculture-based manufactured goods is low in industrialized countries and consumption has reached a saturation point. Thus a recent UNIDO report shows that the annual average per capita consumption of shoes exceeds six pairs in the developed world whereas it is only about two per person per year in East Asia < (UNIDO, 1996).< I can't check this reference >

It is thus obvious that there is much greater scope for the growth of demand for shoes in East Asia than there is in the United States of America or Europe. If producers want to locate near markets (and technological developments seem to encourage this trend), it seems advisable to relocate from Europe to

East Asia. Investment will thus continue to flow from developed and newly industrialized economies (NIEs) to developing countries in the agro-businesses. But the relocation and funds transfers have mainly benefitted a fairly narrow range of countries such as India, Thailand, Indonesia, Viet Nam, Mauritius, Guatemala, Colombia, Tunisia and Morocco and have not benefitted many LDCs.

LDCs' advantage may lie in raw material intensity

The range of efficient technologies available in each branch is quite wide but the basic advantage which LDCs have in these branches other than clothing emanates essentially from the raw material intensity of production. This normally approaches sixty per cent even in an industrialized economy such as Germany, and not primarily from the use of unskilled labour. With the exception of wearing apparel, the technologies employed appear to be relatively standard and not subject to rapid or fundamental change. Efficient use of raw materials and of energy is important in maintaining competitiveness vis-à-vis imports as well as for penetrating world markets. Labour costs (especially in relation to labour productivity) are not very much lower in LDCs than in other developing countries.. < any UNIDO evidence? > For example, labour costs in the textile and clothing industry of Pakistan and Bangladesh are roughly similar.< is this true?> It is known that lower labour costs provide a major motive for firms to move from industrialized to developing countries. But the reasons why they may consider a move to LDCs rather than developing countries may be different.. Natural resource endowment may be a more important consideration in the latter decision as may be some other special advantage which a particular LDC enjoys, in particular preferential treatment with respect to official development assistance (ODA) flows or market access.

Some will be well placed to attract flows of investment

A number of LDCs can be identified as having significant potential for attracting agro-business-related investment over the medium term but generally direct foreign investment (DFI) has been small and subject to considerable annual fluctuations. Foreign investment in several promising agro-industrial projects has been attracted to Cambodia, Lao People's Democratic Republic, Madagascar, Myanmar, Tanzania and Uganda. Its share in total investment flows of the major agro-industrial branches, however, is minuscule, typically less than 0.5 per cent. But this is not, or at least need not be, an indicator of future potential. It is entirely conceivable that over the medium to long-term demand for agro-industrial products will grow rapidly in the NIEs and other developing countries; consumption growth has been rapid in the NIEs in recent years and saving rates have stabilised if not declined. At least some LDCs are advantageously placed to service such demand, especially those in the South East Asian region and in East Africa. As technological progress proceeds in NIEs and in those other developing countries where DFI flows have been comparatively large <Footnote :such as as Malaysia, Indonesia, Thailand, Viet Nam, India, Egypt and Kenya > the relative cost advantage of situating traditional agro-industrial branches in these countries.will be eroded. There may therefore be a shift of agro-businesses from these countries to geographically contiguous LDCs along the pattern of the shift which continues to take place in the 1990s as in the 1980s of textile and wearing apparel units from Hong Kong, Taiwan Province of China and the Republic of Korea to Malaysia, Indonesia, Thailand, Myanmar, Mauritius and the Lao People's Democratic Republic. An industrial strategy focussing on the development of agro-related industrial branches can be a basis for attracting investment from both industrialized and developing countries as well as a means for exploiting the existing comparative cost advantage of LDCs in international markets.

Africa's share of MVA

Table 4 presents Africa's <need to define Africa here> share of value added in major industrial branches in 1985 and 1993.

Table 4. Africa'sa/ share of developing countries' value added in major industrial branches, 1985 and 1993

	(Percentage at constant 1990 prices)	
	1985	1993
Food products (311/2)	10.5	10.1
Beverages (313)	13.9	12.4
Tobacco (314)	9.7	8.0

Textiles (321)	9.2	8.1	
Wearing apparel (322)	6.0	6.1	
Leather and fur products (323)		6.2	6.1b/
Footwear (324)	8.1		7.7b/
Wood and cork products (331)		13.8	11.0b/
Paper (341)	5.8		3.9
Industrial chemicals (351)	5.2		3.4b/
Other chemicals (352)	5.4		4.2
Petroleum refineries (353)	10.4		8.3
Products of petroleum and coal (354)		4.7	2.5
Rubber products (355)	4.7		4.0b/
Pottery, china, earthenware (361)			9.7
Glass (362)	4.0		3.4
Other non metallic-			
mineral products (369)		11.3	9.7
Iron and steel (371)	5.5		3.3
Non-ferrous metals (372)		4.4	4.0
Metal products (381)	8.4		6.4
Non-electrical machinery (382)		2.9	1.9
Electrical machinery (383)	4.3		1.9
Transport equipment (384)	5.1		2.1

Source: UNIDO Statistical Database.

a/ Africa excluding South Africa.

b/ Figures for 1992.

Eight branches stood out in 1993

In 1993, Africa's share of developing countries' value added exceeded five per cent in the following agro-related industrial branches:

- (a) Food processing
- (b) Beverages
- (c) Tobacco
- (d) Textiles
- (e) Wearing apparel
- (f) Leather products
- (g) Footwear
- (h) Wood

All of these are "user" industries. None of the input industries qualify on this criteria. A case may be made for including non-metallic minerals, in which Africa's share exceeded 9 per cent in 1993, as cement is likely to be a major African input in the construction of irrigation and drainage systems.

African countries with shares exceeding 1 per cent of total developing country value added in the agro-related branches in 1993 were:

- (a) Textile - Egypt 2.1 per cent, Morocco 1.6 per cent
- (b) Wearing apparel - Algeria 1.7 per cent, Morocco 1.1 per cent
- (c) Leather - Algeria 1.4 per cent, Morocco 1.2 per cent
- (d) Footwear - Algeria 1.6 per cent, Morocco 1.6 per cent

But Sub-Saharan Africa has a minimal share

No major SSA country features in any of these branches. Moreover the situation of Africa as a whole seems to have deteriorated since 1985 when Egypt was a major producer of food products and Algeria of paper. Egypt also had a significant share of developing country agricultural machinery production in 1985. Africa is thus clearly losing ground in agro-related branches on an international scale.

Major agro-industrial branches

Table 5. Agro-related industries: Coverage

ISIC Code	Manufacturing subsectors
Food processing industries:	
3111	Meat processing
3112	Dairy products
3113	Fruit and vegetable preservation and processing
3114	Fish processing
3115	Oils and fats
3116	Grain mill products
3117	Bakery products
3118	Sugar products
3119	Cocoa, chocolates, confectionery
3121	Other food products
3122	Animal feed
3131/32	Distilling and wine
3133	Malt liquor
3134	Soft drinks
3140	Tobacco
Non-food agro-industries:	
3200	Wearing apparel and leather
3211	Spinning, weaving and finishing textiles
3212	Manufacture of made-up textile goods except footwear
2241	Footwear
3311	Sawmills, planing and other wood mills
3312	Manufacture of wooden and cane containers
3319	Manufacture of wood and cork products not elsewhere classified
3320	Manufacture of furniture and fixtures, except primarily of metal
3411	Manufacture of pulp, paper and paperboard
3412	Boxes of paper and paperboard
3559	Rubber products
Agro-input industries:	
3512	Fertilizer and pesticides
369	Non metallic minerals
3811	Hand tools
3822	Agricultural machinery and equipment

Of these, research suggests that there are grounds for African countries to accord priority to the following branches: food manufacturing; textiles and clothing; leather and footwear; and agricultural machinery. In addition to these branches, performance and prospects for wood and fertilizers will be considered below, because of their potential and importance.

Box Unido criteria for major branches

Major branches have been selected on the basis of the following criteria:

- (1) Share in MVA and manufacturing employment.
- (2) Share in manufacturing investment (although a sectoral break up of fixed capital formation was not generally available. Major manufacturing sector projects undertaken during 1980-1995 could be identified for several (18) countries. An attempt was made to identify investment in the pipeline to ascertain investor interest to supplement information on investment. This was only partially successful.
- (3) "Correct" factor-intensity and opportunities for export - "correct" demand elasticities.
- (4) Widespread diffusion within African LDCs (e.g. wood products and rubber were downgraded on the basis of this criterion).
- (5) Contribution to improvement in agricultural productivity.

No attempt was made to develop a quasi scientific methodology to assigning weight to specific criteria. Data does not - indeed cannot - exist for the development of such a system. Moreover, investment is necessarily demand driven. Facilitating existing investor initiatives in projects which can contribute towards improved agricultural productivity and enhanced export earnings should be a prime concern especially for portfolio investors.

Table 6. Indices of gross output of agro-related branches by African subregions, 1995

	(ISIC three-digit categories, 1990 = 100)										
	300	311	313	314	321	322	323	324	331	332	369
	Manu- factu- ring	Food rages	Beve- bacco	To- illes	Text- appa- rela/	Wearing ther	Lea- wearb/	Foot- minerals	Woodc/ metallic	Furni- metallic	Non-
Africa	103.1	105.6	105.5	113.0	95.7	111.6	92.3	91.8	97.6	102.6	111.7
North	106.4	104.8	117.5	116.0	102.5	111.0	91.3	88.3	86.4	103.8	112.8
West	95.7	101.4	97.1	110.3	85.7	107.0	89.4	96.2	115.4	99.2	99.8
East	102.1	108.5	108.1	102.3	86.6	134.3	85.3	90.6	58.5	107.9	130.1
Central	94.2	90.2	92.2	88.2	58.4	50.5	68.7	85.4	75.9	82.5	149.2
South	101.8	113.2	85.0	72.3	136.1	89.6	100.8	100.1	106.1		118.8

Source: UNIDO.

- a/ Except footwear.
- b/ Except vulcanized or moulded rubber or plastic footwear.
- c/ Including planing and other wood mills.
- d/ Including fixtures, except primarily of metal.

Food processing

Recent trends

(a) Grain milling

Milling is widespread throughout Africa

Grain milling is widespread throughout Africa, being particularly important in the rice and wheat producing countries. Relatively low proportions of coarse grain - maize, millet, sorghum, cassava - are processed, although the manufacture of maize products is increasing. In Southern Africa the scale and complexity of grain milling technology varies widely. Large mills predominate in the case of maize meal and wheat flour but hammer mills and dehuskers are used on a decentralised basis in many rural areas. Wheat production is very limited and the milling of coarse crops is little developed other than in Zimbabwe. So it is likely that there is considerable underutilisation of capacity in the grain milling sub sector in many Southern Africa LDCs. The grain milling product range has been expanding in Lesotho and Tanzania although in Tanzania this expansion is import based. The development of the grain milling industry in Zambia has been affected by the nationalization of the sector in 1986 and a subsequent virtually complete suspension of modernization and re-equipment plans. In West African countries wheat flour milling is under-developed because of low levels of wheat production. Thus, despite the very rapid growth of demand for wheat in Liberia, there is only one milling enterprise there, entirely dependent on imported sources. In Nigeria the grain milling industry has been affected by frequent changes in government grain import policy - in the 1980s imports of wheat, rice, maize and barley were banned leading to an increase in domestic sourcing by the maize mills but also to growth in utilisation of domestic capacity. Many wheat mills in Nigeria have switched over to maize milling in response to the wheat import bans and the generally greater domestic availability of maize. This re-switching has led to an increase in capital investment by the milling sector.

Acceptability of maize as a wheat substitute has increased very slowly throughout West Africa. Profitability of mills which switched to maize in response to the wheat bans has declined because of the widespread smuggling of wheat. In Mauritania cereal processing has traditionally been largely household based artisanal activity with hand powered small flour mills serving both rural and urban areas. A large flour mill was established in the late 1980s as a joint venture company. Flour processing has been discontinued however and the mill concentrates on the production of pasta from imported flour. Local production of wheat is low and the bakery industry also relies on wheat imports. In East Africa the main grains produced are maize, wheat, rice, sorghum, and millet. Maize is the main staple crop, accounting for example for 50 per cent of caloric intake in Kenya which has since 1993 been self sufficient in maize. Demand for wheat has in recent years grown more rapidly than maize and demand for the other traditional crops - millet and sorghum - has been declining.

Almost all rural markets in Tanzania have milling facilities. Most of them are operated by local entrepreneurs and self-help groups or cooperative societies. Major maize millers such as Jumbo Flour Millers, Nairobi Flour Mills, Unga Maize Millers, Bakery Millers, the National Milling Corporation, Mombasa Maize Millers and Kirinyaga Flour Mills are concentrated in Kenya and often supply the Tanzanian and Ugandan markets.

Maize production has been falling

Between 1963 and 1980, maize production <where, in Africa?> increased at a rate of 2.5 per cent per annum. From 1980 to 1990, the growth rate picked up to reach 5.9 per cent per annum in East Africa. But maize production has declined during the 1990s. This reduction in output is attributed to unfavourable weather, a decline in the use of fertilizer due to high prices and to some extent, the low quality of seeds. The capacity utilization of the mills has risen in 1994 when the maize market was liberalized in many East African LDCs.

Grain milling needs to expand

There is a need for rapid expansion of grain milling production throughout Africa - especially in the Southern and Western countries. Grain milling industries are domestic demand oriented and ought to be domestically sourced, but wheat processing units depend on imported grain. The heavy foreign exchange cost associated with wheat and rice procurement suggests that an effort could be made to increase domestic wheat production where feasible. More important is the need to increase the processing of coarse crops - maize, millet, sorghum and cassava. This has been demand constrained as urban consumers have shown increased preference for wheat and rice in countries such as Mali. There is a need for innovative product research and for an effort to increase the local acceptability of coarse grain based products in urban areas. Increased coarse grain processing strengthens backward production linkages with agriculture and will generate significant investment, income and employment linkages as well. Large-scale grain milling projects are particularly feasible in Mali, Mauritania, Malawi, Tanzania and Uganda.

(b) Meat processing

Meat processing is important in Southern Africa--

The meat processing industry is particularly important in Southern Africa, where it is dominated by the processing of beef, pork and poultry. Beef processing is well developed in Botswana which succeeds in fulfilling its European orders - the Botswana Meat Commission (BMC) is one of the most efficient public sector organizations in Africa. In its 30 years existence it has made a profit and been able to distribute dividends for 25 years - despite severe droughts in the 1970s and 1980s. Processing facilities have been regularly upgraded and stringent quality controls are applied to ensure continued preferential access to European markets.

The BMC has expanded the capacity of its facilities in order to take advantage of its growing market. The only export abattoir was located in Lobatse until 1983, when a small regional facility was built 400 miles to the north, in Maun. Nine years later, a third and larger abattoir came on line in Francistown at a cost of 54 million Paula - half raised from local commercial banks as a loan, and half from the BMC's own reserves. Pork is the principal input of meat processing firms in Zambia. Pig products include processed items such as sausages, polonies, cured hams and bacon. Statistics on pig production are incomplete, being largely confined to the traditional sector. The average number of pigs slaughtered per sow each year is estimated

at 11, and the overall feed conversion (defined as the total feed consumed divided by total cold dressed weight) is 7.24. Equally, the feed conversion ratio for slaughtered pigs is put at four to one. The principal reasons for this poor performance are inadequate management standards, and feed that is of low quality and in irregular supply.

The pork products branch in Zambia suffers from a shortage of slaughtering pigs and, to a lesser extent, inadequate spare parts for essential equipment. These two problems explain the low capacity utilization reported in some firms. In general meat is sold without difficulty, but new storage space, equipment, and packaging facilities will be needed once pig production increases significantly.

—also in Uganda and Ethiopia

In Uganda livestock contributes about 30 per cent of GDP - in the early 1990s the herd was estimated at about 5 million cattle, 3.5 million goats and about 1 million sheep. The only major meat processing plant is in Kampala and plans to develop a second plant have apparently been shelved due to problems of insecurity and cattle rustling which are likely to disrupt supplies. Commercial ranching is being promoted in Central and Western Uganda. Insecurity has led to decline in the size of the herd. There are however excellent prospects for both mixed farming and exclusive livestock trading stations in Uganda.

The Ethiopian meat industry is slowly recovering from a very severe crisis created by the political disturbances of the early 1990s. The five major meat processing plants, all publicly owned, are being restructured. Meat exports are reported to have fallen to less than 10 per cent of the 1980s level. Given the size of the herd there is significant scope for both export expansion and in domestic sales growth.

There is potential for expanded meat processing in Mauritania where meat exports have declined since the mid 1980s and mostly take the form of "on the hoof" trading by nomads (particularly during the seasonal transference and other informal sector operations). The modernization of abattoirs can significantly raise output and better integrate the livestock with the domestic sector. The profitability of the meat processing industry depends overall upon stabilizing meat supplies at a high level - this is difficult in drought years and is also restricted because of low purchase prices of public sector cooperations.

(c) Fish

The economic role of fish is crucial

Fishing plays an important economic role in several African LDCs. The riverine industry is common throughout the continent. Countries along the South East Atlantic shores have concluded several deep sea fishing agreements with the EU since the 1980s. Namibia is one of these countries. It declared an Exclusion Economic Zone (EEZ) in 1990.

Pilchard, anchovy, hake and horse mackerel comprise over 90 per cent of its industrial catch but over fishing has led to serious depletion. Even so Namibia is the largest Africa fish producer and exporter and ranks among the top ten nations in the world in this respect. A UNIDO study, < not listed in Unctad Avenues of Portfolio Investment... (1993) > estimated that total allowable catch volume could increase from 673 thousand tonnes in 1991 to over 1.5 million tonnes in 2000 with commercially valuable stock growing rapidly. It is estimated that less than a third of the total catch is actually landed in Namibia. There are five pelagic fishing companies which operate canning and oil meal factories.

The total processing capacity of the canning operations is estimated at 120,000 tonnes (9 million cartons) of fish over a six month season or 160,000 tonnes (12 million cartons) over eight months, the maximum length likely to be allowed by the fisheries authorities. The meal/oil reduction plants could process 2 million tonnes of whole fish over 12 months. The low catches during the 1980s and the low quotas in 1990 and 1991 left most of the processing capacity for both canning and reduction of pelagic fish idle. The plants were estimated to operate at less than 10 per cent of their capacity.< cut this>

White fish catches are processed by the small plants with a maximum processing capacity of about 25,000 tonnes and with a capacity utilization rate of about 50 per cent. As a result of lack of preservation facilities Namibia exports over 70 per cent of its total catch and 100 per cent of its white fish, guano and deep sea oral catches.

In 1993, the sales value of the combined fishing and fish processing industry in Namibia was estimated at over N\$ 1 billion of which sea production was worth about N\$ 700 million. The total production could be doubled by 2000, manily by raising productions from land fishing. The Ministry of Fisheries estimated that

in 1993 the fisheries industry employed a total of 11,000 people of whom 7,000 were Namibians. It is expected that employment will rise to more than 21,000 by the end of the century.

The fisheries sector has proved to offer the brightest of all investment opportunities since independence. Catching and processing white fish species, mainly hake, could increase substantially and there has been substantial investment in processing and handling operations. Pescanova Fishing Industry of Spain has been the largest single investor in the white fish industry since independence. Existing companies in Walvis Bay have also invested to revitalize and modernize their production and infrastructure including purchases of new vessels. A large new project of N\$ 120 million was announced by the Consortium Group to invest in boats and inshore facilities in 1995. In addition, Namibian and Icelandic joint ventures with an estimated investment in fishing and processing of N\$ 85 million are planned at Luderitz. The cold storage and handling facilities for the landed hake have also been expanded. A new company making polystyrene boxes and containers for exporting white fish was started in Walvis Bay recently.

The need to increase capacity utilization in processing plants

Increasing capacity utilization in the processing plants can significantly raise profitability in the pelagic fish industry. The present technology is designed for high volume, low value added production. There is a need for automation and quality control. Processing facilities for horse mackerel, tuna, mussel, oyster, crab and lobster should expand quality to meet export demand. Prospects for the development of inland fishing are particularly good in Uganda as nearly twenty per cent of its total surface is covered by lakes, rivers and swamps. The sustainable annual fish catch is estimated at about 300,000 tonnes. Almost 400,000 people are estimated to be employed in fishing, processing, marketing and transporting activities. Donors have been interested in assisting the development of the industry, aid coming in particularly from Italy, for development on Lake Kyoga. Experience with more modern mechanized methods of fishing on Lake Kyoga has pointed to the dangers of over fishing of that lake, as well as issues of appropriate technology and employment creation.

The fishing industry in Uganda is being expanded

With the assistance of several donors, the Ugandan government has embarked on a major development of the industry, through improved fishing techniques, local boat building, provision of inputs, and improved fish handling, processing and marketing. One particular development is a small fish smoking and drying plant installed in 1992 at Masse on Lake Victoria, near Jinja, with Italian assistance. Supported by three fresh fish collection and chilling points and three distribution centres, this has a capacity to process 10 tonnes of fish a day. It is hoped to develop export outlets.

Potential in Eritrea

Fishing also has enormous potential in Eritrea which is endowed with abundant marine resources including shrimp and lobster beds, tuna, mackerel, snapper, barracuda, grouper, anchovy, and sardines. The country's 1,000 kilometre coastal line bordering the Red Sea combined with continental shelf shores of some 52,000 square kilometres within the country's Exclusive Economic Zone (EEZ), and its pristine waters provide the capacity for producing up to 66,000 tonnes of fish and sea food annually. Indeed, the Eritrean Red Sea water alone consists of around 1,000 known species of fish and 220 species of coral.

There are however virtually no processing facilities in the country and production has been severely affected by the long struggle for independence. The catch was estimated at only 1,000 tonnes in 1996. Agreements are reported to have been signed in 1994-95 with ten foreign companies for fishing in Eritrea's EEZ and this may lead to an increase in sectoral investment for processing purpose.

West Africa has abundant resources

Fishing is also an important industry in West African countries specially in Senegal and the Islamic Republic of Mauritania. In Mauritania the processing industry is being encouraged to develop, but success has so far been limited and capacity utilization rates remain low because the government permits the processing of lower value added pelagic species at sea and because of lax monitoring of compliance with regulations. Processing onshore is generally limited to gutting and freezing. There are few facilities for smoking, drying and salting let alone more complex processing procedures such as canning and fermenting and none at all for the production of fish food products. If the fishing industry is to increase the value added accruing to the

national economy developments along these lines are essential. This will demand a strategy for both the national market, where fish is looked down upon as a food, and for exports.

The growth and development of the fish processing industry must also overcome the constraints of location - the main fishing port, Nouadhibou, is distant from the major population centres in the south of the country and suffers the high cost and irregularity of power supplies and the problems of hygiene and quality control experienced by other enterprises in the food industry.

(d) Sugar

Sugar plays a key role in Sudan

Sugar has been an important manufactured commodity in many African countries. In Sudan it accounts for roughly over 50 per cent of all employment in the food manufacturing branch. But the productivity of the large mechanized public sector mills is low so that the share of the sugar branch in total food processing value added is reported to be barely 13 per cent. The total rated capacity of the five large mills is about 700,000 tonnes per year. Capacity utilization has increased; exports of sugar have risen and imports have been eliminated in recent years.

Sudan has one of the largest sugar producing plants in Africa., although its per capita consumption of sugar is among the lowest in Africa. There is therefore considerable room for expansion. But capacity utilization has been low.

The problems are typical of agro-industry in Africa

The problems of the sugar sector in Sudan are legion, and are typical in many ways of those which confront the agro-industrial sector in many African countries. Facilities are short of capital and skilled labour and are rarely in a position to recoup the full cost of production. Final product prices are kept low, which contributes to smuggling of sugar to other African countries and to price distortions. Profitability is low in this industry and the lack of exploitation of by-products has exacerbated the financial difficulties, which makes it difficult to attract investors despite plans to privatise state enterprises..

Inappropriate cane varieties are used in production and the water supply made available to the irrigated farms catering to the factories is inadequate. Output has also been affected by shortages in serviceable equipment and tools for cultivation and harvesting of cane as well as shortages in complementary agricultural inputs.

Sugar accounts for a third of MVA in Swaziland

Sugar production accounts for roughly 30 per cent of manufacturing value added in Swaziland. Output has doubled during the past decade. The Simunye Sugar Estate has become one of the giants of agriculture in Swaziland. It is the largest sugar growing estate in the country with 9,200 hectares planted to sugar cane. The Simunye Estate is the largest single employer of labour, including unskilled labour, in Swaziland. On average, it employs more than 3,800 persons during the peak season.

Sugar cane production has stimulated the beverages industry in Swaziland and international companies - including Coca Cola have investments in the country. Sugar exports accounted for 17% of the value of exports in 1996 and soft-drink concentrate is also an important export. Sugar is exported mainly to North America the EU and South Africa.

Production of raw and refined sugar is commonly an enclave industry on large estates, in Mozambique, Zimbabwe and in Malawi (where it is the third largest export); processing is on site in the former two, but in Zimbabwe the Triangle and Hippo Valley estates, along with the associated small producer cooperatives, produce mainly raw sugar. Refining is carried out mainly by ZSR< who?> which no longer owns estates, although its then parent company Tate & Lyle used to operate estates in the north of country. Lonrho has shown interest in the Eastern Caprivi of Namibia for a possible new plantation. Sugar is used to produce ethanol as a partial motor fuel substitute, most notably in Zimbabwe. Sugar also dominates agricultural production in Mauritius, sugarcane covering 90 per cent of cultivated land and the industry has a number of assets, such as a well established training institute, and marketing research and information centres. The production of sugar industry by-products still remains very limited throughout the African continent and there is scope to increase domestic value-added.

(e) Oil seeds

Oilseeds is a traditional industry in Sudan

The production of edible oil is one of the oldest industries in Sudan. There are over 300 oil mills under the supervision of the Sudanese oil Industries Corporation with a combined capacity of about 500,000 tonnes of edible oil per annum. Capacity utilization rates are estimated at about 30 per cent. Edible oil is among the major manufactured exports. Some modernization of the industry took place in the late 1980s with the construction of several large mills and ancillary packaging plants. Rates of return are low because of over-capitalization. Production suffers from shortages of spare parts, interruption of spare supply and fluctuation in availability of raw materials. Growth of export demand has been sluggish in recent years. Reduction in ground nut and cotton seed production during the drought years forced the Government to import processed oil to keep the mills operative. Plans for backward integration into agriculture - involving investment by the mills in groundnut and sesame production - have moved slowly. Sizeable investments are required to secure supplies of raw material supplies and to increase capacity utilization rates. Rehabilitation would involve shutting down of several plants - mergers could significantly reduce the overall cost of the rehabilitation programme.

There is potential in Eritrea and Uganda

A large part of the western lowlands of Eritrea is suitable for growing oil seeds. Sesame, in particular, finds ready international markets. Aggregate production of oil seeds has rebounded strongly since the early 1990s from just over 5,000 tonnes to 9,000 tonnes in 1993, further rising robustly to an estimated 11,700 tonnes in 1995. Much of the strong growth has stemmed from an enhanced up turn in sesame output. According to FAO estimates, Ethiopia's production of oil seeds in 1993 were rapeseed 82,000 tonnes, sesame seeds 62,000 tonnes, linseed 33,000 tonnes, and seed cotton 46,000 tonnes. Exports of oil seeds have been declining for the past twenty years and very little processing has taken place in the country.

In Uganda the major oil seeds are cotton, groundnut, simsim and soya. There are eight large-scale cotton seed oil mills in the country but cotton seed production has been declining with the result that there exists considerable capacity under utilization. As against this production of the other oil seeds - and also of sunflower - has grown at a rate of almost 15 per cent per annum since the mid 1980s. Processing of these takes place in small-scale operations.

(f) Tea and coffee

Beverage crops are an important source of exports

Tea, coffee and cocoa, mainly in non processed and semi processed forms, have been traditional exports from several African countries. All three are subject to wide swings in the world price of these commodities and there is little that can be done to combat the adverse effects of drops in the price except to strive for the lowest possible production costs. Kenya is one of the world leading producers of coffee and tea. Both crops are major foreign exchange earners. Coffee production is organized under co-operatives involving large estates as well as thousands of small holdings. The Kenya Tea Development Authority supports the production of thousands of small holders. It has thirty tea processing factories. Transnational corporations also maintain a strong presence in the Kenyan market.

Coffee production has risen since 1994; reaching 103,200 tonnes in 1996, despite poor world prices after the collapse of the international coffee agreement in 1989 and associated falls in world coffee prices. Kenya regularly exports 95 per cent of its coffee crop.

Côte d'Ivoire is the largest coffee producer

Côte d'Ivoire is currently the largest producer of coffee in Africa, with 180,000 tonnes in the crop year starting in September 1996 and the seventh largest producer in the world.

Coffee is the most important Ethiopian export

Coffee is Ethiopia's most important export, with arabicas accounting for two thirds of export earnings over the last twenty years. Exports were officially estimated at 1.8 million bags (of 60kg) in 1996/97 out of production of 7mn bags. The commodity has deep roots in the country, with Ethiopians claiming that coffee in fact originated there. (The Yemenis make the same claim.)

Although coffee is grown in many parts of the country, the production which supplies the export market is concentrated in four areas in the south and south-west - namely, Sidamo, Kefa and Illubabor, Wollega and Hararge. The variety produced in this last location is considered to be among the best in the world.

consequently, premium prices can often be obtained. In all areas of the country, it is the peasant farmers who produce most of the coffee. The central grading and marketing centres, are located in Addis Ababa and Dire Dawa. Most of the Ethiopian production is processed by the sun-drying method and then hulled. Hulling capacity, however is limited by old plants. In 1985/86, for example, only 13,000 tonnes (less than 10 per cent of that year's crop) was processed as washed coffee (a commodity which sells at a premium). Meanwhile, most domestically consumed coffee is roasted and ground at home, while exported coffee undergoes no further processing.

Coffee berry disease (CBD) has been a severe problem in recent years, but the prospects for Ethiopian coffee are generally good. Yields are continuing to rise as management practices are improved and as applications of fertilizers are increased. The performance of the sector, however, is heavily determined by climatic factors (affecting not only the production of the crop itself, but also the production of other crops, and thereby determining whether they -in particular, cereals - will place demands upon those lands currently under coffee cultivation). World prices are, of course, the other main determinant of the health of Ethiopian coffee industry.

(g) Cocoa

Africa has a large share of world cocoa production

Cocoa production and processing is common in some West African countries. In 1991 < can this be updated by UNIDO?> Africa accounted for 25.6 per cent of the developing world grindings of cocoa beans (its share of global coffee bean grindings was only 8.3 per cent ,down from 10.2 per cent in 1986). Virtually all production was exported. This share has continued to decline during the 1990s.

The most important cocoa producing country, in Africa (and indeed the world) is Cote d'Ivoire., which produced 1.1m tonnes in the year1996, beginning October 1 1996, 43% of the world total. Other major cocoa producers in Africa include Ghana (320,000 tonnes)., Nigeria 150,000 and Cameroon (136,000). Nigeria has significantly expanded its cocoa processing capacity through the establishment of projects partly funded by the African Development Bank. Cocoa production and processing is also undertaken in several West African LDCs.

Processing is unprofitable

Cocoa is a typical primary commodity in that it is grown mostly in developing countries and consumed largely in developed countries. It is consumed primarily in the United States and Western Europe. Very little cocoa is consumed at origin (with the exception of Brazil). Consequently, investment in cocoa processing in the producing countries is dependent on the export market for chocolate products and intense competition with highly efficient companies in cocoa consuming countries has put processors in the cocoa producing countries at a distinct disadvantage. The costs of production at origin are such that in all but a few cases cocoa processing is highly unprofitable. This explains the gradual decline in cocoa grinding in Latin America and the significant underutilization of processing capacity in most cocoa-producing countries. However, despite such factors which seem to point away from investing at origin, countries such as Indonesia, Malaysia and Nigeria have been setting up new processing operations during the 1990s.

Quality considerations are an important constraint

Many European end-users argue that they prefer to buy their cocoa products from large European manufacturers, since they can produce to the highest quality specifications and can also have their products tailored to their particular requirements. Grinders can also deliver their products, particularly cocoa butter and liquor, in bulk liquid form in heated tankers on a "just-in-time" basis, thus saving end-users costs of storage and overhead. Cocoa processors at origin cannot offer this advantage because of the distance between factories and end-users. Many manufacturers also claim that most of the processors at origin generate products which are not up to their quality specifications, and would only purchase products at origin if they were offered at a substantial discount, often at a price at which processors at origin cannot afford to produce.

The industry is highly concentrated

Currently, the cocoa industry is characterized by a high degree of concentration. Nine companies accounted for nearly 50 per cent of global capacity and an estimated 66 per cent of world grindings in

1994-95. All nine companies are based in either Europe or the United States, although some of them have a significant share of their capacity in cocoa-producing countries.

Total cocoa processing capacity in Africa was estimated at 303,000 tonnes and the capacity utilization rate was roughly 50 per cent in 1994-95. Côte d'Ivoire was the world's largest exporter of cocoa liquor the third largest exporter of cocoa powder and cake. Prospects for export growth however are not bright.

That some countries of origin including some African LDCs are forging ahead with investment in cocoa processing has little to do with the prospect of financial success. LDC industry will have a difficult time being competitive, considering the relatively small size of the factories being installed and the discount they will face for their products. Although labour costs are low, labour productivity is lower than that in competing regions. Both energy and capital costs are also higher than elsewhere. Nevertheless, the willingness of Governments to lend money for these investments has encouraged a number of local entrepreneurs to go ahead.

World consumption growth may be slowing

There was rapid growth in the consumption of cocoa products during the 1980s, the result of low cocoa prices and the development of new products and new markets. This level of growth is unlikely to be sustained as markets in North America and Western Europe reach saturation, and growth rates evolve more in line with population increases. The biggest boost to growth is likely to come from the Asia and Pacific regions, although it will be from a small base.

West Africa is the least well-placed region in terms of processing, because of low level of domestic consumption and also due to the fact that beans from the region attract premium prices from importers, while products tend to fetch premiums that fall short of those that can be earned from bean sales. In this respect, Côte d'Ivoire and Nigeria are most advantageously placed, since their beans sell at a lower price than beans from Cameroon and Ghana. Furthermore, factories in Côte d'Ivoire are relatively large by regional standards, thus lowering their unit costs of production. Their factories also benefit from links with overseas companies. There is no argument for promoting cocoa processing plants in the African LDCs.

(h) Animal feed

Many African countries depend on imports

The animal feed manufacturing branch uses a wide range of inputs, including cereals and cereal bran, oil-seed cake, fish- and bone-meals, offal, salt and other minerals. Most of the inputs could be procured locally, but the condition of the agricultural sector and of upstream industries is such that the branch must live with a high degree of import dependence in many African countries.

The stockfeed manufacturing branch in Liberia has been acutely dependent on imports for its major raw materials (maize, soya-meal, fish-meal and concentrates). Before the civil war, 20 per cent of Liberian demand for stock feed was met by domestic millers, who imported 80 per cent of their inputs. However, the last Liberian mill was closed down in 1984, and the country has since relied almost totally on imports. Cassava chips, pellets or flour could substitute for imported cereals and other local feed materials for up to 25 per cent of the total feed for layers and 10 per cent for broilers. Rice bran is also a potential input. Much of the rice is milled in villages, and the bran fed to farm animals. But the bran that is the residue of commercial rice milling could be collected for further processing. Other potential inputs that are domestically available are pulses, slaughterhouse by-products and fish-meal.

In Tanzania the branch relies mainly on local supplies for maize, oil-seed cake, wheat bran, fish- and bone-meal, limestone and salt, supplemented by imports of vitamins, amino acids and trace minerals.

Fish-meal has been in short supply since the plant at Mbeya halted operations on a regular basis. The branch now depends on irregular supplies of small dried fish from the lakes purchased from fishermen and from middlemen at widely fluctuating prices. Access to oil-seed cake is also limited because several oil-seed processors have broken down. At the same time, supplies of oil-seeds are scarce, mainly as a result of transport constraints.

Imports of essential vitamins, amino acids and trace minerals were severely limited until the beginning of Canadian supplies under an aid programme. Branch performance is generally weakened by the low productivity of the agricultural sector and of upstream processing operations, and a shortage of transport facilities. The animal feed branch in Zambia depends on imports of some essential ingredients, mainly

minerals and vitamins. Domestic processing of by-products from slaughterhouses has apparently not received much attention, and existing plants are not operating efficiently. Cereal inputs are normally produced domestically, but the quality of maize, for example, is generally poor as the prices paid to farmers are set irrespective of quality. Lucerne-meal and fish-meal are not currently used by the branch, but could serve as raw materials.

Production of stockfeed in Zambia has fallen from 192,000 tonnes in 1980 to about 150,000 tonnes in 1991. <update?>Aggregate nominal capacity is put at 244,000 tonnes.

The expansion of the branch in Tanzania is constrained by the shortage of key inputs notably animal protein. The absence of regular preventive maintenance and the shortage of foreign exchange to purchase spare parts have led to increasingly regular plant breakdowns and complete stoppages. Inadequate roads and the lack of 7-10 tonne lorries are also substantial constraints.

Expanding a locally sourced animal feed industry is becoming important as deforestation accelerates and the commercialization of agriculture gathers momentum throughout Africa. Medium to large-scale projects utilizing efficient production technologies can have good financial prospects in countries such as Ethiopia, Eritrea, Malawi, Mauritania, Sudan and Somalia.

Issues and prospects facing food processing industries

There is a need to boost production of indigenous staples--

African food processing industries have lower than average productivity and the productivity gap between Africa and developed country systems has grown wider over time, hence imports of rice, wheat, soya and animal feed - as well as food aid - have shown a secular upward trend. Demand for food in Africa has become import-intensive and an increase in per capita consumption has not led to greater grain processing. The weak position of the smallholder reflects both the import dependence of the food production and distribution systems and the worsening patterns of income distribution in Africa. African elites - in sharp contrast for example to the urban population of the Republic of Korea - are abandoning traditional patterns of food consumption. This has a negative impact both on the growth of the domestic market oriented food processing branch and on food security in general. Increasing volumes of food imports require new harbour infrastructure, storage facilities milling capacities and technologies and the development of these facilities has to be financed from the aid supplied to the country which is the source of the food imports - Africa's dependence and vulnerability to external shocks is thus further enhanced. Processing technology development related to imports - incorporated in many milling and poultry projects - weakens agro-industrial linkages and thus enhances food insecurity.

Investment is urgently needed--

There is an urgent need to increase investment in grain production and processing in African LDCs. They currently have the lowest per capita cereal consumption levels in the world. < Alexandratov, A. and de Haen, H., "World Consumption of Cereals: Will it double in 2025?", Food Policy, Vol. 20, 1995, pp. 359-366.

It is conservatively estimated that with an increase of about 39 per cent in per capita cereal consumption in sub-Saharan Africa (SSA) over a 35 year period 1995-2025 Africa's cereal consumption per capita would still be only 54 per cent of the world and 64 per cent of the developing country average. Cereals consumption in SSA would rise by over 250 per cent according to these projections. SSA's present net grain imports are about 25 million tonnes.

--imports cannot continue to rise as before

Unless production expands significantly imports will have to rise dramatically in the near future. This is clearly unsustainable given SSA's foreign exchange earning capacity and the crippling debt burden. The growth of local grain processing is not inhibited by price factors. It has been shown that contrary to popular beliefs - ~~coarse grain dishes are often cheaper than rice based dishes in African countries.~~ Moreover coarse grain dishes need not take longer to process and prepare if the de hulling process is mechanized. Improvements in the efficiency of the processing system is required if the present relative cost advantages of the coarse grain dishes are to be preserved <Dibbley, D., Boughton, D. and Reardon, T., "Processing and preparation costs for rice and coarse grain in Mali", Food Policy, Vol. 20, pp.41-50, 1995.>

Dibley's results although derived from centres in Mali "are true for a wide range of rice and coarse grain prices and opportunity costs of women's time suggesting that the findings apply more generally to the urban sahel". The cost disadvantage of imported grain is likely to continue to rise as the external value of African currencies depreciate.

Maize output could increase rapidly

Thus cost differentials do not explain the rise in the consumption of imported grain in urban Africa. A rapid increase in the production of coarse grain in many African countries is technically feasible. The single most important food staple in SSA is maize. Production of maize has expanded rapidly in recent years and maize now accounts for over 40 per cent of total cereal production. Maize should play an important role in any strategy designed to arrest the decline in Africa's per capita consumption of food. Demand for maize in SSA is expected to grow at an annual rate of 3.2 per cent over the next two decades, <Byerlee, D. and Saad, L., CIMMYT's economic environment to 2000 and beyond: A revised forecast, CIMMYT, Mexico, 1993.>

Many SSA countries have introduced new maize varieties and hybrids are increasingly available over many areas. Appropriate crop and resource management technology specially for maintaining soil fertility are however lacking. The commercial application of successful maize research is very slow. There are instances of countries with successful research having declining per capita maize production < Byerlee, D. and Morres, M., "Calculating levels of protection", World Development, 1995, pp. 805-815.>

Over 300 improved maize varieties and hybrids have been introduced since 1960 - the pace has accelerated significantly during the 1980s. Delivery of improved seed to small holders is adequate in countries such as Zimbabwe but very low in Ethiopia and Tanzania. Hybrid maize hybrids and other modern varieties (MVs). Improved varieties have often been introduced in areas where maize is mainly grown for home consumption.

Increased use of fertilizer is vital

Maize research has given insufficient attention to problems related to grain processing and storage Dent hybrids have low stability and processing potential and farmers prefer 'flexy' non hybrid varieties which can easily be stored and processed. Productivity growth has been restricted by the fact that application of chemical fertilizers to maize is very low. A major increase in the use of phosphorous fertilizers and other materials is required for increasing maize production. Fertilizer costs are prohibitive in many parts of SSA due to inadequate transport and infrastructure and buying disadvantages associated with small purchases. Rates of return on application of fertilizers to both local and hybrid maize is low. Increasing fertilizer use efficiency - i.e. the rate of conversion of materials into grain - remains critical in raising production in this sector.

Financiers should therefore look carefully at projects which can increase the processing and productivity of coarse grain products. Private sector financing in this area can be linked to ODA flows directed at projects which are designed to reduce food insecurity in African LDCs.

Sugar plants need rehabilitation--

There is also a case for looking closely at projects concerned with the rehabilitation of sugar plants in African LDCs. Africa produces 5.5 million tonnes of sugar annually which is about 5 per cent of world output. International sugar prices are expected to stabilize as tariff levels and government protection is gradually reduced and the share of internationally traded sugar in total production is likely to increase. The share of international traded sugar in spot markets (i.e. not subject to fixed price long-term contracts) to total production is however currently only about 16 to 18 per cent in most years. The gains African LDCs enjoyed by preferential access to EU markets are also likely to be eroded. Technical progress in field and processing operations is becoming increasingly important for the long run competitiveness and viability of **leading beet - and cane-sugar producers. This has been especially important in recent years, as industries** in several countries in Africa have reduced the role of the state and opened their markets to foreign competition. The need to compete with foreign rivals, amid the rising costs of inputs such as labour and energy, has encouraged producers to seek ways to increase productivity and reduce costs.

There is considerable scope for investment in sugar rehabilitation. This would require a restructuring of the industry and a reduction in its capital intensity. This requires the promotion of an efficient small-scale

technology capable of being disseminated in rural regions and of contributing to employment and income in those regions. The Indian experience provides a good example of the possibilities offered by small-scale sugar technology. Indian engineers have designed efficient plants with an average production scale of 1,000 tonnes/year. Small-scale plants of this type cost about one twentieth of the cost of modern large-scale plants being established in Africa. They can create 300 positions with the investment required for one job in the large plants and their investment costs per tonne are about one fifth of those of the large units. Even if sugar extraction rates are slightly lower, this type of technology seem to offer better possibilities of reducing the gap between insufficient demand and huge potential needs. However, despite the fact that it also opened interesting channels for technology transfer among developing countries, this technology has not yet received the attention it warrants.

—which will produce useful by-products

The development of the cane sugar industry is particularly attractive because of its very wide range of by-products. The most important by product is bagasse. The use of bagasse as an energy source has been widely recommended both at the domestic and the industrial level. Countries such as Mauritania or Uganda should be able to produce a significant proportion of their electricity requirements from bagasse. Chemicals can also be extracted from the cane. Furfural is the most important by product in this group. It is used as a raw material for the production of furfuryl alcohol, tetrahydrofuran and its derivatives. Other by-products include molasses, yeast, lysine, citric acid, mono sodium glutamate and diestrum.

The sugar cane industry thus needs restructuring and rehabilitation, not expansion in capacity. Investments undertaken for rehabilitation and for the acquisition of more appropriate, less capital intensive, technology can pay dividends. This is one area where regional cooperation between sugar exporting and sugar importing nations can play an important role and can be a basis for substantial inflows of foreign private investment in African LDCs such as Sudan, Mauritania, Tanzania and Uganda.

The oil seeds industry also has potential

The development of the oil seeds industry also has considerable potential in many African LDCs. Major constraints on its expansion are:

- (a) Insufficient supply of raw materials as a result of drought, floods, pests and disease; lack of adequate incentives for farmers to grow vegetable oil-seeds;
- (b) Limited market for further processed oil-seeds and oil products and their co- and by-products;
- (c) Lack of coordination among the various bodies responsible for production, processing and marketing;
- (d) Some of the technologies used in the African LDCs are alien to the practical realities and socio-economic conditions;
- (e) Limited number or lack of cooperatives and associations for the vegetable oils and fats industry and failure to establish a network of collection centres;
- (f) Poorly developed infrastructure;
- (g) Permanent shortages of spare parts in processing plants;
- (h) Acute shortage of skilled manpower.

Plant productivity is limited by a lack of trained manpower, high energy and marketing costs and lack of appropriately priced, packaging material. Nevertheless progress has been made in the development of major crop based oil processing plants. In Zimbabwe for example a private firm called Essen Oil Company is a clear success story. The company produces essential oil from several crops grown in Zimbabwe. According to a recent UNIDO, report <UNIDO, The Globalization of Industry: Implications for Developing Countries Beyond 2000, Vienna, 1996>..

it has good prospects. Furthermore, there is considerable potential for expanding small-scale oil milling operations at the village level. If relatively inexpensive milling techniques can be introduced there is scope for expansion of oil seed processing in several African countries. Several small oil processing machines have been introduced in East Africa since the mid 1980s. These include the KIT/UNATA system developed in Zambia, the Ram press introduced in Tanzania, an Indian made Tiny Oil Mill system, several versions of small European expellers and CEOCOO expellers from Japan (<Hymer, E., "Production of Edible Oil

for the masses and by the masses", World Development, 1993, Vol. 21, pp. 429-443. These have proved popular but their widespread adoption depends on how they are introduced.

The Ram press projects in Tanzania were able to achieve a significant impact because they concentrated on commercialization of simple technology and adopted an integrated approach to providing assistance. This assistance included access to equipment, extension services, credit, and training of manufacturers and users. Another important characteristic of the Tanzanian experience was the continuity, commitment, and perseverance of the project staff.

Fish processing has good prospects

Another branch which should actively be promoted is fish processing. This industry has grown rapidly in recent years and world production is currently estimated at over 100 million tonnes. In Africa there has been little overall expansion and virtually none at all in the processing of industrial catches. Industrial fishing is concentrated in countries on the South East Atlantic shelf and inland riverine fishing is well developed in Chad, Egypt, Uganda, and Tanzania. Morocco and Mauritania are major suppliers of cephalopods. Demand for these is expected to grow with good prospects for the Atlantic suppliers as catches in the North Pacific have been reduced. African LDCs such as Mauritania and Somalia are also important suppliers of pelagic species, the future of which remains uncertain. Over-fishing threatens all species, with the possible exception of anchovies, herring and sardines (Angola, Mauritania). This threatens to limit the potential of the markets; at the same time world demand seems to be weakening, except perhaps in some developing countries and, in the medium term, in Eastern Europe. But such changes should constitute no great threat to the pelagic fishing industry, in so far as the fish can be alternatively processed into oil and fish-meal. Many OECD countries are now confronted with declining populations of both fish and shellfish, largely because of over fishing. This has resulted in excess capacity for their fleets. In developing countries, capacity utilization rates are often weak. Many African countries, for example, do not use all the potentialities of their artisanal fisheries. New processing industries (canneries, freezing facilities etc.) could also be used more intensively. In the case of Mauritania, utilization rates of its freezing units did not exceed 23 per cent in 1993, and the distribution network of frozen fish remained largely under-utilized.

There is immense potential for increasing both riverine and industrial fishing and fish processing in several African LDCs. Aside from pelagics, which are subject to fluctuations in catch, krills and cephalopods seem able to support greater exploitation. Cephalopod resources have been estimated at 200 million tonnes. Their use could increase in human consumption, or they could be processed into fish-meal to substitute for pelagic, which are more useful for direct human consumption.

Euro-African fishing agreements

Expansion of industrial fishing has been hampered by the Euro-Africa fishing agreements that have been signed since the enforcement of the Law of the Sea and the establishment of African EEZs in the 1980s. There is very little experience of industrial fishing in the African countries and their only realistic option after 1983 was to license commercial fleets from the deep water fishing nations (DWFN) to fish in their territories. Typically these agreements included provision for technology acquisition and upgrading of the local fishing industries.

Within the framework of the Lomé Convention it has been agreed that each African member of the ACP group would negotiate with the EU as a group which would then apportion the fishing quotas to individual fishing companies. The so called second generation agreements include provisions for:

- commitment to rational exploitation of the fishery resource;
- contribution to rural and industrial development through local landing of fish harvest;
- obligation of EU fishing companies to recruit nationals of the African coastal state as crew members on the fishing vessels;
- provision of vocational training for nationals of the coastal state to study different aspects of fisheries in an EU or ACP state;
- funding/financing of scientific and technical programs to improve information on fishery resources;
- payment of financial compensation by the EU as a bloc to a coastal

state for granting access to EU fishing companies as well as license fees to be charged for individual EU vessels; and - penalties for infringement of fishing regulations.

These provisions also contain certain technical measures for monitoring and controlling fishing activities such as zoning provisions, transshipment regulations, obligatory reporting of specifications (e.g., catch statements, etc.), compulsory inspection provisions, the presence of scientific observers on fishing vessels, mesh-size regulations for nets, and by-catch regulations. Interestingly, most of the pacts entrust the enforcement of the agreements to the EU or to the EU fishing companies eventually awarded the licenses. There has been over-fishing—

Some EU fisherman have traditionally over fished with impunity in some of the region's fisheries, with the result that many are on the brink of collapsing. The EU's response to reduced quotas since the 1990s has been a marked reduction by the EU of the total compensation package it is willing to pay to African countries. For instance, under the agreement between the EU and Mauritania covering the period from 1 August 1993 to 31 July 1996, the EU reduced its financial compensation from the \$32.5 million in the preceding agreement to \$29 million because the maximum sustainable yield (MSY) of Mauritania's fisheries was revised downward. The same is true of the current EU-Madagascar agreement, which shows a reduction in its financial compensation to \$2.4 million from \$3.2 million owing to a reduction in the MSY of the country's tuna catch from 12,000 tons to 9,000 tons. The same fate befell Comoros in early 1995, when the European Parliament reportedly approved the renewal of the fishing agreement between the EU and the island nation, but reduced the EU's financial compensation to Comoros from ECU 900,000 (about \$1.02 million) to ECU 675,000 (about \$880,000) over three years. Again, this action was due to a reduction (from 42 to 37) in the number of fishing vessels authorized to operate in the Comoros EEZ. Only Morocco and Senegal, in the whole of Africa, were able to obtain an upward revision of their rent despite a downward revision of the total allowable catch (TAC) in their respective fisheries. Some of the fish landed are intended for the plants that supply the local market, and since very few of these agreements establish the quality of the fish to be landed, some of the European fishing companies simply dump their by-catch on the African countries. Most do not even land these inferior fish unless forced to do so by their host states.

—and the associated industrial development has been limited

Senegal stands out clearly as a beneficiary of on-shore employment and increased government revenue from local landings, because it has an established local marketing infrastructure and processing capacity geared to the export market. This has, in turn, given a great boost to local businesses. In most other signatory countries, very little of the anticipated rural industrialization has materialized, and several fishing villages and fishing ports are still impoverished. Consequently, even Mauritania has had problems in setting up adequate on-shore facilities, particularly in view of its close proximity to Las Palmas, with which it had to compete. In Guinea-Bissau there have been virtually no landings from foreign vessels, because the Guineans cannot afford to keep the cold stores operating and have insufficiently trained staff.

Some fishing companies and the EU have begun to respond to this problem by encouraging modernization of on-shore equipment and boat building, for instance, in Mauritania and Senegal, to adapt this production to the needs of small-scale fishermen. Today, projects for the manufacture of single or multihull boats of aluminum or fibreglass are being suggested for replacement and extension of the existing fleet, which is under equipped. Improvements are also being suggested for modernization of fishing equipment, harbour installations, and the like.

Stricter regulation of over fishing, limitation of poaching, expansion in landings and improvement of backward and forward linkages with the local economy are required if processing of fish is to become a sustainable activity over the long run, capable both of foreign exchange earnings and of attracting foreign capital inflows. Lack of refrigeration and of cold storage chains is an important constraint as are packaging inadequacies and lack of quality control. Some modern technologies can also be effectively absorbed by the artisanal sector.

There is plenty of potential, if financing can be found

It is clear that there is significant potential for the development of viable projects which can be of interest to international financiers in a range of agro-food product groups - grain processing, sugar, fish processing, oil milling and packaging.

Existing financeable projects in these project groups are few. If international financing is to be attracted to these areas, LDC governments and donor agencies must put together viable pre-investment programmes which ameliorate some of the constraints that are currently holding back investment in these areas. Foreign private investment, especially portfolio investment, can respond to major initiatives to reduce food insecurity in African LDCs. by increasing food processing capacity in these countries. It can participate in rehabilitation of sugar plants which are partly financed by ODA funds. It can facilitate and be a component of EU programmes for stimulating the fish processing industry in Somalia and Mauritania. But in none of these cases can foreign portfolio investment take a leading role. Much more important than identifying existing investment opportunities is the task of developing a framework of cooperation between African LDC governments, donor agencies and private international financiers for facilitating the coming on stream of potential investment projects. It is particularly important to link efforts to improve food security in vulnerable countries to programmes for stimulating the inflow of foreign capital.

Textiles and clothing

Recent trends

Textiles are already important in many African countries

Textile and wearing apparel are important industrial branches in many African countries. Three countries - Mauritius, Morocco and Tunisia - are exceptional in that they serve as homes for Europe and Hong Kong based firms whose output is entirely export oriented and these countries are among the EU's most important import sources in a wide range of clothing product groups. The textile industry in Southern Africa is dependent on imports from outside the region - only Zimbabwe and Tanzania are major cotton producers. Polyester fibre is also imported. Only Tanzania and Zimbabwe are major textile exporters - mainly yarn and fabrics. Botswana has emerged as a major wearing apparel exporter but much of its exports consist of clothing which receive only final stage manufacturing in Botswana. Lesotho and Swaziland are also exhibiting similar trends but on a much reduced scale. During the crises of the 1980s a small-scale cottage type wearing apparel industry has also appeared in Southern Africa.

Wool spinning and wool scouring plants exist in Lesotho. Karakul wool is processed in Namibia for the production of carpets. Mauritius is one of the world's leading exporters of woollens. Malawi produces cotton fabrics, knitted fabrics, garments, towels, blankets and netting. Cotton fabrics - which comprise over 60 per cent of the sectoral output use domestic raw material but the other products have high import content. The small-scale sector is very important as a provider of employment - specially in wearing apparel branches (tailoring). Forward linkages between fabric producers and tailoring enterprises are well developed. Excess capacity is said to exist in knitwear, towel, blanket, and net making branches.

Demand for man-made fibre is outpacing cotton

Throughout Africa there is a trend towards falling income elasticities for cotton textiles and rising elasticities for man-made fibre and blended fabrics, which have advantages in terms of durability. Despite the very low per capita consumption of fibre in Malawi, the proportion of man-made fibre in the total was estimated in 1993 at 25 per cent. This fact has already led the main manufactures to establish polyester production facilities

The output of knitwear has grown sporadically in Malawi. The main difficulty is that the industry is not supported by broad local demand but caters for the rather narrow market provided by the higher income groups. Lack of purchasing power, rather than insufficient need constrains demand: despite seasonally low temperatures, particularly in the highlands, the total estimated per capita consumption of cotton and man-made fibres is low even for Africa at about 1.3 kilogramme per annum, and knitwear is scarce compared to other African countries which have seasonal climates, such as Kenya.

Mauritius has had notable success

The growth of the textile and wearing apparel industry in Mauritius has been extremely rapid due to the successful operation of the export processing zone. New investment in the EPZ sector is tax exempt if investors agree to export all their output. Imports of raw materials and machinery are duty-free, and low-interest loans are available. Industrial buildings are rented cheaply, and electricity and water is supplied at cost.

In 1997 there were 265 firms in the EPZ employing 71,000 people in the textile and clothing sector, accounting for 55 per cent of the total number of firms and 87 per cent of the total number of persons employed in the EPZs. Total exports from EPZs have risen over sixteen times during 1981-94. But since the late 1980s there has been closure of both large and small enterprises in the EPZ. Total employment in the EPZ at the end of 1997 was almost ten per cent lower than its peak level, in 1990..

The bulk of the job losses and decline in EPZ firms was in fact in the textile and clothing industry, which accounted for 84 per cent of EPZ exports in 1996. and account for 90 per cent of foreign investment. EPZ exports of clothing and textiles rose by 61% between 1992 and 1996. Mauritius has at times been the world's third largest supplier of woollens. Developments over the past five years have led to an even greater concentration of EPZ firms in the textiles industry. Rapid industrialization based on a single industry, although beneficial to the economy in the short run, could prove to be dangerous in the longer term.

Hong Kong, France and the UK are the largest investors in the industry, together accounting for 68 per cent of foreign firms, 80 per cent of total employment by foreign firms and 81 per cent of exports by foreign firms. Hong Kong firms occupy a dominant position in the industry, representing 31 per cent of foreign firms and 55 per cent of employment in them.

Further development of the manufacturing sector, especially the EPZ, has to be monitored closely in terms of its net contribution to GDP, if a proper analysis of the role of the EPZ in the economy is to be made. The percentage share of real value-added by the EPZ to GDP increased from 2.6 per cent in 1976 to 13.9 per cent in 1988, and stabilized at about 12 per cent in the mid 1990s. Net EPZ exports as a proportion of total EPZ exports declined from 35.2 per cent in 1983 to 17 per cent in 1989 and then rose to 42.4 per cent by 1996, while the share of EPZ exports in total exports rose to 65.6 per cent in 1996, from 63.1 per cent in 1992. . Further increases in the percentage share of value-added by the EPZ to GDP can be achieved if the import content of exports can be reduced by the increased addition of value added and backward and forward linkages between the EPZ and other sectors of the economy are increased.

In Ethiopia textiles are dominated by the state sector

In Ethiopia fabrics comprise 60 per cent of the output of the textile and clothing industry and yarn another 15 per cent - the share of garments in total output has been rising but is still only 13 per cent. The main products are cotton fabrics, nylon fabrics, acrylic yarn, cotton yarn,woollen and waste cotton blankets, carpets, gunny and polypropylene bags, hosiery and sewing thread.

Most of these products are manufactured by state owned enterprises, which accounted for 99 per cent of sectoral value added in 1989/90. Many are in the process of being privatized. The major enterprises in the subsector are Akaki Textiles Factory, Dire Dawa Textiles Factory, Bahir Dar Textiles Factory, Debre Berhan Wool Factory, Combolcha Textiles Factory, Ethio-Japanese Synthetic Textiles Factory, Awasa Textiles Factory and Arba Minch Textiles Factory. All of the above enterprises except Ethio-Japanese Synthetic Textiles Factory are owned by the state. Ethio-japanese Synthetic Textiles Factory is a company jointly owned by the Government of Ethiopia and two Japanese companies, Toray and Mitsubishi. Privately owned enterprises consist mainly of knitting mills producing knitted products and hosiery. Some of the state owned enterprises are being privatized, though it is not easy to find buyers.

The industry is quite import dependent. Figures for 1992/93 show that 21 per cent of the lint cotton used as a raw material is imported. The import to apparent consumption rates approached 100 per cent in the case of polyester fibre, jute fibre, wool wastes acrylic yarn, nylon yarn and baching oil. But the ratio was only 47 per cent in the case of dyes showing the relatively developed state of the chemical industry.

The major constraints of the subsector are increasing prices of raw materials, competition from imports, over-manning, and lack of experience in operating in competitive markets. The price of most raw materials has increased manyfold. For instance, the price of cotton has increased from Br3.50/kg in 1992 to Br11.50/kg in 1995 mainly due to the devaluation of the birr.

Both legally imported and contraband garments are entering the country in large volumes. Foreign garments are low priced and superior in quality. As a result, they pose stiff competition to the local garment producers and tailors.

Mauritania has a long tradition of artisanal textile manufacture and leather working but has been unable to develop successful industrial enterprises in these fields. A survey of informal sector activities in Nouakchott

undertaken in the late 1980s revealed 1,156 tailoring enterprises, 5 weaving workshops, 102 enterprises producing leather goods, 52 enterprises dyeing cloth and 21 rug weaving workshops.

Within the carpet weaving industry attempts have been made to integrate the traditional artisanal mode of production into the modern economy. The Government established the Office du Tapis Mauritanian (OTM) in order to provide marketing, training and technical support to female weavers working in groups of six in their own homes. OTM provided these independent cooperatives with short-term commodity credit in the form of looms which they pay back in eight years at an interest rate of 8.5 per cent, and initial raw materials which were to be funded by the OTM paying weavers only the labour cost of the carpets delivered. However, burdened by debts from its former institutional structure, the OTM was faced by a shortage of working capital. Consequently, supplies of raw materials became short and production fell. In order to improve the company's financial situation OTM's administrative staff was reduced, the debt burden converted into maturities compatible with the company's long-term refinancing abilities and further credits were provided by the IDA. Subsequently, management of OTM was transferred to the Fond National de Développement (FND) and the company was then restructured and privatized as Tapis SA. Under a new management structure the company's performance appears to have improved. Cloth production is limited to one company, S.A. Mauritanienne des Industries et Equipements, which produces blankets and polypropylene sacks. The company has a production capacity of 200,000 blankets and 3 million polypropylene sacks per year. The company currently operates below capacity. Another company, SICOTEX, recently established, finishes and prints imported cloth. This is an extension of traditional crafts.

Privatization is under way in Malawi

In Malawi the main textile establishment is David Whitehead Cotton Mills, which is now being privatized, producing cotton fabrics. Whitehead's subsidiaries also produce knitted fabrics, garments, towels, blanks and net. In value terms some 70 per cent of textile output in the formal sector was accounted for by cotton fabrics. However, it can be seen that, while the production of cotton fabrics is entirely based on local materials, that of garments, towelling, blankets and fishing nets has in each case a high import content, amounting to as much as three-quarters or more. Excellent capacity exists in the knitwear, blanket, towel and net-making industries. The modern garment industry has expanded fairly rapidly, although most of the fabrics are imported. This low degree of integration is a major structural weakness. The garment industry has, however, developed very important forward linkages with the much more important traditional tailoring industry which should be maintained and indeed developed.

Despite the very low per capita consumption of fibre in Malawi, the proportion of man-made fibre in the total is estimated at 15 per cent. This fact has already led Whitehead's to establish polyester production.

The output of knitwear declined in the recent past. The main difficulty is that the industry is not supported by broad local demand but caters for the rather narrow market provided by the higher income groups.

Fibre demand is expected to have increased by about 60-80 per cent, by 50-75 per cent for home-made fabrics and by 39 per cent for knitwear. These figures appear optimistic, involving as they do an increase in fibre consumption per capita of 30-50 per cent by weight and in per capita expenditure on clothing other than knitwear of 75-90 per cent, in value terms. The expansion of the textile industry is constrained by the lack of purchasing power in the rural areas. Nevertheless, the prospects appear reasonably good for continued expansion in this important sector, but growth will have to be domestic demand oriented. Exports prospects are not encouraging.

Sudan's textiles depend on cotton

In Sudan the textiles industry is a natural consequence of the country's cotton production and it is estimated that domestic demand for cloth and yarn could be met fully, leaving a surplus for export, if all the mills worked to full capacity. Weaving and spinning capacities are around 300 million yards per year and 25,000 ~~tons per year, respectively, on 9,000 looms and 600,000 spindles.~~ Installed capacity for bleaching, printing and dyeing is about 200 million yards per year. Actual production is far below capacity. Spinning capacity utilization is no more than 30 per cent, whereas that of weaving is around 25 per cent. Capacity utilization rates are higher in the private sector than in public sector enterprises - in spinning the public sector capacity rate is 20 per cent; whereas that of the private sector is over 30 per cent, in weaving the public sector has

a rate of 25 per cent, whereas that of the private sector is 40 per cent - but these are still below acceptable levels.

Given the poor performance and low profitability of the textile mills, the funds needed for a substantial rehabilitation programme are unlikely to be mobilized by the private sector. Nevertheless, Sudan's role as a major cotton exporter provides a prima facie case for the long-term development of the textiles branch as a central component of the manufacturing sector. A prerequisite of long-term development is the preparation of a sectoral development and rehabilitation plan based on a plant level review of the existing production capacity, the macro-economic environment and forecast of domestic and external demand.

The western lowlands and the south eastern lowlands of Eritrea are suitable for cotton production. The potential for cotton plantation is particularly favourable along the Gash River although a very limited area has yet been developed. Aligheder Estate Farm is the only large-scale irrigation scheme in the country that exploits the River Gash. Aligheder Farm was a 16,000 hectare concession located on the left bank of the Gash and developed by S.I.A. Pvt. Ltd., Co. Of this area, 8,268 hectares were equipped for irrigation and over 5,000 hectares have been devoted annually for cotton plantation.

The plantation produces long staple Acala type cotton, from which 35 per cent lint cotton, 58 per cent seed cotton and 7 per cent trash is extracted. Currently, the three textile firms are able to get a supply of cotton sufficient for seven months from the limited state and small-scale privately-owned cotton plantations that exist. The raw cotton is ginned in one of the textile factories, the lint cotton is sold to the three textiles factories and the cotton seed is sold to one edible oil factory.

During the war it was not possible to grow cotton on a commercial basis but since 1993 the area for cotton cultivation has been increasing. In 1994, 31 per cent of the annual demand of the textile industries was satisfied and in 1995 about 65 per cent of the annual demand for cotton of the textile industries was met. There are three public factories that produce cotton yarn and fabrics, and acrylic-yarn fabrics. The total demand of cotton by these textile factories is about 4,830 tonnes of lint cotton per year. While these three factories together get raw cotton sufficient for seven months from domestic sources at present, the balance is imported mainly from Ethiopia. It is estimated that the total demand of the existing textile industries in the country was satisfied in 1997 and exports of cotton were projected thereafter. In addition, the expansion of cotton plantation will also supply the cotton seed requirements of the oil pressing industries which currently rely to a large degree on imports.

There exists an extensive coverage of doum-palm trees and abundant land that can be provided for investors on concessionary basis for growing sisal. This could be complemented by the availability of an abundant and well-disciplined labour force. Moreover, the strategic location of Eritrea permits it to be a centre of services and facilities, while investment in garment industries would act to boost production to meet the substantial demand for uniforms locally, and to facilitate exportation to neighbouring countries. Doum fibre, a source for jute, is locally produced. In 1993 an investment of 10.6 million Birr (approximately \$2.12 million) was made to rehabilitate the doum fibre factory which had been closed in the early years of the war. The factory is situated at Agordat and production currently stands at about 300 metric tonnes, equivalent to about 20 per cent of the jute input for the sack and fibre industry.

Issues and prospects facing the textiles sector

The question of export prospects

Textiles and clothing are important industries for many African countries although their structures differ widely. A key question is whether the sectoral strategy should be export oriented, whether the primary focus should be on the domestic market or whether the two strategies could be combined?

xxBoxx

The implications of trade liberalization

Both the Uruguay Round agreements and the establishment of the World Trade Organization (WTO) in 1997 < check > will have far-reaching repercussions on industrialization in developing economies. In joining the WTO, developing countries have committed themselves to accepting the entire Uruguay Round package of trade reforms. In terms of export market prospects, the main gains to developing countries will be: improved access to the markets in developed market economies; and an "insurance policy" against

future barriers to those markets. The two main Uruguay Round provisions with near-term implications for industrialization in the developing countries are:

- the phasing out of the Multi-Fibre Arrangement (MFA) over ten years; and
- tariff cuts.

As will be discussed later, the new trade regime presents both threats and opportunities for developing economies; most African and Caribbean countries will suffer short-term losses from the erosion of existing preferential arrangements. Following Uruguay Round liberalization, the developed market economies may also selectively resort to safeguard and anti-dumping actions to reduce the rate of import growth.

MFA abolition

Under the MFA, trade in clothing and textiles is subject to quotas on developing country exports negotiated bilaterally between importing industrialized countries and exporting developing countries. As the MFA is phased out, clothing and textile products will be integrated into the WTO, meaning that tariffs will be the only border measures allowed.

Although clothing and textiles dominate developing-country exports to industrialized economies, there are two main reasons why the phasing-out of the MFA and the removal of bilateral export quotas may not benefit developing-country exporters as much as hoped:

The liberalization process is backloaded so that 51 per cent of international trade in textiles and apparel will be switched from quotas to tariffs during the first three phases of a four-stage process. The remaining 49 per cent will be liberalized by way of a "big bang" at the end of year ten. The near-term positive impact on developing-country exports is also likely to be diluted because industrialized countries are almost certain to integrate the least import-sensitive items first, leaving the bulk products until 2005. There is the further possibility that, as the date for final implementation draws near, future governments will come under intense pressure to renege on aspects of the deal.

If the agreement is implemented fully and trade in clothing and textiles is substantially liberalized, market conditions will change markedly. The abolition of export quotas will mean that all exporters will have to compete on a level playing field. While, as a group, developing economies will gain from the elimination of the MFA, the gains will not be evenly spread. The more efficient developing-country manufacturers will benefit at the expense of some of the less competitive, resulting in dramatic changes in market share.

More losers than gainers

A conservative estimate of developing-country export gains on account of quota liberalization alone is \$50 billion (if liberalization had taken full effect in 1992), while by 2005, assuming 4 per cent annual growth in the clothing and textile trade, the gains from quota elimination are estimated at \$80 billion.

Because the clothing sector is highly labour-intensive, low-wage economies may well take market share from their higher-wage counterparts. China and India seem likely to gain at the expense of the Asian newly industrializing economies (NIEs) and other higher-wage States in Latin America. According to one estimate, "far more" developing countries will be net losers from MFA abolition than net gainers. In turn, this implies ongoing restructuring of industry in such countries, especially early in the twenty-first century, when the full impact of MFA abolition will be felt.

Because of the historical evolution of the MFA system which was highly discriminatory at country and product levels, the initial short-term impact of trade liberalization will work through individual markets and at product levels. African LDCs will need to re-orient their policies and undertake product and market diversification in anticipation of these emerging trends < Page, S. and Davenport, M., *World Trade Reform, Do Development Countries Gain or Lose?*, ODI Special Report, Overseas Development Institute, London, 1994. and UNCTAD, "The Outcome of the Uruguay Round: An Initial Assessment", Trade and Development Report, Geneva, 1994..

Several important features of the ten-year phase out of the MFA should be noted. First, given the initial differential growth rates for exporting countries and products, if the initial permitted growth rate was 1 per cent, the subsequent growth rates in the phase out periods will be 1.16 per cent, 1.45 per cent and 1.84 per cent. On the other hand, with an initial growth rate of 6 per cent, the subsequent growth rates will be 7 per cent, 8.7 per cent and 11 per cent. Second, as only one product from each sub-sector is mandatory, the clothing sector products of significance can be left on the MFA list until the last stage, when the

remaining products, some 49 per cent, will be phased out. Third, the interim arrangements allow for the imposition of Article XIX safeguard measures in cases where trade is liberalized and integrated into GATT rules. Countries are also permitted to initiate anti-dumping action against unfairly traded goods. Fourth, despite the agreement on phasing out, average tariff for goods in the post UR period will be 4 per cent as compared with 6 per cent pre-UR, for textiles and clothing the post-UR rate will be 12 per cent as compared with 16 per cent pre-UR. Despite a 4 per cent reduction, the textile sector will have the highest tariff level in the goods sector. Overall, despite liberalization, textiles and clothing will remain one of the most protected sectors. These views are echoed also by Page and Davenport (1994), UNCTAD (1994) and <Schott, J., The Uruguay Round, An Assessment, Institute of International Economics, Washington, D.C., 1994.>

The market is growing

The world market for clothing and textiles will undoubtedly grow over the ten years 1995-2005. (the period of the phase out of the MFA). World consumption of fibre has been forecast to rise from 37.9 million tonnes in 1993 to 51.5 million tonnes in 2004. OECD country demand is expected to increase from 18.2 million tonnes to 24 million tonnes over the same period while developing country demand is expected to rise from 16 to 23 million tonnes. Textile Intelligence estimates that production of fabric will have to rise by about 12 million tonnes during 1993- 2004 to meet the supply demand gap - 90 per cent of this additional production is expected to take place in developing countries but consumption per capita is expected to increase much more rapidly in the industrialized countries (rising from 21.5 kg in 1993 to over 26 kg per capita in 2004) than in the developing countries where even in 2004 per capita consumption is unlikely to exceed 5.0 kg. In Africa per capita consumption is unlikely to exceed 3 kg by 2004.

Developing countries' share of output and exports is rising

Two thirds of world textile production capacity is in developing countries and relocation in the form of the establishment of manufacturing ventures and subsidiaries involving developed country enterprises in developing countries is continuing. Developing countries' own investment in the textile sector is also growing, particularly for modernization and upgrading.

The process of structural change is even more marked in the case of clothing. The share of clothing in OECD country textile and clothing imports was 53.6 per cent in 1985. It increased to 64.5 per cent in 1992 and by 2004 is projected to reach 67 per cent. The share of yarn has declined from 23 to 13 per cent during 1987-92 and is expected to fall to 10 per cent by 2004. A similar trend is forecast for fabrics. Clothing imports from the developing countries into the EU have grown at a rate of 15 to 17 per cent per annum during the 1990s despite the quota restrictions. Continued growth of clothing demand in the OECD countries may be constrained by a sluggish rate of growth in parts of Europe and Japan, the persistently high rate of unemployment and demographic changes which are reducing the size of the working population. On the other hand, demand in the East Asian economies may increase quite rapidly once they resume growth when the Asian crisis which started in mid 1997 comes to an end. As they structure out of traditional manufacturing branches their textile and clothing imports may rise, but this process will now be delayed, although not indefinitely, by the severe economic decline being experienced in many Asian countries, which will represent a setback in their development and will also depress effective demand for some time to come.

Demand growth has been sluggish recently

Indications for 1996-97 are that demand growth had already slowed; cotton prices fell by 18.6 per cent in 1996-97 and wool prices fell steeply in 1996 and dipped again in 1997 < The Economist Intelligence Unit: World Commodity Profiles, 1998-99> Synthetic fibre capacity has grown by over 15 per cent in the last three years and the share of man-made fibres in total fibre consumption is rising rapidly (Anson, R. and Simpson, P., "World Textile: Trade and production trends", Textile Outlook International, January 1996, pp. 9-52.

The share of OECD countries in total synthetic fibre production is well on its way to falling below the 40 per cent level. Polyester is by far the most rapidly growing fibre - its share in total synthetic production has increased from 40 per cent in 1972 to 64 per cent in 1994.

Africa has a meagre share in textile and clothing growth

Africa's meagre contribution to the expansion of textile and clothing production is reflected in its textile machinery purchases - for example during 1985-94 Africa bought just about 9,000 shuttle looms, representing 1.3 per cent of world sales. Moreover 4,759 of these were bought by just three countries - Egypt, Morocco and South Africa. While Egyptian production is mainly for the domestic market, the Maghreb countries made significant export gains during the 1985-94 period. Growth in Europe seems however to have slowed down in 1995 and the most dynamic products are blouses, suits, shirts and accessories. Competition from China, Bangladesh and East European countries has intensified. Moreover both Malaysia and Pakistan will be seriously affected by changes in United States rules of origin which became effective in July 1996 and will intensify efforts to penetrate the European markets.

The impact of the World Trade Organisation

A major issue is the impact of the Uruguay Round (UR) trade liberalization measures on textile and clothing exports from Africa. It is apparent that for both Europe and the USA clothing will be the last sector to be integrated into the GATT system, now known as the World Trade Organisation - until 2005 most clothing items will remain subject to quantitative restrictions for non preferential non Lomé and non outward processing traffic (OPT) countries. (see the box above)

US provisions aim at restricting import surges

Currently the US has bilateral agreements with 41 countries accounting for 70 per cent of its clothing imports. It has published the full list of products to be phased out over three stages until 2005. For the US, the main aim in the interim period appears to be to retain the MFA framework in clothing, with a view to arresting major import surges. Hence, the emphasis is not so much on a few selected product categories but on overall levels of import penetration. Even for WTO members, the bilateral agreements do not specify the future growth rates which can be used to 'add on' to provide a ten-year profile of permitted growth rates for each supplier country. Furthermore, the bargaining process is left wide open for the future. For example, for India, although the number of restrained categories is small in comparison with many other countries, a 'market access' offer on the part of India was part of the overall negotiation process. To sum up, the US stance on the interim phase is in accord with the concerns over recent trends in import penetration levels, which accelerated despite continued restrictions under the MFA framework.

EU measures

In contrast to the US, the EU has not registered the full product list for all three stages of MFA abolition but has notified only the first-stage products. There are at present 28 third-country agreements, including China and Taiwan Province of China. The specified quota limits for WTO countries include enlarged quotas as a consequence of the enlargement of the EU.

For the EU the most sensitive products are shirts and T-shirts (category 4) jumpers and sweaters (category 5) blouses (category 7) and men's woollen shirts (category 8). The current US agreements appear to be more restrictive than those of the EU. However, the EU stance on MFA quotas needs to be related to its overall textile policy consisting of special provisions accorded to the European Free Trade Area, the Mediterranean countries, the Eastern European countries, the ACP group and the autonomous countries, as well as to past import trends and the evolution of the dominant and emerging suppliers' market shares.

The US and EU look away from traditional suppliers

During the 1990s in both the US and the EU clothing markets there has been a significant move away from traditional suppliers (the big three of East Asia) to new low cost suppliers. In the United States the share of these new suppliers has increased most during 1982-92 in men's cotton knit shirts, women's cotton knit shirts, women's cotton shirts, cotton shirts, men's cotton trousers, women's cotton trousers <Majmudar, M., "Trade Liberalization In Clothing: the MFA Phase Out and the Developing Countries", Development Policy Review, Vol. 14, 1996, pp. 5-36.> The prices of cotton knit shirts and cotton trousers also rose significantly.

Despite a fall in export volumes the traditional suppliers have often succeeded in maintaining their value share in a small range of products by up-grading of quality. In ten leading product exporter categories to the United States, China appeared in seven, India in five, Bangladesh in three and Sri Lanka in two among the top suppliers. There were no African countries in any of these product groups.

The list of top ten suppliers to the EU market over the 1988-94 period showed important changes. For example, in 1988, Hong Kong, Turkey, Yugoslavia, the Republic of Korea and China were the top five. By 1994, China, Turkey, Hong Kong, Tunisia and Morocco were the top suppliers. India and ex-Yugoslavia were in the top 10 in both years. Indonesia, Poland and Bangladesh replaced Austria, the Republic of Korea and Taiwan Province of China in 1994. There were no African LDCs in this group.

The average unit price trends in EU clothing were in sharp contrast to the US pattern. For example, the average unit price of clothing declined from 16.72 ecu in 1982 to 16.40 ecu in 1994. The maximum price declined by 16.6 per cent. The minimum price declined most, by 18.3 per cent. This pattern is further evidenced at the product level. For the EU, the price-raising effects of restricted products were confined to the maximum price band, raising the average unit price over time, although for many products the rise tended to be small with even a decline in a few cases. For example, although maximum and average unit prices rose for T-shirts, pullovers, trousers, shirts and women's overcoats, the price increases were small. In comparison with the US, changes of the dominant suppliers are uneven, and in most cases they were small. The market shares of the top five suppliers at product level confirm the general picture of the significant presence of preferential countries, along with Hong Kong and China.

Of the emerging suppliers, Bangladesh is the least-cost supplier of T-shirts and shirts. The share of the dominant suppliers declined most in pullovers, trousers, shirts and T-shirts. Mauritius appeared among the first four suppliers to EU during 1992, in two product categories T-shirts and pull over). Tunisia appeared in two as well trousers and women's shirts. Morocco appeared in five categories (trousers, pullovers shirts, women's suits and women's over coats). Bangladesh appeared in two (T-shirts and shirts). Turkey appeared in all nine categories. The possibilities of unequal distribution of the effects of quota removal among developing countries are explored by Page and Devenport (1994) by focusing on the OECD market. Mauritius is identified as the largest single loser with almost a 30 per cent decline in export earnings relative to 1997. A small negative decline of export earnings of 0.6 per cent is forecast for SSA and North Africa is seen as not being affected at all. The increased concentration that is likely to occur as a consequence of the phased reduction in quotas may mean that some minor producers will leave before integration of clothing into GATT. The key to survival is not just low wages although foreign investors cite this as the single most important consideration the evidence seems to be that the major African clothing exporters (Morocco, Tunisia, Mauritius) cannot compete with Bangladesh India, Pakistan, Vietnam and perhaps even China as far as wage cost are concerned. China and India are often identified as the major gainers from the MFA phase out Specialization and the development of market niches seems very important in maintaining export growth.

New suppliers have made an impact

There are no African LDCs among the major suppliers of extra EU textile imports but new suppliers from the developing world have made a breakthrough. Thus in 1994 textile imports from Iran amounted to Ecu 470 million (roughly four per cent of total extra EU textile imports). Prices of both textile and clothing imports have been falling. Both Bangladesh and Indonesia are now among the top ten and in volume terms Bangladesh exports were larger than Tunisia's and almost equivalent to Morocco in 1994. Bangladesh was the lowest price supplier to the EU.

Prices are stable in the US and growth is slow; EU growth is fast

There is a clear contrast in market opportunities. In the USA growth is slow but prices are stable. In the EU volumes are rising rapidly but there is pressure on prices in all categories. US trade in clothing is being regionally sourced with preference for NAFTA and Central America (NAFTA may expand to include Chile and perhaps Colombia). EU companies are moving downstream production abroad to take advantage of lower costs. This shift in production has been stimulated by retailer pressure for lower prices. Retailers are estimated to control 51 per cent of clothing imports in to the EU in 1994 <Scheffor, M., "Internationalization of Production by EU Textile and Clothing Manufacturers", Textile Outlook International, January 1994, pp. 101-123.> <Scheffor, 1994, p.102). A large portion of EU garment imports are also channelled through European manufacturers and designers.

Internationalization of EU firms has been influenced by quotas

The internationalization of EU firms has taken the form of cut, make and trim (CMT)/outward processing traffic (OPT) arrangements subcontracting as well as the establishment of fully owned subsidiaries. OPT trade is now being restricted. Only firms with their own manufacturing unit in the EU are awarded OPT quotas. OPT arrangements are geographically widespread - but three quarters of OPT imports originate from East Europe and Turkey in a typical year. The share of Morocco and Tunisia is only about 15 per cent. The share of Mauritius is minuscule and no other African country figures at all.

OPT and other forms of subcontracting have disadvantages but these can be reduced if the foreign firms can be induced to use local fabric rather than imports. This has cost and transportation advantages but requires upgrading of locally produced fabric. Relocation by EU textile firms to Africa can increase the production and use of local fabric. Moreover the sourcing of grey fabric from low cost countries is increasingly common among EU firms.

Subcontracting and extra EU production by European clothing manufacturers now accounts for over 40 per cent of total turnover as against only 28 per cent in 1983. In Germany and France about one third of turnover is derived from local production. In the Netherlands this share is less than 20 per cent. Foreign sourcing is most common among large diversified companies operating in brand markets and among producers of children's clothes. Both mass production and smaller runs are being sourced from abroad.

Moving abroad

Moving abroad is prompted by retailer pressure - retailers usually move before manufacturers - and by labour cost advantages (Scheffor, 1994). The move is usually a long-term commitment. Scheffor's survey shows that there are no advantages in terms of price flexibility or taxation which creates an incentive for a "return to Europe" (1994 p.114, 115). Textile firms benefit from OPT which increases their international competitiveness by reducing costs. Textile firms supplying fabrics to North African sites are more likely to contemplate relocation. Direct delivery is common in denim, cotton shirts and children's clothing.

During 1983-95 some European textile firms have set up operations in Morocco, Tunisia and Mozambique. The size of these producer units are small. They have been set up by large firms and mainly produce grey cloth, basic qualities and a limited range of fabrics. Retailers' demand plays a leading role in the decision of textile firms to set up a foreign unit which is geared to supply the local market. But the move overseas of textile production is restricted by the prevalence of OPT, the clothing manufacturers prefer taking supplies of fabric in Europe and the geographical spread of the purchasers of the output of textile firms is limited - few textile suppliers sell to a production base which is so big in one individual country that they can afford to set up a subsidiary there.

The buying in of grey cloth is the most widespread form of international sourcing. In the printing industry the majority of grey fabrics are sourced from outside the EU. It is also growing in the piece dyed goods sector. Key growth areas are the plain dyed cotton sector and polyester. With clothing distribution becoming increasingly concentrated in the EU and the manufacturing sector fragmented, moving abroad to ever cheaper sources will remain an attractive long-term policy. Today the choice is not EU or East Europe, it is Poland or Morocco, tomorrow it could be Madagascar or Uganda.

Asian exporters dominate the EU and US markets

Both production and investment restructuring is also evident in the textile and clothing sectors of East Asia. The combined share of the big three - Hong Kong, Republic of Korea and Taiwan Province of China - in US textiles and clothing imports has declined from 50.3 per cent in 1982 to 28.7 per cent in 1992 in value terms: China's share increased from 8.6 to 13.4 per cent during this period. It is also now the biggest supplier to the EU market with its share exceeding 9 per cent in value terms in 1995. Asian exporters now supply over 70 per cent of US textiles and clothing imports. Traditionally China, the 'big three' India, Turkey and Israel were large suppliers. Now many other Asian countries have emerged as major players in the US markets. They include Sri Lanka, Thailand, Malaysia, Singapore, Indonesia, Philippines, Macau, Bangladesh, Pakistan and Nepal. The UAE, Oman, Qatar and Bahrain are expanding their US exports. Besides the big three, China and Thailand several Asian countries (Bangladesh, Sri Lanka, Vietnam) have successfully penetrated the EU market.

Moreover there is evidence of a second migration of the clothing and textile industry in Asia. Hong Kong firms are shifting to China specially to Guangdong. The usual pattern is to relocate labour intensive processes and retain skill intensive activities through joint venturing and the establishment of subsidiaries. Besides China, large Hong Kong producers had set up establishments in the following countries during 1981-1992: Singapore, Macau, Sri Lanka, Malaysia, Philippines, Maldives, Bangladesh, India (Asia); Saipan (US territory in West Pacific); Costa Rica, Panama (Latin America); Morocco, Mauritius (Africa).

Africa has locational advantages

Both European and Asian firms have incentives to relocate to low cost sites with sizeable domestic demand and proximity to the EU which is the world's largest textile and clothing market - Africa has the added advantage of having preferential access to the market. But its industry is in deep crisis. The changes that are taking place in production technology particularly in the clothing sector may to some extent be to Africa's advantage. There is a distinct move away from the quest for a fully "unmanned factory". The emphases now is on design, new fabrics production and delivery flexibility, quality and service. Computer systems are being oriented to pattern grading market making and materials transport. There has been a dramatic decrease in the price of entry level systems and new technologies are becoming affordable and more accessible to small and medium sized firms. While the new technology has changed the organization of the overall supply chain in the clothing industry - enhancing economies of scale - it has not fundamentally affected the most labour intensive production processes on the sewing room floor.

Export prospects are dim

It is at present not possible to be sanguine about textiles and clothing projects in African LDCs as a whole but in four countries - Chad, Ethiopia, Madagascar and Tanzania - clothing exports have shown a rising trend. Prospects also appear reasonable in Uganda, Mozambique, Togo, Ethiopia and Sudan. The following considerations may be borne in mind when assessing the financial viability of textile and clothing sector projects in African LDCs:

- (a) Export prospects are very limited for the vast majority of African LDCs. On the other hand per capita consumption of textile and clothing in Africa is by far the lowest in the world. There is thus a strong prima face case for domestic demand orientation with large populations and raw material availability (cotton for natural fibre, chemicals and petrochemical for synthetics). Several African LDCs come into one or both of these categories. The development of an efficient domestic demand oriented textile and clothing branch thus is justified in these countries.
- (b) In many of these countries textile and wearing apparel already represents one of the largest manufacturing branches. But it is usually not efficient and has low levels of capacity utilization. Policy must be concerned with rationalization acquisition and merger, rehabilitation, balancing and modernization. Privatization may be a means for achieving these objectives.
- (c) Production for the local market must be mainly in the form of low and medium count yarn, grey fabric and coarse cloth. Given the low levels of income in Africa production must be price not quality driver.
- (d) While the bulk of the textile and wearing apparel manufacturing activity should be domestic demand oriented, there is scope and need for creating export competitiveness in a selected number of products. The export strategies must be constructed so that they synchronise with the sourcing strategies of major European and Asian retailer chains. It is the retailer groups who are now the principal market makers and investment flow facilitators in the textile and clothing business. An alliance with key retail houses can pay rich dividends in the form of both export earnings and foreign capital inflow for many African countries.
- (e) The export strategy must be product specific. Low cost African LDCs must seek to develop a capacity to market standardized products of the type exported by Bangladesh, Sri Lanka and Nepal. Some indication has been given of the type of product likely to be most lucrative (cotton dresses, men's cotton non knit shirts, women's cotton non knit shirts, T shirts, blouses, industrial clothing, cotton sports wear and children wear).
- (f) A very important need is to seek to participate in OPT/CMT arrangements and to increase the volume of locally produced fibre in manufacturing of OPT/CMT type operations.

(g) There is also a significant opportunity for expanding the share of locally produced grey goods in export oriented production.

(h) While the EU market remains of primary importance, note must be taken of the opportunities in both East and South Asia. Asian firms are also moving out of low count yarn and low value added fabric and clothing production creating space for lower cost producers. Moreover Asian - especially South Asia firms - can be attracted to East Africa (given the presence of a large Indian community) to export oriented and modern projects. This may also be true of some Latin American countries which have sought to develop trade and investment ties with Africa such as Brazil.

(i) Finally the American market remains almost totally unpenetrated. Many low cost Asian countries have had significant success in the USA as have some Latin American countries (but that may be attributed to preferential treatment). The presence of a large African community with strong cultural ties to the home continent provides a rare opportunity to African textile products. If properly targeted this community can help build the market niche necessary for African penetration for the US clothing and textile markets. This community can also serve as a rich source of technical know how and expertise for the modernization of the industry.

Leather and footwear

Markets and prospects

Developing countries now produce most footwear

Developing countries have since the 1970s made major-advances in the development of the footwear industry (both leather and plastic) and have also significantly increased their penetration of international markets. Progress in other segments of the leather industry is more limited.

The making of footwear is a relatively straight-forward operation and, attracts considerable interest from low-labour-cost countries. From 1978 to 1995 there was continuing and significant shift of shoe making on a global scale from developed to developing countries. For example, in 1978 developed market economies accounted for around 24 per cent, of world shoe making and developing countries for 53 per cent by 1995, the shares had changed to 16 per cent and 72 per cent, respectively. Within this broad picture, the main benefactor has been Asia, a region which has seen its share of world shoe making increase from around 40 per cent to 60 per cent.

The major increases over the period have occurred in two groups of countries. Brazil, China, Republic of Korea and Taiwan Province of China have all registered increases of over 100 million pairs, while Italy, Portugal, Thailand and Yugoslavia have all experienced increases of over 50 million pairs each. There have also been several intra-regional movements, such as production in Europe shifting from north to south, and, in East Asia, from the Republic of Korea and Taiwan Province to China, Indonesia, Thailand and Viet Nam, with Malaysia and the Philippines also making their presence felt. At the other end of the scale, the United States has seen its shoe making decrease by over 200 million pairs, and France, Germany and the United Kingdom have also registered significant decreases. Footwear production in Belgium, Denmark, Ireland and Sweden has virtually ceased. China was the leading producer in 1990, with 2,700 million pairs, followed by the former USSR with 820 million pairs in 1995.

African consumption is less than one pair per head

Reliable estimates of production in Africa are not available, but consumption in 1995 was estimated at about 320 million giving a per capita consumption ratio of significantly less than one pair. Scattered data from individual countries in the UNIDO data base show that while shoe production is growing at a rate in excess of population the target of one pair per person is not likely to be achieved by the year 2000. Meanwhile shoe consumption is almost reaching the saturation level in most industrialized countries.

Many developed country producers (e.g. Germany and the Scandinavian countries) have larger ~~investments outside their countries than at home~~. ~~Productivity levels are higher in developed countries~~, but the cheap and abundant supply of labour in developing countries more than compensates for that. It is impossible for the European and North American countries to compete on prices with East Asia. Eventually, cheap footwear production will go to the countries offering a package that is based on the lowest labour costs, but also able to meet certain other basic criteria, such as reliability and ability to meet delivery dates, political stability and a basic infrastructure.

There is scope for foreign investment in the sector

There is very limited movement of foreign capital to the African footwear industry except to Egypt and South Africa. Shoe exports and production in many African countries has been growing and if income growth revives there is likely to be a large increase in demand over the medium run, given the rapid pace of urbanization.

Given Africa's large raw material resource base for the leather and footwear industries there is also considerable scope for export growth. Here sportswear may be a very important category. About 75 per cent of world production in sports footwear takes place in East and South East Asia. It has become extremely difficult to produce sports footwear in Europe. As the styles have started to require increasingly complex upper stitching, the labour costs involved have made it prohibitive to manufacture there. One of the problems facing Adidas, for example, was that they retained too much of their production in Europe. Consequently, their costs were too high. Now they have joined the general trend in closing plants in France and Germany and switching to East Asia.

Global footwear output is projected to reach 12 billion pairs by 2000 <(UNIDO, 1992, p. 418; I cannot locate this; is it UNIDO, Improved Policy Guidelines and Industrial Strategy for the Development of the Leather Industry in the African Region.?

Low cost producers have an intrinsic advantage and the acquisition of the new 'just in time' and 'quick response' technology is not prohibitively expensive as many of the 'second generation' Asian economies have shown. But the markets will not be in Europe and America, where per capita shoe consumption approaches six pairs a year, population growth is slowing and population is aging. The market for the future is in the countries with per capita consumption rates of less than three pairs and with a factor cost structure which makes it efficient for them to either move out of shoe production or to produce higher quality shoes. Such a market exists for African producers in West Asia, Latin America, to a lesser extent in South East Asia and pre-eminently in Africa itself. The real challenge is to target lower and lower middle income groups within these markets and to mass produce standardized cheap but durable footwear for home consumption as well as export. French companies in North Africa have shown an awareness of these opportunities by concentrating on the production of lower priced shoes. Success in attracting foreign investment depends on developing a managerial and production system geared to on time delivery, productivity growth and quality control. Low labour costs and tax incentives are necessary but not sufficient to induce location by major international manufacturers.

Structural constraints are considerable

The potential for the expansion of the industry is considerable but structural constraints exist in major leather producing countries. There are briefly enumerated below.

Malawi

There is only one tannery at Liwonda. Capacity utilization is low and it can only process 400 hides and 200 skins per day. It suffers from a shortage of capital and managerial inefficiencies. It usually produces an annual financial loss.

The leather and footwear industry is largely dependent on imports. It obtains only about 50,000 ft of finished leather from Liwonda per month.

There is only one major footwear manufacture - Bata - which totally dominates the domestic markets.

There exists only one major leather garments firm, established in 1992, capable of producing a limited range of products.

Somalia

Collections are very low. There is wide-spread smuggling of animals. It is estimated that the domestic markets lose about 50,000 cattle hides, 370,000 goat and 250,000 sheep skin per year to smuggling.

Skins and hides are of poor quality. Animal nutrition and hide quality have deteriorated because of drought.

The 100,000 head a year slaughter house built in 1990 at Kismayo has fallen into disuse.

Prices paid by the Somalian Leather Agency to small dealers who make collections are low.

Most of the seven major tanneries inoperative in 1990 are now reported to be practically closed. Even before the civil war utilization of capacity never exceeded 25 per cent.

Tanzania

Off take rates are only 8 per cent for cattle, 15 per cent for sheep and 25 per cent for goats. Collections are estimated at 75 per cent for cattle and between 7 to 5 per cent for sheep and goats.

The hides trade is dominated by one company which has a market share of 75 per cent. There is widespread pilferage and smuggling.

Continuing devaluations have made chemicals and spare part imports very expensive, leading to a drastic fall in tanneries production.

The three major tanneries have high ratios of under utilization of capacity. Due to foreign exchange shortages plant and machinery is rapidly becoming obsolete. The tanneries are being rehabilitated by Tanzanian private investors.

The privatization of the state owned tanneries has led to the monopolistic control of this segment of the industry by just two firms - Aga Khan Tanneries and ATD. The survival of the smaller private sector tanneries is now seriously endangered.

Trade liberalization has had a negative impact. Local leather is being rejected by manufactures who prefer imported goods.

Waste disposal is substandard. Waste and disposal equipment is not commissioned because enforcement of effluent treatment legislation is minimal.

Under utilization in private shoe manufacturing units is high. The two publicly owned shoe factories are non operational.

Although leather goods manufacturing is doing well - almost all companies are profitable and exports are rising - poor quality of leather supplied is becoming a serious problem.

Zambia

There has been no animal census since 1978 and the herd has been seriously affected by the drought conditions of the 1980s.

Off takes are 15 per cent for commercial farms (which have one third of the herds and flocks) and 7 per cent for the communal farms. Collections are about 70 per cent.

Available dipping facilities are rarely used by communal farmers.

Operational conditions and storage facilities are poor at the main Zambia Cold Storage Commission (ZCSC) a parastatal. The ZCSC has a monopoly in hide supply. Relations between ZCSC and tanners are strained. The tanners say prices are too high and quality control is minimal.

Tanneries find it difficult to move from wet blue to finished leather due to technical problems arising from increased obsolescence of equipment. Moreover export of wet blue hides is hampering the upgrading of the tanneries as the best hides go to Europe and East Asia. The poor quality of hides and skins was partly due to low prices.

Devaluation has led to a major increase in input costs.

Monopolization of the footwear branch has increased and two major plants closed down in the early 1990s leaving only Bata and Copperbelt Footwear in the field.

Leather goods manufacturing is very small.

Ethiopia

Conditions deteriorated significantly during the political unrest of the 1980s. Dipping ceased in many areas and it became difficult to deliver salts and insecticides. This ground has not yet been made up. Organized slaughter houses still account for only 5 per cent of the national kill. Collections however have increased. Tanneries suffer from shortages and poor quality of raw material. The Five Year Development Plan (1992-96) target of a 175 per cent increase in leather exports has not been achieved. The installed capacity of Ethiopian tanneries is estimated to be in excess of 14.8 million skins and 1.3 million hides annually. This includes about 80 per cent of hides and 60 per cent of skins to crust and finished leather. **Thus, there is sufficient production capacity to meet national targets, but it is dependent on raw material collections and grades.**

The dissolution of the National Leather and Shoe Corporation (NLSC), which was an exceptionally efficient parastatal, has led to a slump in up stream activities and the private sector has not shown an ability to take up the slack. Privatization cannot proceed under existing circumstances.

The major part of exports is in semi-processed form. The share of crust is not increasing at a satisfactory rate. International standards can be met in all classes of manufacture. The demand for Ethiopian wet blue and crust in export markets proves this. Awash Tannery has converted a three million birr loss over a year or two into a 10 million birr profit, and the bulk of earnings came from exported wet blue and crust.

There are only three large shoe manufacturing and one leather goods plant. The quality of product is poor. Major constraints are over staffing, inconsistent quality of raw material and a rapid escalation in the costs of imported inputs due to accelerated devaluation. Exports markets in East Europe have been lost and prospects for penetration into the OECD countries are not good.

Upgrading of effluent treatment systems seems to have been indefinitely postponed.

Sudan

The livestock population, at 22.4 million cattle, 14 million goat and 19 million sheep, is the second largest in Africa, exceeded only by Ethiopia. But availability is just 1.5 million hides, 2.5 million goat and 4 million sheepskins annually. Animal distributions are widespread and ownership in the hands of nomadic people who inhabit remote areas.

The national herd and flocks are at the limits set by traditional methods and available grazing. Stock improvement is not practised. All livestock are indigenous and, because of natural selection, are suited to the environment.

Modern slaughter facilities exist only in Khartoum and Omdurman. Cattle are moved in 'on the hoof' from outlying areas. Many do not survive the trek and losses are high. Because of distances involved and financial limitations, plans to improve facilities along stock routes have not materialized. Urban abattoirs account for only 30 per cent of the kill.

In country districts standards are poor, only one abattoir to every 17,000 kilometres, and home slaughter is the norm. Hides and skins exports go to Italy, Greece and contiguous Arab countries. But earnings are not optimum because of quality defects and the fact that export is as raw not wet-blue.

There is no incentive, to produce quality leathers for the domestic market. Footwear manufacturers bought on price only; they did not differentiate between good and bad. Per capita income in the Sudan is among the lowest in the world and so consumer demand was entirely price oriented.

Shoe making is still mainly a craft activity. The number of formal factories has declined. Capacity utilization is poor, input prices have risen as a consequence of devaluation. Product quality is poor.

Financing opportunities exist in the following areas:

- Re-capitalization of existing firms can in most cases fruitfully involve foreign investors. An attempt could be made to interest Spanish, French and Italian companies in particular to establish subsidiaries and joint ventures. Such cooperation can be very useful leading to a gradual transfer to leather and shoe making technology and a reduction in the import intensity of investment in this sector in African LDCs.
- South African companies can also be important investment partners. South Africa has some of the most successful tanneries in the region (e.g. Mossop which celebrated its 150th anniversary in 1996) and labour costs are rising rapidly. It makes good economic sense to consider relocating to lower cost production sites for the manufacture of some products.
- The key products that ought to be targeted are leather clothing, crocodile and ostrich leather products, camel leather products (especially lamps), sports footwear, relatively low cost shoes targeted at lower income groups in Europe and Asia. The export of bovine, ovine and caprin based products should also be encouraged. Studies undertaken at UNIDO have shown that African LDC manufacturers can create a market niche in many other products groups, especially in the footwear industry provided appropriate marketing and pricing strategies are adopted.
- Use of ODA funds to finance a comprehensive leather sector restructuring and revitalization programme is justified. Given the need to expand Africa's foreign earning exchange capacity, it can be argued that public debt restructuring programmes should incorporate such sectoral programmes as a means to enhancing the long-term capacity to repay debt. Foreign investment can be associated with such programmes.

Agricultural machinery

Information is scarce

Systemic information at country or plant level in this branch is extremely rare. Large-scale agricultural machinery producers are few and usually involved in other lines of engineering so that it is difficult to separate the agricultural machinery output from the total production of the units. The major portion of the agricultural machinery needs of the commercial and large-scale sector are served by imports and as the foreign exchange constraint has tightened agricultural machinery imports have fallen. As far as smallholder and commercial cultivators are concerned their needs for equipment and tools cannot be classified as "machinery" and these needs are supplied by artisanal units situated both in urban and rural settings.

The information that exists at UNIDO does not permit a generalization about structure of production enterprise characteristics or other details. Thus of the 38 African countries which provide time series data that is regularly reported in the UNIDO International Yearbook of Industrial Statistics only Nigeria, Senegal and Uganda provide data on production and value added for the agricultural machinery branch (ISIC 3822) for any year after 1985. Moreover the data appear extremely weak. Thus for Nigeria the share of the agricultural machinery sector in gross manufacturing employment is reported to be 0.23 per cent, its MVA share is 4.25 per cent in that year. In Uganda in 1991 the agricultural machinery manufacturing branch is reported to have contributed 0.14 per cent to gross manufacturing output and 1.4 per cent to MVA in 1991 (<UNIDO, 1996c>which one?). These figures illustrate the insignificance of the formal units of the sector in total manufacturing activity. The informal artisanal enterprises which produce the bulk of agricultural equipment and tools are clearly not covered in the official statistics.

Given the paucity of country and plant level data only relatively general comments can be made. The most important aspect that ought to be emphasized is that the availability of adequate levels and quality of agricultural machinery should be seen as a requirement of food security. Two types of equipment are essential: those which are necessary for the construction and maintenance of the irrigation system and those that are used for agricultural production. While availability does not necessitate local production it must necessitate the generation of capacity to finance the acquisition of the machinery that is required. Thus the prima face case for an expansion in domestic production is based on the fact that continuing devaluation of the local currency has made imports prohibitively expensive leading to a serious obsolescence of existing plants and transportation systems.

The need to stabilize effective demand—

The primary purpose of local production should be to serve existing effective demand of smallholders and enable them to raise factor productivity. The initial step is to assess this effective demand for typically markets are missing particularly in communal areas and demand remains unsatisfied because suppliers are unaware of its existence. Moreover demand for agricultural equipment is volatile and responding to it by committing long-term funds is risky. The creation of effective and efficient markets in agricultural equipment thus requires measures for stabilizing effective demand and contributing to its expansion. In East Asia the establishment of farmers' cooperatives for purchasing and distribution has been an important means for converting potential into effective demand for agricultural equipment among small holders. Agricultural financing systems where effective have enhanced the provision of long-term credit to both consumers and producers of agricultural equipment and so have insurance facilities to safeguard producers against fluctuations in sales occasioned by external causes,

—and to take account of local circumstances

It is important that agricultural technology should be developed taking account of African eco- systems, land tenure patterns and the physical characteristics of production. Adapting agricultural mechanization to local requirements requires that the provision of machinery be accompanied by the creation of a local capacity to unpackage it and adapt it to suit local conditions. Technology transferred should preferably be useable, simple and cheap. Wherever possible local sourcing should be increased so as to protect the agricultural production system from fluctuations in foreign exchange cost associated with accelerated depreciation in the value of national currencies. Similarly the development of financing systems is a necessary requirement for increasing the sustainability of agricultural production and mechanization. The obtaining of finance on appropriate terms for agriculture related firms has become extremely difficult after the collapse of the development finance institutions (DFI) in Africa. Default on the part of borrowers leads to

a drying up of working capital funds and to a deterioration of machinery as maintenance and replacement to offset depreciation becomes unfinanciable. The switch in so many African regions from mechanized to animal traction reflects these rising unfinanciable repair and maintenance costs. It also reflects inappropriateness of design. Products imported have remained incomprehensible to local users for in many countries the agriculture machinery industry has stood still for several decades. Production has remained confined to very simple hand tools by village craftsmen and artisans and the capacity for "learning to learn" has not grown except in a handful of countries - Egypt, Kenya, Zimbabwe. Tractorization and harvesting techniques have not been transferred to the most vulnerable food insecure African countries and the payments crises has seriously retarded the development of agricultural mechanization in Zimbabwe and Nigeria.

Even Egypt and Kenya have failed to keep pace with requirements for agricultural mechanization. If local capacity does not grow imported equipment becomes inoperable after only a short period owing to the absence of spare parts and maintenance facilities. The abandonment of tractors and other agricultural mechanical equipment had assumed crisis proportion during the 1980s in some African countries. The short-term solution is that all purchasing agreements include provision for supply of spare parts for a four year period. This can be converted into a long-term solution if during this period the supplier enhances the spare parts producing and maintenance capacity of the purchaser (through for example the establishment of a joint venture). Again this can be an effective use of ODA funds.

An important concern should be to integrate the actions of informal and formal sector establishments. Informal sector enterprise should be upgraded, for example by provision of facilities for the joint purchase and use of equipment, casting and forging facilities. The development of prototype designs and provision of services for testing agricultural equipment can stimulate the upgrading of village blacksmith type operations and their gradual integration into the formal sector. Mobile demonstrations and exhibition workshops can play an important part in upgrading technology. This can be particularly useful in introducing watershed management, pumping and tillage techniques and various types of irrigation, including the construction of canals, reservoirs and wells. The urgent need to provide training in irrigation techniques along banks of rivers and creeks in Africa is emphasized.

UNIDO research suggests that consideration be given to promoting the production of the following type of equipment in Africa.

- (1) Low lift pumps for irrigation;
- (2) Simple diesel engines;
- (3) Tillage equipment;
- (4) Fertilizer spraying equipment;
- (5) Harvesting and threshing equipment;
- (6) Sowing equipment;
- (7) Trailers;
- (8) Tractor accessories;
- (9) Animal traction equipment;
- (10) Mini tractors;
- (11) Tools and implements.

ODA funds should be allocated to agricultural mechanization projects

If the intention is to upgrade local production, investment per unit must be at a level which is capable of making a significant impact on agricultural productivity in a given unit. For example, projects may envisaged with a capacity to manufacture 5,000 to 7,000 units of agricultural implements such as harvesters, ploughs, reapers and other tillage and cultivation related equipment on an annual basis. The typical total cost (both **fixed and working capital requirements for the first year**) in **South Asia is currently between \$160,000 to \$300,000 (1996 prices)**. Costs would be at least 20 per cent higher in most African countries since India and Pakistan can domestically source 90 per cent of the machinery and equipment needs of such a project at internationally competitive prices. It is thus clear that increasing agricultural mechanization to enhance food security involves a large financial effort. Since enhancing food security is an important objective of aid policy serious consideration must be given to allocating a significant proportion of ODA funds for the

establishment of agricultural mechanization projects and projects for improving the effectiveness, expansion, and maintenance of irrigation systems in vulnerable areas.

Agricultural machinery projects that may be considered financially viable in African LDCs should have two characteristics. They should be partly funded through ODA commitments based on meeting agricultural machinery requirements of programmes concerned with alleviating food insecurity; secondly, they should preferably be developed on a regional basis. Such projects can attract foreign portfolio investments as can fertilizer projects that are aid financed on grounds of enhancement of food security.

Wood and furniture

Wood output in Africa has been falling

Over the period 1990-95 UNIDO data show the output of wood products in 21 African LDCs falling by 2.4% (on a 1990 index), while that of furniture grew by 2.6%. The share of wood products and furniture in the total of manufactured value added (MVA) in sub-Saharan Africa remained stable and minimal over the same five year period, at about 2.2% and 1.2% respectively, (close to the figure for wood in the MVA of industrialised countries, which has also remained near 2% in the period 1980-94).

In the wood products group, output grew most rapidly in Uganda (6.0 per cent), Burkina Faso (5.1 per cent) and Malawi (3.0 per cent) and in the furniture branch the leading countries were Sudan (23.2 per cent), Niger (12.0 per cent), Uganda (9.4 per cent) and Zambia (8.8 per cent). Furniture output in Burundi and Lesotho also grew in excess of 5 per cent per annum.

Some countries have shown quite rapid growth

In terms of MVA data for the same five years show that in the wood products subsector, Senegal (11.2 per cent), Burkina Faso (6.3 per cent), Cape Verde (4.5 per cent), and Burundi (4.6%), suggesting that the subsector was making a positive contribution to industrial development. In furniture growth was led by Senegal (15.8 per cent), Gambia (8.8%), Benin (5.8%) and Sudan (5.0)

In Sudan, gum arabic is an important forestry product, although a fall in international prices has led to stagnant output, of about 25,000 tonnes a year and falling export revenues. Chad, Mauritania, Senegal, Mali and Nigeria have entered this market, producing a combined 10,000-15,000 tonnes a year. As well as gum arabic, charcoal is an important forest produce, providing an energy source for the rural population, forest stocks are being depleted rapidly in Sudan, as elsewhere.

In Burundi, also deforestation is a major environmental hazard and less than 12 per cent of the land area is forested, despite an IDA grant of \$10 million for forestry development made in 1995.

About 6.6m ha are forested, mostly in two national parks straddling the borders with Benin and Togo, but the forested area is declining. Measures are being taken to stem the decline, with international donors finding timber development as part of dam-building programmes. In Benin, new plantations of commercial species, mainly teak, have been put in place since the late 1980s.

Forestry plays an important role in the economy of Malawi, where the forestry department supervises about 749,000 hectares of forest reserve and hill slopes. The Wood Industries Corporation of Malawi is a public body active in forest products. The World Bank supports forestry projects for fuelwood.

Uganda has about 7.5m hectares of forest and woods. Timber is important for construction and also as a source of fuel wood and charcoal. Shortages of fuelwood are a problem in some areas, and conservation of the remaining hardwood reserves is a priority. Total production of wood has risen by 3.5 per cent per year in the period 1992-96, reaching 21.1 million tons in 1996. Of this 503,000 tons was in swan timber; 557,000 in poles, 16.7m tons was fuelwood and 3.3m tons charcoal.

In Senegal, forestry resources cover 20 per cent of the land area, but here, as elsewhere, tree cover has been depleted by drought and by the use of fuelwood. Reforestation is under way to address this. Output of forestry and wood products, on a 1976-based index, fell by 2.5 per cent between 1996 and 1992.

Half of the Democratic Republic of Congo is covered by rainforest and timber output, like the performance of the agriculture sector as a whole, is well below the sustainable potential. As much as 53.6 per cent of neighbouring Congo (Brazzaville) was covered by humid tropical forest in 1994, according to a World Bank study, and the government has not regulated logging vigorously. Economic crisis and the disruption of transport links have limited the rate of deforestation, which the government puts at 32,000 ha per year, mainly the result of cutting off fuel, but there is concern about the potential depredations of Asian logging

concerns. Timber companies are required to process at least 60 per cent of their output locally. The main products, which account for a large share of exports, second only to oil, are plywood, sawn timber and veneer and the country produces a fast-growing eucalyptus species. Telegraph poles are an important foreign exchange earner.

Increased processing would save resources

An increased volume of wood processing would help preserve forests because fewer trees need to be felled to attain the same level of earning from unprocessed timber. This would encourage better forest conservation practices per se.

Current sawmilling operations in Africa in general are inefficient. Slabs and off-cuts are used as fuelwood, and large quantities of wood residues and waste are left to rot. Productivity is low and installed machinery is normally underutilized, mainly because roads and logging trucks are poorly maintained. In these circumstances sawmills cannot be properly supplied. This in turn constrains the performance of the secondary wood processing industry, which uses the primary products for further manufacturing and assembly into standardized products (such as scaffolding, partial frames, beams and formwork), non-standard products (building components such as doors, windows and mouldings), furniture, packaging (crates, boxes and pallets), and other products (such as hatches and boats).

Transport costs hamper exports to Europe

Changes in the developed country market for tropical timber should have benefitted the African producers. However, freight charges to Europe, the principal market for African countries, make African exports uncompetitive in relation to those from South-East Asia. Furthermore, the European market has changing needs.

Table 7. African LDCs with the highest MVA growth rates in agro-related branches, 1990-95
(P e r c e n t a g e)

Food	Beverages	Tobacco	Textiles	Wearing apparel	Leather	Footwear	Wood products	Furniture
Lesotho Senegal	Lesotho	Uganda	Lesotho	Lesotho	Lesotho	Lesotho	Burundi	Seychelles
(13.4)	(18.1)	(12.9)	(14.4)	(14.2)	(14.1)	(19.4)	(11.2)	(15.8)
Uganda		Mali	Cape Verde	Uganda	Benin	Madagascar	Lesotho	Burkina Faso
(12.7)	(10.6)	(12.3)	(5.2)	(8.2)	(5.0)	(14.1)	(6.3)	(8.8)
Cape Verde	Uganda	Tanzania	Uganda	Uganda	Burkina Faso	Benin	Cape Verde	Benin
(11.8)	(10.2)	(5.0)	(7.4)	Faso	(8.6)	(4.5)	(5.8)	
Sudan	Benin	Somalia	Mali	Tanzania	Tanzania	Burundi	Sudan	
(4.9)	(8.5)	(6.8)	(7.1)	(7.6)	(4.6)	(5.0)		
			Gambia		Tanzania		Burkina	
			(7.0)	(6.6)		Faso		
			Somalia				(4.7)	
			(7.3)					

Source: UNIDO.
Fertilizers
(Survey k. asc)
Recent trends

Africa is an insignificant producer, consumer, importer and trader of fertilizer. Production of nitrogenous fertilizers has grown at an annual average rate of 4.9 per cent per annum during 1989-90 to 1993-94 but production of phosphatic fertilizers fell by about 0.7 per cent per annum during that period. Consumption of nitrates has grown at an average rate of only 1.6 per cent. Consumption of phosphatic fertilizer rose at an annual rate of 1.8 per cent. Fertilizer per capita production declined significantly as population growth is estimated at 2.9 per cent during the period. Africa's fertilizer per capita consumption ratio is by far the lowest in the world and dependence on imports is increasing.

Table 8 Africa's share of production, consumption and trade of nitrogenous, phosphatic and potash fertilizer, 1989-90 - 1993-94

(P e r c e n t a g e o f w o r l d t o t a l)

	Nitrogenous	Phosphate	Potash/a/
Production			
1989-90		2.52	6.14
1993-94		3.09	6.20
Imports			
1989-90		3.80	3.68
1993-94		3.43	3.86
Exports			
1989-90		3.69	15.51
1993-94		5.25	15.26
Consumption			
1989-90		2.58	2.87
1993-94		2.91	3.59

Source: FAO, Quarterly Bulletin of Statistics, Rome.

a/ - : Statistically negligible

Production is concentrated; and consumption has grown slowly

Nitrogenous fertilizer production is concentrated in Egypt, Algeria, Tunisia, South Africa, Libya, Morocco and Nigeria which together account for over 90 per cent of total African production. Phosphatic fertilizer production is concentrated in Morocco, Tunisia, South Africa, Egypt and Senegal whose combined share in total African production is usually over 90 per cent.

World production of nitrogenous fertilizer has tended to exceed consumption by about 6 to 9 per cent and phosphatic fertilizer production has exceeded consumption by between 8 to 10 per cent on average during 1989-90 to 1993-94 <FAO, Quarterly Bulletin of Statistics, Rome 1996 (1st Quarter)>. Many analysts speak of a permanent crisis in world fertilizer industry and predict that the excess supply is likely to persist. World fertilizer consumption has been growing slowly and in Africa during 1989-90 to 1993-94 consumption grew significantly more slowly than fertilizer production as a whole - although consumption of phosphatic fertilizer outpaced growth of production (which was negative) during the period. However in a typical year more than 50 per cent of African phosphatic fertilizer is exported and in quantitative terms phosphatic fertilizers account for only about 30 per cent of total African fertilizer consumption.

Africa is well endowed with phosphates, but use of fertilizer is too low

Increased application of fertilizer is vitally important to raise agricultural productivity. While commercially exploitable gas reserves may be modest, Africa is well endowed with phosphates. It currently produces about one third of the world's phosphates (most of it exported in unprocessed form). Phosphate deposits are widely distributed across the continent.

Low agricultural productivity estimated at more than 1,000 times below that of Western Europe and North America - has been attributed to low fertilizer application <Pieri. C., The Problems of the Phosphate Fertilizer Industry and the Development of Fertilizers in Africa ID.WG 475.3 UNIDO, Vienna 1978> Increased use of fertilizer is required both to improve production per hectare and as a means for compensating for continued soil degradation.

Growth in fertilizer use is far too slow—

In view of these facts the FAO estimated in the early 1980s that fertilizer consumption should increase by 7.3 per cent per annum in Africa during the period 1980 - 2000 <FAO, Agriculture towards 2000 Rome 1983.>. During 1980-95 applications have grown at an annual average rate of only about 1.5 per cent, leaving an even larger deficit than the FAO envisaged.

—reflecting stagnant incomes and rising imports of food

The low level of fertilizer application is explained not by agronomic but by economic factors. Most fundamental is the stagnation of farmers' income. But increasing reliance on food imports, often financed by aid, and the inability to promote agricultural intensification through the provision of appropriate technology packages have also played a part. Despite the fact that fertilizer prices are often too low to sustain the producers they are still too high for the consumer because the costs of transport from the factory to the farm gate is enormous - often transport and distribution charges are one and a half times higher than production cost.

The argument for subsidy

Under these conditions subsidization to reduce farmers' fertilizer purchase prices is a more effective way of ensuring food security than reliance on food aid. Indeed there is a strong case for redirecting aid from the provision of grain which drives local producers out of the market to the provision of resources to enhance fertilizer production and consumption in the recipient country. ODA could be structured to give supplementary facilities to countries and individuals seeking to increase fertilizer consumption, by various modalities: complementary loans granted to dynamic private entrepreneurs (fertilizer production, distribution) on the basis of a programme of satisfying national or subregional requirements, donation of raw materials or semi-finished fertilizer products to processing shops, access to production factors that will bring about greater efficiency of the fertilizers they purchase (fungicides, selected seeds), etc.

Fertilizer aid has been unsustainable

Fertilizer aid has been offered on a sporadic basis on several occasions but it has been unsustainable in the sense that it has not enhanced the farmer's capacity to acquire access to assured fertilizer supplies. For this the development of an infrastructure to reduce transportation and distributional costs seems essential. The question of increasing domestic fertilizer production has to be viewed in this context. It is a means for ensuring farmers access to assured stocks at an affordable price so as to ensure food security. Constraints to the establishment of a phosphatic fertilizer industry—

As far as phosphatic fertilizers are concerned Africa's resource potential is not in doubt. The development of a phosphatic fertilizer industry is potentially viable in a number of African countries, particularly those on the Sahel fringe. But there are serious constraints to be overcome before there is sufficient incentive to convert raw materials into the finished products required by a potential regular local market. Financing mechanisms to meet the need of plants for substantial investments and revolving funds are lacking.. Since the raw material in question and the finished product are heavy substances and subject to deterioration, the need for wholesale and reliable infrastructures - transport, marketing and storage also presents a constraint.

These constraints (inadequate infrastructure, poor local markets, high investment costs, lack of sources of financing, etc.) together with the apparent and chronic over-supply of fertilizers and sluggish international trade prices explain why all in all, new fertilizer manufacturing schemes have been few and far between in sub-Saharan Africa.

—are not insurmountable

However the closure of certain productive units in the developed countries and the emergence of new technologies offer prospects to small units which are less demanding in capital than the existing projects, and favour the rehabilitation of units already set up in Africa but functioning inefficiently.

An analysis of feasibility studies for new plants or rehabilitation projects and an analysis of the balance sheets and accounts of existing fertilizer plants shows that their earning capacity is largely dependant on the degree of utilization of production capacity (UC) . UC rates below 70 per cent do not guarantee real profitability and are only acceptable in extreme cases for the first year of existence of new units. More important still, the UC rates between 30 and 60 per cent found in certain African countries are a sure sign of badly run businesses. This is explained by the burden of fixed costs in the functioning of fertilizer plants,

which are particularly capital intensive, with maintenance and repair costs and also depreciation charges, very high. Moreover the establishment of fertilizer plants is extremely expensive - a simple "formulation" unit mixing imported raw material to produce fertilizer compounds - to produce say 100,000 t/y would cost between \$8 to \$10 million. A small plant producing 170 t/d of ammonia and 900 t/d of urea would cost between \$120 to \$130 million. Further the investment needed for the efficient marketing of fertilizers (road and rail networks, warehouses, hangars for wholesaling and shops for retailing, and means of transport) as well as the cost of the staff needed to provide the logistics of ordering, delivering, invoicing, credit and cash handling, are enormous, and cannot be borne by the manufacturer. Thus it seems likely that certain investment items necessary for fertilizer distribution will have to be contributed by the state or by donors in many African countries.

If the establishment of a pan-African fertilizer sector of any size would require subsidy or aid to the plants, at least in the initial stages, the question arises whether such funds could not be better used elsewhere, for example to finance small agricultural production plants, or to improve the transport or distribution infrastructures and thus reduce the real cost of fertilizers "delivered at the farm".

UNIDO has pioneered the concept of mini plants

Prompted by the high investment UNIDO started to consider the possibility of economically viable "mini plants" as early as the 1970s. Units can be set up to produce a binary fertilizer (containing the two main fertilizing principles P₂O₅ and N). This is certainly more efficient than powdered phosphate or SSP, and the manufacturing cost in terms of nutrient would be lower than that of the nutrient in DAP (even imported DAP).

Units can be small in dimension, since the capacity of the plants varies from 10 to 250 t/d, or an annual production of between 3,000 t and 75,000 t of fertilizer with 19 per cent of nutrient: 5 per cent of N and 14 per cent of P₂O₅.

Tests carried out for a plant with a daily capacity of 50 t/d (15,000 t/y) in geo-economic conditions valid for many African countries would seem to indicate perfect adaptation to the potentialities of most fairly small countries. The requirements by way of investment would seem to be between \$4 and \$6 million at 1996 prices.

The manufacturing costs comprise variable costs (69 per cent) and fixed costs (31 per cent) and 70 per cent of them would be in local currency, the only foreign currency being essentially that for imports of ammonia, catalysers and bags. The ex-works cost of the nutrient, estimated at between \$500 and \$650/t, is to be compared with \$750/t, the cost price of the nutrient contained in a ton of imported DAP delivered to the consumption site and \$900 per ton for nutrient (nitrogenous) contained in imported urea delivered at the consumption site.

The domestic market

The type of investment that can be recommended in the fertilizer branch in Africa depends on the size of the domestic market.

UNIDO, 1988 I can't find this reference in the bibliography, is it UNIDO (1987), Fertilizer Manual 1987?) suggests several levels at which investment should differ by type.

Level 1: for a market of under 5,000 t/y, the best form of investment consists in improving the reception and distribution structures. Many African countries are in this situation.

Level 2: for a market ranging between 1,000 and 25,000 t/y, it is possible to envisage a fertilizer bagging shop, and possibly a formulation unit. This again is the case of most African countries.

Level 3: for local markets covering between 25,000 and 100,000 tons (a level reached by several sub-Saharan African countries) it is possible to envisage bulk blending and granulation. If the country in question also has substantial deposits of natural phosphates, it can envisage testing out the spreading of powdered natural phosphate (very small additional investment by the mining installations) or even the manufacture of SSP.

Level 4: at between 100,000 and 300,000 t/y, the manufacture of certain types of fertilizer can be envisaged if the situation is favourable from the point of view of raw materials. This situation at present applies only to the North African countries and to Nigeria and Zimbabwe.

Level 5: above 300,000 t/y, conditions are favourable for envisaging diversified local production provide the environmental conditions (financing, trained personnel, infrastructures, raw materials) confirm the profitability of the various projects. Egypt and South Africa alone are in this bracket.

Long-term financing is necessary

In existing circumstances obtaining financing for projects in any of these categories will be difficult.

First of all, fertilizer plants should envisage only long-term or at best medium-term loans to finance their investments. Since equipment has a depreciation period of approximately 12 years on average, in theory no borrowing to finance equipment should be for less than 10 years.

In the case of fertilizer plants, the rate of production growth is slow (2 to 4 years), following a fairly long period for the physical setting up of the project (in many instances there is a period of 3 to 4 years after the decision to carry out the project, once the feasibility study and the financial arrangements have been completed). In these circumstances it is essential to obtain grace periods for debt servicing, with if necessary a longer grace period for the repayment of the capital than for the settlement of the interest. Periods of five years and three years respectively would seem reasonable.

Rehabilitation is also needed

Major expansion of existing capacity through new large plants is not feasible. But there is a need for project rehabilitation in this sector to rescue existing units that are currently operating at levels well below, capacity (often as low as 20 per cent). Rehabilitation is aimed not just with increasing use of existing capacities but at economising on use of inputs (particularly energy), the use of new catalysers, or the replacement of naphtha by natural gases. Rehabilitation should also involve improvements in management methods and distributional systems. Privatization, which will lead to drastic restructuring of plants, is an option.

A more effective use of fertilizer aid is also desirable. Aid should not be handed over free of charge, but should be sold at the normal price, the effect intended by the donation being mainly to ease the balance of payments (by reducing imports which have to be paid for in foreign currency) and to enable distribution to new agricultural zones. When this aid is channelled through local fertilizer production plants which undertake their costly distribution and/or processing, it is desirable that these gifts should be dealt with on an accountancy basis. In the case of Zambia, its fertilizer donation scheme was reflected finally in an increase in the capital of the firm producing the fertilizer. Thus for practical purposes it amounted to financing national investment which led to an increase in agricultural output, following the conversion in the plant of basic feedstock into fertilizers.

Chapter 4: The Policy Environment

The changing role of government

For most of the last 20 years the current of thinking, especially among multilateral organisations has run against the notion that government intervention in economies is desirable. or effective.. Multilateral organisations have accordingly been urging governments to step back from direct economic participation.and indeed to privatize those economic concerns that are publically owned. More recently developments in neoclassical equilibrium theory have tended to relegitimize selected government intervention on the supply side, because markets are recognized to contain imperfections <Phelps, E. (1994), *Structural Slumps: The Modern Equilibrium Theory of Uncertainty, Interest and Assets*, Harvard UP, Cambridge.> The World Bank, in its 1997 *World Development Report*, focuses on the issue of governance and the role of the state in economic development, identifying market failure and equity concerns as the rationale for a government economic role.

Of course in practice governments have always played an important economic role, as purchasers of goods and services, as employers , as regulators and as providers of public goods and welfare. Government economic activity broadly has two aspects.. In the short term, the aim is to manage the economy in a manner that will minimise disruption as well as facilitate growth. by smoothing the path of the economy through pro-cyclical and counter cyclical measures aimed at avoiding sharp peaks and troughs. Longer terms aims are based, in the case of developing countries, on maximising growth by raising the productive capacity and productivity of the whole economy.

The use of demand mangement tools

An interest rate policy which facilitates the achievement of potential equilibrium output and encourages the flow of savings into productive investment projects is a cornerstone of growth promotion. The use of interest rates is also important is the control of inflation and in stabilizing the exchange rate. Government purchase of labour-intensive goods is recognized as output enhancing., but excessive current spending, leading to large budget deficits which are then financed by a loose monetary policy are destabilising and can lead to high inflation and weak competitiveness. The tax base in developing countries is often narrow;-direct taxation in particular is limited and there is excessive dependence on export taxes which are comparatively easy to collect. It is difficult to curb spending and hard to widen the tax base. Increasingly it is recognized that it is not the amount but the form and the structure of government intervention which is crucial in determining market outcomes. Public expenditures and interest rate policy should seek to "crowd in" private investment.

Increasing capacity utilization and efficiency

In the case of the East Asian economies whose growth has been particularly rapid during the last 30 years (the eight highly performing Asian economies (HPAEs) studied by the World Bank<The World Bank, *The East Asian Miracle; Economic Growth and Public Policy*, Oxford University Press, 1993> , growth has been export intensive. Incentives of various kinds have been put in place to encourage exports. Exceptionally high savings and investment rates lay behind the rapid expansion of capacity that they all experienced during their peak growth. Increasing capacity utilization required an emphasis on export expansion while maintaining a stable exchange rate ..

The need to restructure and invest in relieving supply side constraints

Achieving productive efficiency requires institutional restructuring for creating new models of accumulation. In a developing country pressures for enhancing productive efficiency comes at least partly from the state, and not from the capital market, and precede attempts at increasing the achievement of allocative efficiency. This was the case in most of the HPAEs,

A redesigning of structural adjustment programmes is required to shift the focus from demand management to the relief of supply side rigidities. An expansion of public investment in infrastructural, skill augmenting and marketing activities is a pre-requisite for enhancing supply responsiveness to

macro policy initiatives in SSA. In SSA increasing public investment requires increasing ODA of a form which relieves long-term supply constraints, particularly weak infrastructure and weak skill capacities. Debt forgiveness schemes should be conceived with this aim in view. Without relieving supply side constraints - through sustainable increases in public investment - policy finetuning can have little effect. Measures to relieve supply constraints should therefore precede incentive restructuring.

Public expenditure must be sustained

As noted in Chapter 2, investment in Africa has been falling and the ratio of private investment to GDP is particularly low, indeed often below the level required to offset annual depreciation of capital stock. Inflows of foreign direct investment have also been very small. Sustaining public investment is therefore crucial. The net effect of devaluation on private investment also appears to have been negative, especially in the low income SSA countries. Even in middle income countries a weak association between output and private investment growth has been noted <Oshikoya, T. (1994), "Macroeconomic determinants of private domestic investment in Africa", Economic Development and Cultural Change, pp. 573-596.>. However, the "crowding in" effect of public investment on private investment has been confirmed by several studies. It also appears that moderate inflation stimulates private investment in SSA suggesting that perhaps the rate of "safe" deficit financing is rising. Falling private investment rates, rapidly declining domestic saving and significant levels of capital flight attributable to political instability, have often accompanied liberalization of the foreign exchange regime, exacerbating the problem of poor growth.

The overall policy stance of SSA must be expansionist with an emphasis on relieving supply side constraints especially with reference to infrastructural and human resource capacities. This requires a sub-sectoral increase in public investment in these areas and the fiscal and monetary regime must focus on the need to enhance the sustainability of rising levels of public investment. This also requires an increased flow of ODA targeted at the infrastructural and human capacity building sectors.

Governance is a key issue

Effective intervention requires a strengthening of the state's capacity for policy conception, articulation and implementation. The "hard" state which has generally led successful development strategies has typically retained considerable autonomy. The survival of successful "hard" developmental states is predicated on their economic performance. Such a state must develop the capacity to disorganize "rent seeking" economic groups through its own economic intervention at both micro and macro levels.

The development of state bureaucratic capacities is particularly crucial for:

- (i) acquisition and diffusion of technology;
- (ii) exploitation of economies of learning, scale and scope;
- (iii) inter-sectoral integration (especially between agriculture and manufacturing and within the manufacturing sectors);
- (iv) ability to reward and punish firms and enhance policy credibility.

The size of markets is important

The capacity of the state to influence the behaviour of private firms depends crucially upon the size of the market (if this is small the provision or withdrawal of state support will probably be inconsequential). In the early phase of development expanding the size of the domestic market depends most basically upon the growth of agricultural productivity and the development of its linkages with manufacturing. Promoting inter-sectoral linkages is a means for overcoming size limitations and thus enhancing state capabilities.

State autonomy is weakened by the incorporation of open economies within the international economic system, especially if the incorporation is of a dependency enhancing nature. The 'hard'

states of Asia did not become 'open economies' despite their 'outward orientation' and exercised policy selectivity in relation to trade, finance and technology imports from international markets.

This is one aspect of the need for selective state intervention to support production and not just commerce. This will, of course, not be a "natural" consequence of democratization nor are there any grounds for expecting a decline in clientelism or corruption as a consequence of democratization. There has, however, been a vigorous growth of social movements at the grass root level in rural areas. Potential thus exists for facilitating the type of 'town and village enterprises' which have played such a major role in China since 1979. >But if these local initiatives are to bear fruit, the typical stabilization policy package has to be modified to facilitate the reduction of poverty, the enhancement of food security and the growth of rural non-farm employment.

Agricultural policy and food security

If production is to be revitalized, agriculture is clearly a crucially important sector and a centrally important issue in this connection is that of food security. SSA contains 44 of the 88 food deficient countries in the world and its food deficit is rising. Food imports have risen and are displacing coarse grain in domestic markets, the growth of the latter is seen as demand constrained by some analysts <(Jaeger, W. (1992), "The causes of Africa's food crises", World Development, pp. 1631-1645>.. Food production is declining as marginal returns on food production are lower than those on other rural activities including off-farm employment.

Shortages of foreign exchange in SSA also mandate increased food production. Expansion of food production is more dependent on increased public expenditure than on higher producer prices or marketing related liberalization (Mosley, P. and Weeks, J. (1993), "Has Recovery Begun", World Development, pp. 1583-1606.> But public expenditures has been oriented towards cash crops.

Low incomes are a cause of food insecurity

Food insecurity is linked most importantly to low income. Food aid can have only a temporary effect on this. What is required is a fundamental re-organization of the food production and distribution system. Increased food production is feasible as resources -especially water - are underdeveloped and underutilized. Only 7 per cent of the arable land in Africa is irrigated. Moreover, access to labour has become more of a problem than access to land (the emphasis on the negative impact of population growth seems misplaced). Commercialization of tenurial systems has sometimes reduced the food entitlements of the poorest segments of the population.

A cornerstone of food and agricultural policy in SSA must be the raising of the permanent income of the poor, both rural and urban. Higher incomes are often positively associated with diversification of income sources, especially the growth of non-farm income. Assuming that food markets exist, the food security of the poor can be increased through the generation of nonfarm and cash crop related employment opportunities.

Reducing food insecurity requires a targeted policy. Sectoral agricultural growth does not usually directly increase the food entitlements of the poor. Food production has responded less to procurement price increases than have cash crops, especially in the poorer SSA countries. On the other hand a wider availability of consumer durables has stimulated food crop production. But production of both food and cash crops - has been seriously affected by increases in input prices due to devaluation and by reduced subsidies. Marketing liberalization has sometimes been ineffective because it led to a substitution of the state by private monopsonists. A switch to more productive crops - such as hybrid maize - is hampered by lack of access to credit and uncertainties surrounding fertilizer supply. Uncertainties connected with the absence of insurance markets and frequently changing tenurial contracts increase risk aversion and reduce investment and production.

Smallholders need protection

The crisis of the 1980s has seen a re-emergence of traditional institutions in rural areas. These have acquired strength through the organization of parallel markets. The lowering of discrimination against smallholders has paid dividends in the form of increased smallholder productivity in many SSA countries and should therefore be an important objective of agricultural policy. This cannot be

achieved solely or even primarily by relying on price reforms - for studies invariably show positive but low price elasticities for food crops in SSA <Batto-Bonnie, J. and Ashong, S. (1995), "The effect of government policies on agricultural price and output", *Journal of Developing Areas*, pp. 91-112. >. Price increases have - for example, in Ghana - led to increases in marketing margins and speculative gains while the real wages of agricultural labour have fallen (Alderman, H. and Shiverlay, C. (1996), "Economic reform and food prices: Ghana", *World Development*, pp. 521-530.. Peasants tend to expand production more in response to an increase in the availability of consumer goods than to an increase in prices, especially in low-income SSA countries such as Angola. A strengthening of processing and marketing infrastructure also leads to a strong production increase. Production responses to technological changes are also significant, provided this is accompanied by improvements in input supply and associated extension services. Reducing the subsidization of inputs, particularly fertilizers, usually has a severe negative impact on smallholder production and willingness to adapt new technologies.

Farm gate prices must rise

The willingness of peasants to switch to cash crop production and non-farm activities is affected by the usually large difference in the prices at which they can sell and buy grain. The larger these differences, the greater the necessity to devote time to food production. Policy must aim at increasing the price of grain in rural markets if agricultural income of smallholders is to be raised.

Rural demand must be boosted

Off-farm employment has grown in response to the increase in permanent village settlements and decline in urban employment opportunities. But the growth of non-farm activities in SSA is a response to increased income insecurity and does not lead to production related specialization. The technological capacity of non-farm production units and the quality of their products remains extremely low.

A case may therefore be made for adopting an agriculture demand-led industrialization (ADLI) strategy for SSA < Adelman, I. (1990), "The relevance of ADLI for SSA", *African Development Perspectives Yearbook*, Washington, pp. 258-279 (Vol. II). ; Mavi, S. (1990), "Agriculture Led Industrialization", *African Development Perspectives Yearbook*, Washington, pp. 556-576 (Vol. II).

Such a strategy predicts a relatively high rural income elasticity of demand for manufactured goods and small gains from exporting agricultural commodities in non-processed (or semi-processed) form. The adoption of ADLI in SSA is limited by the existence of low backward linkages between agriculture and other sectors, but these linkages can be increased by adaptation of irrigation systems to SSA geological and climatic patterns. Moreover, there is evidence to show that consumption linkages are increasing as are linkages between rural producers of agricultural inputs (particularly handtools and maintenance services) in several SSA countries. Investment linkages between farm and non-farm production in small towns are also likely to assume importance. Policy to stimulate the development of small towns close to rural areas can be useful in strengthening marketing investment and consumption

Linking agriculture and small scale industry

It is important to expand food processing activities, both to strengthen inter- sectoral linkages and more importantly to augment food security. Urbanization in SSA has been accompanied by a major shift in food consumption patterns; imported rice and wheat are increasingly being substituted for locally produced coarse grains even by poor urban dwellers. Food imports now account for roughly 40 per cent of West Africa's trade deficit <Rearden, T. (1995), "Cereals demand in SSA", *World Development*, pp. 17-35. > and have been growing at an annual average rate of 10 per cent. Prospects for domestic production of wheat and rice are not bright in most SSA countries. An increase in the production of coarse grain is thus demand-constrained. Processing of coarse grain into products which can substitute for rice and wheat and be acceptable to urban areas is thus necessary to increase production of these crops and thus enhance food security in the rural areas.

Processing of coarse grains, especially maize, leading to a significant increase in their local consumption, can help gratefully to reduce the foreign exchange gap.

.Expansion of coarse grain processing requires substantial public and private investment. It cannot be achieved by simply increasing the relative price of imported foods for the demand for these products is not price driven. Similarly, stimulating coarse grain processing requires not price incentives (the production of coarse grain is not price responsive), but relieving supply-side constraints. Lowering milling costs, through technological upgrading and re-equipment and the provision of credit seems particularly important. Moulding consumer preferences in urban areas is also crucial.

Industrial policy should focus on agricultural productivity:

SSA's industrialization strategy must be focused on the problem of increasing agricultural productivity through providing inputs and "incentive" consumption goods and absorbing agricultural production and "surplus" labour.

While there has been some increase in capacity utilization rates in SSA, there is no evidence of an increase in total factor productivity (TFP) or of improvements in firm-level choice of technology <Pack, H. (1993), "Productivity and industrial development in SSA", World Development, pp. 1-16>.. Supply constraints, especially lack of technical manpower, prevent the growth of productivity. The essential argument for expanding large-scale manufacturing investment in SSA is that this constitutes an indispensable means for transfer of technological and organization knowledge throughout the system. Firms which "learn" quickly and efficiently should be encouraged. Microeconomic and institutional redesign ("meso") policies have usually a greater effect on technological upgrading, diffusion and learning than do macro policies. In East Asia, for example, the critical factor in technological development was domestic assimilation of imported production engineering know-how and know-why.

Policy needs to be product-specific

Project rehabilitation, especially when combined with privatization initiatives, can be a means for technological diffusion and learning. SSA must choose an industrial structure which allows it to minimize long-run domestic resource costs and specialize in accordance with its dynamic comparative advantages. This indicates preference for a domestic resource and unskilled labour-based industrialization strategy. But such a strategy is risky in that its success depends on sustaining efficiency gains across a broad range of input producing activities. It is therefore important that policy is product-specific and explicitly identifies and promotes product groups in which sustaining system-wide efficiency gains is easiest.

Technology upgrading must not be neglected

Concentrating on low skill and resource based products should not blind policymakers to the need for rapid technology upgrading and diffusion in these areas, for labour-intensive industries are undergoing rapid technological development on international markets. Technological upgrading and systemic diffusion remain imperative for SSA whatever the existing factor intensity of the product groups that have been chosen. Increasing factor productivity must remain a major policy concern. There is a strong case for subsidizing technical education in labour and resource intensive areas, such as textiles, leather, food manufacturing, etc. Subsidization for the upgrading of general technical and managerial skills is also important. Concentrating on product systems implies attempts at greater horizontal specialization - as in East Asia - and subsidization of activities which facilitate a quick diffusion of mechanical and chemical engineering skills throughout the system.

Technological upgrading in SSA large-scale manufacturing is crucially hindered by the low flow of technological information. Institutional mechanisms must be established to overcome this deficiency. Exposing firms to international competition is effective only after they have "learned how to learn" and developed an organizational capacity to respond to market challenges. Export-oriented joint ventures may prove very effective in this context. TNCs can also be a good source of technological and marketing information provided they can be induced to make a long-term commitment to SSA industrial development

The key role of targetted aid

If the "wrong" industrial structure was chosen by SSA countries during the 1960s and 1970s, this was partly because aid was available mainly for those projects which would use as inputs donor-produced equipment and technical expertise. If industrial priorities are to change, a change in the structure of financial assistance is clearly required. SSA's increasing debt burden reinforces this point. Aid should be provided on the basis of a careful evaluation of increasing the sustainability of the production and financing systems that are being created in SSA. Increasing the capacity for self-sustenance of SSA industry should be a major objective of ODA policy. Aid is required for financing capital imports by export-oriented domestic resource-intensive activities seriously affected by rising domestic interest rates and accelerated depreciation. The domestic entrepreneurial class is weak and needs support to take advantage of the expenditure and investment "switching" that stabilization policy seeks to promote. Without such support, large-scale privatization in SSA is not conceivable. It may be stressed that US aid played a vital role in financing land reform programmes, industrial imports and capital formation in both the Republic of Korea and Taiwan Province of China during the 1950s.

Subsidization must be conditional and temporary

The resource-based and labour-intensive product systems that are being targeted must enjoy support, especially in the form of subsidized credit and subsidized technical training. These subsidies must be conditional and temporary, enabling the targeted firms to develop a capacity to generate sufficient foreign exchange earnings to compensate for a decline in the foreign exchange earnings of the primary sector (the output of which is to be processed by the targeted firms); the burden of foreign exchange earning is thus deliberately shifted from the primary to the competitive tradeable sector. Since factor endowment and production capacities change over time, industrial policy must also shift its targets as the East Asians did, moving on from labour-intensive firms in the 1960s to capital and technology-intensive ones after 1973. Price reform is, of course, neither the sole, nor the most important, means for effective policy targeting as the East Asian case shows.

Support for SMEs

Private sector development is now widely recognized as a legitimate and important aim of aid policy by the EU. The development of entrepreneurial abilities should be structured into ongoing commercial and business activities - ODA funds may, for example, be provided to domestic and foreign investors to promote sub-contracting, develop external marketing chains and most importantly provide financial facilities for SMEs.

It is generally accepted that the small and medium-scale enterprises (SMEs) require support. While SMEs have continued to grow in number in SSA, over time they often fail to "graduate" into the ranks of medium-sized enterprises. They are very vulnerable to developments which reduce market segmentation. The SSA SMEs are not an adjunct to the modern large-scale sector. SSA has a dualistic industrial structure with large firms enjoying economies of scale and SMEs surviving on minuscule start-up costs and production flexibility. The medium-sized firm is particularly disadvantaged.

Linkage networks - horizontal integration - are emerging among SSA SMEs. Information sharing and pooling of savings is increasing. Industrial policy may seek to strengthen such horizontal integration by facilitating development of subcontracting links between traders and clusters of SMEs. Promoting SME "clustering" can be an effective means for SME "graduation" through an increase in collective efficiency. In particular, the creation of "industrial parks" facilitates SME clustering. The provision of services such as advice on production, marketing strategy and financial management expertise - is also important. The regular organization of trade fairs has also proved very effective. Sustaining SME clustering over time can prove problematic since the influence of socio-cultural ties tends to decline.

SME development may be promoted by focusing on vertical integration and concentrating the provision of support on crucial sub-sectoral "nodes" which are the vital links in the production and distribution chain linking a large number of geographically dispersed SMEs. Sometimes such "nodes"

may be located in policy making institutions and enhancing their capability can have wide efficiency enhancing effects.

SMEs, have been particularly affected by devaluation. SME entrepreneurs in Senegal during 1994-1995 felt that the devaluation of the CFA franc increased input prices much more than it affected sales revenue <Greenway, L. (1995), "Devaluation of the CPA France in Senegal", *Journal of Modern African Studies*, pp. 669-683>. SME survival chances have, however, not worsened during the stabilization era. Empirical research shows that survival possibilities are higher for manufacturing firms (textile and wearing apparel in particular). Homebased SMEs have lower survival probabilities. The SME sector has been attracting educated and trained manpower. Unavailability of credit is the most important constraint on growth followed by a lack of marketing outlets. Provision of these inputs can be useful as can the adoption of a "sectoral nodal" role by state marketing institutions in construction, metal working and food manufacturing.

Technology policy and capacity building

High capital intensity is associated with low profits in a range of SSA countries <(James (1996), "The Political Economy of Inappropriate Technology Industrialization in SSA" *Development and Change*, pp. 415-430.> This "wrong" technological choice has been explained in classical "Batesian" terms - firms choosing growth maximizing strategies to ensure the political survival of managerial elites. What matters to management is the number, not the outcome, of projects. Moreover, during the 1960s and 1970s, maximizing foreign exchange flows towards "their" public enterprises became a key managerial objective and ODA flows were directed towards capital-intensive projects.

The "wrong" technological choices of the past have intensified the need for technological capacity building. today Technology is firm-specific and its acquisition requires the institutionalization of learning at the firm level. Inter-firm technological capacities at the sub-sectoral level are highly differentiated. Thus support may be provided at the firm level for technology acquisition, appropriation and diffusion to suppliers and purchasers. Industrial policy must also have the capacity to reward quick learners and punish laggards. Incentives may be provided for technology capacity building by firms. Provisions of technological information and mechanisms for upgrading organizational skills in this area can pay rich dividends.

Of equal importance are policy measures aimed at increasing national technological capacity. Resources must be found to offset depletions in capital stock; ODA has a crucial role here. Human technical skill upgrading is also crucial as is the development of a technological infrastructure providing information, standards, research facilities, etc. Technological capacities will not grow spontaneously in response to the growth in competition, they require policy-induced changes in firms' behaviour patterns (including risk aversion, "learning to learn", etc.) <Stiglitz (1987), "Learning to Learn" in Dasgupta, P. and Stoneman, P., *Economic Policy And Technology Development*, CUP London.>

Technological support programmes have to be selective, focused on sectors, activities and firms to exploit their superior growth potential, linkages and externalities. Protection need not be widespread or indiscriminate. It played a major role in upgrading firm level and national technological capacity of the East Asian countries. For example, technological upgrading could take the form of a public-private partnership; from 1960 the Republic of Korea required that firms spend 5 to 6 per cent of their budgets on R and D. This is feasible in Botswana, Kenya, Mauritius, Nigeria and Zimbabwe.

The research orientation of major firms can be gradually built up by support from the state. As noted earlier, TNCs can be efficient suppliers of technology. But the technology they supply is usually "packaged"; the subsidiary receives the results of innovation, not the innovation process. This "truncated" technology transfer does not enhance the technology adaption capacity of the receiving firm. Policy must thus provide incentives for the transfer of unpackaged technology. Non-equity forms of technology transfer - licensing, build operate - transfer arrangements, etc., may be more appropriate.

A national technology policy

Resources and technical assistance may also be provided to assist in the development of a national technology policy. This has become essential because technological upgrading and the introduction

of flexible manufacturing systems (FMS) in light industries are spreading widely and without explicit technological strategies to deal with this situation, countries such as Cameroon, Kenya, Nigeria and Zimbabwe will almost certainly lose their current comparative cost advantages in light manufacturing. Technological upgrading is in any case the natural route to industrial diversification.

Trade reforms may not have stimulated growth

The central feature of SSA's trade structure is its high concentration; 70 per cent of it is with the EU (although it represents only about 3 per cent of Europe's external trade). While trade policy reforms have been pursued with vigour, there is no conclusive evidence about their impact on growth, foreign exchange earnings or export diversification < Kirkpatrick, C., and Wiess, J. (1993), "Trade policy reforms and performance in Africa", *Journal of Modern African Studies*, pp. 285-298. >. Nor has a fall in the real exchange led to better export performance, but it has contributed towards a reduction in the MVA/GDP ratio.. There are many theoretical ambiguities in measuring "outward orientation" and in assigning GDP growth to export growth. Nor is the use of world prices based on current trading status always an appropriate way of measuring protection and as a guide for setting domestic prices <Byerlee, D. and Morres, M. (1995), "Calculating levels of protection", *World Development*, pp. 805-815.>. International market prices of grain are, of course, anything but competitive.

The distinction between import-substituting (ISI) and export-oriented (EOI) industrialization strategies tends to be overdrawn. It has been argued (Lining, N. (1992), "Import Substitution and Export Promotion", *Journal of Development Studies*, pp. 447-472. 1992) that the HPAEs pursued "protectionist export-oriented" strategies which skilfully combined elements of protectionist and competition enhancing strategies in an unusually favourable international environment. The World Bank < *The East Asian Miracle; Economic Growth and Public Policy*, Oxford University Press, 1993>, has concluded that "market- friendly" state interventions played a role in generating rapid growth in exports. But the favourable world trade regime that the Asian economies benefitted from in the 1970s and 1980s is not available to SSA. GSP programmes have not stimulated exports while export earnings instability has been high.

Lowering protection does, however, reduce foreign exchange constraints as funds associated with the stabilization policy package are made available and this allows an increase in capacity utilization level.

Governments have agreed to reduce tariffs

Governments of 44 SSA countries have agreed to a major tariff reduction as part of the Uruguay Round negotiations. But tariff reduction by SSA's trade partners are not of much advantage to SSA except for a group of 8 mainly small countries - Cape Verde, Congo, Cameroon, Malawi, Mauritius, Reunion, the Seychelles and Zimbabwe - which may also gain from non-tariff barriers (NTB) reductions. All SSA countries will have to face higher competition, especially in European markets. A particularly seriously affected industry will be textiles which may face high post-Uruguay tariffs.

There is a need to restructure the textile industry to make it internationally competitive before the phasing out of the Multifibre Arrangement (MFA) in 2005. There may even be a phased withdrawal of TNC textile investment from SSA <(UNIDO (1996), *The Globalization of Industry: Implications for Developing Countries Beyond 2000*, Vienna. 1996)>

Trade policy makers face difficult choices. They also face a potentially more competitive world environment as the ACP-Lome market access privileges accorded by the EU are replaced with region to region or bilateral agreements as mandated by the World Trade Organisation. There is no guarantee that reducing protection in SSA will realize allocative and/or production efficiency related gains. Dynamic comparative advantages have to be built. Changes in international factor prices require flexible SSA trade structures. A central concern must be to relate export and domestic market performance.

Selectivity has been the key to the export success of the East Asian countries. East Asian governments "picked winners", set production, investment and export targets for a relatively narrow range of products, provided incentives and punished non-compliance. Since resources are scarce, SSA should also exercise selectivity in choosing products, firms, sectors, technologies and institutions

if international market niches are to be constructed and preserved. Such selectivity should support private sector initiatives and not seek to stifle it as was often the case during the 1960s and 1970s.

Domestic financing faces severe constraints

There has been a major fall in domestic saving and investment rates during 1980-1995. SSA countries have sought to reverse this trend by financial liberalization. Continued financial inefficiency is reflected in the large spread between banks' deposit and lending rates due to large reserve requirements, high administrative costs and inability to find good borrowers. Government deficits have been reduced but accelerated depreciation has contributed towards inflation. Interest rate liberalization has led to an increase in deposit rates. The accumulating volume of uncollectible debt has led to the collapse of several financial institutions.

Financial and trade liberalization necessarily reduce public revenue, and since other tax sources are limited in SSA public savings must fall. Financing development thus depends crucially on generating domestic private and foreign savings. In SSA there is an urgent need to restructure and rationalize the financial sector; this will not occur spontaneously in response to rising interest rates and the imposition of prudential regulations from above. The financial intermediation system is in a state of collapse throughout SSA. Capital flight has increased. Portfolio financing of the major institutions is now very high (almost 100 per cent in many cases), especially in the CFA zone where banks could borrow from the central monetary authorities which were highly liquid due to restriction on government lending. Banks are in a very weak position in West and Central Africa.

The aims of financial sector restructuring

The liquidity crisis that hit Asia and East Asia in 1997 and its severe repercussions for the real economy have highlighted the need to undertake financial sector restructuring in SSA. Sustainable growth, which is market oriented cannot occur without the creation of a sound financial sector. Restructuring should take the form of the promotion of a modified version of universal banking. The principle features of this restructuring must be:

Recapitalization of financial institutions must be linked to specific programmes of project rehabilitation through acquisition and mergers. This may be related to the privatization initiatives of the governments.

The establishment of sectoral banks (textiles, chemicals, engineering, energy) in the larger countries to bring financiers and industrialists institutionally close to each other in line with the German model. Sector banks should aim at providing the full range of financial services tailor made to suit the needs of industrialists.

Development of SSA capital markets and using capital and (less importantly) money market mechanisms to link European specialist banks and other financial institutions with SSA finance.

Scope also exists for a rapid development of micro enterprise credit schemes.

The role of informal markets

The informal financial sector has probably benefitted from the collapse of the formal institutions. Establishing linkages between formal and informal financial institutions may be feasible; in some Asian countries there is such a division of labour with banks providing long-term finance and the informal sector providing working capital funds. < Gbate, P. (1992), "Interaction between the formal and the informal sector: The Asian case", World Development, pp. 859-871.> Indeed, in several Asian countries, notably the Republic of Korea, Taiwan and China, the informal or "kerb" markets have in the past played a key role as a source of working capital and long term investment for small-scale enterprises, while the supply of funds has been rationed by government policy. Resort to such markets has generally been very expensive, while interest rates in the formal, government-directed, financial sector, were typically held below market-clearing levels and credit was directed towards sectors which governments were seeking to support, particularly exports in the case of Korea and Taiwan.

The evidence from SSA seems to suggest that informal markets are highly monopolistic and expensive ; interest rates of more than 5,000 per cent per annum are not uncommon < Bolnick, B. (1992), "Money lenders and informal markets in Malawi", World Development, pp. 57-68.>

Linkages between formal and informal markets may be established as follows:

- Informal sector lenders can be used as agents by the banks;
- Banks opening branches in rural marketing centres (this has proved effective in Malawi);
- Development of micro credit schemes including those in which savings and credit are linked;
- Relating lending programmes to government procurement, etc.

Access to credit is a major constraint

At present less than 5 per cent of SSA's rural population has access to formal micro-enterprise credit programmes and access to credit is the single most important constraint on SME upgrading in many SSA countries. There is thus an urgent need to upgrade SME credit programmes in SSA. They should have the following features

- Operations should be decentralized;
- Staff of each unit should be selected from local areas;
- Collateral requirements should be replaced by personal or community guarantees;
- Operational procedures should be simplified;
- Loans should be for production purposes;
- Subsidization of credit should be avoided;
- Incentives for timely payments but strict monitoring to ensure a near 100 per cent recovery rate.

Returns must be positive

In both the formal and the informal sectors the key issue is to link financial rates of return to lenders to the marginal productivity of capital (i.e. rates of profit actually realized by investment). An important innovation in this respect, especially important for economies with undeveloped financial markets, is represented by the Islamic financing instruments of modaraba (fund management), musherika (profit sharing) and ijara (leasing). They establish a formal contracted relationship between financial charges and profit rates. The use of these instruments has attracted venture capital in several countries (Egypt, Sudan, Senegal) in SSA and Islamic banks have been relatively successful. Financial experiments along these lines may be established for SSA.

Careful redesigning of the financial system of SSA in association with SSA's existing and potential international financial partners can stimulate domestic savings and investments and pave the way for increased foreign capital flows as absorption capacity expands.

The need for foreign capital

ODA is ten times as important to SSA as FDI. SSA's ODA/GNP ratio stands at over 12 per cent - higher than that of any other DC regional group. What is more, debt/GNP ratios exceed 100 per cent for 26 African countries. The debt service ratio is very high, despite the low interest rate charged on SSA debt, because foreign exchange earnings are so low.

The most urgent issue therefore is the settlement of debt. Some progress has been made in debt cancellation but what is needed is to relate debt servicing and restructuring (including debt cancellations) to growth in productivity and in foreign exchange earning capacity. Enhancing "ability

to pay" should be built into debt restructuring programmes. Improving debt repayment capacity requires initiatives at the micro level. These could include:

Identifying projects which can increase foreign exchange earnings and/or foreign exchange savings over a short time period;

Developing a financing framework for facilitating public and private, domestic and foreign cooperation for financing such projects;

Developing an acquisition and merger programme to channel local funds towards such projects;

Restructuring the privatization programme with this end in view.

The need to secure enhanced flows of FDI

Restructuring on-going project rehabilitation and debt management programmes is necessary in order to increase the flow of FDI. FDI remains crucially important because it provides an important technology transfer, marketing and information link mechanism. It should be directed to sectors where its productivity enhancing impact can be maximized. Firm-level surveys show that British and German firms have been disinvesting in many SSA countries during 1989-1994 <Bennell, P. (1995), "British Manufacturing Investment In SSA: Corporate Responses during Structural Adjustment", Journal of Development Studies, pp. 195-217. > Disinvestment has been growing since the early 1980s and involves some of the largest TNCs. Investment withdrawal by UK companies was greatest in the intermediate and capital goods industries. British investment is now concentrated in low value added branches using relatively old fashioned technologies. Transfer of technology has slowed down. Depreciation has reduced the sterling values of production and profit remittances. Senior managers of British TNCs in SSAs have been reported to be unenthusiastic about the impact of stabilization policies. Sales of British TNC affiliates have not been at unrealistic prices and South African firms and local Indian and European origin nationals have been willing to pay good prices.

Stability, political and macroeconomic are prerequisites for higher FDI

Increasing FDI flows requires the establishment of political stability and macroeconomic growth. Measures to restore these and to link official and private flows, especially in debt restructuring packages which can enhance SSA's "capacity to pay" would be far more effective than tax concessions and other short-term incentives in attracting FDI to SSA. The continuity of policy and political stability in China have played an important role in making it the world's largest absorber of FDI in the mid 1990s.

Regional cooperation

Regional integration within SSA has faltered during the crisis years of the 1980s. There are hopes that the commitment to establish the African Economic Community may revive the momentum, but thus remains a distant prospect as of the late 1990s.

A redefinition of the relationship with Europe is also desirable given the imminence of European Monetary Union and the establishment of a single European currency. The chance of successfully pegging all SSA currencies to the ECU does not seem very bright given the difficulties of the CFA zone. However, the possibility of harmonization of monetary policies would be enhanced if the South African Rand were assigned the role of the key regional currency. This would stimulate both inter-regional trade and investment especially by South African companies.

The June 1995 mid-term Lomé review showed that European commitment to SSA has not declined. This review shows a clear European preference for short-term financing and a downgrading of long-term, especially project assistance. There is, however, a new commitment to assist with private sector development and export promotion. These commitments can be utilized to fund regional industrial projects which can contribute to an increase in SSA's foreign exchange earnings.

The most important element of any attempt at regional integration is the establishment of inter-enterprise cooperation. The development of regionally focused private enterprises could provide a basis for collaborating with foreign firms to develop the regional market. Joint ventures - involving, for example, firms from East Asia - should be promoted as the key element of regional integration policy.

This would expand opportunities for production of electronic components and niche products and expand the international market access of SSA firms. The core industries for promoting regional joint venturing are agriculture-related branches, engineering and mineral processing industries. Concentration on inter-firm collaboration in key sectors could perhaps generate the type of momentum for policy harmonization that Europe experienced as a result of the success of the European Coal and Steel Community in the early 1950s.

Environmental degradation is a serious issue

Environmental degradation takes three main forms in SSA: depletion of water resources, degradation of soil and deforestation. Access to water for rural and urban population is low. Support is required for expanding irrigation systems, especially utilizing flows for newly built dams through artificial flooding. System redesign and technological upgrading of water delivery networks is urgently required. Water is the single most important agricultural input and expansion of agricultural production and of agro-based industries depends crucially on its availability.

Another problem is deforestation which is currently taking place at the annual rate of 0.5 per cent of forested area in 27 SSA countries. Land degradation is a primary factor caused by agricultural extensification and increased use of marginal lands. Land degradation leads to an irreversible decline in land productivity. Preventing land degradation requires removing people from agriculture and developing non-farm employment opportunities in town and country. In SSA this is easier than the type of tenurial restructuring required to eliminate discrimination against smallholders. Second, the supply of inputs which make an intensification of agricultural production is also crucial in preventing land degradation.

Several SSA countries have developed national environmental plans and assessment of conservation strategies. They are usually of a command and control (CAC) type and not based on assessmental socio-economic costs of different environmental strategies. Few incentives are employed to induce farmers to avoid extensification. The provision of inputs (e.g. fertilizer) and the sharing of environmental protection benefits (e.g. income from tourism) can lead to a reduction in deforestation.

While industrial pollution is low by international standards, there is growing waste production and emission in the mining sector. The use of pollution related taxation or the auctioning of tradeable protection rights should be considered. The impact of pollution on industrial activity needs to be evaluated. Enforcement costs of environmental protection measures are relatively low and firms have rarely responded by relocating to dirtier sites or countries.

There is a strong case for expanded international cooperation for limiting environmental depletion. This is especially so with respect to the protection of bio-diversity where the benefits to the industrialized countries are greater than those to SSA <Tobey, J. (1993), "Towards a global effort to protect biodiversity", World Development, pp. 1931-1945.>

Some experts therefore argue for the creation of an international bio-diversity protection facility which would transfer funds on a recurrent basis to countries which have wildlife habitats in abundance.

The industrial dimension of environmental policy

All major aspects of environmental protection policy - water access, soil degradation prevention, pollution control, preservation of bio-diversity have industrial dimensions. The industrial sector must grow in a manner which enhances the sustainability of existing ecosystems, increases agricultural productivity and provides off-farm employment and poverty alleviation. Industrial policy must be synchronized with environmental protection policy in SSA and it is advisable to establish at a relatively early stage the principle that the polluter should pay to put environmental damage right.

Private sector development

Africa's commitment to agro-related industrial development could be reflected in a greater involvement of the private sector in the process. With a vibrant and dynamic private sector capable of competing in the world market, the principal objectives of agro-related industrial development could be more effectively achieved. Consultations between government and the private sector are crucial as

the East Asian experience has demonstrated. Replication of the relevant experiences and success stories of East Asia in the sphere of agro-related industrial development in Africa could also be attempted in order to accelerate the industrialization process.

International cooperation

Enhanced trade and investment constitute a necessary though not a sufficient condition for enhancing capacity building and competitiveness of agro-related industrial development in Africa. Neither the Uruguay Agreement nor FDI, ODA or new African initiatives alone will create a sufficient basis to allow the ability of Africa's agro-industries to compete on a level playing field within a global market economy framework. In the absence of programmes designed specifically to build up institutional capacities, technical competence and private sector initiatives, Africa faces the risk of being further marginalized and left partially or fully out of the globalization process which is so essential to industrial recovery and growth. UNIDO is providing extensive assistance to agro-industrial development in Africa. (see below)

There is an urgent need to support and expand programmes in this area at the sector (product), institutional and enterprise levels with a focus on capacity building for competitiveness. This would need to entail an integrated approach for surveys of industrial opportunities for competitiveness, technology development in key product areas, investment promotion, human resource development, and small and medium enterprises development in partnership with private sector and multilateral and bilateral development agencies. It is only through a concerted effort among all partners of development in the fields of industry, agriculture, trade, financing and private business that the agro-industrial sector will be in a position to flourish and prosper.

In this context, programming initiatives for accelerating the process of agro-related industrial development in Africa could, inter alia, encompass the following:

- Interactive policy formulation and industrial visions;
- Subsectoral surveys to determine industrial opportunities and comparative advantages of products;
- Investment promotion, private sector development, partnerships and strategic alliances;
- Technological upgrading and skill development;
- Institutional capacity building for enhancing industrial efficiency and competitiveness;
- Industrial capacity strengthening for quality and productivity enhancement; and
- Consultations between private sector and government.

The above programming initiatives could be implemented simultaneously, to the extent possible, to improve the prospects for developing efficient agro-related manufacturing activities. The reorientation of industry in Africa could be facilitated by assistance and largely be led by the private sector as a dynamic force in keeping pace with both opportunities and challenges of emerging competitive pressures emanating from globalization and liberalization.

Chapter 5: A reform agenda

The research carried out by Unido and other agencies on the performance and potential of agro-industry in Africa highlights the need for action in several key areas.

Improving existing structures for devising appropriate policies aiming to generate an agriculture led industrialisation strategy requires the establishment of clear targets and priorities. Before this can be done, the comparative position in which African countries find themselves today needs to be evaluated. (see Chapter 2) Research carried out by Unido has identified priority areas and some suggestions on modalities for different agro-industrial branches.

Strengthening institutions at the level of central government

First and foremost comes the need for political stability and continuity in the pursuit of development aims. For this, a political mechanism that allows for peaceful transitions between successive governments and an independent, adequately remunerated and staffed civil service are necessary. These are not present in all countries in SSA, although there are some signs of progress towards greater stability and stronger legal and governmental institutions.

Getting the right balance between central and local government

Part of the explanation for the dynamic growth of large parts of China in the 1990s lies in the devolution, de facto if not de jure, of resource-mobilisation powers to local-level governments, both from central to provincial and from provincial to lower levels of administration. In a country so large, diverse, and with still poor communications to this day, a measure of decentralisation, even devolution, is necessary and inevitable. While there are clearly some areas that considerations of equity and positive or negative externalities indicate as best kept within the sphere of the central government, decisions taken close to those that will be most closely affected by them are liable to be more effective.

Many countries in SSA suffer from poor communications and there is a strong case for the devolution of some decisions to a local level, especially in remote areas, provided that a robust mechanism for ensuring the accountability of local administrations is put in place.

The needs of developing transitional economies differ from those of the industrialised world

There is a strong economic argument for decentralisation, especially partial fiscal decentralisation, on grounds of efficiency. Provided preferences for public services differ, and if there are not externalities, welfare is maximised if local communities express their preferences. Revenue mobilisation can be enhanced by fiscal decentralisation as some taxes are more effectively collected by local governments.

But the arguments for decentralisation apply most strongly to industrial democracies, where voter preferences are fairly readily translated into outcomes and where local government tends to be democratically accountable to an electorate.

In many developing and transitional countries there is neither a firmly established process for establishing the democratic preferences of the local electorate, nor the capacity to expand local public service delivery. Central government controls on local government may preclude the exercise of local choice <*Macroeconomic Management and Fiscal Decentralisation*, edited by Jayanta Roy, Economic Development Institute of the World Bank, 1995>

Many developing countries also suffer from a narrow tax base and poor compliance, as well as an inefficient tax collection system and a general scarcity of resources.

Where stabilisation is an urgent priority, as in many transitional economies, there is an argument in favour of centralisation <*Macroeconomic Management and Fiscal Decentralisation*, edited by Jayanta Roy, Economic Development Institute of the World Bank, 1995; *Intergovernmental Fiscal relations*

and Economic Performance; Ved P Gandhi>. Where there is a large and rising public sector deficit, central control of the main tax and borrowing mechanisms may be desirable to preserve macroeconomic stability. Where resources are scarce, the central government may need to allocate investment and may need to access the whole tax base. Considerations of equity, which have important implications for social and political stability, may also suggest centralisation, especially where the rural-urban income gap is widening and where the central government, as is often the case in large countries faces decisions about resource distribution that will determine the spatial distribution of development where factor endowments vary.

The need for SSA to cooperate

Thus far, efforts to

Priority projects and countries

The primary objective of a programme for accelerated agro-industrial development in Africa could be:

ensuring food security;

increasing in agricultural productivity;

facilitating product specialization in accordance with international comparative advantage and augmenting FDI and ODA inflows.

Keeping these objectives in view priority branches have been selected on the basis of the following criteria:

- (i) Share in MVA and manufacturing employment;
- (ii) Share in manufacturing investment;
- (iii) Relative importance in ensuring food security;
- (iv) "Correct" factor-intensity and opportunities for export - "correct" demand elasticities;
- (v) Widespread diffusion within SSA (e.g. wood products and rubber were downgraded on the basis of this criterion);
- (vi) Contribution to improvement in agricultural productivity; and
- (vii) Contribution to arresting soil degradation and deforestation.

No attempt was made to develop a quasi scientific methodology to assigning weight to specific criteria. exist for the development of such a system. Moreover, it is our belief that the programme should be demand (investment) driven and its main concern should be to facilitate existing investor initiatives in projects which can contribute towards greater food security, improved agricultural productivity and enhanced export earnings.

Food processing

a) Highest priority ought to be accorded to expanding the processing of coarse grain specially maize, but also millet and sorghum, to increase its acceptability in urban markets as a substitute for imported crops

(b) Further development of the cocoa industry should be pursued with caution in view of the frequent exposure of this crop to the vagaries of world prices, and land under cocoa could be gradually shifted to food crops. Moreover, processed cocoa exports are not competitive with similar products from other developing countries. TNCs dominate the cocoa processing industry and prefer processing in Europe for quality control reasons. Moreover, price volatility is another factor which should be considered.

(c) An expansion of the cane sugar milling capacity is not desirable but rehabilitation and rationalization of existing units - particularly by the phased introduction of more appropriate technology

and regional cooperation - can be useful. There is also a strong need to make more effective use of by-products (specially bagasse and molasses).

(d) Another branch in great need of rehabilitation and rationalization is fruit and vegetable processing. This may have significant export and domestic demand potential but existing plants will need to be rejuvenated in order to keep pace with the changing determinants of industrial efficiency and competitiveness. Key products that may be targeted are dates, citrus, pineapples, dehydrated vegetables and juices.

(e) The oil seeds industry has potential and can make a significant contribution towards increasing nutritional levels. Medium-scale enterprises using efficient technology could be promoted and simple cheap manual and power oil seed milling technology could be introduced at the village level.

(f) Fish processing - especially pelagic species - may be encouraged. African countries share of open sea catches could be increased and landings raised. Senegal and Namibia can serve as models for the development of the industrial fishing sub-sector. The EU could ensure elimination of over-fishing and poaching. Environmental and sustainability considerations should be addressed.

(g) The promotion of the riverine fishing industry is necessary for increasing nutritional content of diets. The basic concern here must be the improvement of boating technology.

(h) The animal feed industry has linkages with several agro-industries. It can be promoted by the effective utilization of a range of by-products and crops (specially cassava). Medium-scale operations in this subsector should be encouraged.

(i) A key constraint on the development of all food processing industries is the unavailability of adequate packaging and canning material. A full-scale programme for the rehabilitation and development of a locally sourced packaging industry should be urgently undertaken.

Textiles

(a) Export prospects are very limited for the vast majority of African countries. On the other hand per capita consumption of textile and clothing in Africa is by far the lowest in the world. There is thus a strong prima face case for domestic demand orientation with large populations and raw material availability (agriculture for natural fibre, chemicals and petrochemicals for synthetics). All the major African countries come into one or both of these categories. The development of an efficient domestic demand oriented textile and clothing branch thus is justified in these countries.

(b) In many of these countries textile and wearing apparel represent one of the largest manufacturing branches. But it is usually not efficient and has low levels of capacity utilization. Policy could be concerned with rationalization, acquisition and merger, rehabilitation, balancing and modernization. Privatization may be a means for achieving these objectives. In Africa as in South Asia integrating the spinning and weaving sector has proved problematic. Rather than setting up large-scale integrated units an attempt must be made to develop vertical and horizontal subcontracting links between the spinning mills and the weaving operations to maximize income and employment generation impact.

(c) Production for the local market could be mainly in the form of low and medium count yarn, grey fabric and coarse cloth. Given the low levels of income in Africa production must be price not quality driven. The impact of European/American "throw away" (second hand clothes) on the weaving and spinning sector is similar to the impact of food aid on the production of coarse grain. Policy could aim at reducing the price of locally produced clothes below those of "throw aways".

(d) Expansion of synthetic fibre should not be accorded priority, except perhaps in a small group of countries - Algeria, Egypt, Nigeria - which produce a significant quantity of cellulosic fibre. In synthetic fibre manufacturing there is a need to employ large production capacities and continuous processes in order to achieve cost reductions. In the case of the synthetic fibre industry, as the production volume increases the cost per unit decreases, with the benefit of the cost reduction being more pronounced at lower volume levels than at higher ones. Other factors also can contribute to the cost reduction. For instance, process integration from petrochemicals all the way to fibre spinning would have a favourable impact on costs. An additional factor is capacity utilization: a small plant operated at a higher utilization rate will have a cost advantage over a larger plant operated at a lower rate. Traditionally a synthetic fibre plant operating at 70-75 per cent capacity utilization would be considered operating at a break-even point. Capacity utilization in Africa however has been low.

Some African countries have large capacities in nylon. Performance in these countries have been weak. Reducing prices of synthetic fibre to affordable levels does not seem likely.

(e) A particularly weak aspect of the African textile and clothing sector is its almost total dependence on machinery imports. Textile machinery equipment and design are widely available on a merchant basis rather than being contingent on the proprietary technology of an enterprise. But unlike the East Asian case even relatively advanced African countries such as Kenya, Nigeria and Zimbabwe fail to unpackage textile manufacturing technology. Imports of textile machinery - particularly of the more advanced rotors have fallen as the foreign exchange constraint has become binding. Any attempt at modernizing and balancing the textile and clothing branches must include measures both to increase technology imports and to enhance the capacity for local manufacture of textile machinery. Several Asian countries at relatively low levels of development are significant manufacturers of textile machinery.

(f) While the bulk of the textile and wearing apparel manufacturing activity should be domestic demand oriented, there is scope and need for creating export competitiveness in a selected number of products. The export strategies must be constructed in a manner that they synchronize with the sourcing strategies of major European and Asian retailer chains. It is the retailer groups who are now the principal market makers and investment flow facilitators in the textile and clothing business. An alliance with key retail houses can pay rich dividends in the form of both export earnings and foreign capital inflows for many African countries.

(g) The export strategy may be product specific. Low cost African countries may seek to develop a capacity to market standardized products of the type exported by Bangladesh, Sri Lanka and Thailand. The Maghreb could learn to compete in highly styled and designed products that are produced by Turkey and eastern Europe. Some indication has been given of the type of products likely to be most lucrative (cotton dresses, women's knit shirts, men's and women's cotton shirts, shirts, trousers, T-shirts, blouses, women's overcoats, women's and men's overcoats, industrial clothing, cotton sports wear, children wear, fabric printing and knitted fabrics). But this is a tentative list and detailed research is required to identify the potential of each product in major markets and strategies of retailers and manufacturers and possibilities of liaising with and influencing these strategies. Such research is urgently necessary to develop a viable and coherent textile and clothing export policy.

(h) A very important need is to increase the volume of locally produced fibre in manufacturing of outward processing traffic/cut, make and trim (OPT/CMT) type operations. As argued above this makes good economic sense for host countries, foreign manufacturers and retailers. OPT-related legislation inhibits this development and lobbying could be undertaken, in association with EU retailer and clothing manufacturers to modify this legislation. There is also a need to improve the quality of locally produced fabric. Investment by foreign firms could be encouraged for this purpose.

(i) There is further a significant opportunity for expanding the share of locally produced grey goods in export oriented production.

(j) While the EU market remains of primary importance note must be taken of the opportunities in Asia (both East and South). Asian firms are also moving out of low count yarn and low value added fabric and clothing production creating space for lower cost producers. Moreover Asian - specially South Asian firms - can be attracted to East Africa (given the presence of a large Indian community) to export oriented and modern projects. This may also be true of some Latin American countries such as Brazil which have sought to develop trade and investment ties with Africa.

(k) Finally the American market will need to be effectively penetrated. Many low cost Asian countries have had significant success in the USA as have some Latin American countries (but that may be attributed to preferential treatment). The presence of a large African community with strong cultural ties to the home continent provides a rare opportunity to African textile products. If properly targeted this community can help build the market niche necessary for African penetration for the US clothing and textile markets. This community can also serve as a rich source of technical know how, expertise and investment for the modernization of the industry.

Leather

(a) The leather industry has significant unrealized potential in several African countries. Africa has by far the lowest per capita shoe consumption level in the world, and as per capita income rises the

domestic market will grow rapidly. Africa can also gain from plentiful raw material and cheap labour to develop an export industry oriented mainly towards other developing countries and perhaps southern Europe.

(b). National and international assistance could mainly be focused on developing export potential and not on domestic market expansion because: (1) Increasing domestic demand should be a relatively automatic consequence of macroeconomic growth and there is no reason why efficient domestic companies should not be able to compete with imports provided the accelerated devaluation, which Africa has been experiencing, is arrested. (2) On the other hand policy support is crucial in enhancing export earning capacity quickly and given Africa's need to earn foreign exchange the leather sector's potential comparative advantage in world markets could rapidly be developed. (3) This comparative advantage cannot be developed by a "hands off" policy which relies on liberalization and the gradual working of the market alone.

(c) Support could take the following forms:

(1) UNIDO has in recent years operated highly successful technical assistance programmes in Ethiopia, Kenya, Malawi, Somalia, Sudan, Tanzania, Zambia and Zimbabwe. The programme has succeeded in improvements in collection, reduction in wastes, upgrading of tannery technology, better effluent treatment and improvements in product quality. Results in Kenya, Ethiopia and Tanzania have been described as outstanding by international experts.

(2) Technical assistance could be accompanied by financial restructuring. Publicly owned units are under-funded but privatization has been slow and recapitalization remains necessary. National financial restructuring plans should identify the unit that should be saved, the mergers that are feasible, and financial sources that can be tapped.

(3) Re-capitalization can in most cases fruitfully involve foreign investors. An attempt must be made to interest well-known leather industries operating in developed countries such as Spain, France and Italy to establish subsidiaries and joint ventures in North and East Africa. Such cooperation can be very useful leading to a gradual transfer of leather and shoe making technology and reduction in the import intensity of investment in this sector in African countries.

(4) South African companies can also be important investment partners. South Africa has some of the more successful tanneries in the region (e.g. Mossop which celebrated its 150th anniversary in 1996) and labour costs are rising rapidly. It makes good economic sense to consider relocating to lower cost production sites for the manufacture of some products.

(5) The key products that ought to be targeted are leather clothing, crocodile and ostrich leather products, camel leather products (specially lamps), sports footwear, and products that could create a market niche.

(6) Support for a full-scale leather restructuring programme would require inter alia:

(a) an evaluation of the sector's rated and actual performance on
the basis of installed capacities;

(b) identification of the main technical constraints on achieving
increased performance of installed capacity;

(c) Specification of investments in additional equipment, technical services and other imported inputs;

(d) Assessment of the total foreign exchange and domestic
currency required for rehabilitation;

(e) Assessment of the economic benefits which may be achieved
through revitalizing existing plants;

(f) Negotiation of financial resources for revitalizing the industrial capacities (Use of ODA funds to finance a comprehensive leather sector restructuring and revitalization programme is justified. Given the need to expand Africa's foreign earning exchange capacity it can be argued that public debt restructuring programmes should incorporate such sectoral programs as a means to enhancing the long-term capacity to repay debt);

(g) Some African countries have often banned the exports of raw hides and wet blues to stimulate the local processing industry. The general preference for higher value addition is natural and justifiable.

However a crucial constraint is water availability. Leather processing is highly water intensive. Recycling water through efficient effluent treatment is one possibility but this might lead to a significant escalation of costs. Given the relatively small number of tanneries and leather manufacturers it seems more effective to have specific measures addressed to the needs of specific firms - specially because the informal enterprises usually escape these bans through smuggling. An incentive/punishment regime should be evolved around annual targets for product upgrading by major tanneries and leather goods and footwear manufacturers. Subsidizing input wastes associated with devaluation (over which the leather industry of course has no control) should be an essential element of this incentive system.

(h) Regional cooperation in the field of training, processing, design, management and marketing can be very beneficial. The efficient manufacture of tanning chemicals is feasible in only a few African countries. Regional cooperation in the supply of tanning chemicals is thus required. Inter-African trade in leather and leather products could more easily be integrated with production for national markets and its growth could be significantly stimulated by regional cooperation.

UNIDO's experience in rendering technical assistance to the crucial segments of African leather industry suggests that assistance could be efficiently applied and channelled through local organizations. A new leather industry development initiative for Africa could focus on the following:

- (a) African countries' different stages of development in leather processing call for different country-specific strategies.
- (b) Trade associations could play a significant role in removing supply-side constraints.
- (c) There are different agencies rendering assistance to the leather sector in African countries, and a new development initiative could take into consideration previous or ongoing assistance carried out by these agencies.

The strategy for leather industry development in Africa could classify countries according to the following criteria:

Livestock resources as well as hides and skins production;

Leather production, degree or stage of leather processing; Footwear and leather goods manufacturing capacity; and

Geographical location (as neighbouring countries usually have raw materials with similar characteristics or could belong to the same regional trade block, e.g. COMESA).

Agricultural machinery, tools and implements

Given the paucity of country and plant level data only relatively general recommendations can be made. The most important aspect that ought to be emphasized is that the availability of adequate agricultural machinery should be seen as a requirement of food security. Two types of equipment are essential: those which are necessary for the construction and maintenance of the irrigation system and those that are used for agricultural production. These include machinery and equipment for crop production, crops processing and preservation. While availability does not necessitate local production it must necessitate the generation of capacity to finance the acquisition of the machinery that is required. Thus the prima face case for an expansion in domestic production is based on the fact that continuing devaluation of the local currency in some countries has made imports prohibitively expensive, leading to a serious obsolescence of existing plants and transportation system.

The primary purpose of local production should be to serve existing effective demand of small holders and enable them to raise factor productivity. The initial step is to assess this effective demand for typical markets. Moreover demand for agricultural equipment is volatile and responding to it by committing long-term funds is risky.

The creation of effective and efficient markets in agricultural equipment thus requires measures for stabilizing effective demand and thus contributing to its expansion. In East Asia the establishment of farmers cooperatives for purchasing and distribution has been an important means for converting potential into effective demand for agricultural equipment among small holders. Agricultural financing systems, where effective, have enhanced the provision of long-term credit to both consumers and producers of agricultural equipment and so have insurance facilities to safeguard producers against fluctuations in sales occasioned by external causes.

Agricultural institutions need to be fostered

It is recognized that agricultural institutions will need to play a vital role in the formulation of mechanization policies and in assessing the needs of local farmers.

These institutions can also perform a useful role in the testing of both locally produced and imported agricultural equipment, as well as in the adaptation of imported technologies, the development of indigenous technologies, the dissemination of information, quality control and the promotion of safety standards.

The development of a registry/roster to monitor inventory, condition, application, manufacture and testing of agricultural machinery in the country as a whole and particularly in regions whose production is suitable for maintaining local food security should also be a task for national institutions. Given the small pool of technical know how locally available it might also be appropriate for national centres to play a more active role in the procurement of agricultural equipment and technology from foreign suppliers who should be encouraged to relate sales to technical support including training, participation in setting up service and spare parts centres and repair and maintenance facilities. Indeed there is a need to establish national focal points for agricultural engineering and allied metal working branches which could stimulate and create local markets for the production of spare parts simple agricultural and drainage equipment and most important a wider and more regular provision of maintenance services. Such local institutions can also play an important role in enhancing local design capacities and as far as major ventures are concerned in facilitating the establishment of joint venture projects. It may be argued that one of the most effective uses of ODA funds can be the support of agricultural mechanization of regions which are of critical importance in maintaining food security in African countries. The availability of ODA funds can stimulate the flow of private finance and the establishment of major projects for improving the irrigation and drainage systems and enhancing agricultural productivity to meet food security requirements in particularly vulnerable African countries. ODA funds can play a major role in enhancing cooperation between medium-sized producers of agricultural equipment systems in the industrialized countries and African firms which can manufacture components of agricultural machinery and drainage equipment and develop a capacity to provide effective repair and maintenance services in the African country side. The establishment of a network of contacts between African firms and medium-sized producers of agricultural equipment in the industrialized countries can be a legitimate and fruitful use of ODA funds.

Agricultural technology must be appropriate

It is important that agricultural technology should be developed taking account of African ecosystems, land tenure patterns and the physical characteristics of production. Adapting agricultural mechanization to local requirements necessitates that the provision of machinery be accompanied by the creation of a local capacity to unpackage it and adapt it to suit local conditions. Technology transferred should preferably be useable, simple and cheap. Wherever possible local sourcing should be increased so as to protect the agricultural production system from fluctuations in foreign exchange cost associated with accelerated depreciation in the value of national currencies.

Similarly the development of financing systems is a necessary requirement for increasing the sustainability of agricultural production and mechanization. The obtaining of finance on appropriate terms for agriculture related firms has become extremely difficult after the collapse of the development finance institutions (DFI) in Africa. Default on the part of borrowers leads to a drying up of working capital funds and to a deterioration of machinery as maintenance and replacement to offset depreciation becomes unfinancable. The switch in so many African regions from mechanized to animal traction reflects these rising unfinancable repair and maintenance costs. It also reflects inappropriateness of design. Products imported have remained incomprehensible to local users for in many countries the agricultural machinery industry has stood still for several decades. Production has remained confined to very simple hand tools by village craftsmen and artisans and the capacity for "learning to learn" has not grown except in a handful of countries such as Egypt, Kenya, Zimbabwe. Tractorization and harvesting techniques have not been transferred to the most vulnerable food insecure African countries and the payments crises has seriously retarded the development of agricultural mechanization in Zimbabwe and Nigeria. If local capacity does not grow imported equipment becomes inoperable after only a short period owing to the absence of spare parts and maintenance facilities. The abandonment of tractors and other agricultural mechanical equipment had assumed crisis proportion during the 1980s in some African countries. The short term solution is that

all purchasing agreements include provision for supply of spare parts for a four year period. This can be converted into a long term solution if during this period the supplier enhances the spare parts producing and maintenance capacity of the purchaser (through for example the establishment of a joint venture). Again this can be an effective use of ODA funds.

Agricultural mechanization policies could be based on forecasting the demand for different types of machinery and equipment and measures at the local level regarding: land use; transport; improvement of water management systems; extension services; improved animal-drawn equipment to replace tractorization; promotion of industrial joint ventures; manpower training; improvement of maintenance and the supply of spare parts; provision of finance and credit facilities to farmers and design of and research on equipment.

An important concern could be to integrate the activities of informal and formal sector establishments. Informal sector enterprise could be upgraded for example by the provision of facilities for the joint purchase and use of equipment, casting and forging facilities. The development of prototype designs and provision of services for testing agricultural equipment can stimulate the upgrading of village blacksmith type operations and their gradual integration into the formal sector. Mobile demonstrations and exhibition workshops can play an important part in upgrading technology. This can be particularly useful in introducing watershed management, pumping and tillage techniques and various types of irrigation, including the construction of canals, reservoirs and wells. The urgent need to provide training in irrigation techniques along banks of rivers and creeks in Africa is emphasized.

It is suggested that consideration be given to promoting the production of the following type of agricultural equipment in Africa.

Tools and implements

Tillage equipment

Sowing equipment

Animal traction equipment Harvesting and threshing equipment

Water production (irrigation) equipment Simple diesel engines

Mini tractors

Tractor accessories

Spare parts for repair maintenance

Storage facilities

Phosphatic fertilizers and mixed formulations Mini fertilizer mixing plants

Pesticides (especially bio-pesticides)

The investment costs will be high

If the objective is to upgrade local production, investment per unit must be at a level which is capable of making a significant impact on agricultural productivity in a given unit. For example, projects with a capacity to manufacture 5,000 to 7,000 units of agricultural implements may be envisaged, such as harvesters, ploughs, reapers and other tillage and cultivation related equipment on an annual basis. The typical total cost (both fixed and working capital requirements for the first year) in South Asia is currently between \$160,000 to \$300,000 (1996 prices).

It is thus clear that increasing agricultural mechanization to enhance food security involves a large financial effort. If enhancing food security is an important objective of aid policy serious consideration could be given to allocating a significant proportion of ODA funds for the establishment of agricultural mechanization projects and projects for improving the effectiveness, expansion, and maintenance of irrigation systems in vulnerable areas.

The viability of producing simple capital goods for processing sugar, cocoa, palm oil, wood and coconut into value added products will also need to be explored. Simple equipment for processing fruit, vegetable into beverages and oil, respectively, may bear greater relevance to the African context.

Fertilizers and pesticides

Increasing fertilizer use per hectare is necessary to ensure food security in Africa. The use of chemical fertilizers must increase for this purpose. Organic nutrients can be effective if they are combined with chemical fertilizers. The increased use of chemical -specially phosphatic fertilizers is required not just because of the direct impact on agricultural productivity but because they enrich the soil. One of the major problems of African agriculture is permanent soil deterioration (erosion and depletion of nutrient content), attributable to many factors, among them reduced arable acreage, overworking of the available land and insufficient soil management. Losses are sizeable and contribute to reducing income available for purchasing fertilizers. For example, each year Zimbabwe loses 15.6 million tonnes of organic matter, 1.6 million tonnes of nitrogen and 240,000 tonnes of phosphorus due to top soil erosion.

The use of fertilizer in sufficient quantities to replace these losses would cost some \$1,500 million per year. The estimated cost of the erosion is put at \$20-\$50 per cultivated hectare. Insufficient fertilizer use favours soil depletion, bringing about a reduction in yields and consequently in fertilizer purchases, and finally further soil deterioration.

The major constraint on the growth of fertilizer use in Africa is lack of effective demand due principally to low farm incomes but also to unavailability of complementary inputs, machinery, distribution materials, application information credit etc. ODA funds could be targeted for relieving these "supply side" (from the perspective of the fertilizer user) constraints where feasible.

While Africa has the natural resources to sustain an expansion of phosphate fertilizer capacity, it lacks the required logistical and infrastructural support system to sustain this expansion. It is therefore not likely that large-scale foreign investment - loan or equity - would be attracted to new projects in this area before these constraints are reduced and before effective demand rises significantly. New projects are therefore need not advisable at this stage.

Plant rehabilitation with ODA funds

In African countries there exist fertilizer plants operating at low rates of capacity utilization. They represent very sizeable commitments of foreign and domestic resources and their continued underperformance is a factor inhibiting Africa's ability to service her foreign debt (sometimes incurred to finance these very plants). A comprehensive rehabilitation plan - involving increases in capacity utilization, efficient use of raw materials and energy, modernization of equipment, management restructuring, etc. - should be put in place for a selected number of such plants, and ODA funds could be committed to such rehabilitation plans.

Using ODA funds for this purpose can act as a catalytic agent for attracting foreign investment in the form of build-operate-transfer (BOT) deals, debt equity swaps, transfer of technology arrangements to the fertilizer plants that are potentially viable but have been rendered inefficient by poor management.

The purpose of the commitment of ODA funds to the fertilizer sector is to increase food security. ODA funds could therefore be committed on the basis of a careful assessment of fertilizer needs of specific regions to counter soil degradation and increase food production. The sporadic provision of fertilizer aid cannot achieve this purpose. The provision and distribution of fertilizer aid must be systematically and institutionally related to increasing a region's capacity to acquire and apply fertilizer to the soil. Fertilizer aid should preferably be channelled through fertilizer producing (specially formulation and mixing) units.

An appropriate use of ODA funds could be the organization of fertilizer purchasing credit schemes. Support may be provided for the establishment of credit cooperatives, financial association of intermediaries and regional coordination of fertilizer purchasing policies.

Considerable research has been done on the viability of fertilizer mini-plants. These may be suitable for a large number of African countries and investment per unit is less than 20 per cent of a large project. Establishment of such plants may be encouraged in countries with modest natural resource and capital constraints.

Provision of pesticides should take all measures to adopt risk reduction in the development of agro-chemicals including integrated pest management. Risk reduction in production and use of pesticide

inputs is of utmost importance due to problems associated with health and damage to the environment.

Building materials industry

The growth of a local building materials industry can stimulate the construction of agricultural irrigation and drainage systems as well as storage facilities. This is required as permanent villages are built and small towns linking rural to main metropolitan areas expand.

Building materials are produced in several African countries. In southern Africa most of the cement is produced by the dry process. All southern African countries except Botswana, Lesotho and Swaziland have cement plants. Limestone, clay, gypsum, fuel and sacks are sourced locally. Capacity utilization is low in Angola, Mozambique, Tanzania and Zambia. Capacity was estimated at about 4,000 tonnes per day in the southern African region (Angola, Tanzania, Malawi, Botswana, Swaziland, Namibia, Lesotho, Mauritius, Zambia, Zimbabwe, Mozambique) in 1994. Consumption was estimated at about 3,000 tonnes per day in 1992-93. In the early 1990s, Portland Cement and Twinall announced plans for major capacity expansion in Zimbabwe including the largest cement project in SSA - a plant producing 100 tonnes of clinker a day.

Rehabilitation is under consideration

Apart from Zimbabwe, the existing plans for cement emphasize rehabilitation capacities rather than new investment. Thus, SADC's last detailed Industry and Trade Plan included the rehabilitation of cement projects in Mozambique, and suggested studying the rehabilitation of cement plants in Malawi, Tanzania and a Zambia. It also called for a study of alternative uses of cement products. Botswana, which imports 67 per cent of its cement requirements from South Africa and 33 per cent from Zimbabwe (whose production capacity may soon be overtaken by domestic demand), might weigh the cost of establishing a local cement plant against imports. Such a plant would utilize local fly ash and gypsum. Clinker, however, would have to be imported from Zimbabwe, Zambia or South Africa.

Most cement products are bulky and therefore costly to transport. Products like blocks, pipes, tiles, etc., are also in demand for a wide range of local specifications. Intra-regional trade rather is therefore unlikely to grow much at present. Wherever production technology allows, activities can be decentralized and undertaken on a small scale. Production of cement products at the national level is probably to be preferred. The possibilities of intra-regional trade in cement could be explored, however. For instance, northern Zambia and northern Malawi could import cement from the Mbeya plant in Tanzania, whilst southern Tanzania could obtain it from northern Mozambique and north-western parts of Mozambique could obtain their supplies from Zimbabwe or Malawi.

There also seems to be room for more intra-regional trade in inputs which are currently imported from elsewhere by some SADC countries. For example, Mozambique could obtain gypsum supplies within SADC. Zimbabwe could supply spares and grinding media to other SADC countries, provided supply capacity is available. Refractories are imported by virtually all cement plants in the region. The possibility of local manufacture is being explored in Zimbabwe, and it is suggested that this is a potential SADC project given the general regional needs. A PTA project for the rehabilitation and rationalization of cement mills was ongoing in 1992. The cement plants in Mozambique are now being privatized, with a total annual capacity of 990,000 tonnes.

The focus on the irrigation system

In general, there is a need to selectively target those segments of the construction materials industry which can be dedicated to the construction and rehabilitation of the irrigation system. Construction materials are extremely bulky products and often transportation costs and associated delays cost more than procurement. Given the existence of large non-metallic mineral resources in several African countries it might be desirable to source irrigation and urban water supply schemes locally by revitalizing the building material plants which are conveniently situated and capable of producing inputs cheaply and efficiently. The revitalization of these plants should thus be structured into a comprehensive strategy for improved water management in countries suffering from desertification,

obsolete irrigation and water works and urban drainage systems, water wastage, etc. It would be desirable that ODA funds be committed to such projects and consequently they should also be available for restructuring and modernization of building materials companies which can be dedicated to such plans. It is likely that since these projects will be of a long run duration they could provide a basis for attracting investment and technology transfer services from international companies in the construction materials and construction equipment business. As noted above the latter branch is in a phase where overseas sourcing is becoming increasingly attractive. Involvement in large ODA irrigation and urban sector water development projects may well provide a basis for a closer relationship between European and African companies and might lead to a long term European commitment to the African building materials and construction equipment industries provided ODA funds are committed to play a catalytic role.

Wood products

An increased volume of wood processing would help preserve forests for the simple reason that less trees need to be felled to attain the same level of earning from unprocessed timber. This would encourage better forest conservation practices per se.

Current sawmilling operations in Africa in general are inefficient. Slabs and off-cuts are used as fuelwood, and large quantities of wood residues and waste are left to rot. Productivity is low and installed machinery is normally underutilized, mainly because roads and logging trucks are poorly maintained. In these circumstances sawmills cannot be properly supplied. This in turn constrains the performance of the secondary wood processing industry, which uses the primary products for further manufacturing and assembly into standardized products (such as scaffolding, partial frames, beams and formwork), non-standard products (building components such as doors, windows and mouldings), furniture, packaging (crates, boxes and pallets), and other products (such as hatches and boats).

Changes in the developed country market for tropical timber should have benefitted the African producers. However, freight charges to Europe, the principal market for African countries, make African exports uncompetitive in relation to those from South-East Asia. Furthermore, the European market has changing needs.

Country priorities

Country priorities could be derived on the basis of objectives of food security, enhanced productivity and competitiveness and attracting foreign funding. The tables at the end of this chapter daily calorie supply per capita (a measure of food security); average yield per hectare (measure of agricultural productivity); and FDI relative to GNP (a measure of resource flows).

The table below Table 16<Number> presents an illustrative list of fifteen countries selected on the basis of the above objectives. A distinction may be made between countries in which preconditions for augmenting food security and agricultural productivity are good and those in which they are not. Given problems of access to relevant primary data it would not be useful to develop elaborated statistical systems for monitoring capacities. A good indicator of the productive capacity of an economy is the quantity and quality of projects either ongoing or in the pipeline that exist. Technical assistance could in this sense be demand-driven with its primary concern being the facilitation of existing and pipeline potentially viable projects. The absence of viable existing or pipeline projects means that preconditions for enhancing productivity and competitiveness are weak. An important indicator of weak preconditions is the existence of inappropriate policies resulting more crucially on low rates of domestic savings and low gross domestic capital formation. Thus where the need to augment food security, agricultural productivity, international competitiveness and foreign resource inflow is weak, technical assistance could be concerned primarily with policy reform - especially the reform of the financial sector to stimulate domestic savings and facilitate higher domestic financing of a growing level of investment.

Table 16. Illustrative list of 15 priority countries for ensuring food security, increasing agricultural productivity and enhancing resource flows,

1993-1994

(Country selection is based on crucial needs as indicated by low levels of food security, agricultural productivity and FDI) -----

 Food security Agricultural productivity FDI/GNP

Somalia	Angola	Botswana
Ethiopia	Niger	Gabon
Eritrea	Mozambique	Central African
Central African Republic	Mauritania	Republic
Mozambique	Botswana	Sudan
Sierra Leone	Mali	Swaziland
Malawi	Somalia	Zaire
Rwanda	Senegal	Senegal
Angola	Tunisia	Algeria
Namibia	Chad	Burkina Faso
Zambia	Gambia	Togo
Burundi	Sudan	Niger
Cameroon	Algeria	Ethiopia
Zimbabwe	Central African Republic	Eritrea
Chad	Zaire	Burundi
		Congo

Source: UNIDO.

Note: This table is compiled from information presented in Appendix tables A-3 to A-5. Country classification according to the three objectives of agro-related industrial development indicates a tentative list of countries that could be accorded priority against the objectives of ensuring food security, increasing agricultural productivity and attracting resource flows. This table lists the first 15 countries ranked in ascending order in Appendix tables as measured by daily calorie supply per capita, index of agricultural productivity and the share of FDI in GNP.

A role for Unido

UNIDO is well placed to offer a range of services for the development of appropriate strategies and policies to foster agro-industry in Africa. It could be a natural place for the development of a system of enterprise benchmarking: the evaluation of performance of enterprises engaged in manufacturing exports for example, and the development of a policy framework for the removal of constraints on firm competitiveness. This function is already performed for developed country firms by the European Union. The EU experience shows that enhancing competitiveness requires cooperation among countries and among enterprises. Indeed an important feature of the so called "new" industrial policy is the emphasis placed in the development and nurturing of strategic alliances along a specific production or marketing chain in order to enhance collective efficiency and achieve a transition from mass production to mass customization techniques.

Helping to evaluate strategies

Industrial strategies must be based upon a knowledge of best organizational and technological practices. UNIDO has put together a package of technical support services, specially in the new technologies. These services focus on designing and implementing integrated strategies that (a)

make demands for technology and cluster level more specific, (b) strengthen, integrate and promote innovation system agents and technology flows, and (c) support the processes that create and develop new technology-based enterprises.

UNIDO has substantive capacity to evaluate industrial strategies and policies of LDCs in the light of business practices and preferences of potential investors and competitors to help LDCs develop criteria for selection of national champion firms entrusted with the task of achieving industrial output, export and investment objectives. UNIDO provides technical support for the development of incentive systems for ensuring firm compliance with national policy directives. The conception and implementation of industrial strategies and policies has become a multi-faceted task for two reasons: first there are now many makers of industrial policy, not only national governments but also TNCs, large domestic firms, multilateral financial institutions, regional public bureaucracies (EU, NAFTA, ASEAN), local governments, etc. Second, the pace of technological change and informational flows has increased. In these circumstances industrial strategies must be dynamic, adaptive and flexible. While ends remain constant - enhancement of competitiveness and capabilities - the means and the methods for achieving them change frequently. Strategies must therefore be under constant scrutiny and UNIDO is appropriately placed to bring together the knowledge and experience from successful developing countries to the service of LDCs. UNIDO undertakes in-depth subsectoral surveys to analyze potential sources of growth, determinants of competitiveness and market penetration and to unveil investment opportunities across promising product areas. UNIDO acts as a focal point for international industrial cooperation, especially among LDCs and developing countries and for a transmission of organizational and technological best practices from the latter to the former.

Promoting institutional development

As often noted the industrial success of the East Asian countries owed much to their ability to develop an appropriate institutional framework for sustaining industrial progress, and also to the continuity of policy implementation. A major weakness of the LDCs- and SSA is no exception- is the institutional framework; the colonial administrative structures remain virtually untouched despite downsizing.

Two initiatives are of particular importance. The development of close liaison between the public and private sector in the conception, articulation and implementation of industrial policy on the one hand and the upgrading of small informal sector enterprises on the other. In both cases industrial association of firms has a key role to play.

The provision of technical support services and of human resource development often tends to be divorced from the policy conception and implementation process. UNIDO's integrated policy approach provides a basis for creating an institutional design centered on industrial associations capable of relating human resource and technological upgrading programmes to improvements in productivity and competitiveness on a project by project basis. Once again transfer of the knowledge and experience from countries such as Brazil, China, India, Republic of Korea and Singapore can be very useful and UNIDO is well placed for supporting institutional restructuring efforts. In connection with the Alliance for Africa's Industrialization programme UNIDO endeavours to create national business councils to facilitate project conception and implementation. It is clear that more private business representation at all levels within UNIDO can prove useful in increasing the private sector input into the policy design and implementation process. As far as small and micro enterprises are concerned, UNIDO again has a comprehensive programme. There are two crucial concerns in this respect: (a) to facilitate clustering whenever possible for increasing collective efficiency, and (b) to create a system for the diffusion of training and technology from major industrial enterprises to their small scale suppliers. Once again the move to mass customization can facilitate this type of "supply chain". UNIDO's small and medium industry development programmes aim at facilitating increased integration of small and micro enterprises with the major programmes of industrial capacity building, aiming at the technological upgrading of existing viable enterprises so that they can be effectively integrated into the national industrial system, thus solving the problem of the "missing middle". Here UNIDO endeavours to act as a conduit for the transfer of experience not only from developing countries but also from Italy, Spain and Japan where technological upgrading of such enterprises has been most effectively achieved.

Facilitating investment

UNIDO has expanded its programme for investment promotion in recent years but more could be done to focus on the key issues of financial sector restructuring, project rehabilitation and privatization and small sector financing.

(1) Financial sector restructuring

Financial liberalization has led to a growth of commercial banks competing for deposits and for profitable investments. These investments are short term and there has been a growing scarcity of loanable funds at the long end of the market <Johanson, M., "Financial sector reforms in Structural Adjustment Programmes" in Van der Geest (ed), *Negotiating Structural Adjustment in Africa*, London, James Currey.>. There is an urgent first step in the restructuring of the industrial financial system. Industrial financing plans could be prepared identifying the mergers that have become necessary within the financial sector to create at least a few major institutions that can profitably lend to the industrial sector (both corporate and small scale) on a long term basis. They may or may not be specialized units; the universal and main banking model ought to be seriously considered. However the new long term investment institutions (forged out of a restructuring and merger of existing banks and FDI) should not be dependent on concessional credit lines. They should bring together domestic private, public and international finance and combine loan, equity and quasi equity transactions. The preparation of schemes for the creation of such viable industrial financing institutions should be a priority area.

(2) Rehabilitation and privatization

As noted above project rehabilitation and financial sector restructuring (at least at the long end of the market) are two sides of the same coin. Project rehabilitation is a pre-requisite for the success of the privatization programme in most LDCs. UNIDO could provide technical assistance for relating project rehabilitation and privatization initiatives.

(3) Financing of small and micro enterprises

UNIDO's small sector support service is extensive. Technical support for capacity building in the small sector could be related to their financing. As noted above this objective can best be achieved by developing micro credit schemes at a major national bank using financial instruments that relate payments on borrowed funds to the profits earned by the financed enterprises. Quasi-equity financial techniques (specially leasing and asset financing) have also been experimented with. UNIDO could explore the possibilities of conceptualizing small sector financing patterns which are capable of mobilizing savings from within the sector and ploughing them back into small sector investment. The financing programme for the small sector must be self-sustaining and commercially viable. This means that it must be divorced from social and welfare programmes organized by foreign financed NGOs. This creates the "multiplicity of objectives" problem and obscures the fact that the essential purpose of the small sector industrial financing programme is the achievement of organizational and technological upgrading of the small and micro enterprises.

Table A-3. African countries ranked by increasing level of food security

Country	Daily calorie supply per capita (index North = 100)
Somalia	48
Ethiopia/Eritrea	51
Central African Republic	54
Mozambique	54
Sierra Leone	54
Malawi	58
Rwanda	58
Angola	59
Namibia	62
Zambia	62
Burundi	62
Cameroon	63

Zimbabwe	64
Chad	64
United Republic of Tanzania	65
Kenya	66
Zaire	66
Madagascar	68
Nigeria	68
Uganda	69
Sudan	70
Lesotho	70
Ghana	71
Togo	72
Niger	72
Senegal	72
Botswana	73
Mali	73
Congo	74
Swaziland	75
Burkina Faso	76
Guinea	76
Gabon	80
Côte d'Ivoire	80
Benin	81
Mauritius	86
Mauritania	86
South Africa	87
Algeria	93
Morocco	95
Tunisia	100
Egypt	100
Libyan Arab Jamahiriya	100
Gambia	-

Source: UNIDO.

Table A-4. African countries ranked according to increasing levels of agricultural productivity, 1993-1995

(Percentage)

Country	Productivity indicator
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Angola	38		
Niger	43		
Mozambique	51		
Mauritania	53		
Botswana		54	
Mali	57		
Somalia		59	
Senegal		62	
Tunisia	63		
Chad	66		
Gambia		72	
Sudan	75		
Algeria		82	
Central African Republic		88	
Zaire	89		
Burkina Faso		90	
Ghana	91		
Malawi		92	
Zimbabwe		92	
Sierra Leone		93	
Côte d'Ivoire		94	
Congo	95		
Benin	97		
Swaziland		97	
Cameroon		98	
Togo	101		
Libyan Arab Jamahiriya		101	
Namibia		103	
Rwanda		103	
Guinea	105		
Ethiopia/Eritrea		107	
Lesotho	108		
Morocco		109	
Zambia	113		
Kenya	114		
United Republic of Tanzania		115	Nigeria 117
Uganda	117		
Burundi	119		
Gabon	122		

Madagascar	141
South Africa	181
Mauritius	272
Egypt	425

Source: UNIDO.

Note: This is an index of average yields per ha in cereals, roots and pulses. The African average is 100.

Table A-5. African countries ranked according to the share of FDI in GNP,
1993-1995

(Percentage)

Country	FDI/GNP
Botswana	-2.23
Gabon	-0.84
Central African Republic	-0.09
Sudan	0.00
Zaire	0.01
Senegal	0.02
Algeria	0.03
Burkina Faso	0.05
Togo	0.07
Niger	0.11
Ethiopia/Eritrea	0.11
Burundi	0.11
Congo	0.11
Uganda	0.13
Malawi	0.13
Somalia	0.13
Kenya	0.13
Rwanda	0.29
Benin	0.36
Guinea	0.58
Mauritius	0.59
Côte d'Ivoire	0.62
Zimbabwe	0.68
Madagascar	0.71
Mali	0.73
Mauritania	0.79